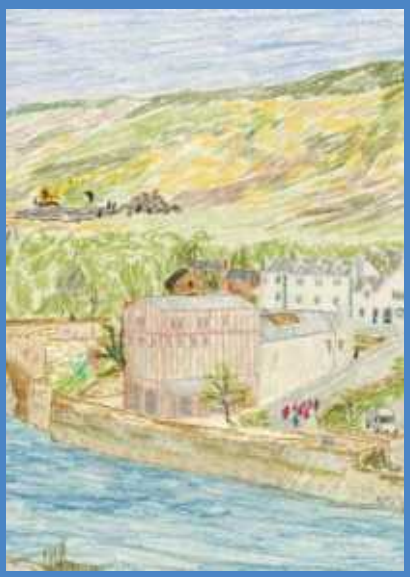
TIMESPAN
Stage 2 Feasibility Study Report
September 2025



ASSEMBLE
OFFICE CORR HIGGINS

CONTENTS

↖ View of Timespan from across the River Helmsdale

This document presents the feasibility study for the redevelopment of Timespan. Prepared by Assemble and Office Corr Higgins, it assesses the condition and suitability of the existing building, identifies spatial, operational and environmental challenges, and outlines the opportunities that will guide the next stages of design development.

Timespan is a museum and cultural organisation based in Helmsdale in the north east of the Scottish Highlands. From this location it delivers an integrated programme across contemporary art, local history, digital heritage research and community empowerment. As the organisation's work has expanded, the building has not kept pace. Limited space, restricted accessibility and outdated infrastructure now constrain the collection, exhibitions, the public programme and day to day use.

This feasibility study examines how the building can be reshaped to address these constraints, creating flexible, accessible and climate conscious spaces that support Timespan's values and programme. It establishes the foundations for a redevelopment that strengthens the organisation's role in Helmsdale and its engagement with diverse audiences, ensuring the building can better support Timespan's work with its communities.

↖ View of Timespan from the Telford Bridge

Timespan founder Mary Dudgeon and Colin Mackenzie on the site for Timespan before it opened in 1986

Timespan Museum, Photo by Marc Atkins, 2021

Volunteers taking part in the People's Mobile Archive, Timespan's outreach programme addressing rural isolation, health inequalities and cultural exclusion. The PMA was awarded the Museums Change Lives Award by the Museums Association.

Timespan is a cultural organisation and accredited museum in the village of Helmsdale in the north east of the Scottish Highlands. Founded in 1986 under the name of the Helmsdale Heritage and Arts Society, it has grown from a small heritage centre into a multidisciplinary institution working across contemporary art, local history, digital research, archives, education and community programmes. The organisation also operates a shop, café, herb and geology garden, and delivers a year round programme of exhibitions, workshops, screenings, residencies and community led events.

Timespan's work is guided by the ambition to operate as an Institution of the Commons: a space where people come together to share knowledge, resources and learning. Its holistic model brings heritage, art, digital practice, wellbeing and community empowerment into an integrated framework shaped through participation and situated knowledge. This approach connects the specific histories and lived realities of Helmsdale with wider cultural, environmental and social justice conversations.

Timespan is part of Creative Scotland's Multi Year Funding portfolio and receives support from the Paul Hamlyn Foundation, recognising its role as a place based organisation delivering meaningful cultural provision in a remote context while maintaining an international outlook. Artists, researchers and visitors travel from across Scotland, the UK and beyond to engage with its programmes, which focuses on local relevant issues adopting a global perspective.

Timespan sits next to the stone ashlar Helmsdale bridge built by Thomas Telford in 1808-9

A herring gutting scene at Helmsdale in the 1930s (Credit Christine Cowie)

Helmsdale's regional history provides essential context for understanding the environment in which Timespan operates. The modern village was established in the early nineteenth century as part of a planned resettlement for communities displaced during the Sutherland Clearances, particularly from the inland straths such as Kildonan. The remains of Badbea, a former clearance settlement to the north, stand as a material record of this period and its long-term social impact.

In the later nineteenth century, Helmsdale developed into a significant centre for the herring industry. The harbour supported catching, gutting and curing operations that connected the village to wider maritime networks across the UK and Europe. The curing yard on which Timespan now stands formed part of this industrial landscape, linking the site to histories of seasonal labour, women's work and transnational trade.

The wider area is also marked by geological and extractive histories. The Strath of Kildonan was the location of the short-lived 1869 Sutherland gold rush, and Helmsdale's coastline remains one of Scotland's richest Jurassic fossil sites, with finds including marine reptiles, corals and ammonites. These layers of geological, industrial and social history continue to shape contemporary understandings of land use, extraction and environmental change in the region.
For Timespan, this context is foundational. These intertwined histories inform the organisation's collection, programming and research, and they shape the cultural and environmental landscape in which the building redevelopment will take place.

Original map of the Caen area (Caen is located about a mile up the stratch from Helmsdale), pre dating the clearances.

Helmsdale Harbour, fishing boats can be seen next to harbour-side buildings, date unknown.

TIMESPAN HISTORY

In the beginning
The land that Timespan occupies was part of the low-lying floodplain on the east side of the mouth of the Helmsdale River. It was formerly the settlement of Vikings.

1790
By the end of the 18th century, the only significant buildings at the river mouth were the Helmsdale Castle, built in c.1567 for Isabel Sinclair, Countess of Sutherland), above the west bank and a large stone Corf House used for storing salmon caught on the river.

1814
At the beginning of the notorious Highland Clearances, the empire-building Sutherland landowners began planning the fishing village of Helmsdale as part of their extensive improvements in the region. The land nearest the river, now known as Shore Street, was designated for a row of purpose-built fish curing yards. Hundreds of women worked in teams to gut herring for the local and transatlantic trade. The renowned Scottish architect Thomas Telford designed a stone bridge completed in 1813 along with a toll house.

Mid-19th century
The first sign of a building at the Timepan site next to the Telford Bridge was an open-walled curing yard and a two-story house that faced Dunrobin Street. This development coincided with the expansion of the Scottish fishery trade to Europe and the Baltic region. The walls of this early curing yard next to the bridge later formed part of the Timespan building and the house became the offices.

1880
Around 1880, the renowned Aberdeen photographer George Washington Wilson captured the building in a photograph. The image showcases characteristic fishing architecture, including archways, cobbled surfaces, pan-tiled roofs, and uncovered gutting yards. It was complimented by the barrels staked high on the quayside and the brown ‘barked’ triangular sails of the fishing boats in the harbour.

c.1900
The house facing Dunrobin Street was leased to Rapson and Sons. Part of the house was converted into a shop and the yard was used to store coal. The family-operated business also provided vehicles for hire and provisions for the local community. They occupied the house and yard for several generations.

1970s
The building and yard were vacant and had fallen into disuse and neglect. The castle was demolished to make way for a new road bridge constructed in 1974. The future of the village and these derelict sites remained uncertain.

1982-1986
This year marked a pivotal moment in the history of Timespan. The local community, led by Mary Dudgeon from Crakaig in Loth, came together to discuss the future of the derelict site. They planned to establish a museum to encourage tourism and promote the area's rich archaeology, history, culture, and stories. Soon after, the Helmsdale Heritage and Arts Society was formed in 1986, and work began converting the old curing yard into a museum. The inaugural Timespan Committee, comprised of Mary Dudgeon, Alastair Sangster, Edward Mackay, and A. B. Mackenzie, commissioned a development plan to lay the foundations for Timespan. This plan stated:

"Timespan will be a new type of heritage centre—a place that will be shared, rather than just visited. It will serve as a dynamic, living history of the Northern Highlands, from prehistoric times to the present day."

1987
Timespans Museum officially opened its doors in 1987 to wide press coverage and lots of local support from the surrounding community. Its state-of-the-art audio visuals and compelling historical tableaus received numerous wards and led the way in new visitor experiences in the north.

1996
An art gallery has been added to the riverside end of the Timespan building, along with a shop and café. It is one of the first purpose-built facilities for public art exhibitions in the North.

2007
The Timespan building underwent a major redevelopment with a new museum layout and improved environmental conditions. A community workshop, public archive, and temporary exhibition room were incorporated into the new design.

2016
Timespan celebrated its 30th anniversary by revisiting the museum and collection with the local community sharing histories and stories through our object collection.


1880


1950


1950


1970


1987

2007

11 EXISTING BUILDING APPRAISAL

In our first full site visit in March 2025, the drawbacks of the existing building were clear. Discussions with the Timespan team and wider community allowed us to understand the servicing and operational issues to go alongside the spatial issues.

For more information on the issues discussed at Engagement Workshop 1, please see Appendix Section 4.1.

The cottage faces the village, but doesn't currently feel inviting to the public

The entrance of the building should be the hub of the building

The museum is currently hidden away within the building

The museum is cramped and poorly lit

Lack of wall space in gallery and poor lighting

Low ceilings in the gallery

Poor natural light in the workshop space

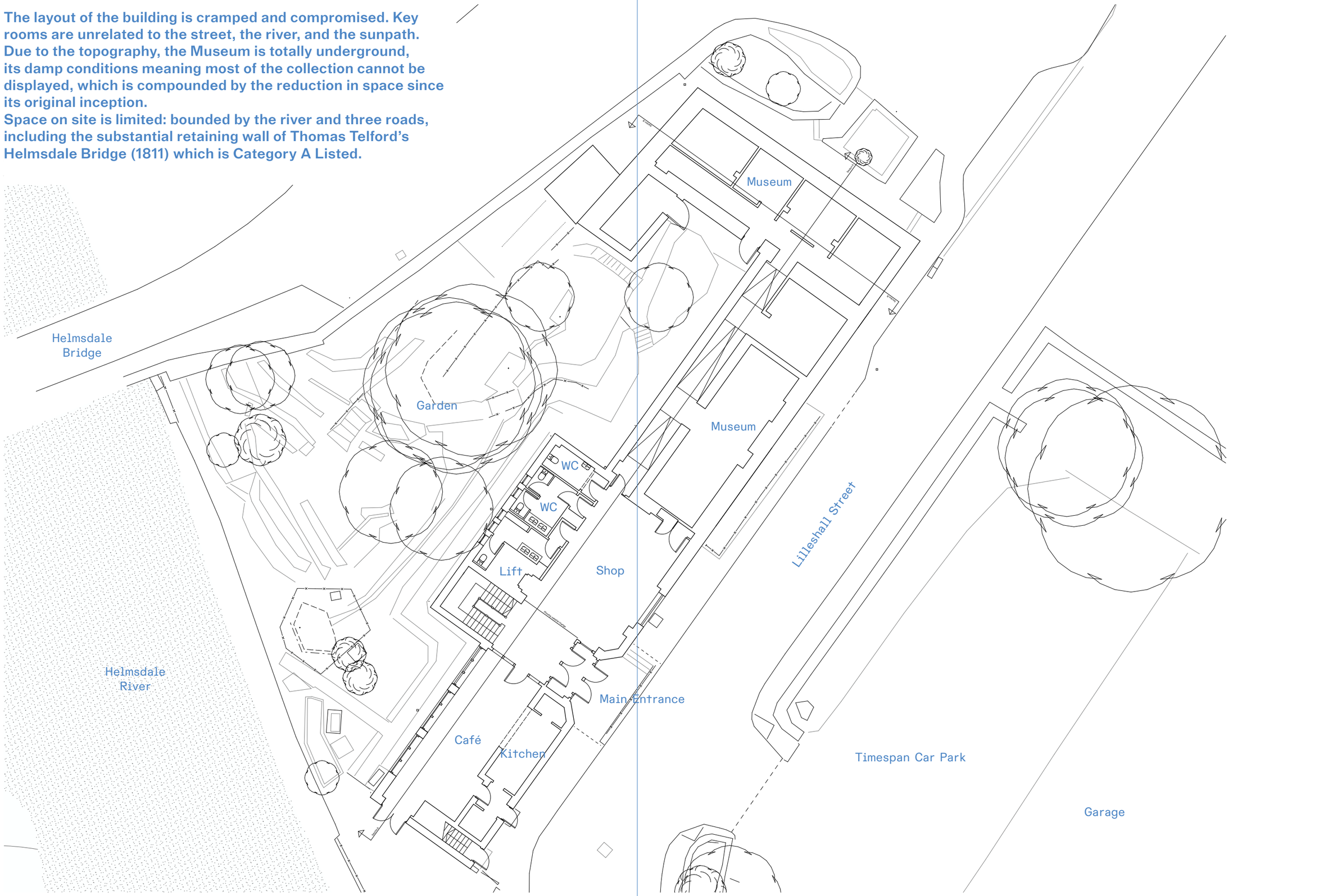
Insufficient and inefficient storage space

A cramped kitchen café

Long corridors with no natural light

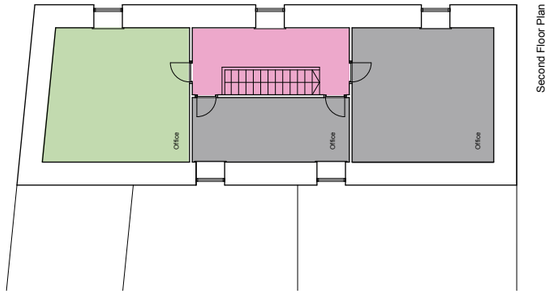
EXISTING BUILDING APPRAISAL

The layout of the building is cramped and compromised. Key rooms are unrelated to the street, the river, and the sunpath. Due to the topography, the Museum is totally underground, its damp conditions meaning most of the collection cannot be displayed, which is compounded by the reduction in space since its original inception.
Space on site is limited: bounded by the river and three roads, including the substantial retaining wall of Thomas Telford's Helmsdale Bridge (1811) which is Category A Listed.

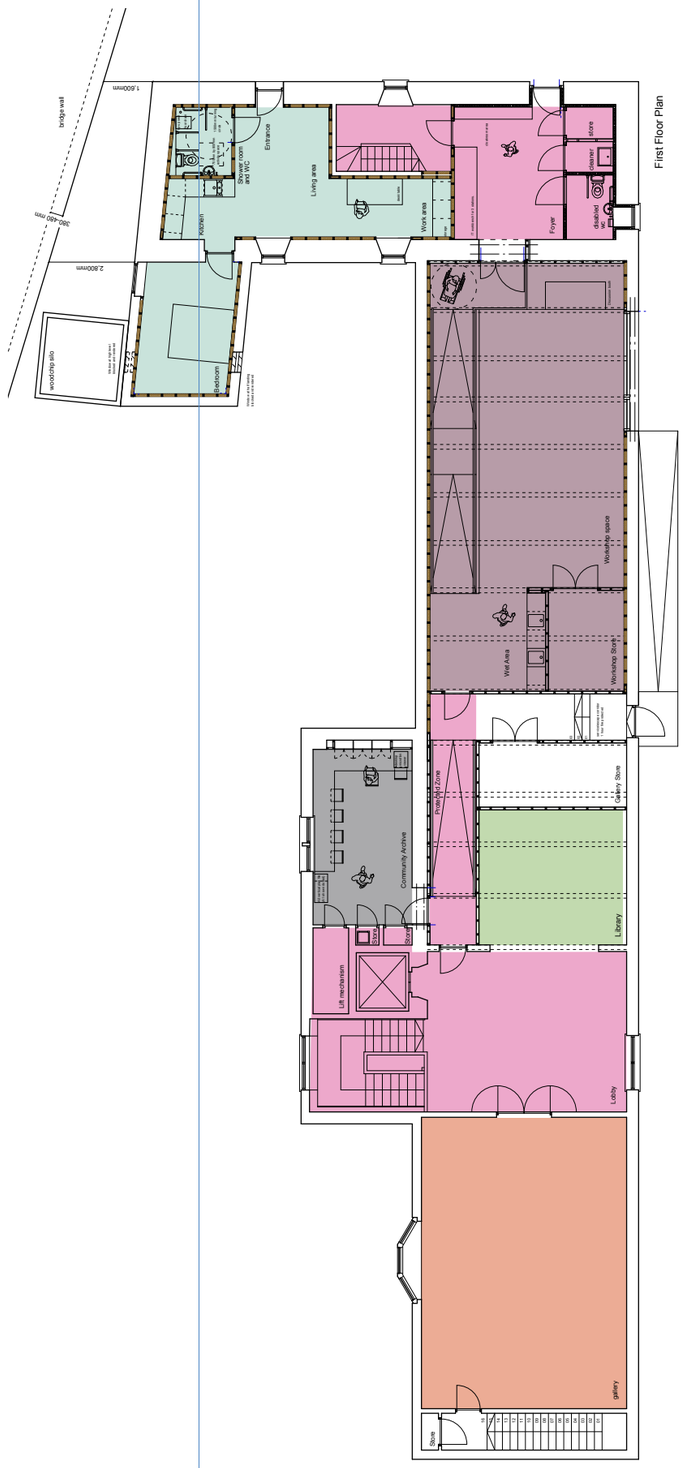


EXISTING BUILDING APPRAISAL

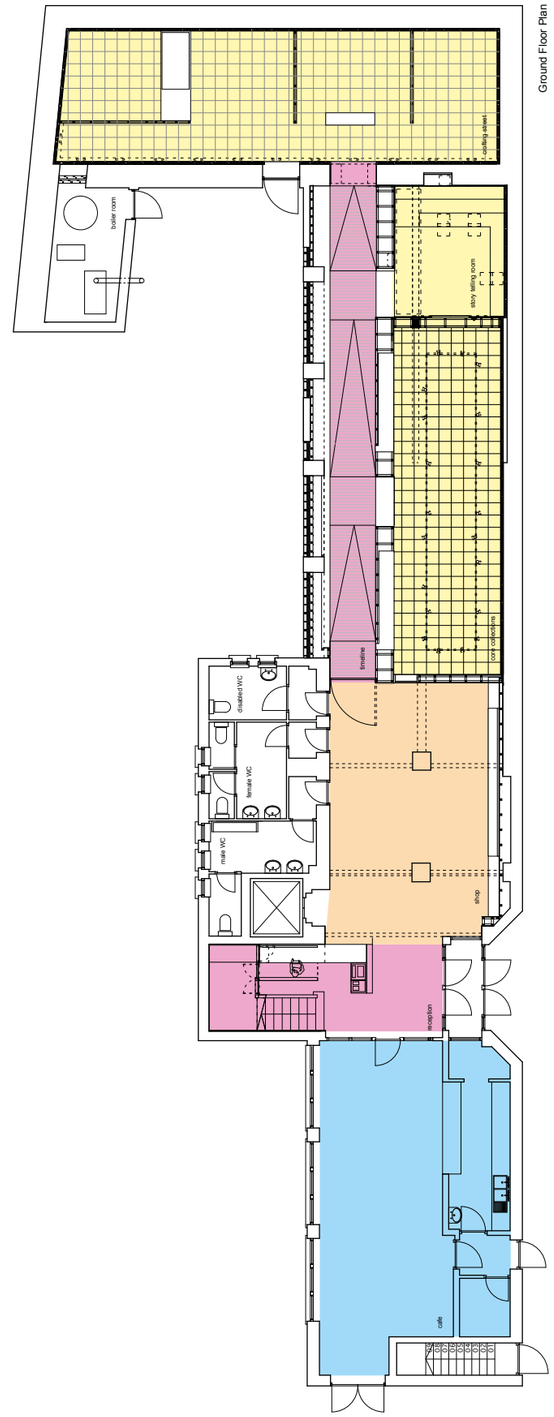
A large quantity (approaching 25%) of the building is circulation, making the journey around the building fragmented and unintuitive, with several dead ends. As with the Museum, the Gallery is small and poorly serviced.



Second Floor Plan



First Floor Plan



Ground Floor Plan

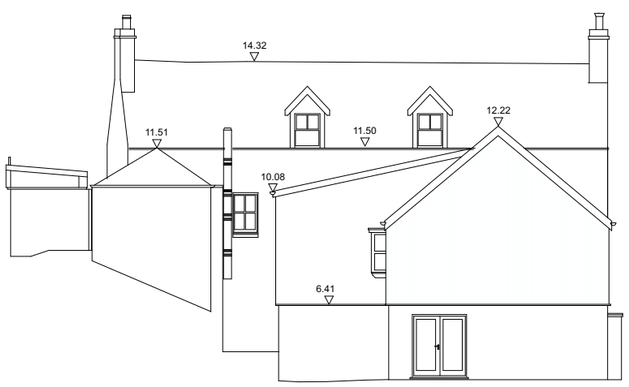
KEY		
43 sqm		Artists Flat
45 sqm		Admin
46 sqm		Shop
63 sqm		Galleries
108 sqm		Museum
39 sqm		Library/Archive
61 sqm		Caf
90 sqm		Workshop / Project/ Education space
149 sqm		Circulation

0 2.5 5 10 1:200

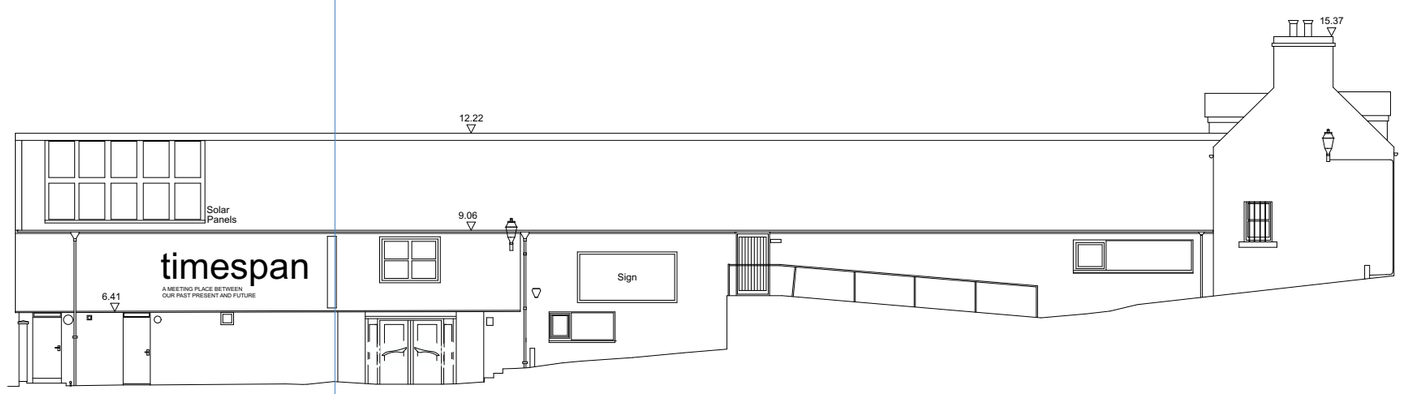
EXISTING ELEVATIONS

These elevations illustrate the piecemeal nature of the current building – minimal glazing denies views out to the landscape, and correspondingly views from the street to the activities within. The main entrance is down the steep slope, and the west of the site is steep and cramped.

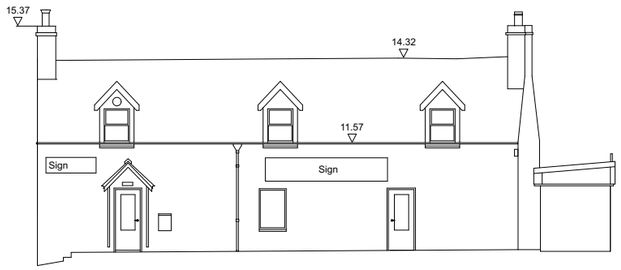
Laidlaw Associates has carried out an initial condition survey of the existing fabric; for full report please see Appendix 4.2. This is the first step in documenting the building's condition and heritage, and will include recommendations for careful repair and innovation using low carbon, locally-specific techniques.



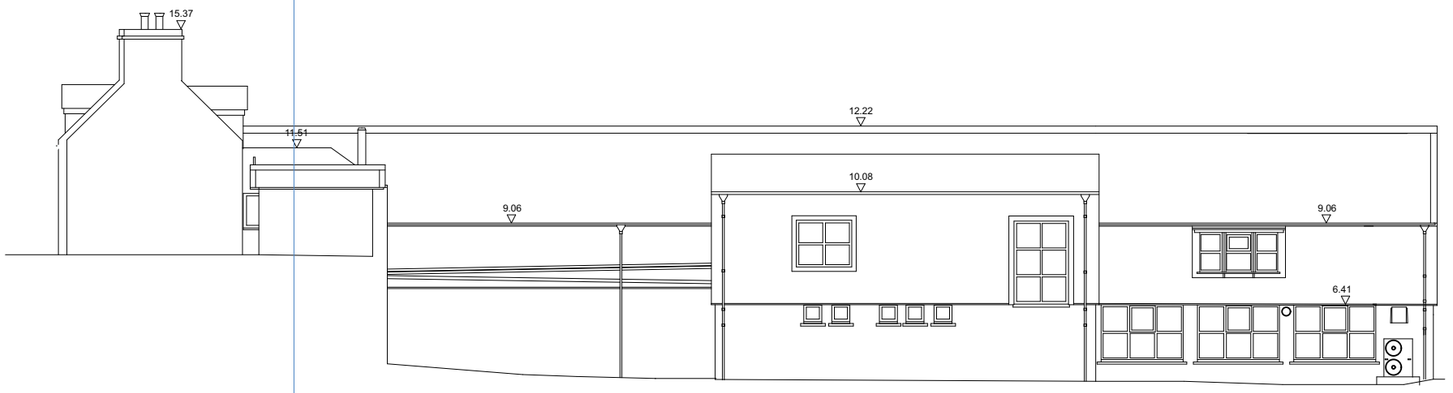
North Elevation



West Elevation



South Elevation



East Elevation

0 2.5 5 10m 1:200

CONSTRAINTS AND OPPORTUNITIES

The drawing illustrates the site's key opportunities and constraints which have been taken into consideration during the development of the Feasibility Study.

1 Under used space to West
2 Views out to the bridge and natural landscape
3 Outdoor space for the café could be improved
4 Potential for more storeys
5 New public frontage/entrance
6 Identity from bridge could be clearer
7 North light for gallery spaces
8 South light to animate public and outdoor space
9 Opportunity for building frontage along river

10 Retaining wall, grade A listed, 3m minimum space required
11 Steep slope from natural bedrock
12 Limited space at river wall
13 Flood risk (tbc)
14 Steep slope that limits access
15 Below ground rooms with limited light
16 Limited access and visibility from the roundabout
17 NW Extension to cottage is inhibiting drainage from the cottage roof and trapping moisture against the building

DESIGN TEAM

The architectural team comprises Alice Edgerley and Emily Wickham from Assemble, and Rory Corr and Brendan Higgins from Office Corr Higgins. The architects share a deep interest in the design of cultural and community buildings, as well as the development of local, low-carbon building methodologies.

BUILDING SURVEYOR

During the site visit in March, Kinlay Laidlaw conducted a series of investigations to ascertain the nature and condition of the existing building's fabric. These included moisture readings at various locations, and limited intrusive investigation by endoscope in order to determine wall constructions. This information has been collated into a Building Condition Survey. Kinlay has also completed a Skills Register identifying local trades which may be required in the refurbishment and extension of Timespan. Also, a repository of archival material has been produced, e.g. maps, drawings and records from several sources.

STRUCTURAL ENGINEERS

Narro Associates director Mark Hepburn has been the main point of contact, attending the team's initial site visit in March 2025 and all subsequent Design Team Meetings. Engineering input has been provided on material choice, structural efficiency, and buildability over the course of this design period, tailored to the architects' developing designs. An outline structural design for the building has been produced for this stage.

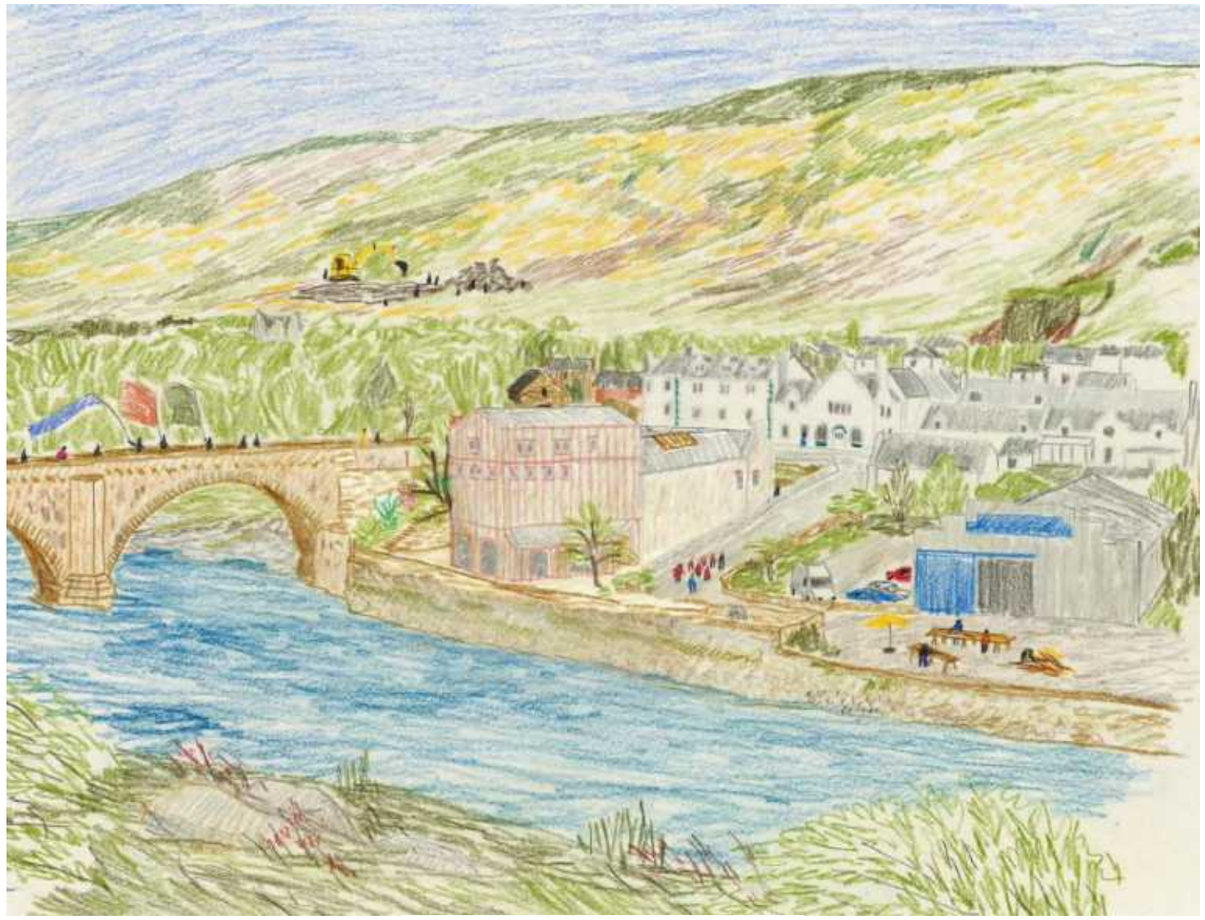
SERVICES ENGINEERS

Duncan MacLennan from Max Fordham's Edinburgh office leads the services and environmental engineering on the project. Duncan completed an appraisal of the existing building systems during the group visit in March 2025 and will continue to work closely with the client group to develop the most appropriate, user-friendly, and reliable system which can be incorporated into the new building.

COST CONSULTANTS

Thomson Gray director John McKaig leads the QS team, and has attended all key meetings, giving feedback on costs, material sourcing, and supply chains. John will continue to ensure that the agreed project deliverables and outputs can be met. Please see Section 3.4 for the Stage 2 Cost Report.

For all consultants' documents see Appendix Sections 4.2–4.5.



Concept image

Based on several discussions with the wider Timespan Community in our three Engagement Workshops, and with the core client team, we have updated the brief as follows.

LOCAL SPECIFICITY

Timespan should be built using materials, skills, and trades local to the region. Timespan should have a character that is clear from the outside and inside, that reflects and celebrates its heritage as well as its global outlook.

NUTS AND BOLTS

We understand that the building requires significant updates to reflect a commitment to environmental sustainability, accessibility, and inclusivity. All energy systems need upgrading to a high performance standard and integrated into a low energy and easy to maintain system. This includes addressing lighting, acoustics, running costs, damp, space-heating, and resistance to coastal conditions and climate change. More space must be made for staff facilities in order to create comfortable and inspirational working environments for the dedicated Timespan team.

CONTEMPORARY ART

As a vital hub in a region with limited cultural provision, Timespan is deserving of a gallery space befitting its dynamic exhibition programme. We are committed to providing a space which can accommodate diverse practices including visual art, sound, film, installation, and performance. There is an opportunity for the gallery to be better connected with the heritage museum as well as the artists residency programme. There is an exciting opportunity to combine both the display and production of art on site. The artists studio should be a comfortable and inspiring place to stay in and artists should be able to produce work at a range of scales.

MUSEUM AND LOCAL HERITAGE

Timespan was founded as a local history museum, and the museum remains at its heart. The redevelopment is not only a chance to expand and improve the infrastructure, with climate-controlled display environments and flexible exhibition systems, but to redefine the museum's role as an active, critical, and publicly engaged space. Through reactivating the collection and reinterpreting its narratives, the museum can draw connections between Helmsdale's histories and broader global systems, from colonial legacies to the climate crisis.

It should be clear from the exterior that the building houses a museum grounded in Helmsdale's specific heritage. Inside, permanent displays will be complemented by flexible spaces that allow for changing exhibitions and re-framing of local stories in relation to international discourses, in line with Timespan's mission and curatorial vision. The display approach will combine original theatrical tableaus, archival objects, and documents with contemporary artworks that resonate with and respond to these histories.

Timespan has also made significant advancements in the digitisation of heritage, creating new ways for communities to engage with the past. The museum should support and display this ongoing work. Interpretation will be discursive and plural, using diverse modes including digital media, braille, audio description, and tactile reproductions to ensure accessibility.

Alongside exhibition spaces, Timespan must include a high-performing, accessible archive, capable of storing a wide range of materials and supporting research, programming, and active engagement with the collection.

CREATING CONNECTIONS

Originally a curing yard, Timespan's building is deeply connected to Helmsdale's past. Its setting is on the banks of the Helmsdale River, adjacent to the magnificent listed Thomas Telford bridge. Our proposals will draw connections to the building's histories as well as to the landscape in which it is situated. As well as the wider environment, the spaces within the building should feel connected; the circulation and programme should be easy to understand. The front of house and the entrance should be the core of the building and should provide a welcoming atmosphere for people of all walks of life.

ACCESS

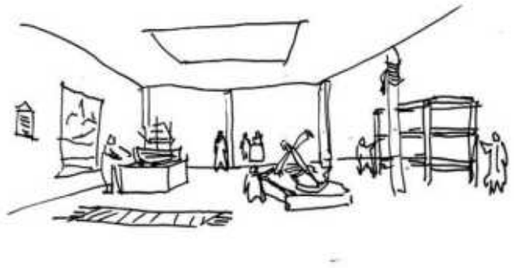
The building must be accessible and navigable for all users, the approach to the main entrance will be improved as will wayfinding within the building. There needs to be safe and clear entrances and exits to the building both for day-to-day use and in emergencies.

COMMUNITY SPACES

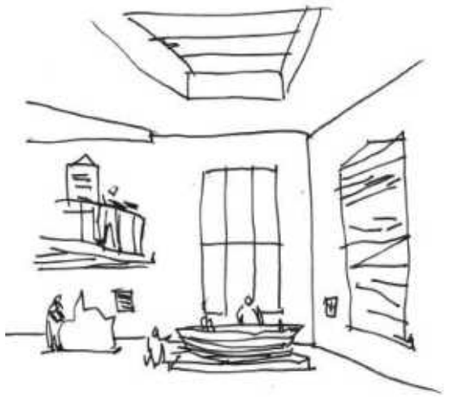
Timespan provides an important role in Helmsdale's local communities. From ceilidhs to cinema screenings, Timespan plays host to a range of community events, supporting the life and togetherness of local residents. Popular and well-used community spaces include the café, workshop, library, and garden.
The café should be improved to take advantage of nearby views and able to host a wider range of events with improved catering facilities. The workshop should be a robust, inspiring, flexible, and vibrant space filled with natural light, resilient enough to host different community needs. The garden and its character should be an intrinsic part of the proposal, able to accommodate programmed events as well as being a beautiful place to sit and appreciate the natural surroundings. The library should provide opportunities for quieter learning and reflection. Threading comfortable and accessible spaces of this character throughout the building has been a key driver of this Feasibility Study.

From the first engagement workshop and updated brief we identified key design principles that we would use to start developing the proposals for Timespan.

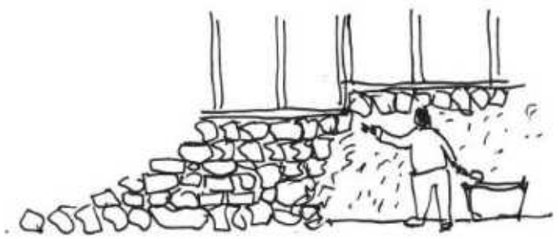
The principles look at the character, layout, access, massing and material approaches for the refurbishment of the existing buildings and any new buildings or extensions on site. We will use these principles as a guide and measuring stick to test each option we develop to see whether they satisfy the outcomes and ambitions identified in the updated brief.



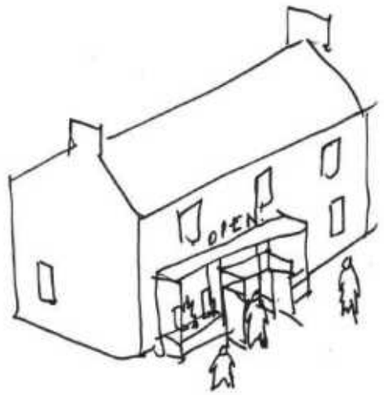
EXPANSION
Museum and gallery should be larger in footprint and emphasis



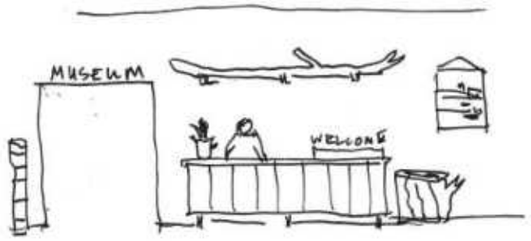
CONNECTION
Museum and gallery should have a spatial connection



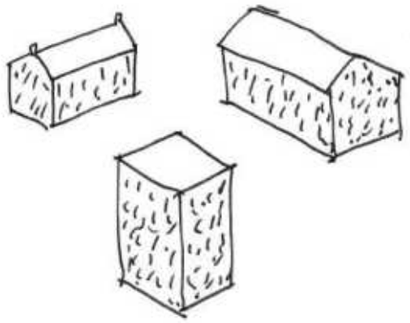
LOW CARBON
Refurbishment first, demolition second



ACTIVE FRONTAGE
Cottage to have active public frontage addressing roundabout



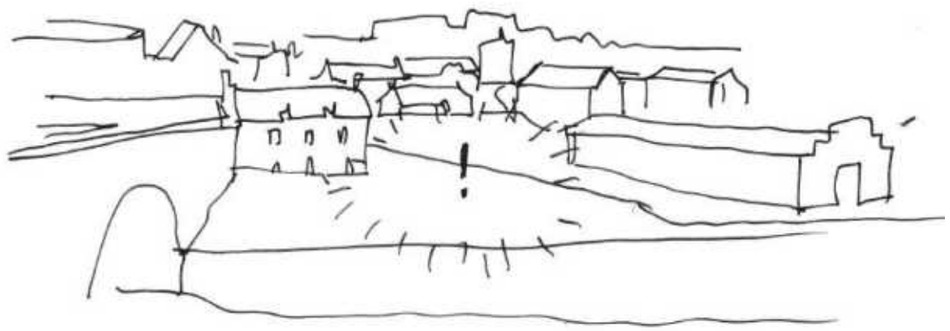
DISPLAY
Space for display to be made throughout the building and site



FAMILY OF BUILDINGS
Unified set of buildings with different characteristics

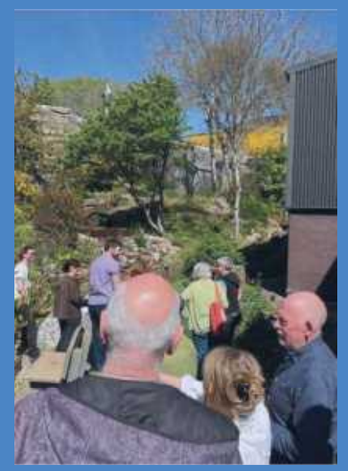
EASY ACCESS
Back of house and deliveries to have easy access with goods lift – ideally level access at lower end of site

SPACE FOR PRODUCTION
Resident artist's facilities to include comfortable accommodation and studio space



EMBEDDED IN CONTEXT
Timespan to read as part of Helmsdale

Engagement Summary



People don't need to be expert designers to play a meaningful role in shaping their environment. Our team's approach to the improvement of Timespan is to learn from and work together with local residents, children, manufacturers, trades and community leaders at all stages of the design and making process. There are lots of reasons why participants may enjoy getting involved – to give something back to their local area; learn a vocational skill; meet new people and enjoy a shared meal with neighbours; influence the future of Timespan; make something with others.

We have been working with the Timespan team to get to know the area and its communities better, building on existing community networks and making new relationships. We have provided three opportunities for local people to participate in workshops and activities at key moments in the process so far, including:

- An initial briefing workshop to discuss: the values and principles of Timespan as an organisation, its place within Helmsdale and the Highlands, and the importance of the building to serve that community. There was also a dedicated kids workshop, making models and drawings of their ideas.
- Our second workshop discussed four early design options and explored more the deficiencies of the existing building's fabric and usability. We presented material research and discussed the importance of a local, low-carbon approach.
- Our third and final workshop, held in July, brought forward the preferred design 'House to Harbour'. At this point, further valuable input was received from front of house staff regarding the day-to-day operations.

The Timespan team shared posters and flyers to invite local peoples to join each session, and the attendance was high. Social media posts, newsletters, and online surveys gathered information from those further afield. A video of our second workshop was made by the architects and also shared for feedback.

Engagement will continue over the course of the project and will involve the following groups:

- Helmsdale residents
- Timespan team
- Heritage museum volunteers
- Local young people
- International tourists
- Regional visitors
- Visiting artists
- Local authority
- Highlands and Island Enterprise
- Crofting and fishing communities
- Local business
- Trades people
- Community leaders

For a full account of all workshops and the material presented in each, please see Appendix Section 4.1.

We have collated feedback through the collection of online and physical feedback forms

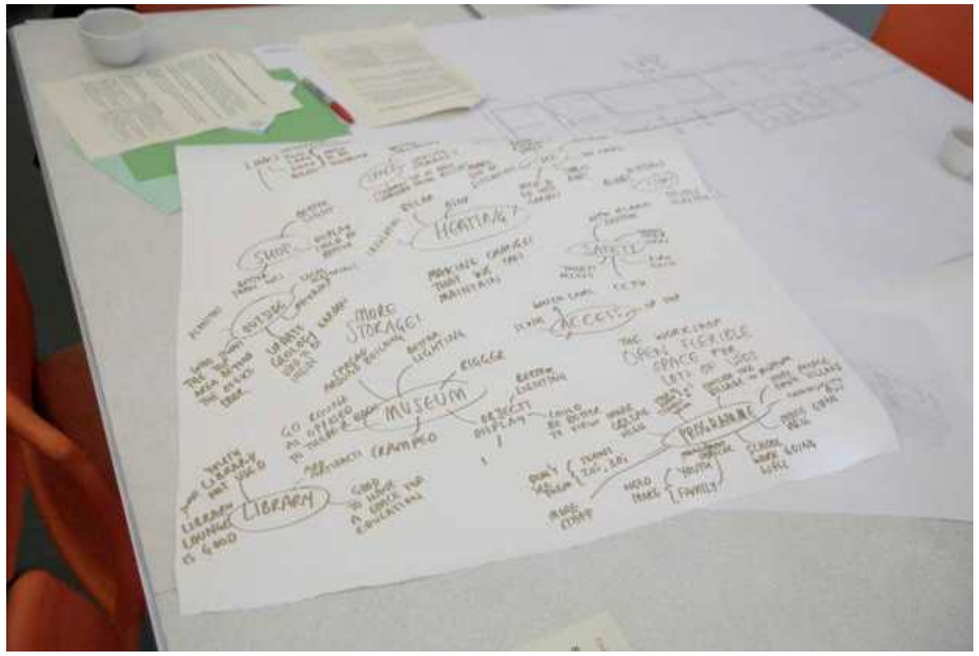
ENGAGEMENT WORKSHOP 01 – MARCH 2025

Our first workshop was a roundtable discussion, with participants sharing local knowledge and perspectives. We reflected on and challenged the original brief and asked ‘What is Timespan to you now?’ and ‘What do you want Timespan to be in the future?’

We divided into groups with a member of the design team and Timespan team on each table. Our first question focussed on understanding Timespan, and focused on key themes of the initial brief – museum and local heritage, contemporary art and creativity, community workshop, nuts and bolts. We conducted a brainstorming exercise on paper looking at the strengths, challenges and opportunities of these areas, what works well and what doesn’t. Participants were encouraged to share local insights and think about these different aspects of the project as well as reflections beyond these themes including - design & appearance, interaction, accessibility, maintenance & upkeep.

Our second exercise focussed on Community Values and design principles. Based on the previous discussion, participants were invited to list community values they hold or think could (or should) exist locally/within the project. We then worked with their group to translate this into a short set of “design principles’ or rules for the design and future development of Timespan.

Finally we all came together talk about what each group discussed, share any updates to the brief and proposed design principles as well as initial ideas.



Brainstorming thoughts on how Timespan is now and what it could be

Roundtable discussions in the first engagement workshop

Reviewing everyone’s ideas and reflections

ENGAGEMENT WORKSHOP 02 – MAY 2025

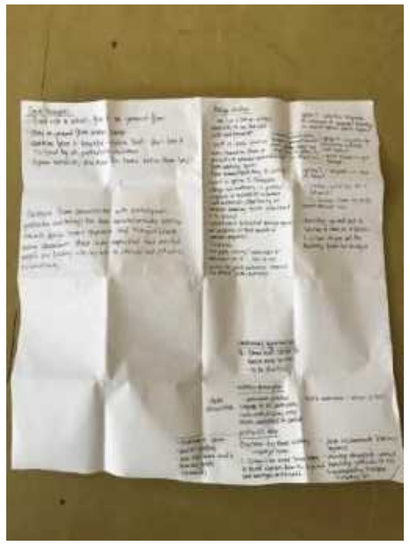
Our second workshop was designed to build on insights from the first session and feedback gathered in the intervening period. We incorporated the design team's growing understanding of the site, its constraints and opportunities, the updated brief, and resulting proposed design principles. We presented our initial material research, looking at maps of local materials, fabricators and tradespeople. This prompted discussions about what the building should be made from and who builds it, to make sure we are investing in low carbon materials, local skills and the local economy.

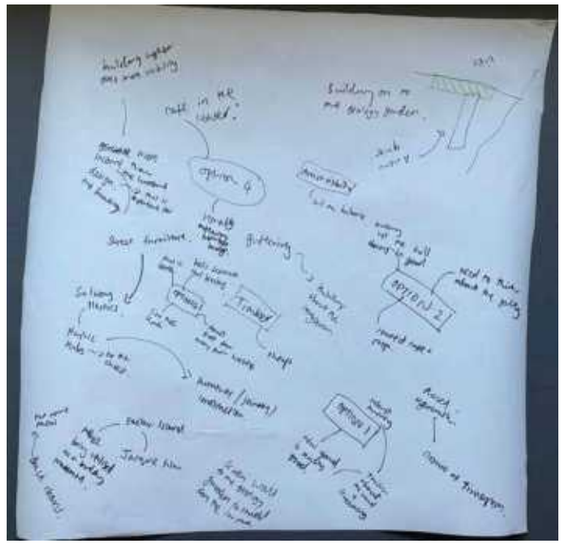
In groups, we reviewed our progress so far, looking at site analysis drawings and emerging themes. We reviewed the design team's initial zoning and massing ideas for how Timespan could be developed, looking at four options ranging from low to higher intervention and scale of development. We discussed each option round the table and captured everyone's initial feedback and reflections. Afterwards each group walked outside to look at the site from the garden and the bridge, trying to imagine what would work well and how each option could develop.

Finally we all came together talk about what each group discussed, share any updates to the brief and proposed design principles as well as thoughts on how each design option could progress.

Walking round the site discussing each design option

Discussing the pros and cons of the proposals





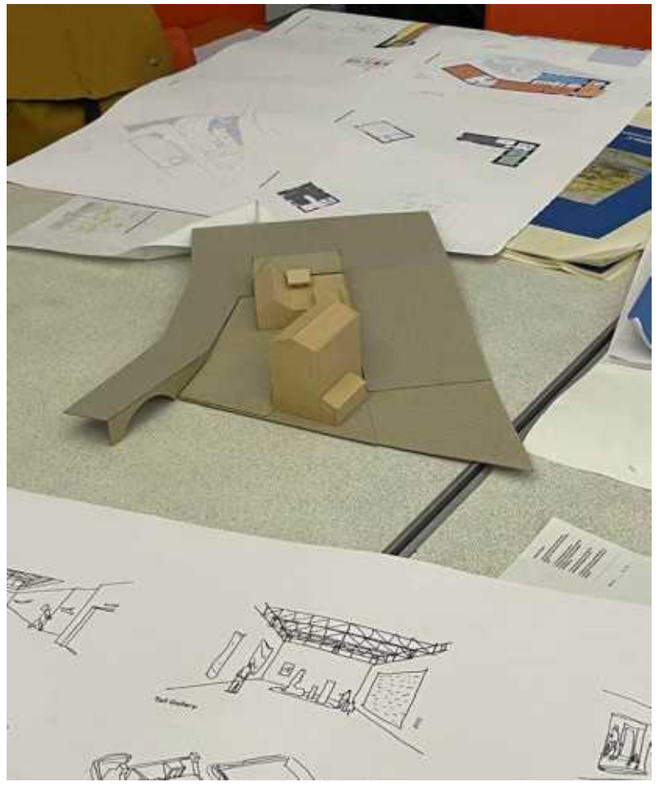
Notes from the discussions

In July, we visited Timespan for our third engagement workshop to present the option which had emerged as preferred during meetings with the client team over the preceding six weeks. The aim was to present a coherent but not yet complete proposal discussion, leaving room for valuable feedback from the community. We presented drawings, images, and a physical model on screen to a large audience over two sessions.

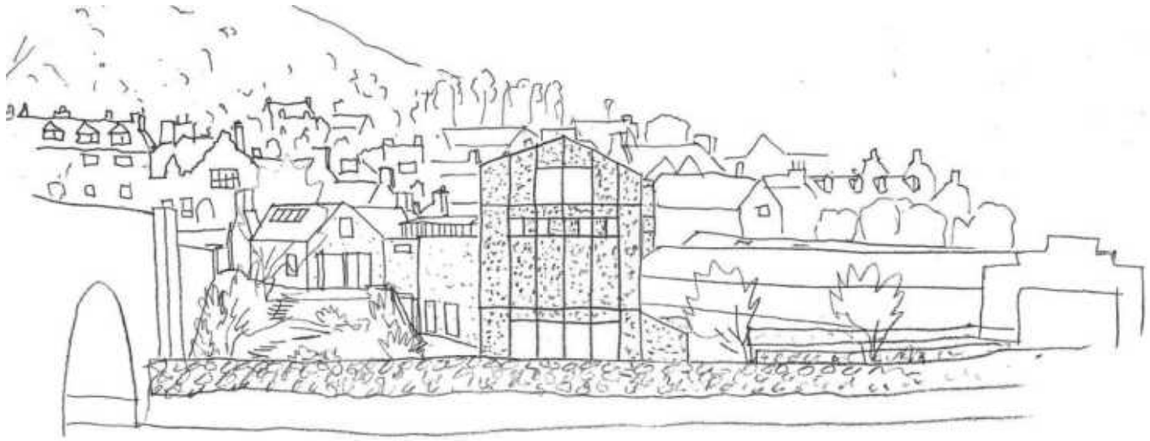
Now titled 'House to Harbour', the proposal had provided more floor space than before, better resolved the circulation, and included more space for storage and staff areas. Generally, the feedback was very positive with some key recommendations on staff usability and access. Overall feedback was for the project to be bold and ambitious.

We were joined by St Andrews Computing Department, who are tasked with digitising the museum collection and assisting in its future display, and who gave guidance on the museum and archive spaces. Also, members of the front-of-house and café staff provided invaluable insight into the logistical, staffing, and operational issues which the new proposal must resolve.

For a full account of all workshops and the material presented in each, please see Appendix Section 4.1.



1:200 sketch model



Sketch river view

Workshop group discussion

Material Research

MATERIAL MAPPING

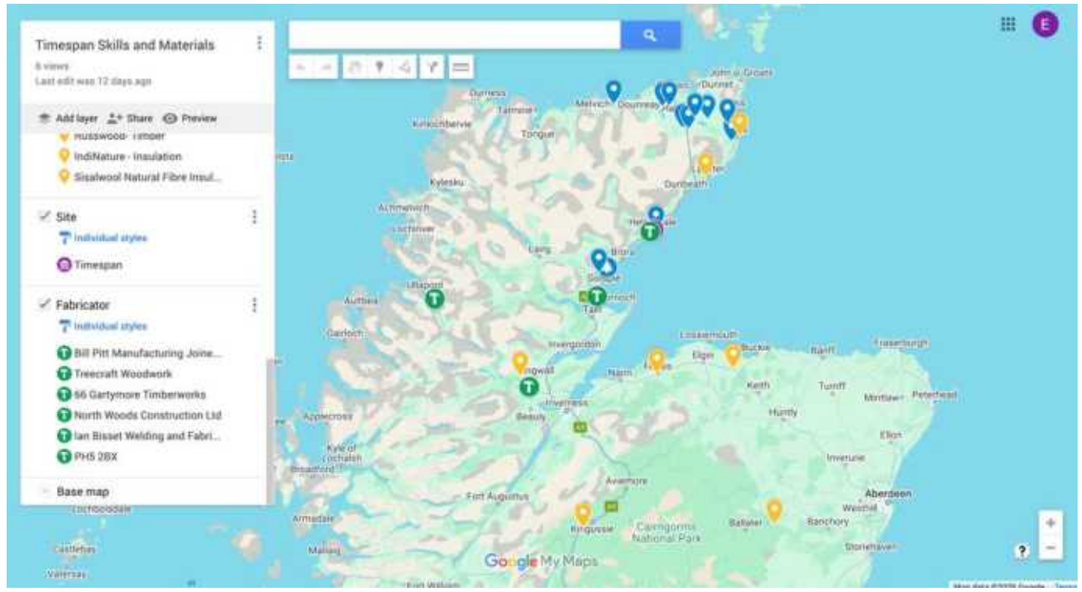
We are taking a circular economy approach to the project, prioritising materials and ways of constructing that have the most positive impact on the environment. Following a research-led approach, we have started to map local resources, materials, fabricators, and tradespeople. Through inventive, playful reuse, we would like to see how we might retain as much material on site as possible during and after refurbishment, considering the whole life of materials, and minimising transport and waste.

We have compiled a map and spreadsheet of local materials, suppliers and fabricators which include traditional techniques and skills as well as contemporary solutions. We have been taking cues from the local vernacular as well as looking at what materials are easily sourced locally to Helmsdale.

This is an editable resource that will be added to as the project progresses.

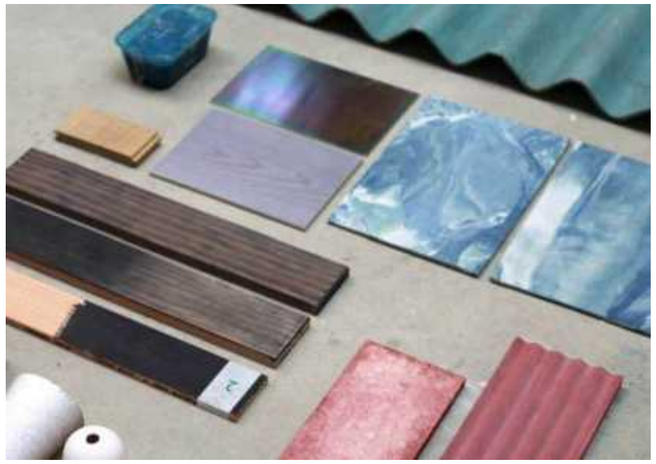
Link to interactive google map:

https://www.google.com/maps/d/edit?mid=1eDAi-xpQeaUDjR-8s-cHx2JgO8IPO3Y&ll=57.878757601035865%2C-4.391527120609071&z=8



↗ Screenshot from our interactive google-map tracking local skills and materials

Making material prototypes from local shells
Hanok refurbishment, South Korea; Assemble and BC Architects



Material tests resulting in a colour pallete
Goldsmiths CCA, Assemble

MATERIAL MAPPING

This table documents the local raw materials, suppliers, craftspeople and collaborators that could be useful for the project. This is an editable resource that will be added to as the project progresses.

CATEGORY	MATERIAL	COMPANY	ADDRESS	DISTANCE (km)	NOTES
RAW MATERIALS	SAWMILL	Dunrobin Sawmill	Dunrobin Sawmill, Golspie KW10 6SF	24	
RAW MATERIALS	SAWMILL	James Jones	James Jones & Sons Ltd, Garmouth Rd, Fochabers IV32 7LH	112	
RAW MATERIALS	SAWMILL	James Jones	Ladywell Sawmill, Kirriemuir DD8 5PD	158	
RAW MATERIALS	FORESTRY/SAWMILL	Logie Estate	Forres, Moray, IV36 2QN	148	
RAW MATERIALS	QUARRY	A&D	A&D Sutherland, Spittal Mains Quarry, Wick KW1 5XR	32	they paved a lot of city streets across the world, including Sydney harbour
RAW MATERIALS	QUARRY	Norse	Lieurary Quarry, Westfield, Thurso KW14 7QR	42	they paved a lot of city streets across the world, including Sydney harbour
RAW MATERIALS	QUARRY	J.Gunn	Kirkton Quarry – Melvich, KW14 7YJ	63	
RAW MATERIALS	QUARRY	J.Gunn	Achscrabster Quarry – KW1 47X	58	
RAW MATERIALS	QUARRY	J.Gunn	Skitten Quarry – Wick, KW1 4RX	63	
RAW MATERIALS	QUARRY	J.Gunn	Bower Quarry – Halkirk, KW12 6UY	58	
SUPPLIER	TIMBER	James Jones	Broomage Avenue, Larbert, Stirlingshire, FK5 4NQ	334	I-joists, LVL, Glulam
SUPPLIER	TIMBER	West Fraser (formerly Norbord)	Morayhill, Dalcross, Inverness, IV2 7JQ	114	OSB, other floor & wall substrates
SUPPLIER	TIMBER	Russwood	Station Sawmill, Newtonmore, PH20 1AR	184	Flooring, cladding
SUPPLIER	TIMBER	Cromartie Timber Ltd	Achterneed, Strathpeffer, Ross-Shire, IV14 9AA	100	Flooring, cladding, beams
SUPPLIER	MASONRY	Mason's Mortar	Block 2, Woodend Industrial Estate, Cowdenbeath KY4 8HW	333	
SUPPLIER	NATURAL INSULATION	Indinature	IndiNature, Oxnam Rd, Jedburgh TD8 6NN	438	
SUPPLIER	NATURAL INSULATION	Sisalwool	Midlothian Innovation Centre, Roslin EH25 9RE	369	
CRAFTSPERSON	JOINER	Bill Pitt	Woodside, Northmuir, Kirriemuir DD8 4PG	294	Working with RC on another project
CRAFTSPERSON	JOINER	Treecraft Woodwork	Unit 6, Station Square Industrial Estate, Dornoch IV25 3PB	28	KL recommendation
CRAFTSPERSON	JOINER	North Woods Construction	Leckmelm Wood, Ullapool, Ross-Shire, IV23 2RH	132	Built bothies for Shieling Project w Sam
CRAFTSPERSON	STONE MASON	C&C Traditional Masonry	5 Robbins Court, Nairn, IV12 5PL	130	KL recommendation
CRAFTSPERSON	STONE MASON	Harper & Allan	Strathview, 51 Fife Street, Keith, Banffshire AB55 5EG	194	KL recommendation
CRAFTSPERSON	STONE MASON	Masonry & Lime	7A Perimeter Spur, Elgin, IV30 6AQ	169	KL recommendation
CRAFTSPERSON	STONE MASON	LTM Group	15d High Street, Inverurie, Aberdeenshire, AB51 3QA	247	KL recommendation; also does roofing works
CRAFTSPERSON	ROOFERS	Firth Plumbing & roofing	35 Lotland St, Inverness IV1 1ST	109	KL recommendation
CRAFTSPERSON	ROOFERS	McLeod roofing	37 Henderson Drive, Inverness, IV1 1TR	109	KL recommendation
CRAFTSPERSON	ROOFERS	Intelligent Wood Systems	Station Road, Methven, Perthshire, PH1 3QF	292	Working with RC on another project
CRAFTSPERSON	STEEL	Ian Bisset Welding & Fabrication	Workshop 1, Old POW Camp, Brahan, Dingwall IV7 8EE	62	excellent steel fabricator – Sam Harrison
CRAFTSPERSON	THATCH	Scottish Highland Thatching	Scot AnSgeulaiche, Taigh an-t Seanachaidh, Aldonia, Muthill, Crieff, PH5 2BX	199	
CRAFTSPERSON	MIXED	Macduff Shipyards	Macduff Shipyards Ltd, The Harbour, Macduff AB44 1QT	140	
CRAFTSPERSON	PAINTING	Bell Group	Bell Group, Unit 10 Carsegate Rd S, Inverness IV3 8LL	110	Jacquie reccomendation - made lots of Helmsdale boats
COLLABORATOR	AGRI/AQUACULTURE	Climavore	Portree IV51 9QX	257	
COLLABORATOR	AQUACULTURE	SeaDyes	West Coast of Scotland		Research into natural dyes with seaweed
COLLABORATOR	EARTH BUILDING	Rebearth – Becky Little	Ash Cottage, Monimail, Cupar, Fife KY15 7RJ	292	Hugely knowledgable on all things soil and clay
COLLABORATOR	EDUCATION	GSA Innovation School	Blairs Farm Steading, Altyre Estate,, Blairs Cottages, Forres IV36 2SH	150	

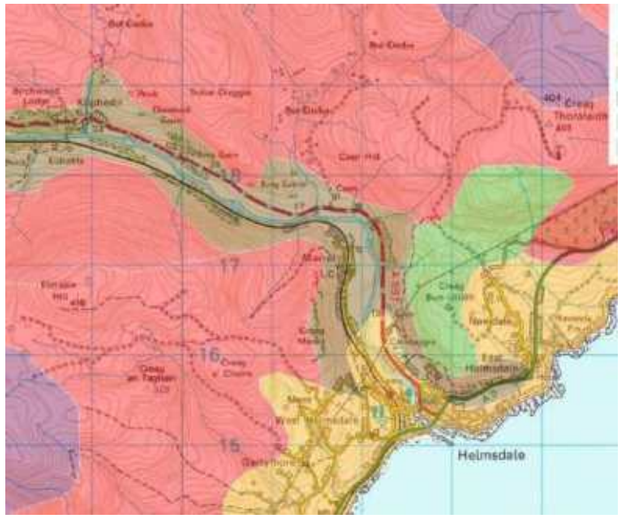
SOIL

Around Helmsdale we find alluvial soils along the coast, brown soils up the Strath of Kildonan, with peat and peaty gley podzols on the hills. The alluvial soils on which Timespan sits consist of sand, silt, gravel, and organic matter deposited over generations in the river valley. When building on such soils, thorough ground testing must be done, as they can have poor bearing capacity and be prone to settlement, and foundations must be designed carefully in relation to the water table. As there have been buildings on this site for three centuries, we can expect a more stable base than if on a green field site.

Clay is increasingly used in innovative and low-carbon ways as a building material and finish. The firing of conventional bricks up to 1100°C produces substantial quantities of CO_2. Unfired bricks, made from clay mixed with straw, are now manufactured in the UK, following a tradition of building with adobe dating back millennia on several continents. Reclaimed bricks may also be sourced locally for this project to support circular economy principles and cut down transport costs & emissions, as well as for their aesthetic value.

Earth can be compacted to form a floor, rammed within formwork to make monolithic walls, or as a plaster finish. The architectural team have worked on projects where local material has been sourced for these uses, connecting those buildings and their users explicitly to the ground on which they sit.

KEY	
Alluvial Soil	
Brown Soil	
Peat	
Peat Gleys	
Peat Gleys Podzols	



↗ Luma Atelier, Arles, Assemble. Internal walls are made with rammed earth that incorporates demolition debris and limestone dust from local quarries.

Around 18% of Scotland's land area is covered by forests and woodlands, the highest proportion in the UK and Ireland. Forestry and Land Scotland manages approximately 640,000 hectares of the National Forest Estate, representing about 9% of Scotland's total land area, of which roughly two-thirds is actively forested. The wider forestry sector contributes over £1 billion annually to the Scottish economy and supports more than 25,000 jobs.

Woodland ownership in Scotland reflects the wider pattern of concentrated land ownership. While public bodies and community trusts manage part of the national woodland resource, a significant proportion remains in private hands, including large estates and corporate investors. These ownership structures influence planting choices, long term management and public access. Recent investment linked to carbon offsetting has added further pressure on land availability and use, raising questions about how forestry expansion can balance commercial interests with ecological diversity and community benefit.

Species composition also shapes the character and resilience of Scotland's woodlands. Sitka spruce, a non indigenous conifer introduced from the Pacific Northwest, dominates commercial plantations due to its fast growth and high softwood yield. Although it provides an important material resource, extensive single-species planting has led to ecological concerns, including reduced biodiversity and simplified woodland structure. In response, national forestry strategies are increasingly encouraging mixed planting and the use of a wider range of species.

For this project, we will prioritise varied and locally appropriate timber species wherever possible, including larch, oak, elm, beech and Douglas fir. These materials can be used across structural applications, internal and external cladding, joinery and furniture. We will also consider Scottish producers of engineered timber sections, which can deliver efficient structural solutions while supporting local supply chains and reducing reliance on single-species softwood plantations. This approach aligns with broader aims to encourage biodiversity, strengthen local industries and reduce the environmental impact of construction.

↗ Screenshot from Scottish Forestry Map Viewer

Local Timber processing at Dunrobin Sawmill.

Homerton College – An engineered timber truss constructed from sweet chestnut glulam.
Credit: Feilden Fowles

Timespan's Cottage is constructed from granite, and there are also original granite walls of the herring curing yard remaining below the subsequently built concrete blocks, timber frame, cladding, and render. Most of Helmsdale seems to be built from the same stone, with a fine example of masonry to be seen in the Telford Bridge directly adjacent to our site. The local bedrock and existing building materials that can be seen are a mix of inland pink granite and coastal Jurassic sandstones, shales, Kimmeridgian strata, and boulder beds. There is a long tradition of masons and builders in stone in the parishes of Loth and Kildonan, and some of these individuals worked on the early conversion of the curing yard into a museum in the early 80s.

The cost of imported stone construction materials has risen by up to 98% since 2015, mostly due to increasing fuel prices and shipping costs. With approximately 5m tonnes of building stone imported to the UK each year, our construction industry is increasingly vulnerable to erratic pricing and market volatility due to this over-reliance. Scotland's built environment is intrinsically linked to the ground below it, created from diverse geology extracted from over 3,700 quarries historically. Although most of these have unfortunately closed, and many more now used only for crushed-stone aggregate, we aim to connect with suitable local quarries to source any new stone required for the project.

Glensanda is Europe's largest granite quarry, but is located some 280km from Helmsdale. Several quarries are still functioning in Caithness, and their flags have been used across the world since the 18th Century, renowned for their durability and strength. Originally used for constructing walls, they are now primarily used for hard landscaping. In Ledmore, quarrying has also been ongoing since the 18th Century, and it is the only marble quarry on the British mainland. Although mostly used for gravel chippings, larger slabs can be sourced for worktops, for example.

↗ Helmsdale Ice House

↗ Caithness stone quarried at Norse Stone

In the UK, the market value of raw wool is currently low, and it is often treated as a marginal by-product of sheep farming rather than a valued material in its own right. This is despite wool's strong environmental and technical properties. It can be cleaned, carded and treated at regional processing facilities and performs well as an insulating material. Wool is hygroscopic, helping to regulate internal humidity, hydrophobic in use, elastic and naturally flame resistant. It is, however, vulnerable to moth infestation and requires treatment, typically using borax or comparable non toxic protectants.

Recent interest in wool insulation reflects a wider move away from petrochemical based materials due to environmental, health and end of life concerns. A number of Scottish and UK suppliers now produce wool insulation products, including blends incorporating recycled fibres such as sisal or denim. Once treated, wool can also be used effectively as an acoustic lining.

The use of wool within the building also enables a critical engagement with the history of sheep farming in the Highlands. The introduction of Cheviot sheep in the late eighteenth and early nineteenth centuries was closely tied to large scale changes in land ownership and agricultural practice, including the displacement of communities during the Highland Clearances. Sheep farming reshaped landscapes, labour systems and rural economies, leaving long lasting social and environmental consequences.

↗ Wool could be sourced from farms local to Timespan

Sisalwool use a combination of sheeps wool and sisal, to make low-carbon insulation

'Pilgrim Fields', Solange Pessoa, Tramway 2025

↗ Sisalwool insulation panels use a combination of sheeps wool and sisal, to make low-carbon insulation

Cement, the key ingredient in concrete, is responsible for 8% of the world's carbon dioxide (CO_2) emissions. Both cement and lime use limestone as their raw material, however for cement this is burnt at a very high temperature (up to 1500°C) and toxic additives are added which changes the composition of the material, making it unable to return to the soil. In contrast, with the lime process, the raw material is only heated to 900°C with no additives. During the lifecycle of a building the lime will carbonate, returning to it original calcium carbonate state.

A large proportion of the buildings in Helmsdale have façades covered in cementitious render. The exterior of Timespan is now covered in cementitious roughcast with a masonry paint finish. The buildings are likely to have been lime harled with a limewash finish historically: there is some evidence of this in the historic photos supplied by Timespan, and was verified in our site investigations in March 2025 and historically there was a lime kiln at the end of the harbour. Originally the masonry would have been built with lime, but over the decades, this too seems to have been largely replaced or added to with sand/cement mortar. These cementitious materials trap moisture and inhibit the performance of the walls and prevent beneficial self-regulation of moisture levels from occurring, thus resulting in dampness and fabric decay.

The self-regulation effect is a significant advantage conferred by traditional external lime harl and limewash finishes. Our intention is to remove these and replace with lime-based products using traditional techniques, informed by the experience of Kinlay Laidlaw.

↗ The cement-based render on the cottage should be replaced with lime to allow the building to breathe, thus reducing levels of damp.

Humyak House, Liverpool

Valéria P. Cirell House, Lina Bo Bardi
Façade made from shingle and pebbles pressed into lime render

Yellow House, Flims; Valerio Olgiati

A sample lime render panel for an Assemble project mixing in shingle from the Thames

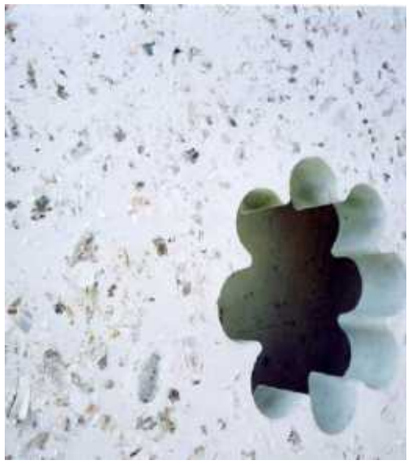
In the UK, shell waste generated through fishing, aquaculture and seafood processing is largely treated as refuse and sent to landfill, despite a long history of shells being used as a construction material in coastal regions. On a site formerly used as a herring curing yard, shells carry both material potential and strong historical relevance, directly linking the building to local maritime economies and labour practices.

In regions without accessible limestone bedrock, shell based lime has historically been produced for mortar, render and harling, while crushed shell has been used as aggregate and binder. Across Scotland and the islands, complex geological conditions limited large scale limestone extraction, leading coastal communities to rely instead on shells as a locally available resource for building and repair.

Reconsidering shell based materials today offers a way to engage critically with questions of waste, extraction and circular economies. Current research in the UK is exploring the reuse of shells as a low carbon construction input, alongside experimental and artistic applications that challenge linear models of material use.

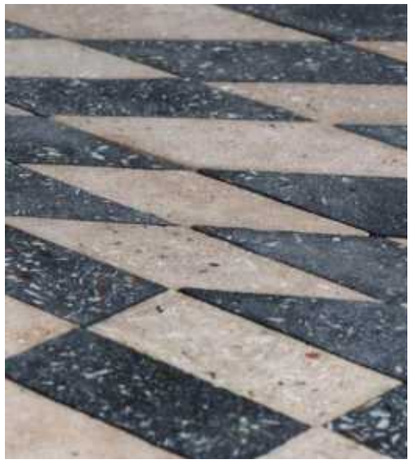
↗ Waste shell lime mix with waste shell finish, Local Works Studio

Shells in the Portland stone cladding of the Economist Building, designed by the Smithsons.



Hypocaust Museum, muf architecture/art Façade made from crushed shells in concrete

Historic Stone Masonry with shell lime mortar. Credit: Local Works



Tiles made from crushed shells. Credit: Climavore

Turf, heather and thatch were widely used in Scottish vernacular construction, particularly in areas where access to quarried stone and slate was limited. Roofs were formed using heather bundles weighted with turf, with turf also used for ridges and, in some cases, walls, as seen in blackhouse construction across the Highlands and Islands.

While no thatched buildings survive in Helmsdale today, such techniques would have been common prior to the Clearances. Their disappearance reflects broader processes of land reorganisation, displacement and industrialisation that reshaped settlement patterns and material culture across the Highlands. Although around 300 listed thatched buildings remain in Scotland, the associated skills are increasingly confined to conservation work.

Rather than replicating historic forms, the project considers how the principles underlying turf, heather and thatch construction - local sourcing, low embodied energy and climate responsiveness - might inform contemporary bioregional building strategies. Heather, gorse and other native plants are also being explored as sources for natural dyes and site specific finishes, linking material practice to local ecology and land use.

↗ Examples of textiles dyed with heather and gorse

↗ Staff at the Highland Folk Museum secure a fishing net over the heather thatch of a recreation blackhouse, a common practice to help hold down the thatch material in the roof during high winds © Ross Cameron

STRAW

The use of straw has also increased recently through a series of prototypical projects by architects and material researchers. Built in stacked bales as a monolithic wall, it provides a simple and thermally high performing wall build-up. Straw can be easily sourced from local farms, and constructing the bales involves relatively little skill, giving opportunities to provide a cost-effective, locally-sourced, non-commercialised form of construction.

Straw can also be included in timber cassettes, prefabricated and assembled on site very quickly. This typically results in an overall slimmer wall than straw bales, balancing very effectively logistics, building performance, and sustainability. Straw is also a very good acoustic insulator, and can be mixed with clay to form thin wall and ceiling panels.

↗ Straw could be sourced from farms local to Timespan

↗ Ecococon compressed straw panels

Since recent law changes, licenses for hemp farming have increased by more than 20–times in the UK. As well as construction materials, the plant is used for rope, textiles, clothing, food supplements, paper, bioplastics and biofuel.

Hempcrete (hemp shiv wet mixed with lime) can be cast on site in formwork, resulting in a strong and stable wall construction. It is not load-bearing, however, so is typically paired with a timber structural frame. Hempcrete is often formed into blocks and used as an alternative to concrete blocks or bricks, with the same time and skillset required.

Because the hemp plant absorbs a very high level of atmospheric CO_2 as it grows, and because the production and application of hempcrete is quite a low-tech process, the end result is a material which, even accounting for the production of the lime (a relatively high embodied carbon material), transport, and the energy use during construction, still locks away a net 110–160 kg of CO_2 per m^3 of hempcrete for the lifetime of the building.

Cast hempcrete and blocks are naturally fire, mould, and pest-resistant, but do require protection from the elements by cladding or rendering. They can be left exposed internally as an attractive wall finish which also contributes to improved acoustics and air quality. Hemp can also be formed into panels, either corrugated or flat, for use internally and externally as cladding or joinery manufacture.

↗ Prefab hemp panels and external corrugated hemp cladding panels, Flat House, Practice Architecture

↗ Flat House by Practice Architecture uses prefabricated panels filled with hemp

KELP AND SEAWEED

Following tariffs introduced during the Napoleonic wars, British manufacturing became dependent on home produced kelp, as its ash was used to make glass and soap. This meant Highland lairds forced their tenants into its production. These tariffs were dropped once the war concluded, however, and the reintroduction of Spanish kelp meant the industry here collapsed.

Seaweed and kelp can be found in other countries' traditional building cultures. In Japan, seaweed extracts were used as a glue in lime-based plasters and renders. This material is naturally fire-retardant, anti-bacterial, durable, and non-toxic. Seaweed, seagrass, sea-moss, and eelgrass thatching can also be found in traditional roofs in Denmark and China. Harvesting these materials can be done by hand without disturbing the habitat and biodiversity of the sea. Eelgrass meadows function as a significant carbon sink, with the capacity to capture carbon up to 35 times faster than rainforests.

Kelp & seaweed can also be used to form dyes for fabric, timber, and plasters. There are some small business who sell these, following years of research, including in the west coast of Scotland, the Netherlands, and Scandinavia. Seaweed has also been used in prototypical furniture pieces, its yarn woven into a fabric.

There is also a possibility of using kelp to make some bespoke glass with different tones. Kelp can be used as a source of alkali, which acts as a flux, to lower the melting point of sand and transform it into glass.

↗ Seaweed dyed cotton samples, Nienke and Xandra van der Eijk

Helmsdale Beach has an abundance of seaweed

Abigail Reynolds makes glass using the kelp and sand from the beach near her St Ives studio.

We have outlined above how there is a particular history of building with stone and lime in Helmsdale. The museum has also helped to reveal other local skills and traditions that could inform innovative construction techniques for Timespan.

- Boat Building: There is a history of boat building in the Helmsdale area particularly clinker and carvault. This knowledge could be useful when looking at robust timber construction methods that are well-suited to withstand local weather. Macduff shipyards have expertise on this. Net and sail making and mending in the village and the surrounding fishing villages could also be something to explore for softer furnishings or awnings.
- Bogwood: People were not allowed to use the natural or planted trees owned by the landowners, and made do with bogwood stumps retired from the peatbeds while cutting peat for fuel. The Sutherland Chair is an example of a piece of longhouse vernacular bogwood furniture used during the Highland Clearances in Kildonan.
- Helmsdale Knitting Group knit fishermen's gansey jumpers with symbolic patterns of the sea. Each port had a different pattern. The Helmsdale pattern used a diamond shape to represent the herring net and a cable to represent the rope and rigging.
- Basket making: Nearly every woman had a creel basket she used on the croft or as a fisherman's wife selling fish around the district.
- Colour inspiration: Silver herring scales, red/brown barked traditional triangular sails from the Fifie fishing boats, Gold from Kildonan, peaty moorland colours, river and sea palette.

↗ Clinker, carvault boat building. Local Helmsdale Skiff builders

↗ Objects in the Timespan Collection; could be used to inform innovative building techniques. Creel baskets, Bogwood chair and Cooper made decanter and goblet. (the coopers made the herring barrels)

LOCAL BUILDING CULTURE

We have looked in Helmsdale and further afield and found that stone is the predominant material used. We found several fine examples, often harled and limewashed to provide extra protection against the elements. Occassionaly, the dressed stone is visible and shows a high degree of craftsmanship. Local buildings generally have slate (or historically pantile) pitched roofs and vertically-proportioned windows within solid walls.

Arched entrances and external but sheltered cobbled courtyards (for gutting herring and other industries) are common. Partially covered workshops and storage areas were also useful productive spaces, held up by pillars of brick or stone.

We looked specifically at wharf buildings on the east coast, and found that these were generally of a larger scale. This is due to their historical industrial use, but even as that has waned, the buildings still stand as strong, robust markers to their harbours.

↗ Helmsdale building examples including Red Herring House (r)

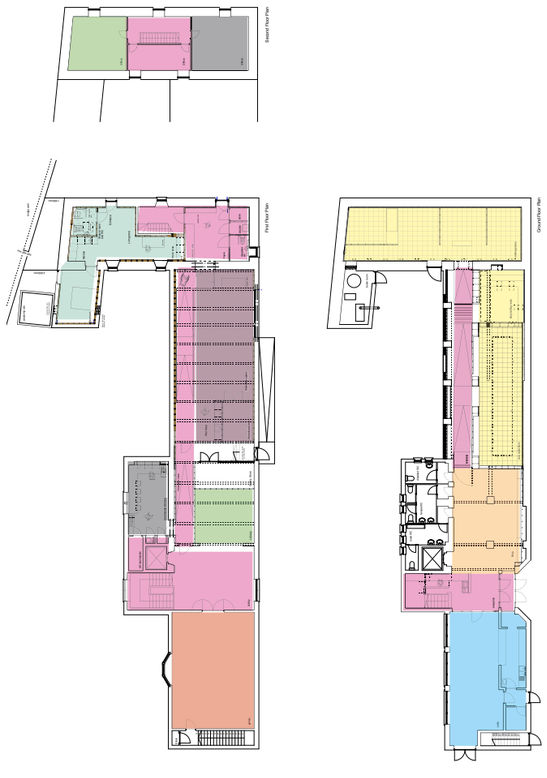
↗ Harbour and wharf building examples (clockwise from top right): Pulteneytown, Keiss, Portsoy, Lybster, Invergordon, Ullapool (www.trove.scot)

Precedent Studies

This section compares the scale of the spaces in the current Timespan building to a range of references. The references chosen all have gallery and museum spaces that the design team feel have a scale and character that should be emulated in refurbishment of Timespan.

Key conclusions:

- The footprint of both the museum and gallery could be larger, although there is precedent for gallery spaces of a similar scale. The key difference is, in references like Goldsmiths CCA, the smaller gallery has a much bigger floor to ceiling height and sits alongside other gallery spaces with a range of scales and characters.
- The current caf□and kitchen space is adequate for the scale of the building but the layout could be improved substantially
- Both the gallery and museum could have deeper plans to allow for more flexible circulation. Nottingham Contemporary has well proportioned rooms that are directly connected without corridors.
- Double height spaces could be a vital tool in connecting spaces within the building together whilst also giving a varied character to different rooms. South London Gallery does this effectively.



KEY		
43 sqm		Artists Flat
45 sqm		Admin
46 sqm		Shop
63 sqm		Galleries
108 sqm		Museum
39 sqm		Library/Archive
61 sqm		Caf□
90 sqm		Workshop / Project/Education space
149 sqm		Circulation

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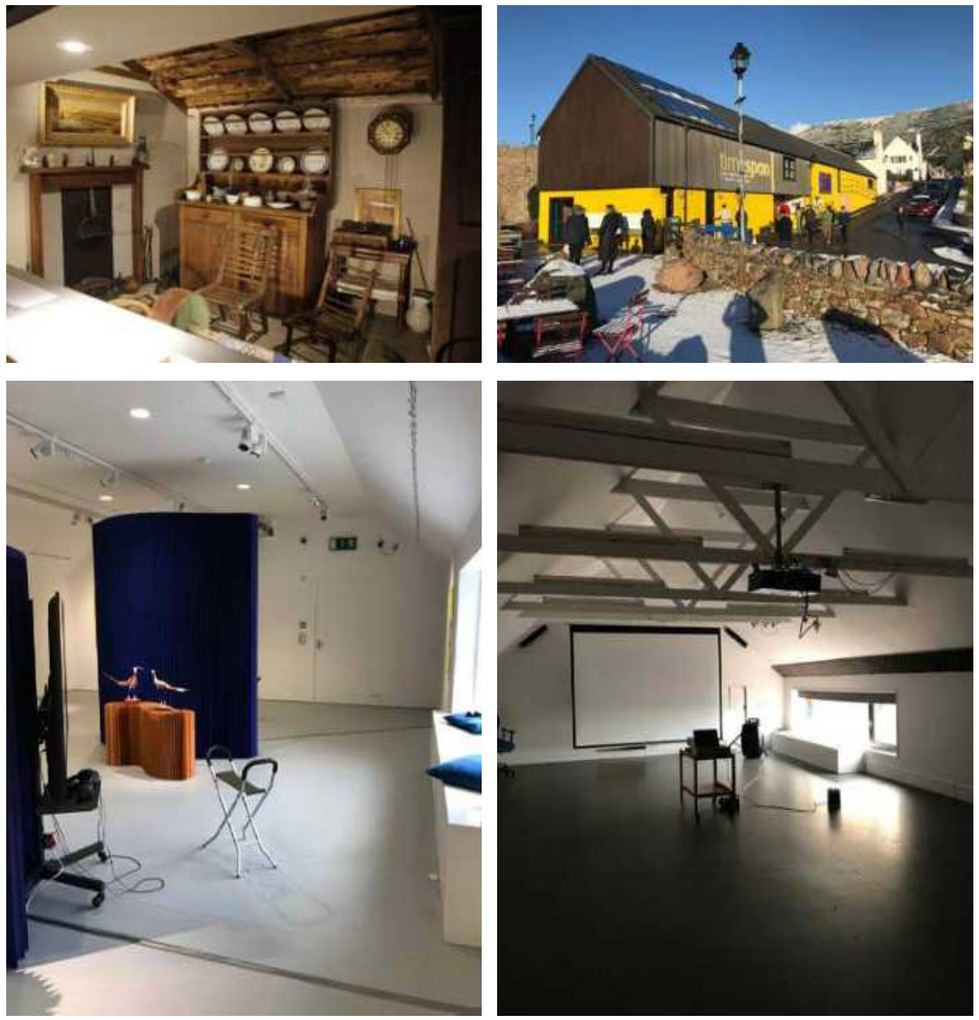
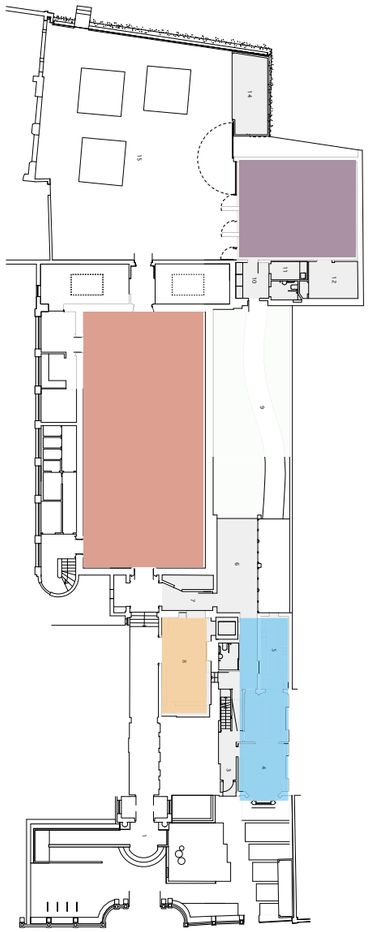


SOUTH LONDON GALLERY
London, 6a architects

The expansion of the South London Gallery designed by 6a architects provides new gallery spaces, a café, a flat for an artist in residence and a new education building. The extension to the gallery is made of three distinct interventions that transform the gallery from a singular gallery interior into an expanded sequence of interior and exterior spaces hosting a range of different functions simultaneously.

Gallery extension connecting to the original house



Ground Floor Plan

KEY		
30 sqm		Reception/ Bookshop
208 sqm		Gallery
50 sqm		Café/Kitchen
80 sqm		Workshop/Education space

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NOTTINGHAM CONTEMPORARY
Nottingham, Caruso St John

The commission for the Nottingham Contemporary was won in an invited competition organised by the City Council. The artistic ambition of the project, encompassing object-based visual art and time-based performance art, has its origins in the artist-run spaces of downtown New York in the late 1960s. The design offers a wide range of interiors within the new building, that have the variety and specificity of the found spaces of a factory or a warehouse. The intention was that the range of rooms challenge the installation and production of contemporary art, and offer new ways for artists, performers, and audiences to interact.

Gallery exterior, the building sits nestled into a steep slope

Ground Floor Plan

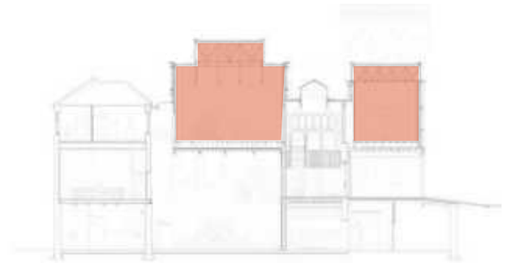
KEY		
208 sqm		Gallery
80 sqm		Workshop/Education space

0 5 10 20m 1:500

GOLDSMITHS CCA
London, Assemble

Assemble's architectural approach reflects the building's history and establishes a unique identity for its new role as a centre for the arts. A double height project space forms the social and theatrical heart of the gallery, creating a distinctive hall for installations and performances. The Bath's cast iron water tanks have been preserved and made accessible and two new top-lit 'white cube' galleries provide a spatial contrast to the raw and robust fabric of the historic service spaces. The tiled Victorian bathing halls, currently used by Goldsmiths students as art studios, can now be seen from a new central balcony connecting the public to the building's past and to its future purpose as a space for artistic production and exploration.

First Floor Plan



Section

Clerestory Gallery

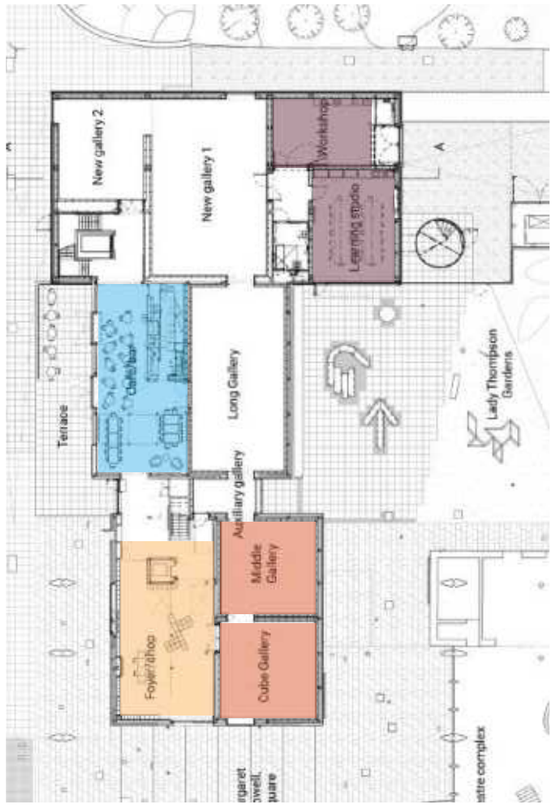
KEY		
10 sqm		Curators Studio
58 sqm		Lantern Gallery
45 sqm		Clerestory Gallery
80 sqm		Tank Gallery

0 5 10 20m 1:500

MK GALLERY
Milton Keynes, 6a architects

The new MK Gallery opened on 16 March 2019. The new building includes gallery spaces, an auditorium for film, performance and talks, education facilities, a café and bar and incorporates City Club, a major commission by artists Gareth Jones and Nils Norman through the public space within and around the building.

Gallery café and exterior



Ground Floor Plan

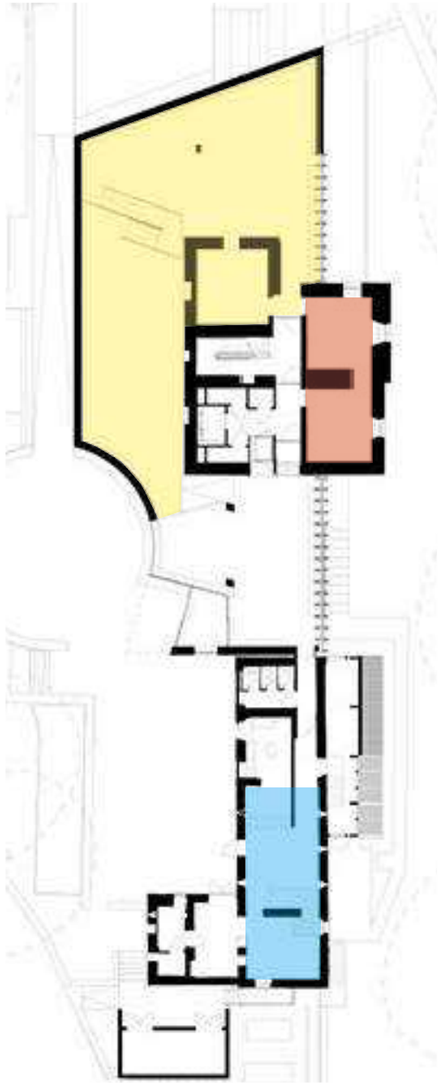
KEY		
108 sqm		Shop/Foyer
63 sqm		Galleries
108 sqm		Museum
108 sqm		Café/Kitchen
109sqm		Workshop/Education space

0 5 10 20m 1:500

KILMARTIN MUSEUM
Argyll, Reiach & Hall Architects

Museum of archeology displaying ancient artefacts found in an area rich with prehistoric sites, Kilmartin Glen, Argyll.

The new museum is imagined as a vessel, a building that sensitively mediates between objects, people and the broader landscape. The building fulfils two basic needs one is to simply support people while the other is to contain and display precious and fragile artefacts, safely, securely and beautifully. Each requires a different set of architectural conditions.



Ground Floor Plan

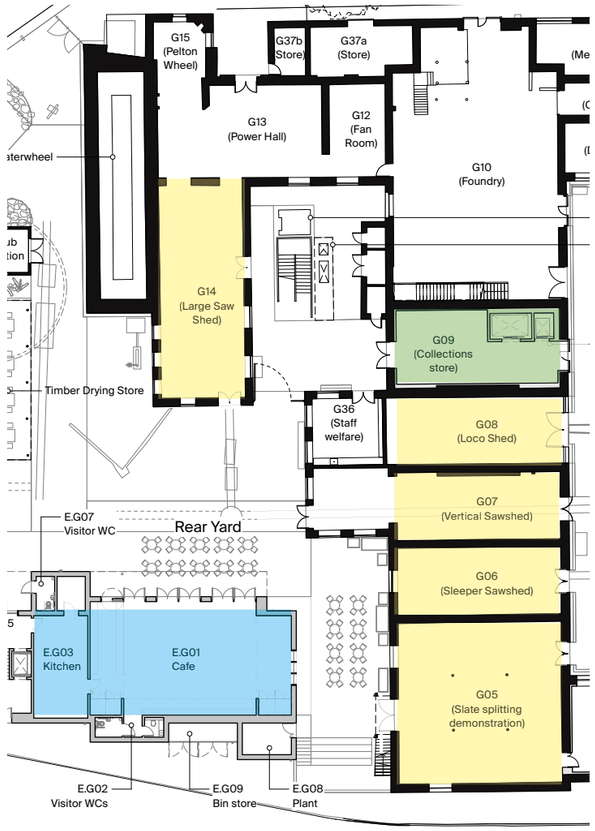
Museum interior

KEY		
66 sqm		Galleries
465 sqm		Museum
93 sqm		Caf

0 5 10 20m 1:500

NATIONAL SLATE MUSEUM
Llanberis, Rural Office

Shadowed by towering slate mountains, the National Slate Museum Llanberis is housed in the Victorian workshops that once serviced and maintained the enormous Dinorwig slate quarry above it. The workshops catered for all the repair and maintenance work demanded by a quarry, which once employed over 3,000 people. From strikes and suffering to craftsmanship and community, the building offers a variety of generous spaces to step into this history.



Ground Floor Plan

Museum exterior

KEY		
116 sqm		Large Saw Shed
76 sqm		Loco Shed
76 sqm		Vertical Saw Shed
71 sqm		Sleeper Saw Shed
172 sqm		Slate splitting demonstration
80 sqm		Archive
180 sqm		Caf

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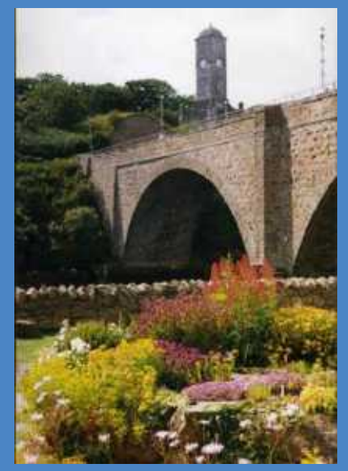
Local Regulatory Research



Research has been carried out on the flood risk of the area, the listing of the Helmsdale Bridge, and the Local Authority's Climate Adaptation Policy.
Flood risk maps show that the southern edge of the Timespan site has a High (10%) to Medium (0.5%) chance of coastal flooding each year, and a High (10%) to Medium (0.5%) chance of river flooding each year. In localised areas to the west and north east of the site, there is a Medium (0.5%) to Low (0.1%) chance of surface water and small watercourses flooding each year.

The 'Future Flood Maps', show that, by the 2080s, there remains a Medium (0.5%) chance of river and coastal flooding each year. In the same localised areas to the west and north east of the site, there is, by the 2070s, a Medium (0.5%) chance of surface water and small watercourses flooding each year.
We have contacted SEPA to discuss this in more detail, including local planning precedent, and will update further in due course.

Credit: sepa.org.uk

Thomas Telford's Helmsdale Bridge over the River Helmsdale, was completed in 1811. Its listing was added in 1971, and is Category A. In the description, it notes the stone detailing (e.g. dressed rubble wide arch rings, triangular cutwaters rising to parapet height as buttresses), and the later cast iron railings and lamp standards. It does not mention any lands or ancillary structures within its curtilage.
We have contacted Historic Environment Scotland and the Highlands Council Conservation Team to establish both the protection and ongoing maintenance of the structure, and will update further in due course.

Credit: historicenvironment.scot and canmore.org.uk

Adaptation Scotland, funded by the Scottish Government and delivered by the sustainability charity Venture, provides climate change advice and support to a variety of parties. It is driven by the need to alter how we manage our land and infrastructure, acknowledging the major changes our climate has already undergone due to historic emissions. Scotland's National Adaptation Plan 2024–29 (SNAP3) sets out the actions that the Scottish Government will take to prepare for and building Scotland's resilience to the impacts of climate change.

Highland Adapts, established in 2021 brings communities, businesses, land managers and public sector together to facilitate transformational action towards a prosperous, climate-ready Highland. Its nine founding partner organisations are: Forestry and Land Scotland, NHS Highland, The Highland Council, Highlands and Islands Enterprise, Changeworks, Verture, NatureScot, Highlands and Islands Climate Hub, and Zero Waste Scotland.
The objectives of Highland Adapts are to:

- Develop a strong knowledge and evidence base, setting out the climate risks and opportunities that will affect the region
- Facilitate information sharing through a range of resources
- Identify opportunities to reduce and overcome these climate risks
- Develop a shared adaptation strategy and suite of action plans
- Support others to use plans to form the basis of projects and activities across the public sector, community, land management and business sector plans, strategies and investments
- Support the public sector to embed climate change adaptation throughout their business
- Support community climate change action

We will be in touch with Highland Adapts as the design progresses, once material and servicing strategies are further developed, in order to best integrate their aims with those of Timespan and this project.

Credit: highlandadapts.scot

Highland Adapts

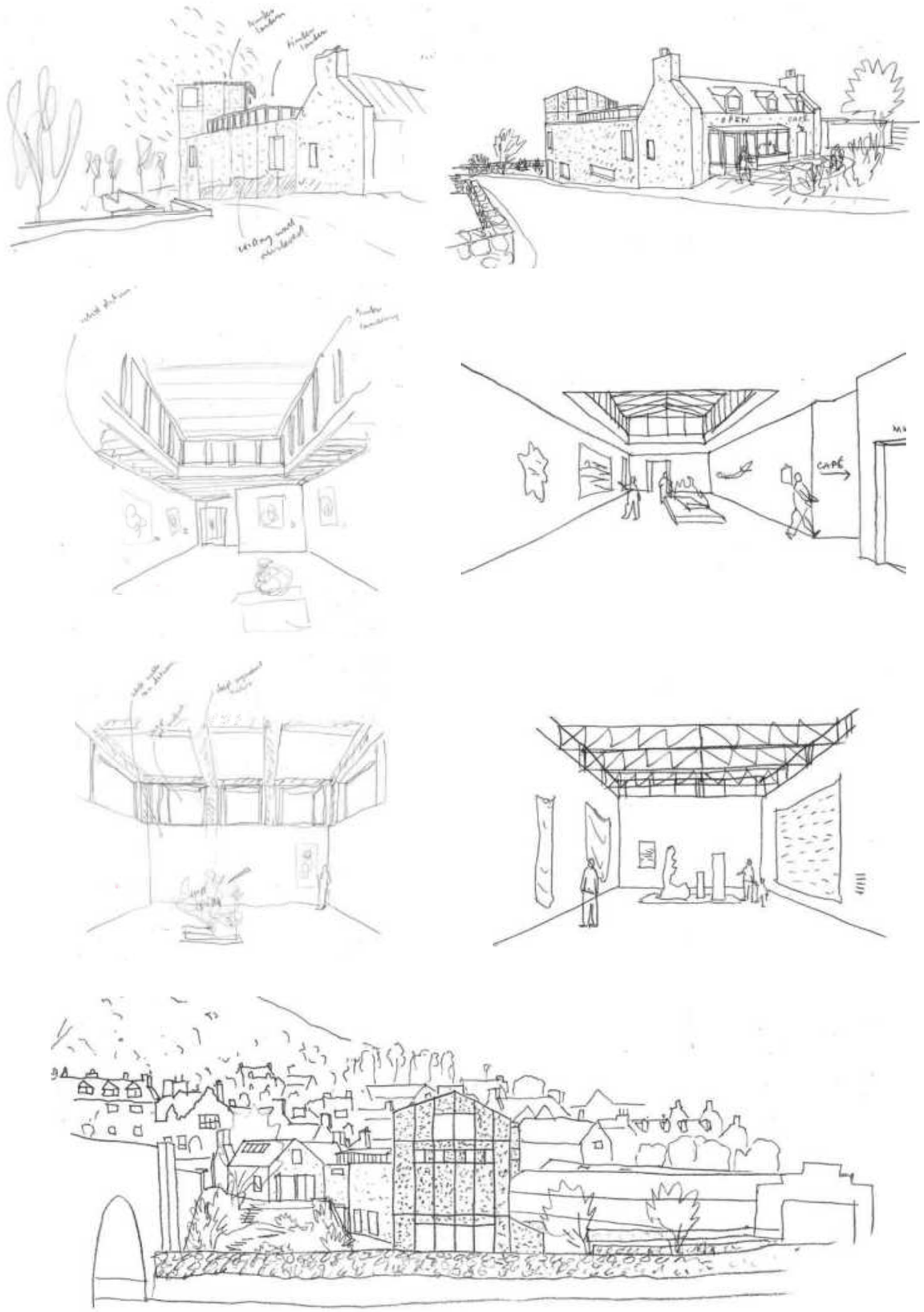
Design Development

Over the past six months we have developed the design in consultation with the client team and Helmsdale community. As shown on the previous spread, there was a clear preference for two of the proposals: both of which provided additional space internally and a new frontage addressing the river. While more modest proposals which came with logistical and financial merits were discussed, the client body and the wider Timespan community wanted to expand the development giving greater flexibility to Timespan's current operation. It is recognised that this is a once in a lifetime opportunity to revitalise Timespan and provide a building that will easily accommodate its programme and collection.

As the designs progressed, correct sizes and locations of the primary rooms i.e. gallery, museum, workshop, caf were ascertained. It was clear that the gallery and museum spaces needed to be substantially larger and have fully renewed services. Opportunities to link the two spaces were discussed, as well as their content being spread across the building. The caf and workshop are currently let down by a lack of sufficient support spaces, but were deemed to be approximately the correct size, but not necessarily in the correct places. The provision for storage, toilets, circulation, and plant were all increased and optimised.

Two final important discussion points were the position of the entrance, and the garden. It was felt that entering through the Cottage was symbolic of Timespan's history and connection to the village. It also provided a new public front addressing the main route through Helmsdale. From this space, visitors could then move intuitively into the rest of the building. A corridor less circulation loop which provides a flowing route around the building was supported from early on.

The garden specifically Mary Dudgeon's original iteration is well loved, but not without fault. The topography is challenging, as is the proximity to the bridge. As can be seen overleaf, 'Building Out' gave substantial new footprint, but the consensus was that the loss to the garden was too great. 'Building Upwards' was deemed to strike a better balance of internal and usable external space.



↗ Design development sketches

Proposal

FINAL FEASIBILITY PROPOSAL: ‘HOUSE TO HARBOUR’

MASSING

The size and form of the proposal has been carefully balanced to ensure it is sensitive to the surrounding area of Helmsdale, Loth, and Kildonan while also providing the space required for a bold and ambitious transformation. Dubbed “House to Harbour”, the scheme moves from the refurbished cottage at the north of the site, domestic in scale, to the larger industrial ‘wharf’ at the southern end where it addresses the river. Two masonry wings with pitched roofs extend from the existing cottage at either end, aligned with their adjacent site boundaries. Between these two forms, a lightweight frame provides space for vertical circulation and brings daylight into the centre of the building. A larger, three storey volume at the ‘harbour’ end orientates itself to the river, enclosing a new south-west facing courtyard space between it and the bridge.

LAYOUT

UPPER GROUND FLOOR

The main entrance has been moved to its original location in the Cottage, providing Timespan with a new active, town-facing frontage. This allows access to the shop and reception within the existing cottage. From here, the three Gallery spaces are arranged in sequence, each having a slightly different scale and character.
The Café extends from the front to back of the building.
It is accessed from the shop at the northern end, and provides views out over the new courtyard, towards the bridge and river.
Two stair and lift cores, located at each end of the building, provide access to lower and upper levels.

LOWER GROUND FLOOR

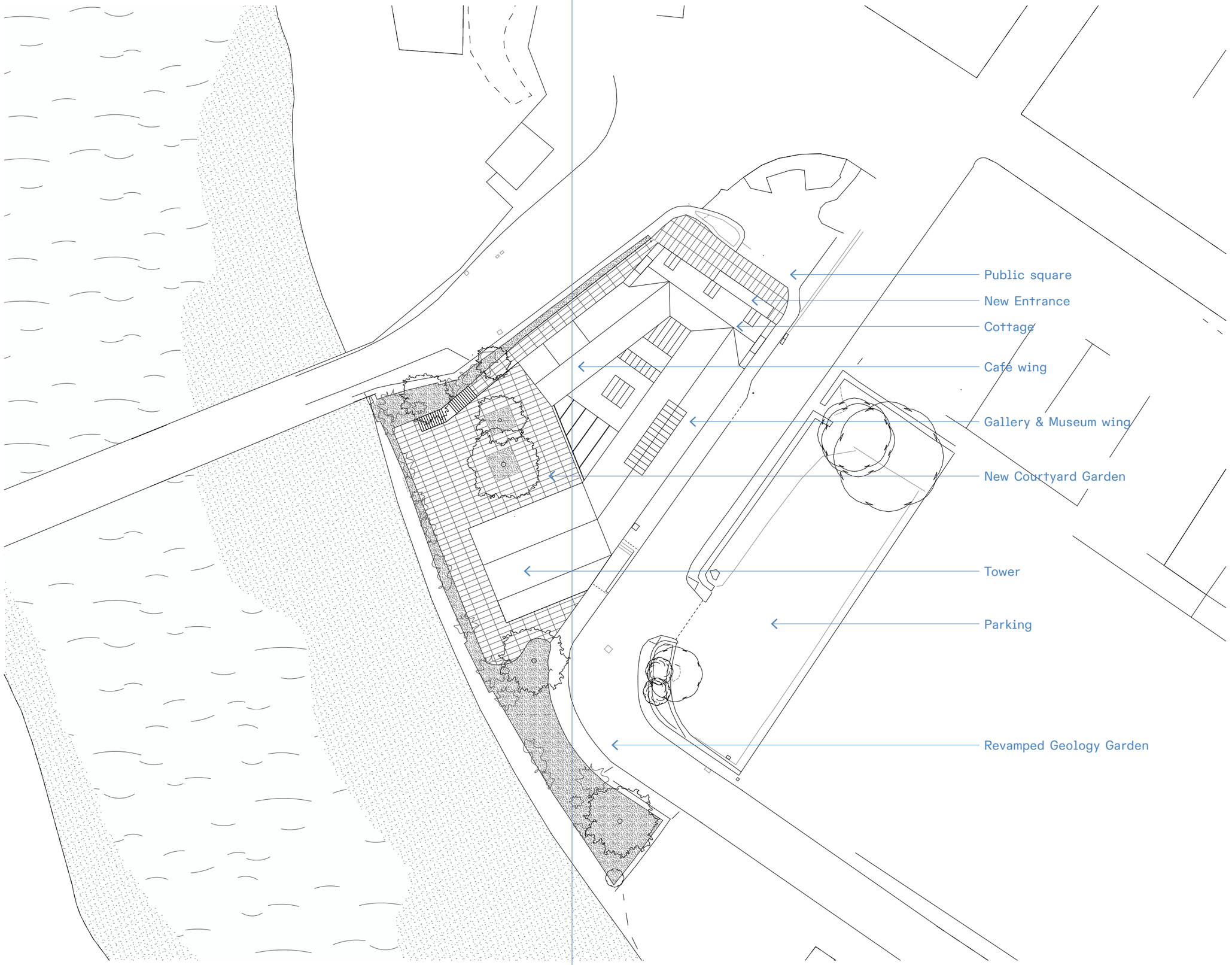
Archive and plant spaces are located in the deepest areas of the plan, in the basement of the existing cottage. The new Museum spaces occupy a large room in the centre, with natural light provided by tall windows to the new courtyard and a void running up through the middle of the building to a rooflight above. The new Library space sits to the western side of the museum, with a window overlooking the courtyard.
The Workshop, adjacent to the river, has its own entrance at the bottom of Lilleshall Street, with large windows and doors which address the courtyard, river front and Geological Garden.

FIRST FLOOR

The new staff areas are located at the northern end: above the entrance, shop and café. These have been enlarged and improved to provide break spaces, meeting rooms and both shared and private office spaces.
To the south, above the third gallery space, sits the new Artist’s Residence and Studio space – an inspiring location with views in all directions.

1:200 physical model

The new extension makes efficient use of the site area, aligning with the eastern and western boundaries to provide substantial new floor space for the primary rooms. The building rises as the topography falls, providing a new landmark when approaching from all directions.

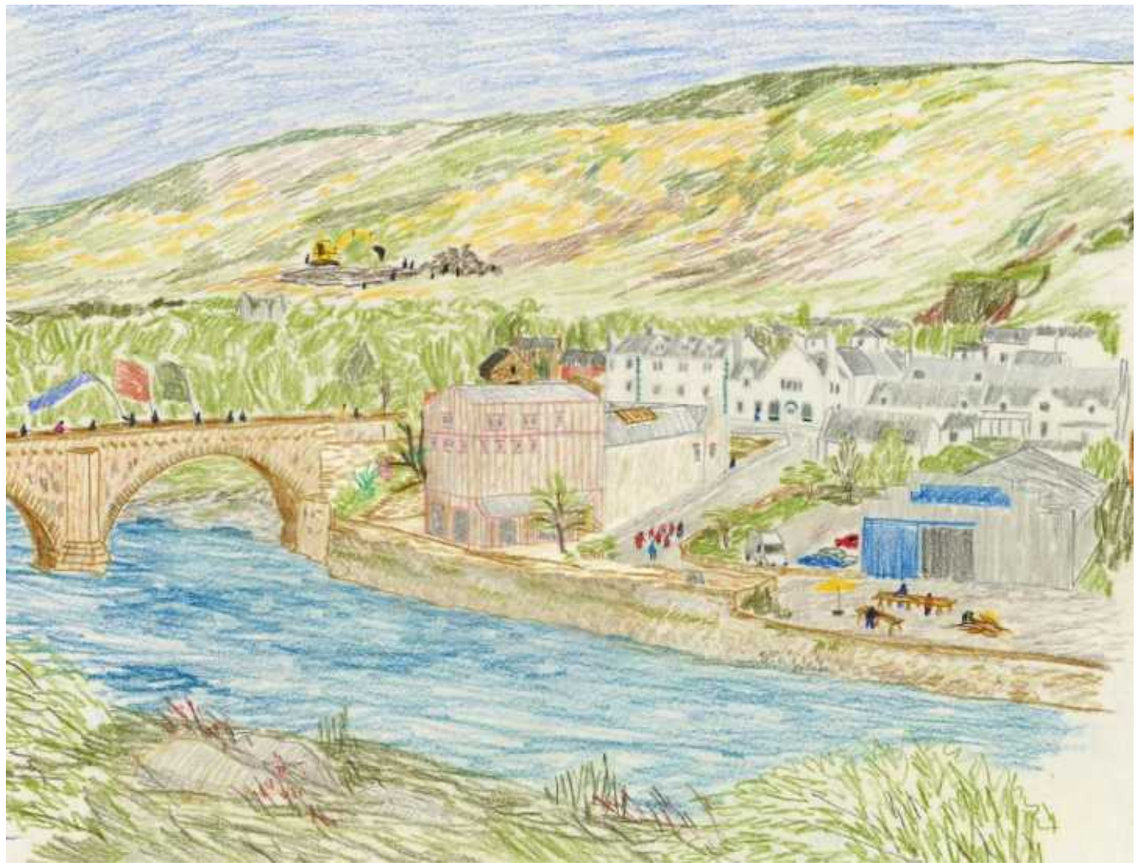

Public square
New Entrance
Cottage
Café wing
Gallery & Museum wing
New Courtyard Garden
Tower
Parking
Revamped Geology Garden

95 VIEW FROM NORTH

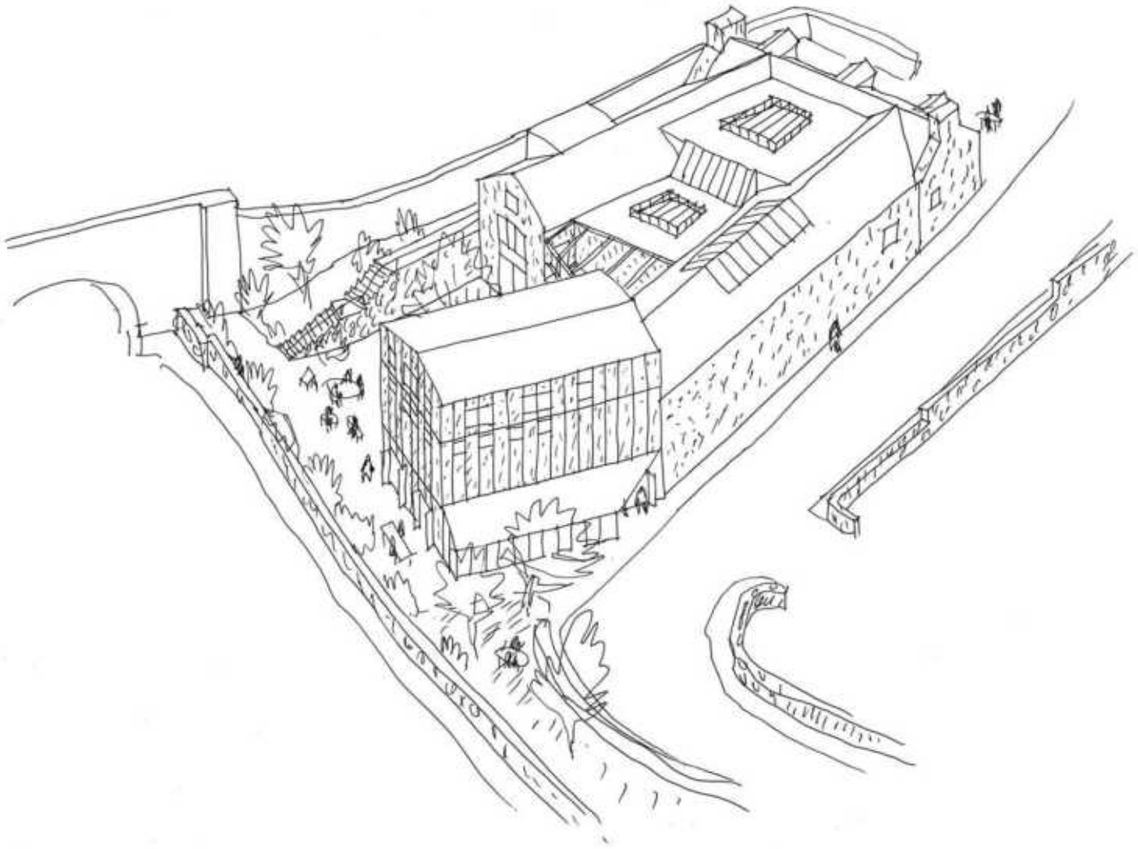
With a new ‘shopfront’, reminiscent of the 1950s version, Timespan is re-directed back to the public space and the village. The predominant entrance will be from the north.

VIEW FROM ACROSS THE RIVER

Dubbed “House to Harbour”, the scheme moves from the refurbished cottage at the north of the site, domestic in scale, to the larger industrial ‘wharf’ at the southern end where it addresses the river.

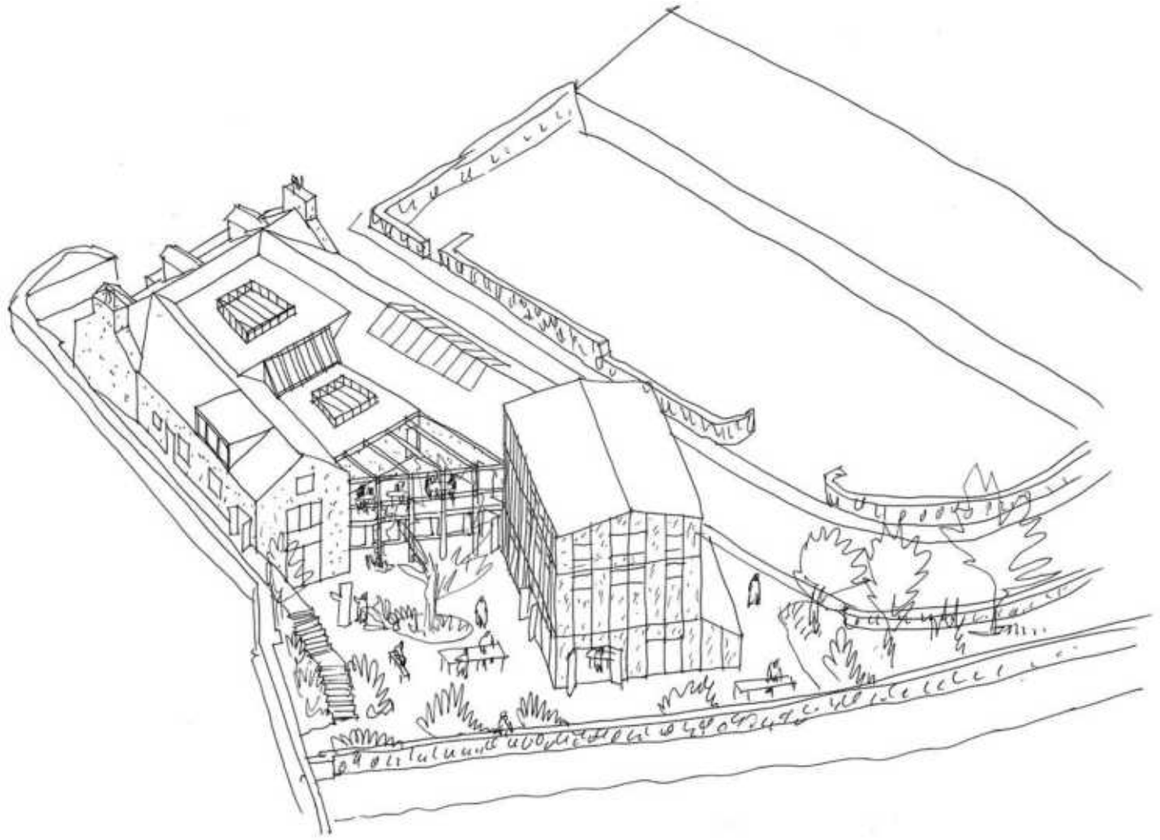


AXONOMETRIC FROM SOUTH-EAST



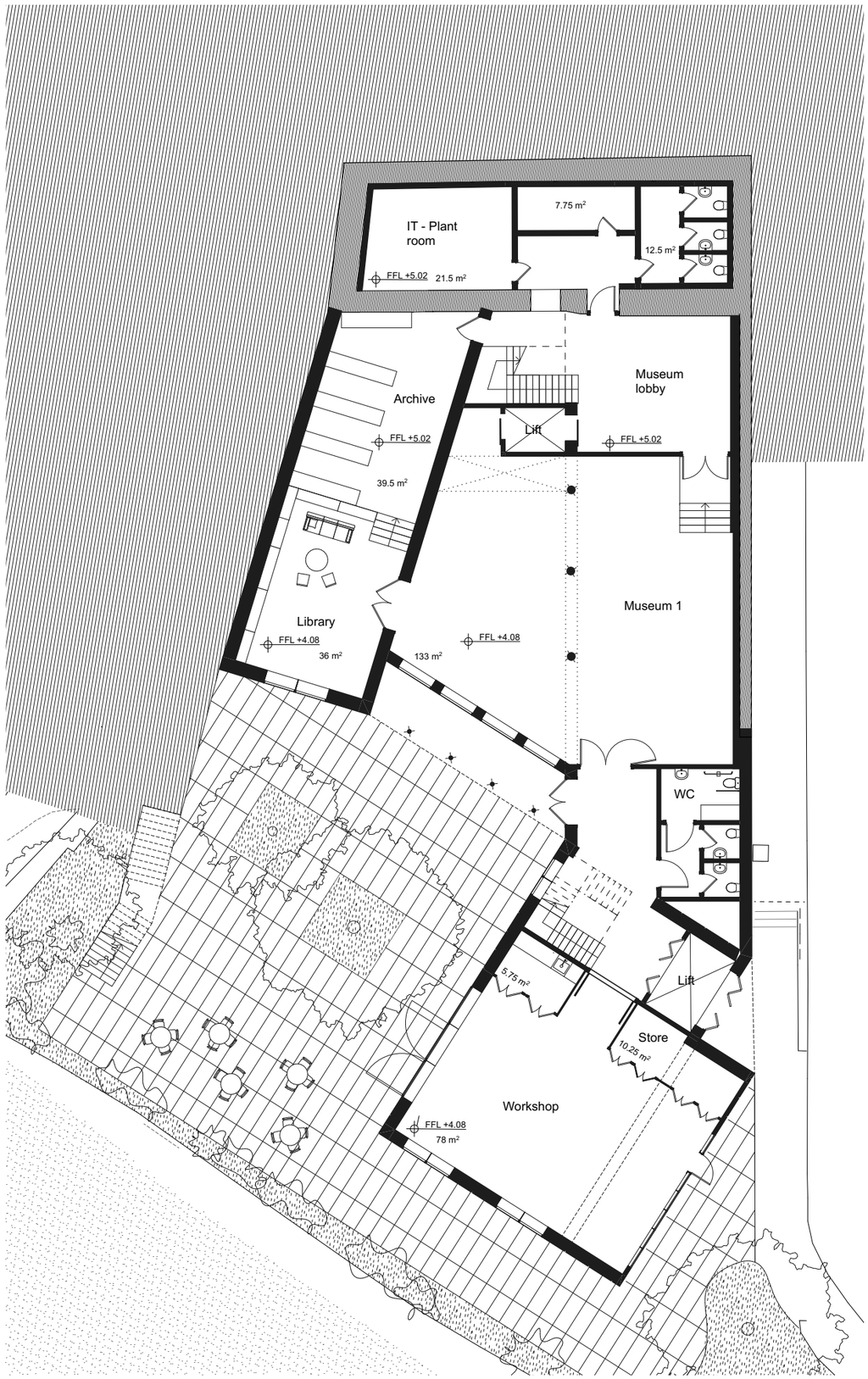
The Cottage and the adjacent walls will be built in traditional materials and have a familiar, solid feel. As the new building extends to the south, its scale changes referencing the historic wharf buildings.

AXONOMETRIC FROM SOUTH-WEST

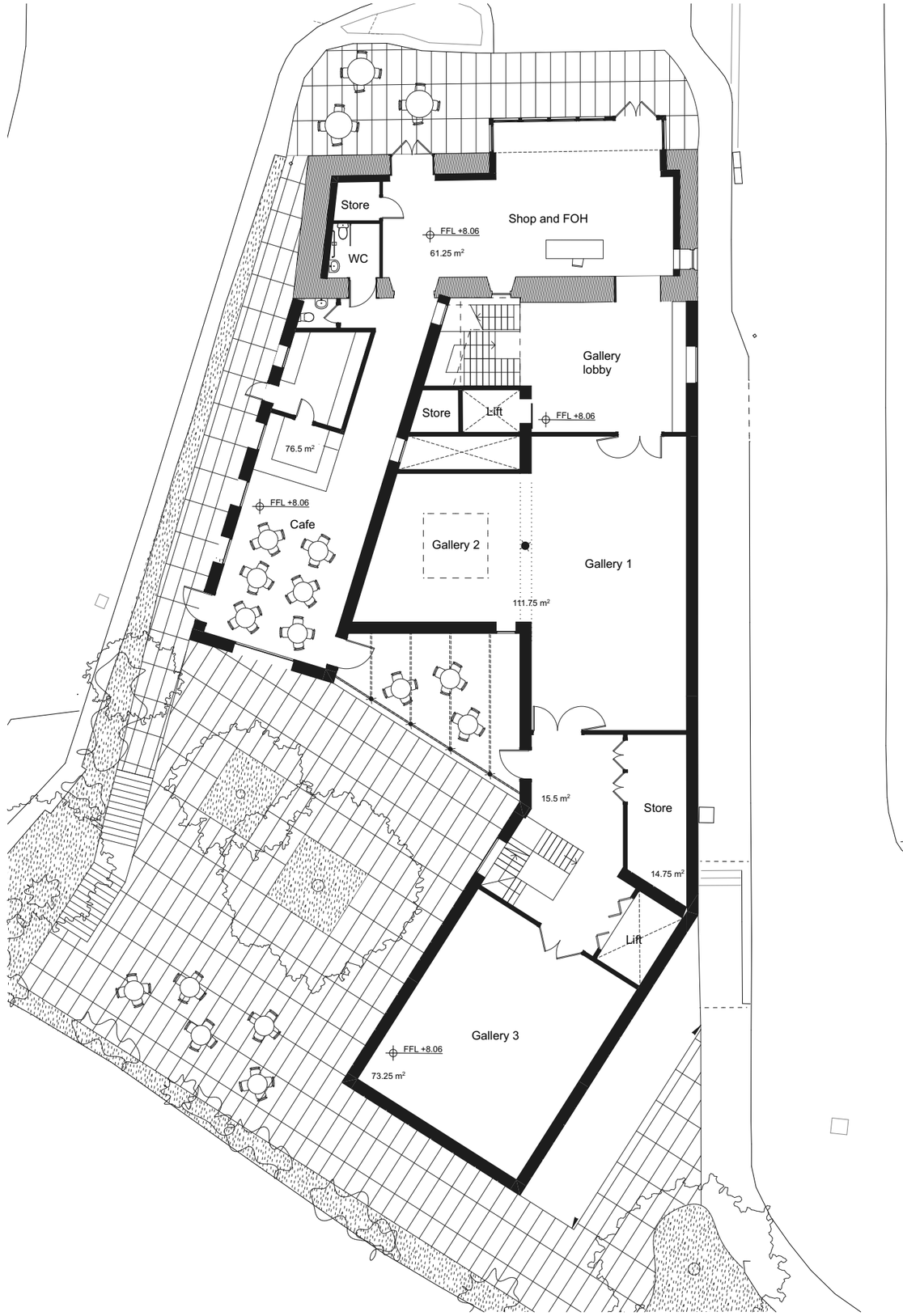


The new Café is orientated south-west, with fantastic sunlight and views of the Bridge. There are external spaces at ground and first floor levels for dining, making, and exhibiting.

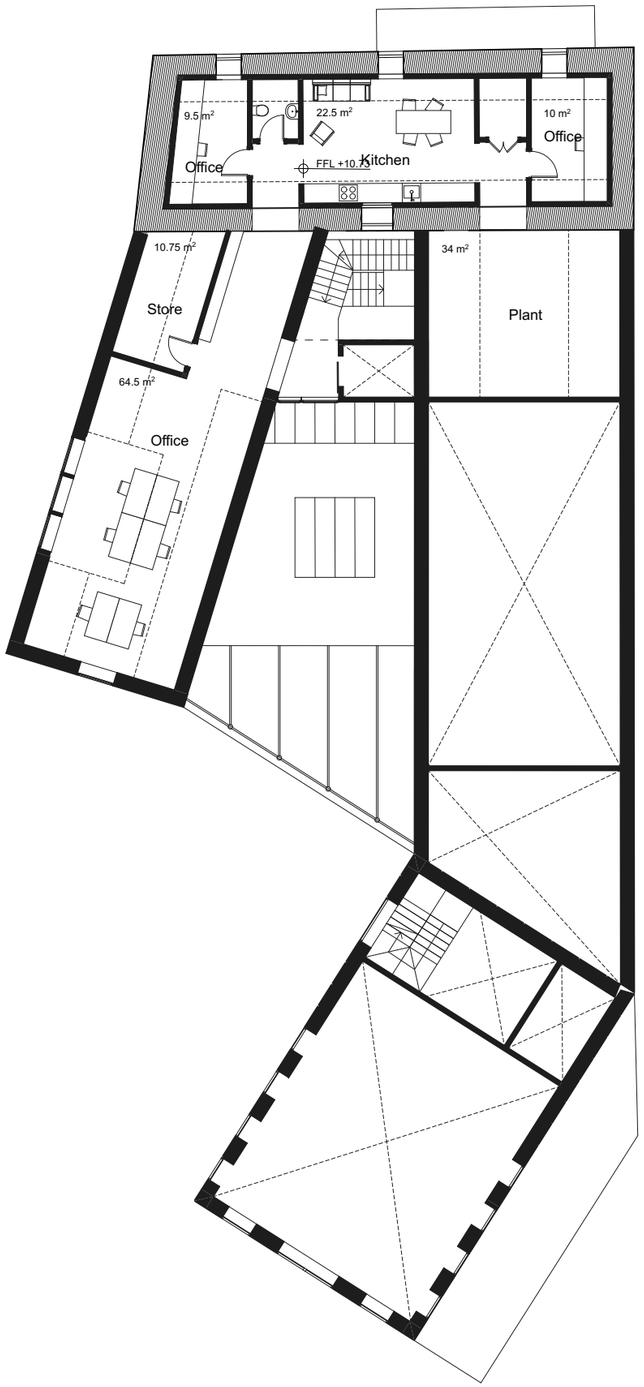
PROPOSED LOWER GROUND FLOOR PLAN



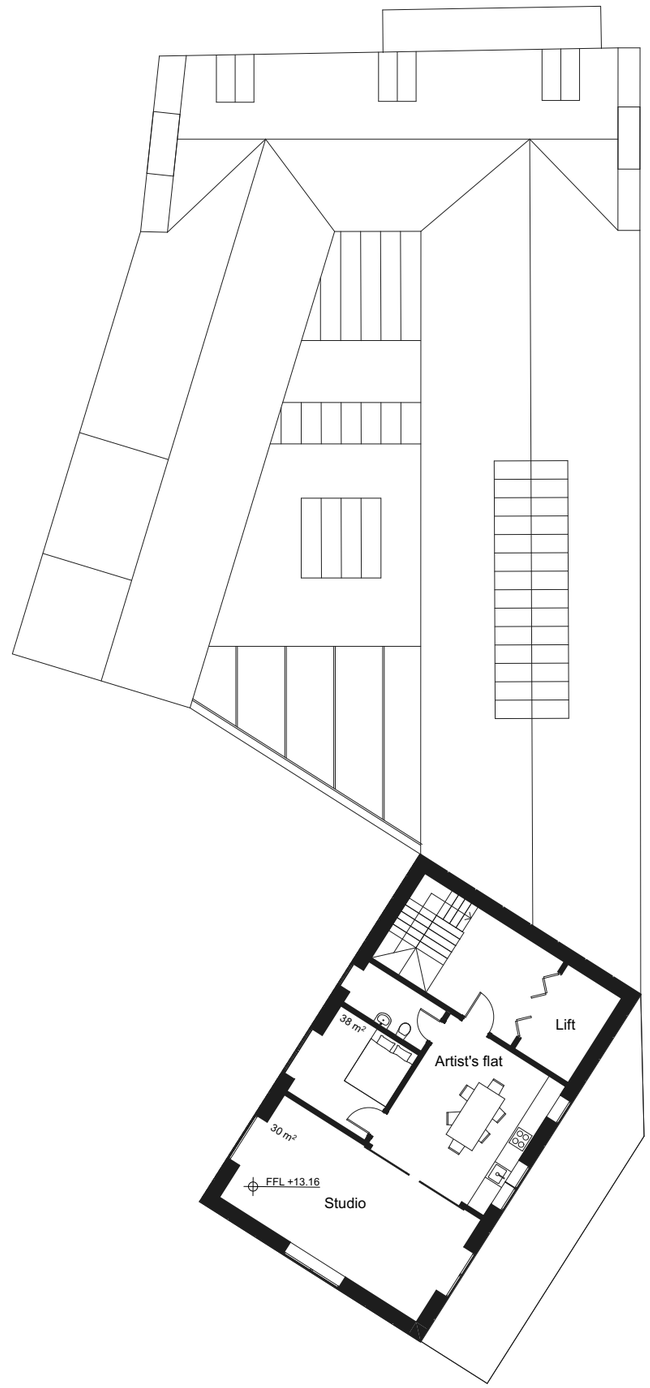
PROPOSED UPPER GROUND FLOOR PLAN



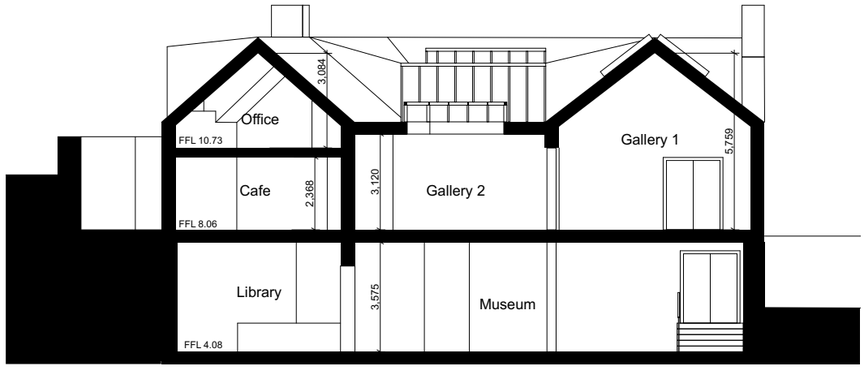
PROPOSED FIRST FLOOR PLAN

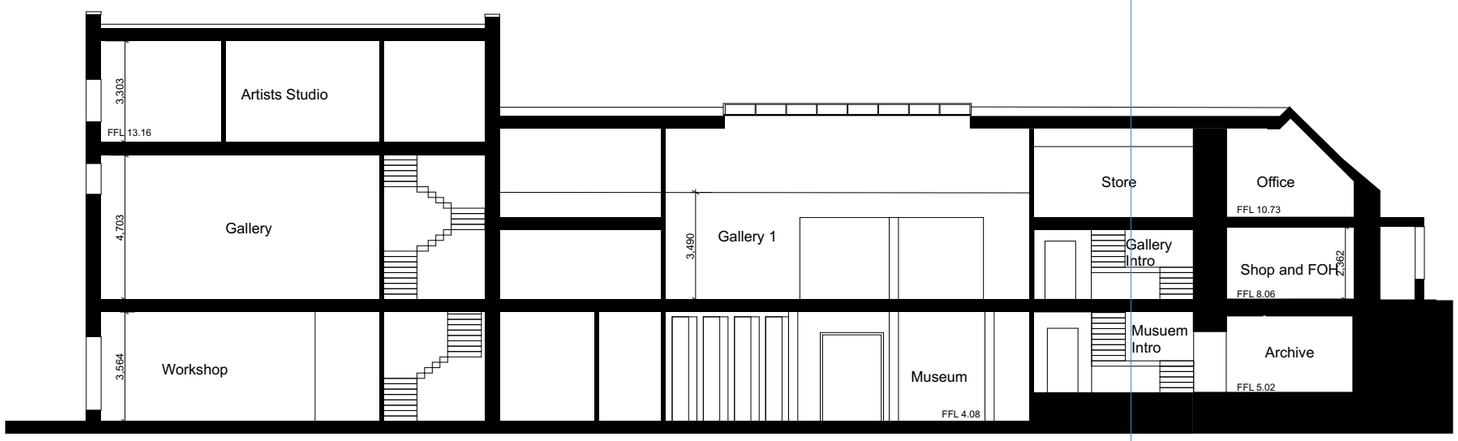


PROPOSED SECOND FLOOR PLAN



PROPOSED CROSS & LONG SECTIONS





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MUSEUM VIEW

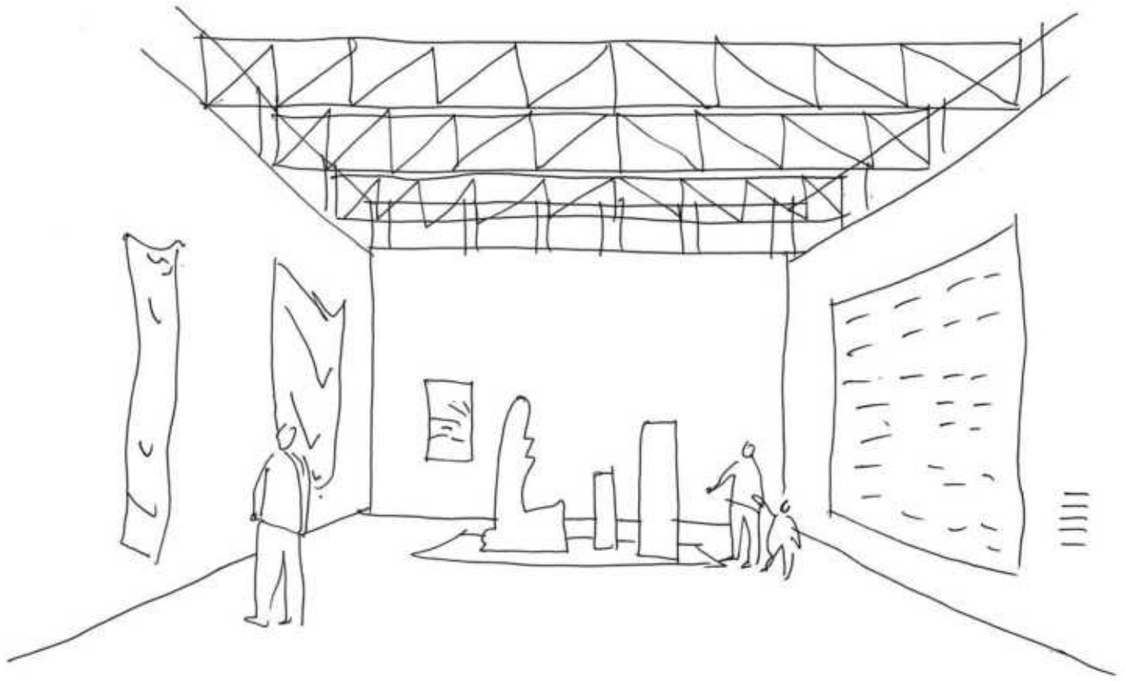
The Museum is at the heart of the plan, accessed by a new stair and lift from the Cottage entrance, and also connected to the Courtyard Garden. The space has increased significantly, now in a single large room with several options for subdivision and curation.

WORKSHOP VIEW

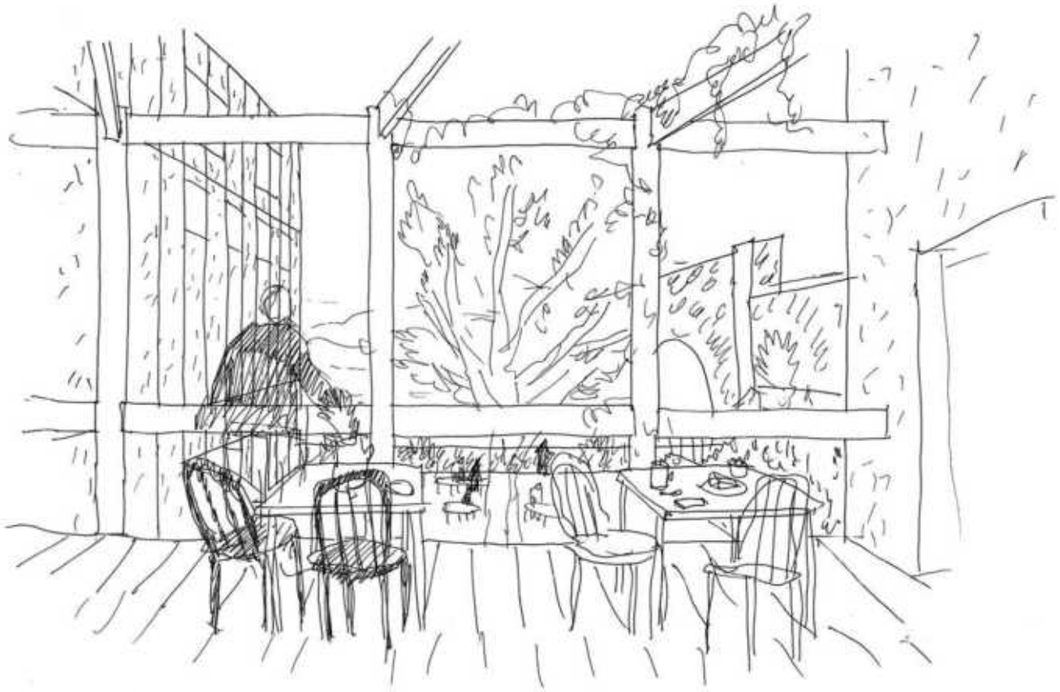
The new Workshop is a flexible, bright and open space with ample storage. It is now situated by the river, with connections to the street and the courtyard garden.

GALLERY 1 VIEW

Gallery 1 sits in a similar volume to the current Workshop, but with improved materials and natural light. It is central in a series of galleries on the First Floor, interspersed with lobbies and vestibules and punctuated with views to the landscape.



Gallery 3 sits at the river end. It is a taller space, providing the opportunity to display larger works of art and installations. Natural light is filtered through the building structure from high level windows.



The café terrace is a timber frame structure that faces south, absorbing the afternoon sunlight and providing views out over the new courtyard towards the river and bridge.

PROPOSED VIEW FROM SOUTH

The extension presents a proud, distinctive facade addressing the river. An ensemble of different ages and forms, the new building is unified by a consistent external wall treatment, lime harling.

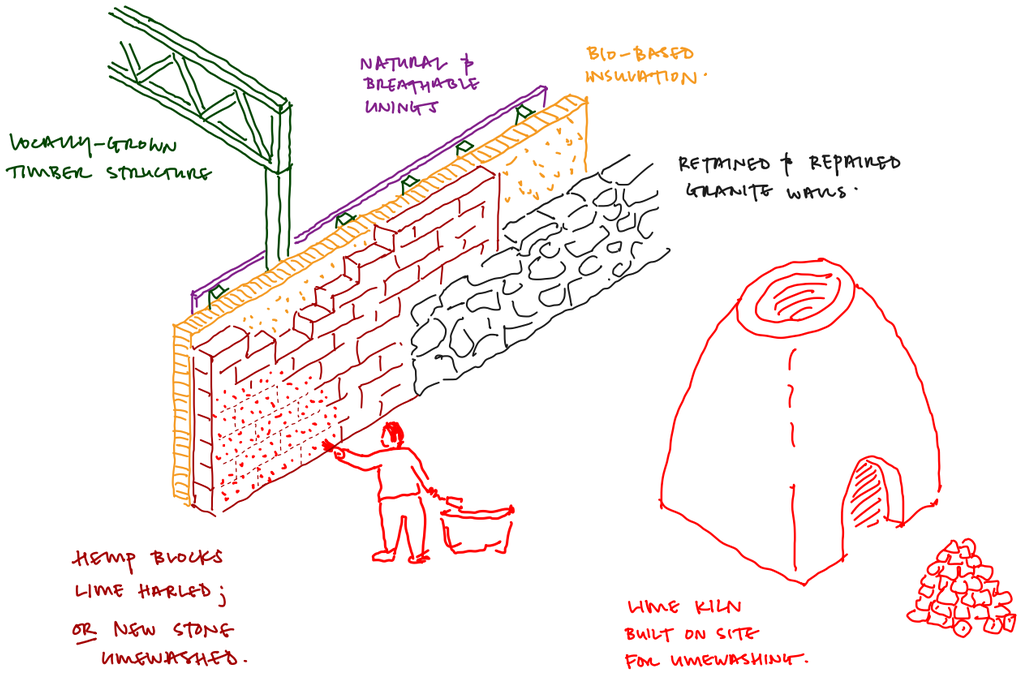
We are taking a circular economy approach to the project, prioritising materials and ways of constructing that have the most positive impact on the environment. Through inventive, playful reuse, we would like to see how we might retain as much material on site as possible during and after refurbishment, considering the whole life of materials, and minimising transport and waste.

New materials will be predominantly natural and sourced from the local bio-region. The building will be highly insulated, exceeding the current building standards. We will employ a fabric-first approach, focussing on the thermal performance and air-tightness of the envelope, thus allowing the servicing to more simple and less expensive to run. Our intention is that Max Fordham will carry out Embodied and Whole Life Carbon Assessments throughout RIBA Stages 3 and 4. Narro Associates will continue explore the efficiency of the structure, and whether it could be pre-fabricated for ease of assembly.

We will engage with local contractors and tradespeople, specifically where some of the materials proposed are less conventional. For example, should we use clay or hemp blocks, the skills can be transferred from conventional concrete blocks. We will also use age-old techniques, e.g. stone masonry and lime harling, but know that younger tradespeople regrettably have fewer opportunities to work with these materials, so support and training is required. There should be an opportunity to open out our research and testing to the wider public, working with local consultants and craftspeople to test, for example, several options for the external wall construction. This could then form part of a small public exhibition alongside drawings, images, and models of the project.

The team has considerable experience in this regard. Assemble's project Atelier LUMA – the conversion of a 19th Century train depot in Arles, France into a laboratory for bioregional design – was awarded the Bâtiments Durables Méditerranées design-phase gold label for its economically, socially and materially regenerative approach. Laidlaw Associates has 35 years experience of conservation and repair of historic buildings across Scotland, including many years as Lead Surveyor in the National Trust Scotland. Often this has included extended programmes of training in traditional skills and materials, including the building of a lime kiln on an estate so that lime mortars and washes could be made directly on site. Laidlaw will dovetail with the design team and contribute to our holistic approach to both refurbishment and new construction.

As part of the construction, opportunities should be made to connect to local groups, charities, and organisations so that the project can provide valuable experience for young people in the Highlands. Elements of the construction – such as wall linings, glazing, signage, garden landscaping, or furniture – could be identified as collaborations and commissions for young or established artists, perhaps integrating with Timespan's residency programme. These represent fantastic opportunities to build on Timespan's great engagement work, and provide opportunities for local residents and stakeholders to be involved in fabrication and design workshops throughout the process.



Potential construction strategy

SCHEDULE OF SPACES

This area schedule is the product of our investigations, research, and design development during RIBA Stages 1 & 2. It should be read in combination with the Drawings on previous pages of this section, plus "Constraints and Opportunities" and "Updated Brief" in Section 1.

Areas have been defined by a combination of client/community feedback, analysis of key precedents, and our design iterations. Areas for storage and plant rooms, as well as specific quantities and locations of bathroom facilities, will be further refined from Stage 3 onwards following input from the design team and a more detailed examination of building standards.

This table updated accordingly to record and consolidate the guiding principles of the project.

	Existing gross area m^2	Proposed gross area m^2
INTERNAL AREA	776	1317
EXTERNAL AREA	728	632

Space	Existing net area m^2	Current net area m^2	Public/Private
Entrance & Shop	60	61	public
Shop	incl above	incl above	public
Museum	111	165	public paid
Gallery	99 (incl landing)	214	public
Workshop (excl kitchen area)	68	78	public
Library	21	36	public
Café & Kitchen	61	77	public
SUBTOTAL	420	631	
Archive	20	40	private
Offices & Staff facilities	35	108	private
Artists flat	43	38	private
Artist's production space	-	30	public on occasion
Toilets	31 (6 no.)	44 (10 no.)	public
IT Server/Plant Room	4	55	private
Storage Space	60	74	private
SUBTOTAL	193	389	
Planted garden	395	279	public
Courtyard garden	264	326	public
Other external	69	27	private

Next Steps

The first and most important upcoming task is obtaining funding, a process which has already commenced in the client team. Funding should be secured initially for RIBA Stage 3 'Spatial Co-ordination', which culminates in a Planning Application. The project may need to be developed to this level of detail to apply to major capital funding bodies. This funding may also be contingent upon carrying out essential surveys, including:

- Archaelogical / Heritage Impact Assessment
- Flood Risk
- Ecological survey
- Abestos survey
- Arboricultural survey
- Site investigation (SI) (including trial pits, a desktop study, and a deeper Geo-environmental & contamination report.
- Full condition survey of Cottage
- CCTV survey below-ground services

Stage 3 will commence with a full appraisal of the information in this document, specifically an analysis of the Cost Plan and any requests for design changes which arise therefrom. Once these are established, a Project Programme will be produced to include key dates and deliverables going forward.

Following this, additional consultants will need to be appointed to assist in the design process and/or satisfy the requirements of Planning Permission and Building Warrant. These comprise:

- Access consultant
- Fire engineer
- Exhibition consultant
- Embodied and Whole-Life Carbon Consultant
- Landscape architect

Around the middle of Stage 3, the Local Authority will be engaged and a Pre-Planning Application submitted. This conversation may also include lease arrangements, use of the adjacent car park, and ownership of the public space to the north.

FURTHER DESIGN CONSIDERATIONS

In addition to the above, below are some items which require further design work and discussion early in the next Work Stage.

GALLERY/MUSEUM/ARCHIVE CONDITIONING

Max Fordham have made recommendations (see Item 1.1 p.199) for the appropriate level of temperature, humidity, and air control in the building. The implications of this approach, versus a more tightly-controlled environment, should be discussed early in Stage 3, as they effect the plant required, the running costs, and the spatial organisation. An inventory of sensitive artefacts to be displayed should be provided to aid this discussion.

FLOOD RISK

The viability of building a taller structure close to the river must be ascertained early in Stage 3.

SECURITY/OPERATIONS

Consideration have been giving to how visitors will navigate free and ticketed spaces, but further discussion is required. A communal cloak room has not yet been accommodated but may be necessary. Security across the building – including alarm zoning, and sensors on artworks and artefacts – will also be developed in Stage 3.

DELIVERIES & REFUSE

Valuable feedback was given from staff in Engagement Workshop 3. However, there are still items for the design team to fully resolve, namely large deliveries in and rubbish out.

SUSTAINABILITY TARGETS

These may be stipulated by some funders, or be important to the client team. Examples include BREEAM, Passivhaus/EnerPHit, or UK Net Zero Carbon Buildings Standard. These targets need to be declared early as they have considerable impact upon the design and specification of the building.

LANDSCAPE

The redesign of the gardens will be crucial to the new Timespan. A new courtyard is proposed, but this should not be hard-landscaping only. There is an opportunity to implement a beautiful planting scheme specific to the region – evoking Mary Dudgeon's original. Landscape architects familiar with the Highlands should be approached during Stage 3.

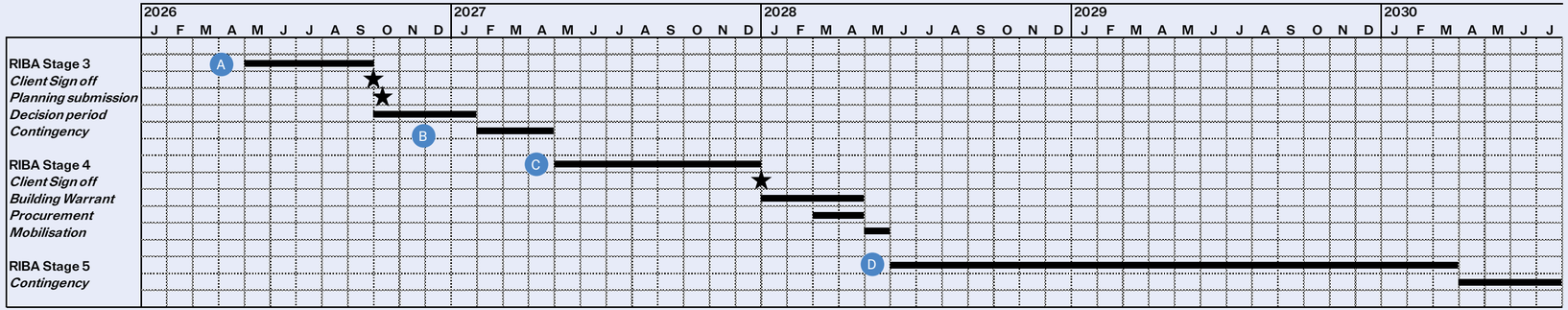
On the pullout overleaf is an initial programme for discussion. We have highlighted below and labelled on the programme some things currently unknown, which will be discussed with the client and confirmed in due course.

A We have made an estimated allowance for fundraising, based on the information currently available, before the commencement of Stage 3. Beyond that, we have not included for any fundraising period, as those timeframes are not yet know. This may be able to run concurrently with design progress, or it may be that a pause is required after a Work Stage for the next tranche of fundraising to take place. We expect that this will form part of the discussion during Stage 3, and will be firmed up in future programmes.

B The Planning and Warrant determination periods represent a risk to the programme currently. Engaging the local authority in a Pre-application Process and/or involving a Planning Consultant would help develop a clear strategy for how best to manage the process and work it into the project programme.
As we've said elsewhere ensuring good early consultation with key stakeholders both within the council and local community will be essential to a smooth and prompt decision process. For now, we have included a 3 month contingency at the end of the decision period to allow for delays in this process.

C It may be that the client is willing to commence Stage 4 in advance of Planning being determined (known as 'proceeding at risk'). The benefit is that momentum is maintained and the project can typically commence on site earlier. Should Planning not be granted, this would result in abortive work by the Design Team and as such constitutes a risk for the client.

D We have allowed 91 weeks for Stage 5 Construction, in line with Thomson Gray's Cost Plan and allowance for Preliminaries. This is an estimate only, and will be confirmed following tender analysis and appointment of a Main Contractor.



COLOPHON

Published by ASSEMBLE & OFFICE CORR HIGGINS for Timespan

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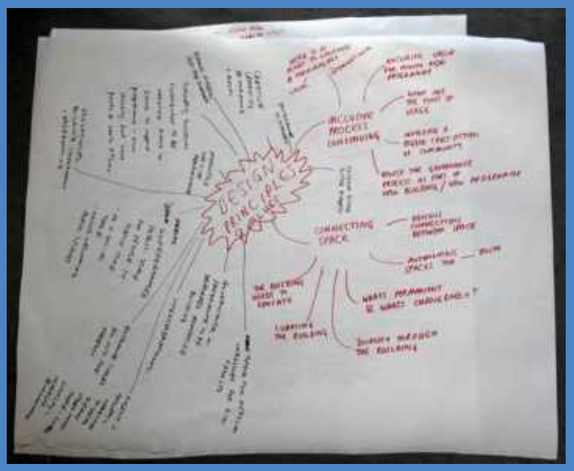
APPENDICES

Engagement Workshop 01 March 2025



WHAT PEOPLE WANT

A building that reads as part of Helmsdale

A building built from local materials, supporting local skills and tradespeople

A building that speaks to the history of Helmsdale whilst also celebrating the forward thinking program of Timespan

A building that is distinctive and celebratory

View of the Timespan garden and surrounding landscape in the 80's

'The front of the building is not a focal point at the moment'

'The building needs to celebrate parts of the wonderful landscape'

'Timespan needs to show the outside that there's lots to see inside'

'The façade needs to be distinctive'

'The building needs to feel natural'

It is not clear from the outside what the building is for

Helmsdale Bridge in coursed rubble

WHAT PEOPLE WANT

The building's energy systems need upgrading, including mechanical and electrical systems such as heating, ventilation and lighting

The building's fabric needs upgrading including insulation, acoustics and waterproofing

Flood risk is an important consideration in any development

More space is needed for staff spaces including offices, meeting rooms and kitchen.

More space is needed for back of house areas including storage

'The architects need to make changes that the users can maintain'

Poor natural light in the workshop space

'There needs to be a staff room that it nice to be in but also practical'

'Storage storage storage - outside and inside'

Insufficient and inefficient storage space

'There could be a staff kitchen/ non commercial kitchen'

A cramped kitchen café

'Improve acoustics for live performances'

WHAT PEOPLE WANT

The gallery should be able to display local and international artists

The gallery and museum need to speak to each other more

The gallery should be larger so it can display a greater variety of work

The technical capabilities of the gallery should be greatly improved with better acoustics, lighting and wall space

Lack of wall space in gallery and poor lighting

‘The lighting is not up to spec for gallery conditions’

‘The gallery could highlight in a modern way what’s in the museum’

‘The museum and gallery and workshop to speak to each other much more’

‘ The gallery could be in multiple spaces’

‘The gallery could be more striking, from the outside but also the inside’

Low ceilings in the gallery

WHAT PEOPLE WANT

The gallery and museum need to be better connected

The museum should be larger so it can display a greater variety of exhibits

The technical capabilities of the museum need to improving so a greater variety of items can be safely displayed

The museum should have better lighting and views out to the surrounding landscape

More space needs to be given to the archive

The museum should be more interactive

The geology garden needs to be better connected to the main building

The museum is cramped and poorly lit

The museum is currently hidden away within the building

‘The museum used to be throughout the building, there was more space, it was more dynamic’

‘We need to make it exciting for kids again.’

‘The spaces should be fluid; its should be easy to change exhibits but also to flow through the building more.’

‘The character of the museum and heritage should be IN the building but also OUTSIDE’

Heritage Museum originally spilled out into the entrance and was been visible from the street

‘There should more eccentricity in the museum, the old museum had this quality’

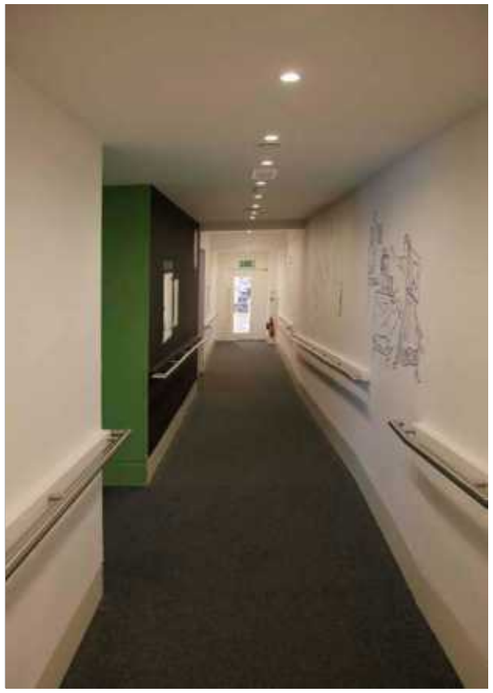
WHAT PEOPLE WANT

The building should be easy to navigate and understand

The front of house and entrance should embody the character of timespan and provide a welcoming atmosphere

Visual connections should be made with the surrounding landscape and the street

The building should have spaces to pause throughout the building



Long corridors with no natural light

'A main entrance should be at the front of the original house'

'The Café should be open to the garden, and used more for events.'

The entrance of the building should be the hub of the building

The cottage faces the village, but doesn't currently feel inviting to the public

'Can we have more public spaces where people feel they can just turn up'

ACCESS

WHAT PEOPLE WANT

Clear signage should be designed to help people navigate the building

There should be spaces to sit and rest throughout the building

Movement through the building should be easy and accessible

There need to be safe and clear entrances and exits to the building both for day-to-day use and fire escape routes

The fire exit from the gallery block the view and is inaccessible

'The garden needs to be more accessible and have access from the bridge'

'It would be good to enter from the centre of the village'

'The lift needs updating'

'The fire escape is not good - we need safe access'

'We should have tactile and interactive spaces'

The lift access to the first floor is too small and tempermental

WHAT PEOPLE WANT

There should be space in the building for workshops to take place that target both children and adults

The workshop needs to be robust, flexible and practical with good acoustics

The workshop needs to feel welcoming and like a community space

The workshop should have good natural light, views to the outside

The kitchen for the workshop has inadequate space and lacks natural light

‘We need space for regular workshops for kids and adults’

‘The workshop needs a better screen & comfortable seating’

‘Having flexible spaces in the building is really good’

‘The workshop can be cramped and hot’

The workshop has inadequate natural light and, when full, can also be noisy and hot

WHAT PEOPLE WANT

There needs to be space for production within the artists residency space

Artists in residence should be able to produce works at a range of scales and media on site

The artists studio should be practical - able to be messy but easily maintained

The artists flat is cramped and has little natural light.

‘Timespan should offer facilities to the local area, specifically to Helmsdale and Loth residents to capitalise on providing space for artistic development so important in a rural isolated area.’

‘Improve / fix artist flat (bathroom, ventilation, heater), it could have big windows to see outside view (garden, river, hills, the sea)’

The artists flat could be more comfortable and inspiring as a place for creatives to stay

Artists should have more space for the production of works at a range of scales.

CHILDREN'S ENGAGEMENT WORKSHOP

The timespan team ran a consultation session with children on 8 March 2025 about Timespan's redevelopment. As part of the workshop, the children were asked a set of three questions with sheets to fill out their responses as we did a tour of Timespan, followed by a creative workshop where they redesigned the building. They were given paper, card, plasticine and pens to help them illustrate their ideas.

The questions were: What do you like and dislike about Timespan now? If you could redesign Timespan for the future, what would be the same, what would change? What would you change about the building?

Their responses to each of these questions are written on the following page with each colour representing a different child's voice. For the first three questions, only 8 out of the 10 children were present, the responses below are the responses that were collected. Not all children answered all of the questions.

"You see that it's the library. With a tonne of books on it..... And I've made a speaker with with some nice music on it."

"this is the trampoline kind of area with the glass roof little hole, the ladder so you can get up and go down the fireman's pole."

"it is a glass dome sort of built into the hill and when you go inside, there'll be like 2 halves to it. One side is a place for like gardening and the other side could be for outdoor science activities."

The Bird Sanctuary: Sign says, do not disturb the birds, the lines are for the birds to sit on, blue shapes are the windows and this would be outside in the timespan garden to replace the broken sheds.

↖ The kids lounge space (to replace the adult library): " We changed the adult library into our kids' lounge space to read and draw."

Likes	Dislikes
-The bellows -The wolf -The bed -The clock -The pictures -The boat -The fish on the floor	-Needs more realistic floors. -More interesting stuff. -More games.
-Bellows -Fire place -Wolf, clock, bed, chair, baby, bed, shoes, bath, croft house, green room, spinning chairs.	-Fake people
-Bellow, house, bath, baby bed, yarn, chair, basket of apples -VR room, spinny chair, space rock, fake boat, gold, library, cheese rock.	-Fake people, wolf, clock, pictures, knives -Better graphics -Fishing rods -Spiky tree
-Smell	-Fake human -Wolf -Better graphics -Smell like old stuff -No food
-Bellow -Wolf, bath, flowers, mill, grass, wall -VR Room -Space rock, -Gold -Flower -Cards	-How its cold -The soup -Smell -No books -No kids area -No free food -Kids drawings -Snack place for kids -Kids need to come more
-The garden	-Too many words in the museum
-Bellows -Tools -Old anvil -Grindstone	-Walls need to contrast to theme and floor
-Clock meter -Electrics room -Rock Pocy Stickers	-Hammins -Wolf

What would you change about the building?	If you could redesign Timespan for the future, what would be the same, what would change?
-Better seating -Less words on museum walls -More realistic -Better floor -More pictures -Bigger appeal to kids -Labels and pictures of the people in the village -Food!!!	-More interactive -Full contact rugby -Get a 4K monitor -Touchable (sensory) stuff -Actual games -Free crepes -Better mouses/ keyboards
-Walls and floor needs to contract to theme -Old fashioned rope in shop and more to the theme stuff -More seats and displays -More child friendly activities -More Shelfs -A wing -Hiding places/ secret spots -Snacks	-Frog Home -Plants -Shows for kids -Kids in there more -Pizza oven -Galaxy -Chill shed -Slime machine -Kids in the youth library more -Games -Manhunt -Slides -More frog pools -Keep the rocks -No broken cups -Time out if need
-More Harry Potter books -Better TV -Pizza -Frogs -Goats -Meditating -Sleep -Climy wall	-Shop (Drawing of grid- see appendix 1) -Swings -Axlotx -Book -Library- fireplace
	-Museum floor- carpet (see picture in appendix 2) -Mini bridge -Shop floor -Chill shed outside -Frogs -Flowers -Wood bridge -Fire place -Potion station -Bug House -Slime station -Window seat -Kids library
	-Room about birds (See appendix 3), trees, art -Free chocolate brownies -Floor: Chequered -Thing about helmsdale -Manhunt -Walls also chequered -Art

DESIGN STUDIES OPTION 1: MINIMAL INTERVENTION + BUILDING UP

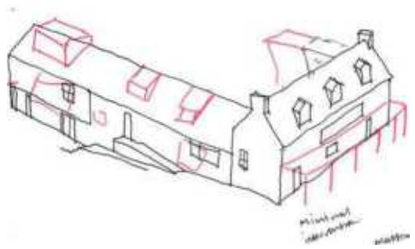
These precedents are examples of additions made to existing buildings. The collage of different building techniques means that the building reads as a whole through choosing materials that knit together the different forms.

Window In Ben Nicholson. A patchwork of materials and tones

Big Form, Little Form Sergison Bates, St Margaret s Wellbeing Centre

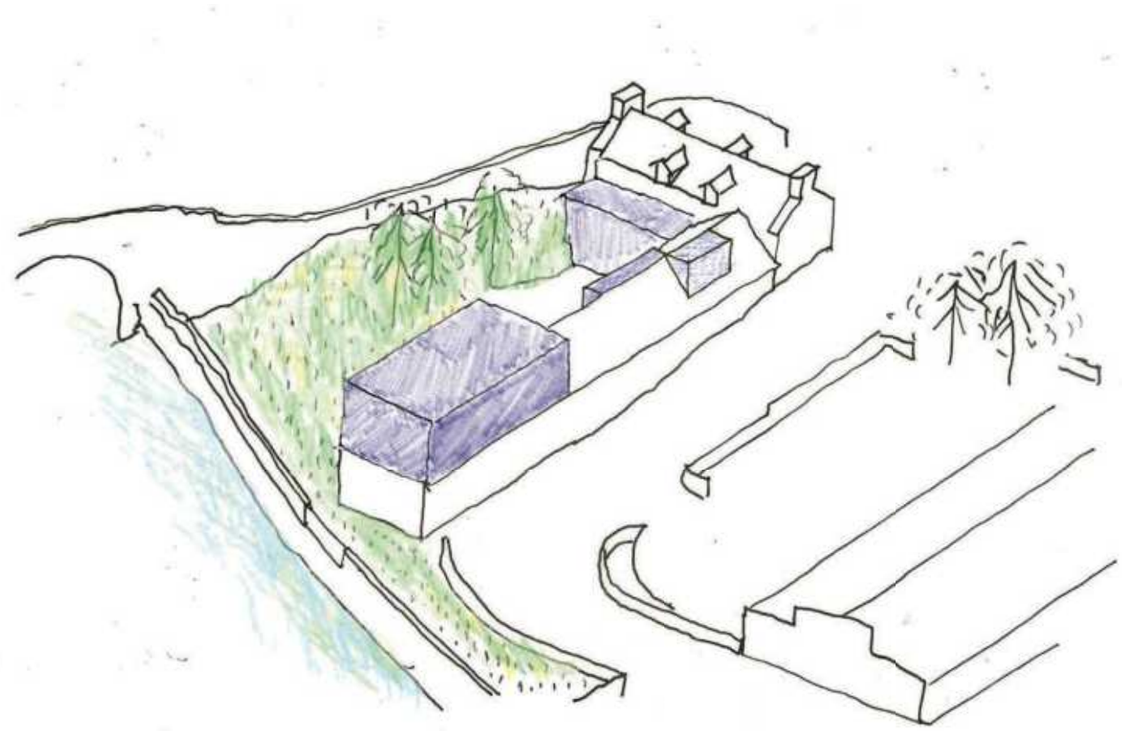
Porthmeor Studios Interior

Porthmeor Studios Exterior



Early sketch for minimal intervention

3D massing gives an indication of how there would be minimal additions to the existing building. The main addition would be building upwards a story above the current gallery.

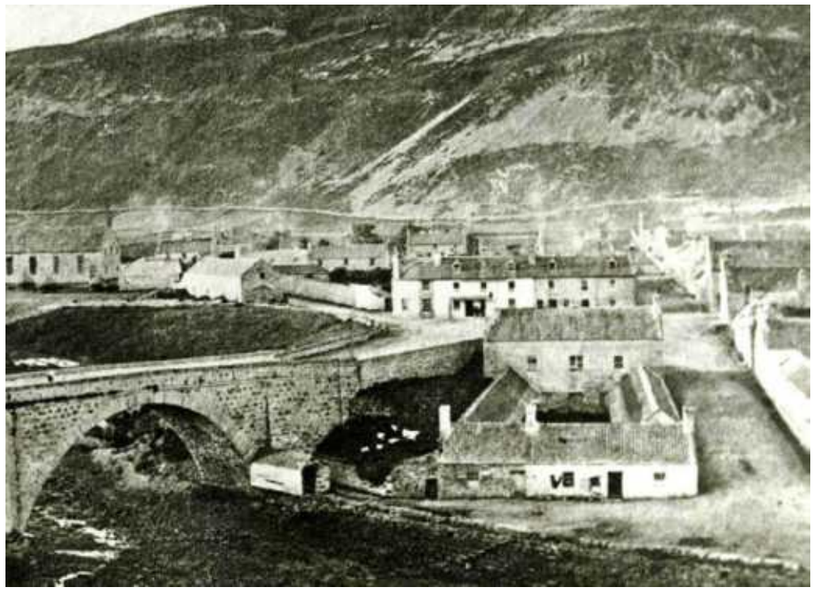


Option 1 Massing diagram

These precedents are examples of courtyard typologies.

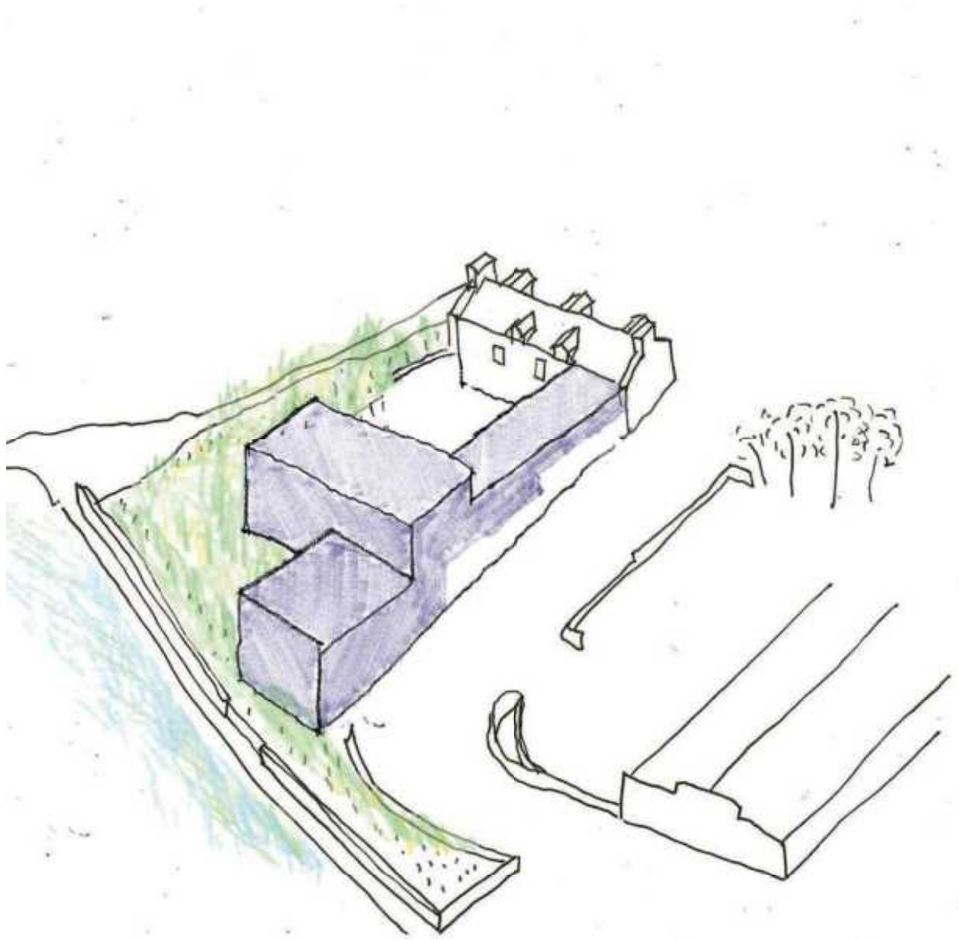
Juergen Teller Studio, 6a architects

South London Gallery, 6a architects



Original courtyard

3D massing gives an indication of a prominent massing to the south of the site with a courtyard sitting behind.



Option 4 Massing diagram

ENGAGEMENT WORKSHOP 02 OUTCOMES

The feedback from the outline design options and project principles was very positive from both sessions. There was consensus and encouragement to be ambitious and transformative, that this was important opportunity to change Timespan for the better. We have summarised the feedback below:

Of all four options, all groups were drawn towards options 2 and 3 - 'Building Outwards' and 'Gatehouse'.

GENERAL NOTES

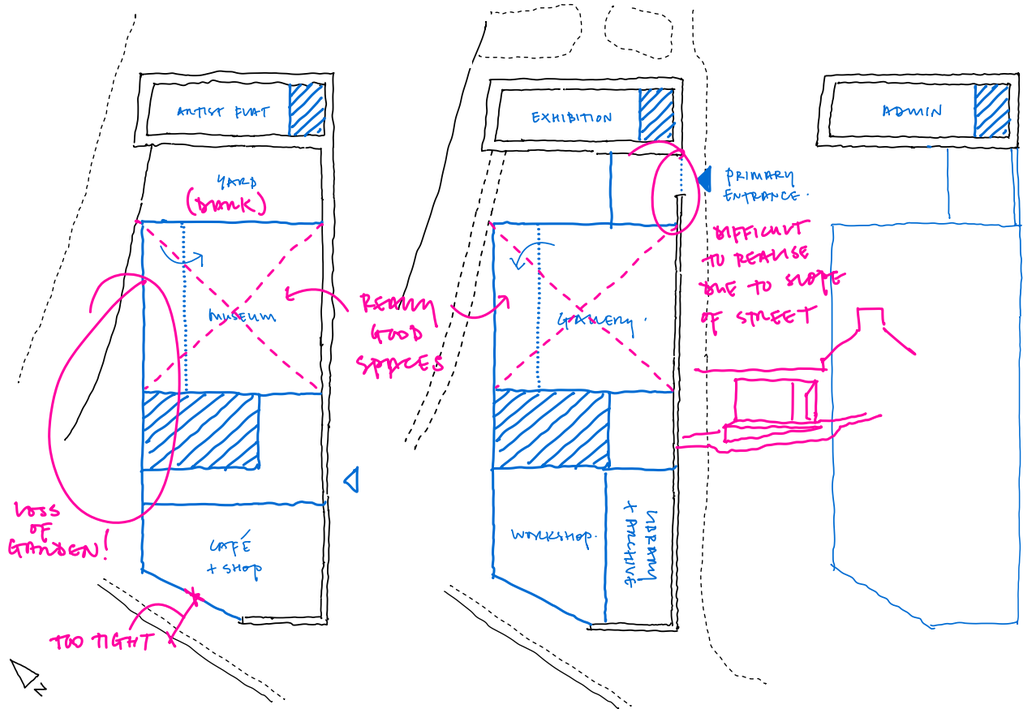
- There was a note that the geology needed to be included as part of the site and overall strategy for all options
- Everyone liked to see the entrance at the north, through the cottage
- It felt important to keep the café and shop together
- More of the garden should be retained and included in the proposals
- The garden is currently inaccessible and not the celebrated design it once was
- There was discussion around the carpark and whether to move the entrance to it
- There is a flood risk to the south which should be discussed with SEPA
- People queried the ownership of the flower beds to the north of the cottage

OPTION 2 - BUILDING OUTWARDS

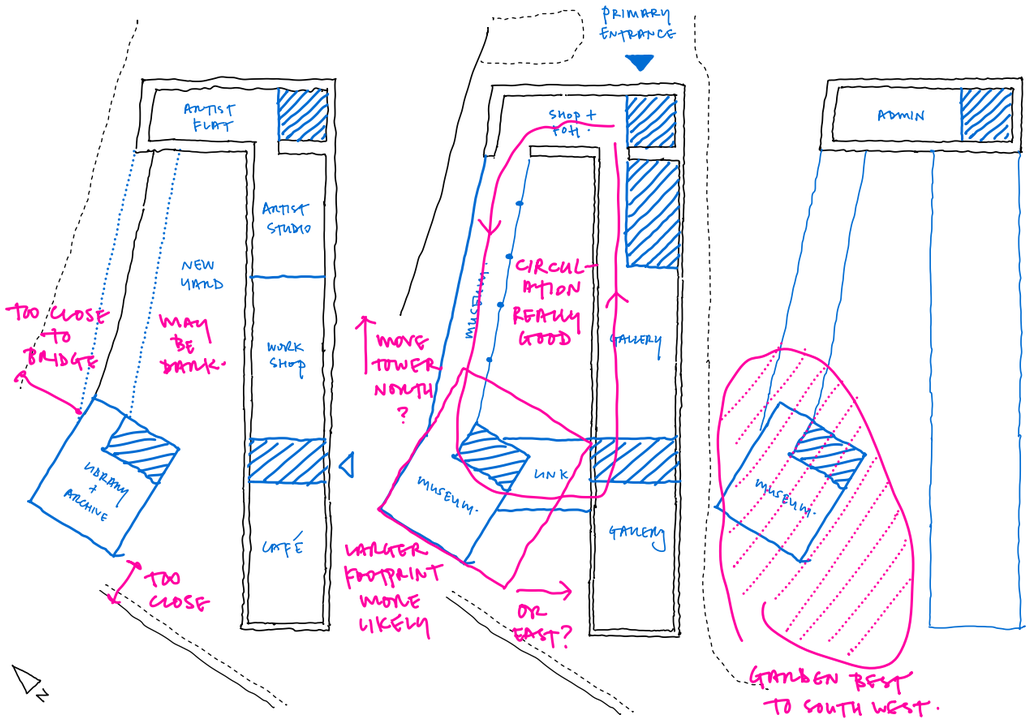
- People liked the separation between the existing cottage and new building
- The yard would be dark and drafty - ideally it would be covered
- The side entrance would be difficult to realise without moving the pavement
- It felt positive to reference the neighbouring garage form
- The extension was felt to be too close to the river, disconnecting the geology garden from the rest of the site and compromising the garden
- Participants liked the clarity of the museum and gallery having the same footprint, stacked on top of one another

OPTION 3 - GATEHOUSE

- It was felt the working yard was a good idea but that it risked becoming a dark, damp, unused space
- Participants were very enthusiastic about the circulation - being able to move easily around different parts of the building
- Walking round the site it became clear that the tower would be too close to the bridge and block the view of Timespan
- Similarly that it would be too close to the river
- Groups reflected that there is potential to move the tower to the southern part of the existing extension and build up at that point, still allowing a clear view of the rest of Helmsdale roofline from the bridge
- The footprint of the tower was felt to be too small

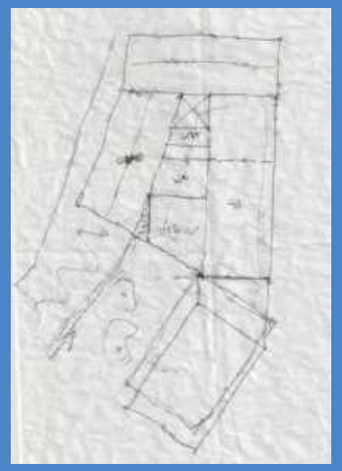


Summary of comments from Option 2 - Building Outwards



Summary of comments from Option 3 - Gatehouse

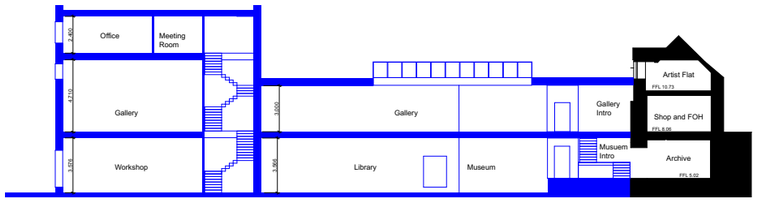
Engagement
Workshop 03
July 2025



HOUSE TO HARBOUR UPDATED OPTION

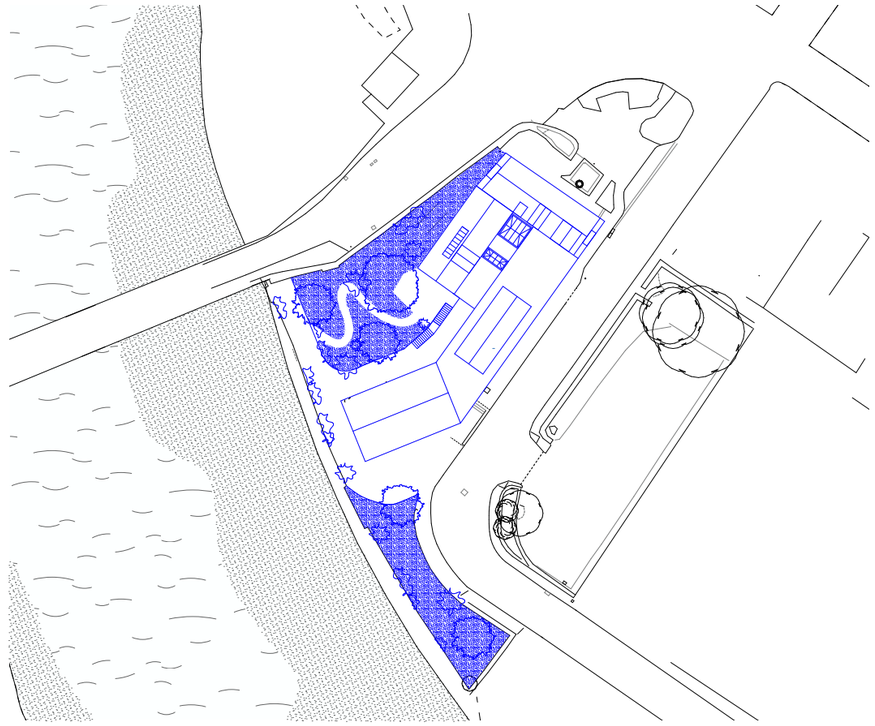
This scheme is a development of Building Up, with some elements of Gatehouse, but with more floor area. The caf has been moved to the first floor, meaning it can be accessed and staffed more conveniently with the front of house and shop. The workshop moves to the riverside, with external access on three sides.

The museum takes up a larger area on the lower ground floor, and significant thought has been given to the ease of circulating around the building, with two primary circulation cores connecting galleries and museum. As in previous iterations, there are two large galleries on the upper ground floor. Staff offices and meeting rooms now take the upper most floor in the lower

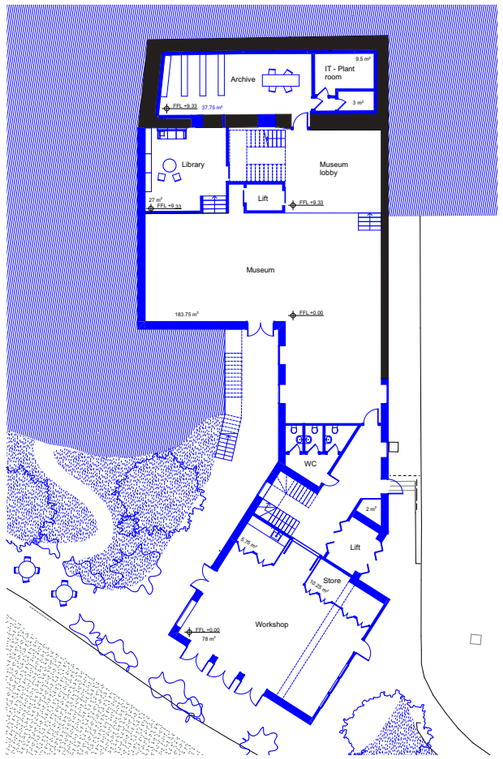


Section

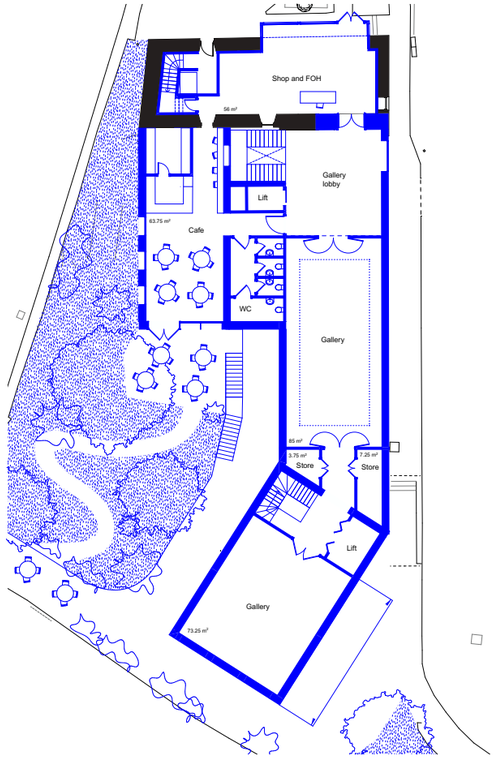
≈27m² Library
≈41m² Artists Flat
≈111m² Admin/Studio/Meeting
≈56m² Shop & FOH
≈158m² Galleries
≈183m² Museum
≈37m² Archive
≈64m² Caf
≈93m² Workshop



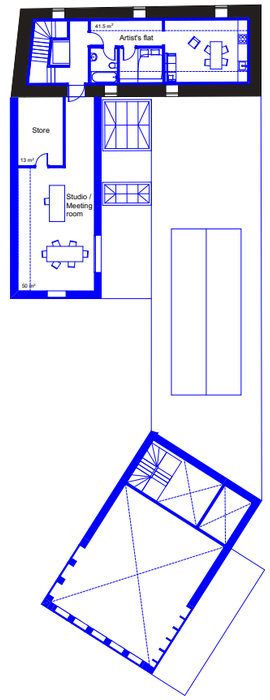
Site Plan



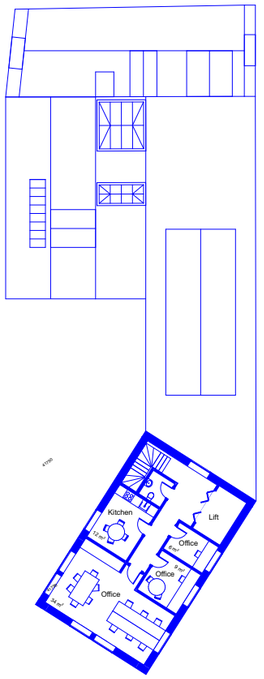
Lower Ground Floor



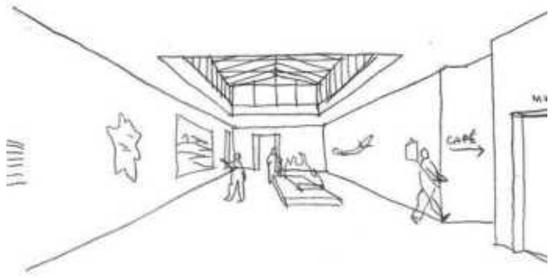
Upper Ground Floor



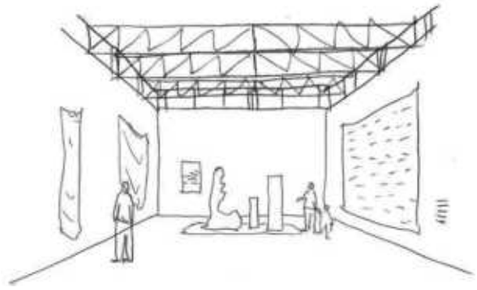
First Floor Cottage



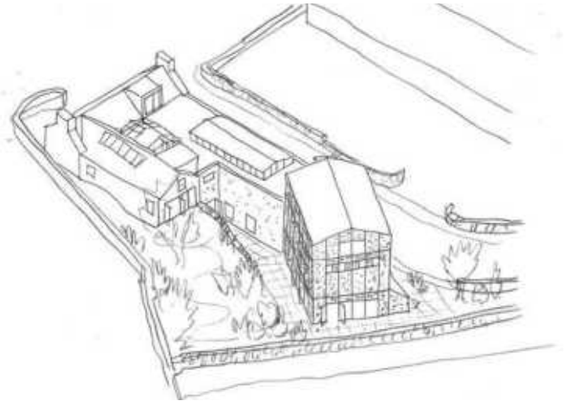
First Floor Tower



Long Gallery

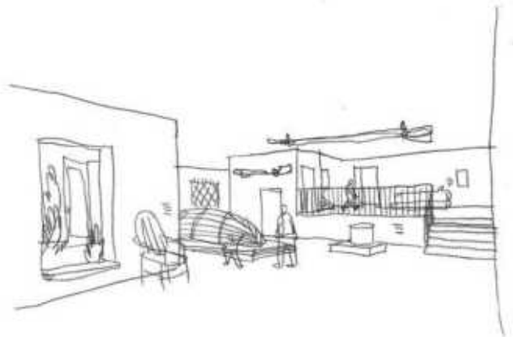


Tall Gallery



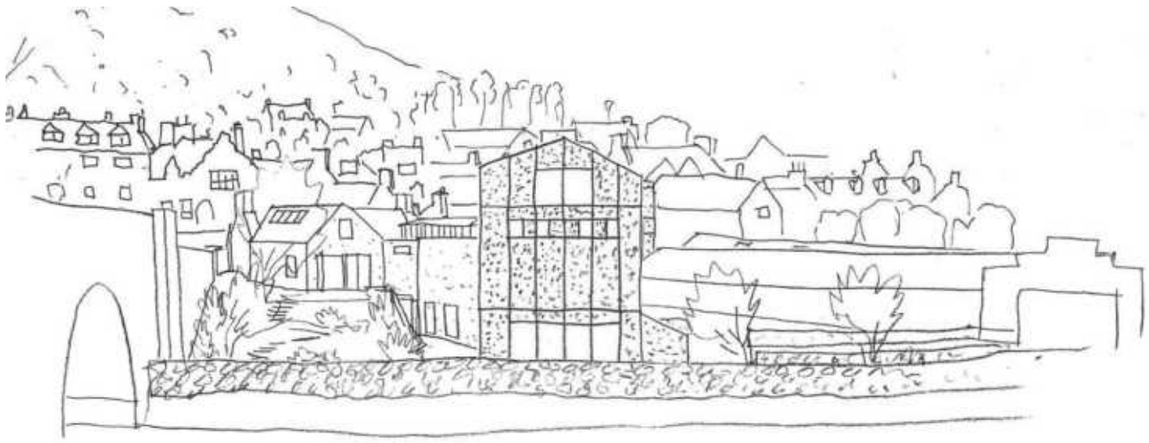
Axonometric from SW

Roundabout View



Museum

Axonometric from SE



Riverside

References




Helmsdale Stone and Render

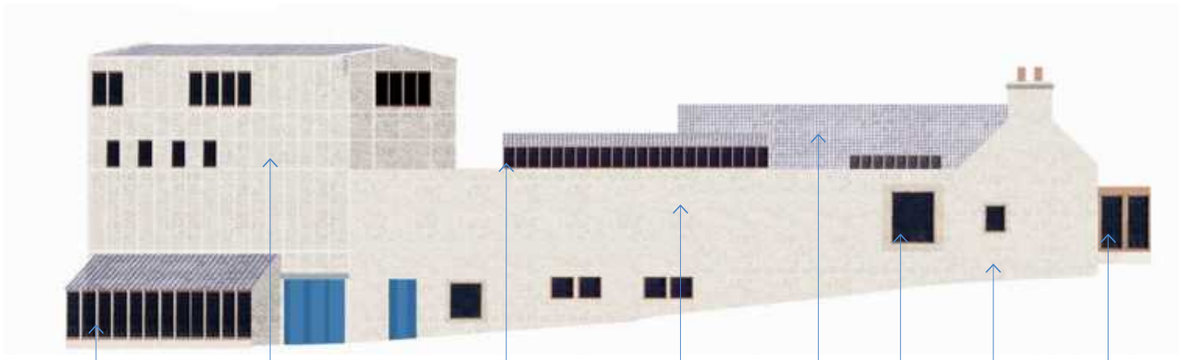


Stone Detailing

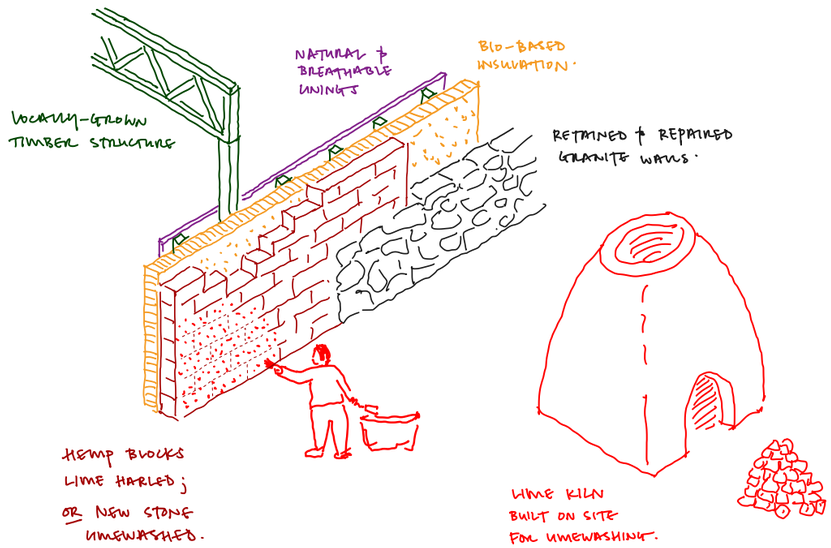



Render Details


Hempcrete Block and Timber Frame



East Elevation



Potential construction strategy

Consultants Proposals

Timespan Heritage Centre, Helmsdale, Sutherland
Initial notes from building condition survey on 7th March 2025

The site now occupied by Timespan was a former herring curing yard, converted to different uses in the latter half of 20thC and further re-purposed as a museum in 1987. The north building was built sometime between 1828 and 1871, though there may have been an ice house against the north pier of the Telford bridge (1808-1811) prior to the north building.

Planning restrictions: Normal. The site is not listed by HES and there is no Conservation Area designation in Helmsdale.

1. Historic northmost buildings

The north house and ground floor east wall against Shore St. are traditional mass masonry, constructed of local granite and lime mortar with alterations, including the west chimney built in concrete block. The exterior is now covered in cementitious roughcast with a masonry paint finish. The buildings are likely to have been lime harled with a limewash finish historically: there is some evidence of this in the historic photos supplied by Timespan. Remnants of lime harl still exist on parts of the west wall of the adjacent garage that was also a former herring curing yard. (other side of Shore St.).

Limited moisture measurements were taken on the interior face of the Shore St wall (from electrical cupboard in shop). The samples indicated moderate levels of moisture contained in the mortar joints at pavement level. NB: ground floor of shop here is approx. 1m below external ground level so moisture levels can be expected to be higher near floor level. Moisture levels within the gable walls can also be expected to be considerably higher.

Exterior cement wall coatings tend to trap moisture within the walls and prevent beneficial self-regulation of moisture levels from occuring: the self-regulation effect is a significant advantage conferred by traditional external lime harl and limewash finishes.

Consideration should be given to removing the cementitious roughcast from the historic granite & lime walls and replacing with the historic lime based finish:

- To present the heritage centre building in its historic state
- To help improve the building environmental performance by reducing the moisture levels in the exterior walls can be expected to correspondingly reduce relative humidity of the interior environment.
- To improve the ability of renewed building services to regulate and control the interior environment to provide improved conditions for the conservation of museum exhibits & artefacts than is currently possible.

More intrusive investigation of the existing state and moisture levels of the exterior walls should be carried out to inform a more detailed repair strategy.

Roof: Evidence from within the accessible roof void demonstrates that considerable repair and re-slating has been carried out previously: rafter repairs & replacement, sarking replacement, bituminous felt slate underlay and double nailed west highland slating. An old woodworm infestation appears to have died out: possible indication of previous

insecticide treatment applied. Externally, the roof is in a serviceable condition, however the cement coatings of the chimney heads & skews are spalling from effects of weather/frost. Similarly the clay ridge tiles are also spalling.

We recommend the chimney heads are rebuilt inc. replacement stone where required. The skews should be lifted and re-bedded on robust hydraulic lime mortar inc. all cement removed from the stone units. Clay ridge tiles should be replaced in stone to reinstate the historic finish.

Roof void : void spaces are poorly ventilated: many signs of condensation and mould growth are evident on timber surfaces. Thermal insulation levels substantially below current standards. Mineral wool is currently stuffed into the bays between rafters in the coombed ceiling sections, blocking off essential ventilation paths. Flooring to the apex roof void is carried out to meet the sarking which is also contributing to blocking ventilation gaps between the roof void areas.

We recommend that all the thermal insulation is removed and a new approach is applied to thermal insulation to the coombes and apex ceiling combined with improved ventilation: it should be possible to introduce a continuous ridge ventilation system below replacement stone ridges.

Rainwater drainage: Existing provisions include 4" cast iron gutters draining to an inadequate provision of 2 ½" cast iron downpipes. Access to the gutters is very poor at the NW corner and there is manifold evidence of overflowing gutters. Condition of gullies and drains below ground is not known.

We recommend that the capacity of the rainwater goods is improved with new 6" cast iron gutters, draining to replanned and additional 3" cast iron downpipes. A CCTV survey of the below ground drainage is recommended.

Ground conditions around foot of walls: Generally, surfaces are concrete pavement brought up to the base of walls. The now defunct and disused biomass heating system fuel store apparatus and sheds are blocking all access to the NW corner of the building by the bridge ramp and are also providing support for ivy climber growth which in turn is inhibiting & blocking the roof drainage and ventilation gaps. All these conditions are tending to trap moisture against the building fabric, increasing risk of multiple adverse effects.

We recommend the defunct biomass apparatus and all sheds around the NW corner are cleared away to allow access for building fabric maintenance and to allow natural ventilation of the exterior walls and roof. All the ground margins around the base of the walls should be rationalised to form free-draining trenches incorporating a part-perforated drain pipe. All to drain water away from the base of the walls.

Exterior joinery: Dormer window faces, windows and doors: universally exterior decoration is time expired, perished and peeling. Timber decay was noted in the dormer facings and sash & case window cills.

We recommend all exterior joinery is overhauled: decayed timber should be cut out and replaced in more durable pre-primed timbers and all joinery thoroughly prepared, primed and repainted using a high quality four-coat exterior paint system.

As part of any strategy to improve the thermal and environment performance of the buildings, consideration should be given to replacing the single glazed window sashes with new double glazed sashes, incorporating discreet draught-proofing and trickle vents.

2. Modern museum extension buildings

These form the two-storey range attached to and extending away from the south side of the historic house. They appear to comprise altered and repurposed previous masonry structures at ground floor level: traditional mass masonry walls on the east side and modern concrete block walls on the west and south sides. At first floor level, the east wall appears to be constructed of concrete block built onto the mass masonry wall-head below. The south and west elevations appear to be of timber frame construction at first floor level. The timber framed structures are clad externally with profiled steel sheeting consistent with the roof coverings. Internally, all walls are framed in timber with the panels packed with mineral wool insulation and finished with plasterboard.

We carried out limited intrusive investigation of the wall construction by endoscope in order to determine its construction. Further investigation is recommended to confirm our initial findings and also the design construction details should be recovered (from Highland Council Building Standards archive if necessary). Armed with this information it should be possible to calculate approximate existing U-values of the walls and roof construction to assist with thermal modelling as part of any proposed building performance and heating strategies.

Roof: Existing construction comprises timber trussed rafters at approx. 1500mm centres supporting purlins at 900 centres, supporting a sarked roof deck and profiled steel sheet coverings. 150mm mineral wool insulation is laid between purlins or on the ceilings depending on the ceiling configurations.

Roof drainage: A combination of cast iron and PVC rainwater goods. Evidence of leaking joints and time-expired perished paint finishes externally. All require to be rationalised and all cast iron prepared and repainted with a good quality four-coat exterior paint system.

Exterior joinery: All windows are double glazed timber framed casements or fixed frames with a stain-varnish finish. All windows are in poor condition: The coatings are time-expired and perished. The majority of the timber cills and lower rails & frames of casements are severely decayed. Many of the seals of the double glazed units have also failed and are partly occluded with condensation.

We recommend that all the windows are replaced with new high quality timber framed double glazed windows, pre-finished internally and externally with high quality micro-vapour permeable coatings.

Boundary walls at the river bank: We assume that the riverside parapet walls are within the ownership / responsibility of Timespan. They have evidence of previous maintenance, but are not in good condition. Some stone is loose and there are many open mortar joints, particularly on the river-facing side.

We recommend allowances are made in the refurbishment plan for detailed inspection & repair of the walls to ensure they are brought into a safe and sustainable condition.

Reported by Kinlay Laidlaw MRICS for & on behalf of Laidlaw Associates Building Surveying Ltd

24th March 2025

Timespan, Helmsdale	*Traditional Construction Crafts: Skills and Materials register*	*Draft* *24th April 2025*

Element	*Materials*	*Skills*	*Notes*
Masonry	Stone requirements are likely to be relatively minor eg. replacement of concrete components revealed under the roughcast such as chimney copes & rebuilt sections: Likely source of local granite requirements would usually be from salvage unless a local source / exposure can be found.	All masonry work including stoneworks, mortars, harls, limewashes should be carefully designed and a detailed specification produced based on the information derived from site examination & material analysis and research: local traditions and knowledge: descriptions of works, extent and limitations; materials, sources, mixes, workmanship & equipment requirements, finishes and effects. Stonemasons and limeworkers: Suppliers of lime products: Masons mortar, Lochgelly, Edinburgh & Glasgow: www.masonsmortar.co.uk C&C Traditional Masonry, Nairn: www.candctraditionalmasonry.co.uk Harper & Allan, Keith: https://harperandallanmasonry.co.uk Masonry & Lime, Elgin: www.masonryandlime.co.uk LTM Group, Elgin & Sauchen, Aberdeenshire: www.traditionalmasonry.co.uk	
	Mortars: the requirements for mortar will arise from further investigation of the mortars used historically in the building: on-site examination and analysis of representative samples. Harls: examination of any remnants of traditional harling that might be exposed when the cement roughcast is removed will be important to understand the composition of binders & aggregates, also important to understand the historic surface finish: smooth render, cast to a texture, pressed back etc. Examination of other buildings in the locality with remnants of historic harls might reveal important information about local traditions, practices and material sources. Binders may contain lime (derived from limestone or possibly shells) and/or earth components. We can consider local sources of the appropriate materials once we have more information in due course. Any mortars are likely to contain a proportion of hydraulic lime to provide the necessary resilience to the mortars: these are likely to be sourced from Scottish suppliers such as Masons Mortar. Limewashes: Examination of any remnants of traditional limewash finishes that might have been applied to the building could be exposed when the cement roughcast is removed. It will be important for us to be there at that time to gather as much information as possible: multiple coats applied potentially over a century prior to alterations from the mid-20th could provide insights into material sources, pigments used over the history of the site. We can consider local sources of the appropriate materials once we have more information in due course. It may be practical and provide opportunities for outreach to manufacture limewash at Timespan for use on the buildings. Aggregates: on-site examination and analysis of representative samples will be essential to understand the types of aggregates used and their grading from course components to fine silts etc. Once we have that information we can carry out the replacement mortar design based on the historic aggregates to ensure the replacement mortars provide the performance qualities required. We can then look for firstly a commercially quarry that supplies a close match for the required aggregates. The historic aggregates used in the mortars are likely to have been		The list can be added to as other suitably skilled & experienced firms are identified

	sourced locally. We should also consider this and if a source is identified, whether permissions can be obtained and if it is practical to extract the material required.		
Roofing	Slating and leadworks: there is no suggestion from the initial surveys that areas of roof on the principal house need to be re-slated or extensive repair or replacement work carried out. The roofs require maintenance, relatively minor repair and possibly some alterations to introduce ventilation and improve rainwater drainage arrangements. A source of good quality second hand West Highland slates to match those on the existing roofs are required. Competent slaters should already have supplier contacts which should be an adequate arrangement to obtain the relatively modest supplies of suitable slate required to meet the needs of the project. Lead and cast iron rainwater goods: selection of suitable materials and products will arise from the project design and specification stage. The requirements for roofers to alter or maintain the extension roof structures and coverings will be identified during the project design and specification stage.	Skills: all roofing works should be carefully designed and a detailed specification produced based on the information derived from site examination & appropriate design details and specifications based on local traditions, codes of practice and experience to ensure the design, specification and workmanship will produce appropriate and resilient results that will perform for many years to come with diligent maintenance. Traditional roofers, slaters & leadworkers: Firth Plumbing & roofing, Inverness: www.firthplumbing.co.uk/roofing McLeod roofing, Inverness: https://macleodroofing.co.uk/services/slating LTM Group, Elgin & Sauchen, Aberdeenshire: www.traditionalmasonry.co.uk	The list can be added to as other suitably skilled & experienced firms are identified
Joinery	Exterior joinery repair and joinery manufacture: Principal historic house: the exterior windows, doors and dormer & porch facings require repair. Traditional joinery skills are required to carry out the necessary repairs to the standards to be specified during the project design and specification stage. Extension: considerable replacement window joinery is necessary due to extensive decay. The design and specification of replacement windows will be identified later during the project design and specification stage.	Treecraft Woodwork, Dornoch: www.treecraft-woodwork.com	The list can be added to as other suitably skilled & experienced firms are identified
Painting	Exterior joinery & cast iron: Traditional in-situ painter skills are required to carry out the necessary preparation & repainting to the standards to be specified during the project design and specification stage.	Bell Group, Inverness branch: www.bellgroup.co.uk	The list can be added to as other suitably skilled & experienced firms are identified
Groundworks	Drainage repair & alteration: CCTV survey of existing drainage Surface water and foul & waste drain repairs & alterations and free-draining trench / French drain installation will be necessary. The design and specification of the drainage requirements will be informed by the results of a CCTV drain survey. Work on this will proceed later during the project design and specification stage.		

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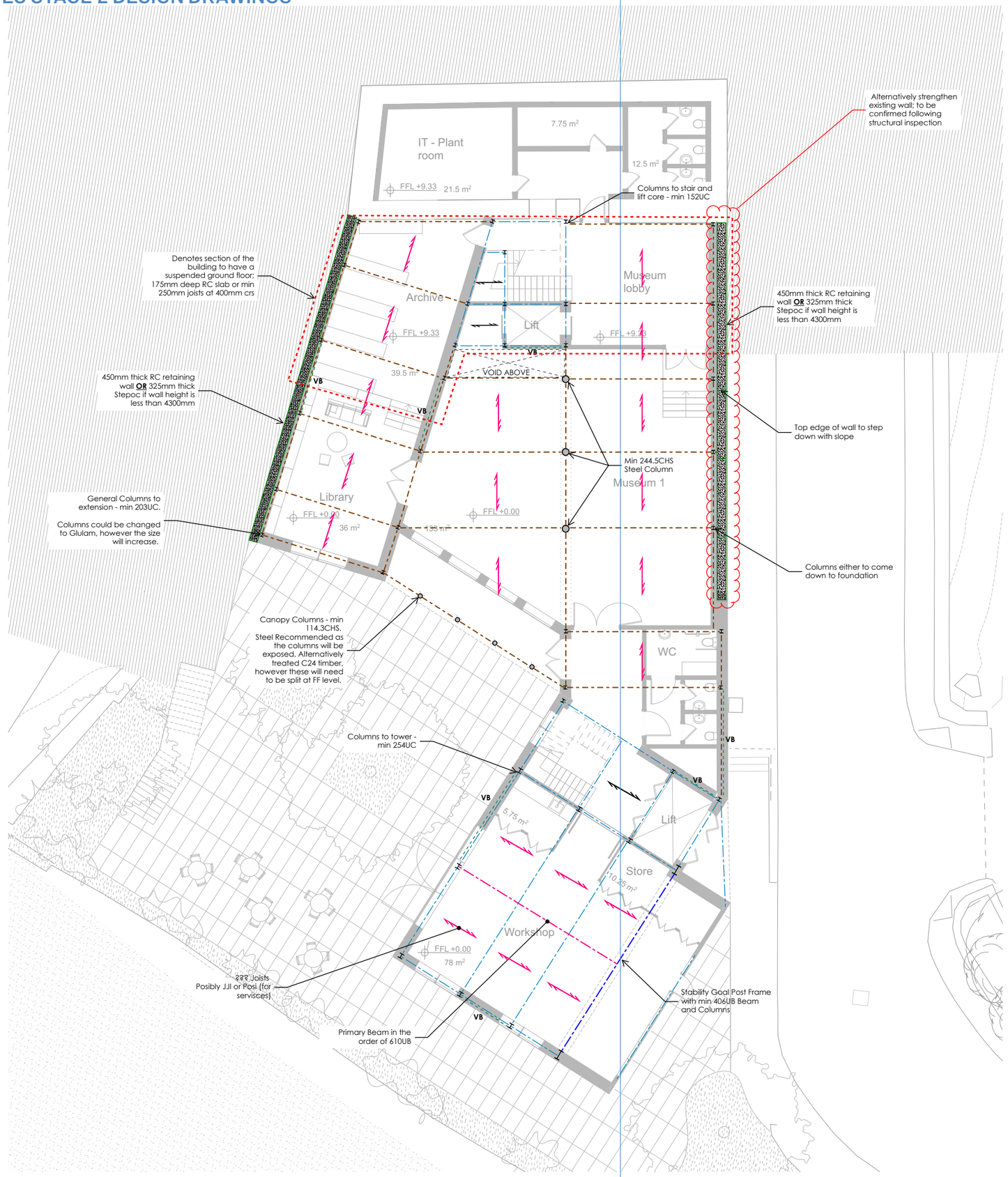

LEGEND

- Indicates span & direction of floor joists in the order of min 300mm deep JJI or Posi Joists at 400mm crs
- Indicates span & direction of min 100mm thick CLT roof Panel
- Indicates span & direction of min 240mm thick CLT floor panel
- Indicates span & direction of precast or composite floor slab to form stair landing (min 150mm thick)
- Indicates steel beam in the order of 254UB
- Indicates Glulam beam
- Indicates softwood timber lintel
- VB — Indicates vertical steel bracing in the order of 120x10mm thick MS flat bar or a proprietary tension bar system

Rev	Description	Chk	Drn	Date
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Status
COMMENT

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Architect
Assemble + Office Corr Higgins

Job Title
Timespan Museum Redevelopment

Sheet Title
Lower Ground Floor Plan - Structural Concept

Project Reference: 25.0020

Drawn by	Designed	Checked
NC	NC	??

Scale @ A1	Date
Not to Scale	17.09.25

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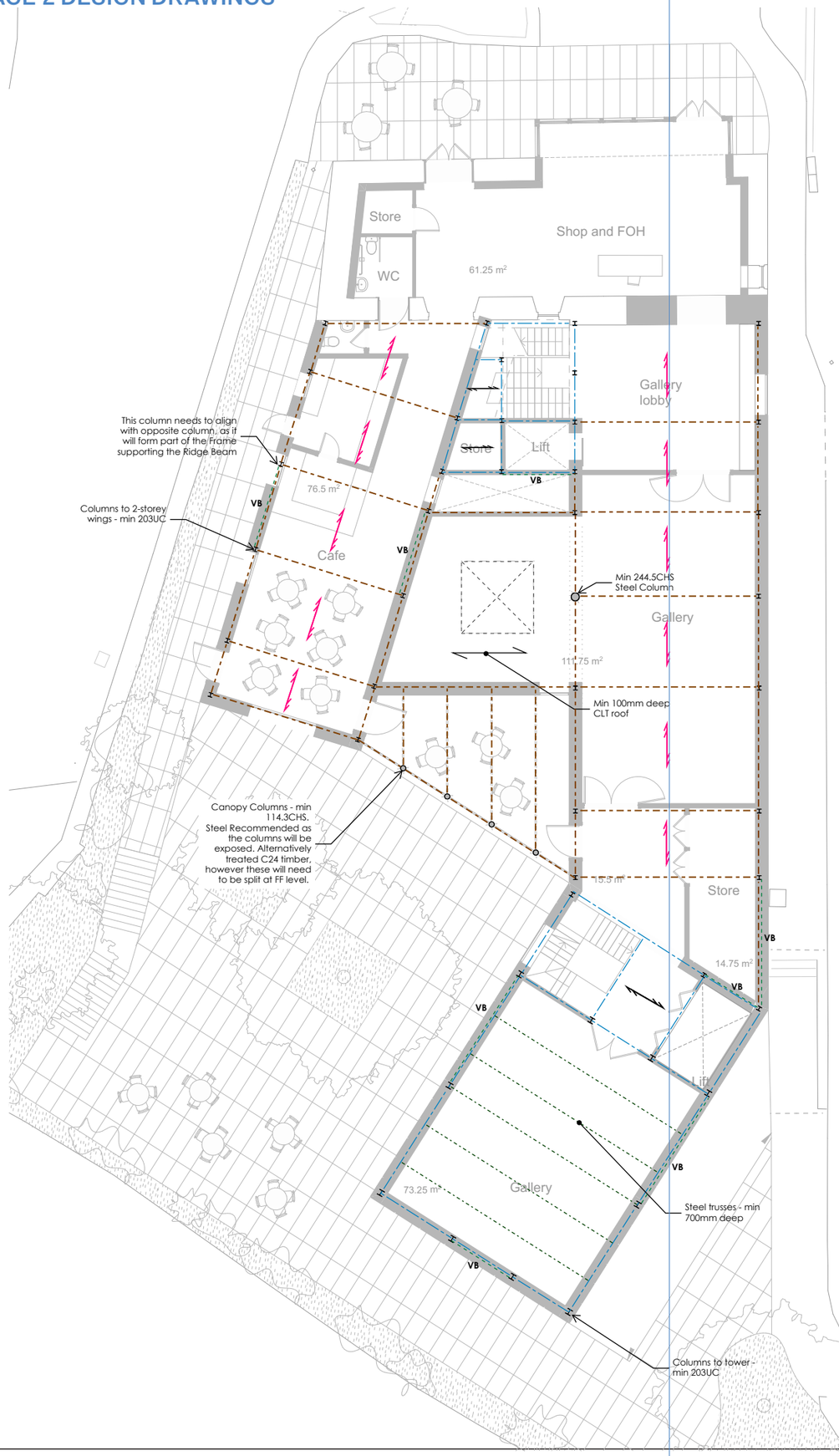

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Job Title
Timespan Museum Redevelopment

Sheet Title
Upper Ground Floor Plan - Structural Concept

Project Reference: 25.0020

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File Name 25.0020-NAR-XX-XX-SK-S-0002 **Revision** ?

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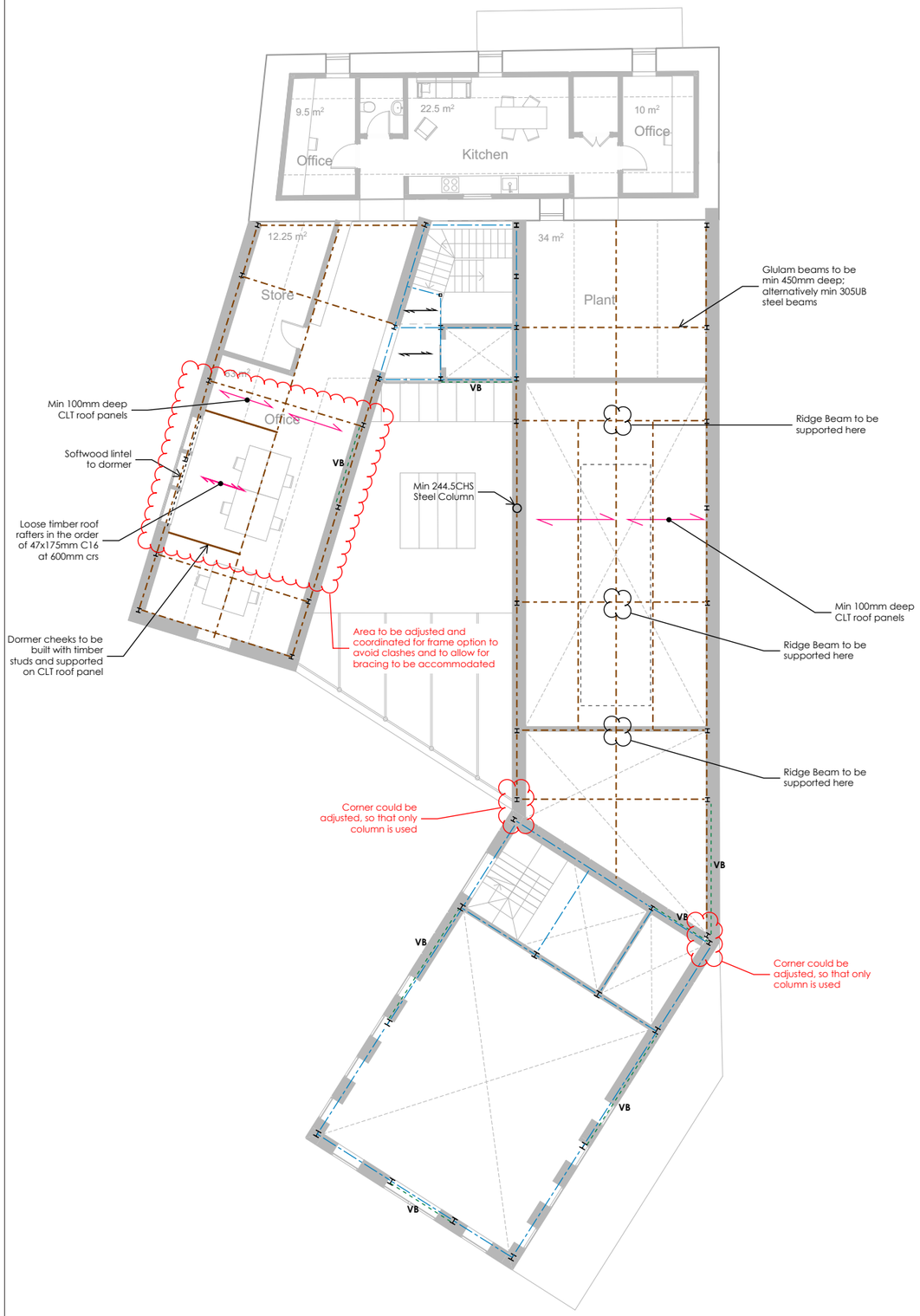

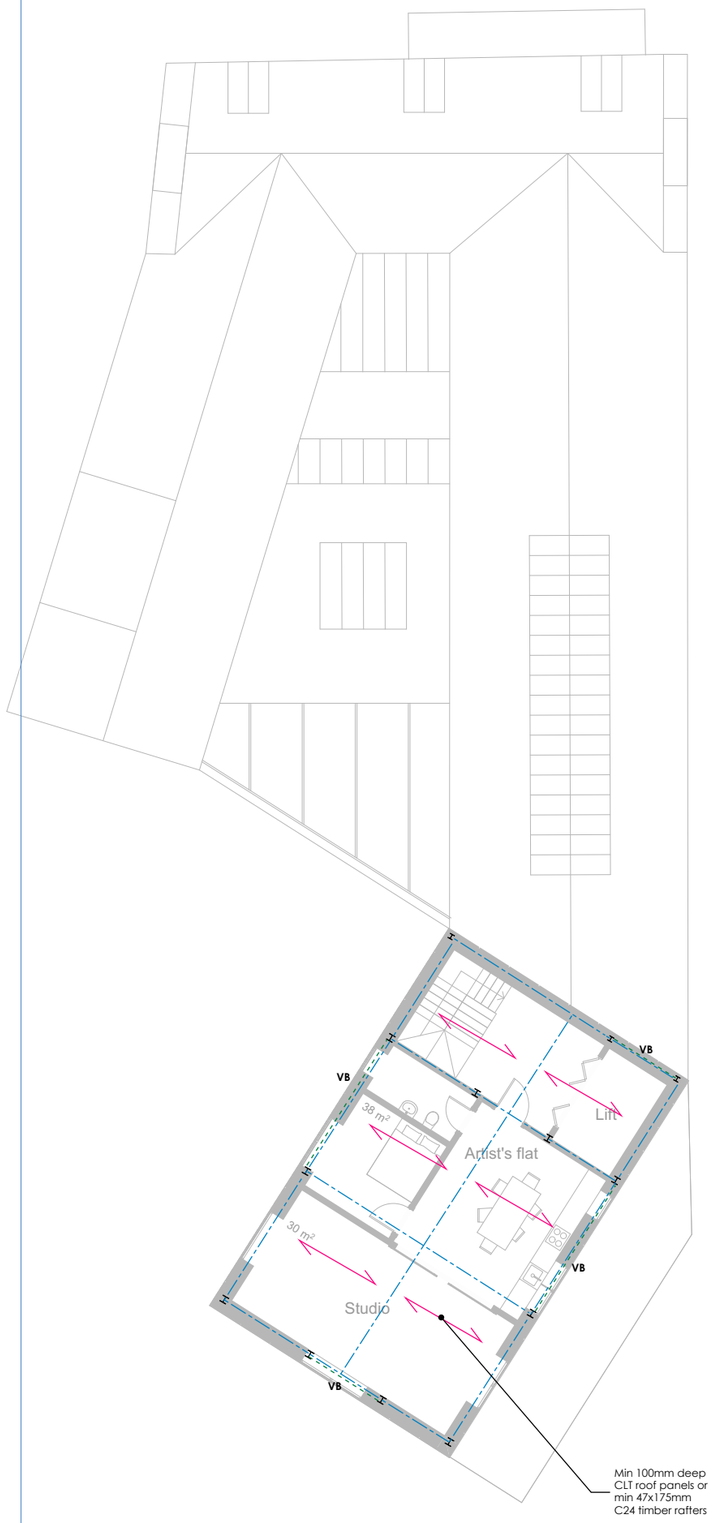

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Job Title
Timespan Museum Redevelopment

Sheet Title
First Floor Plan - Structural Concept

Project Reference: 25.0020

Drawn by	Designed	Checked
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File Name 25.0020-NAR-XX-XX-SK-S-0002 **Revision** ?

TIMESPAN AND HELMSDALE – NOTES FROM SITE VISIT

Max Fordham visited site along with the wider design team on 7th March 2024.

In addition to a walk round and inspection of existing building and MEP services, requirements for environmental conditions were discussed with the museums conservation lead.

1 Heating and Cooling

The building is intended to be served by a Froling biomass boiler system but it appears that this has been mothballed due to ongoing operational failures and difficulty with maintenance. Plug-in electric heaters are used instead. There is also a Mitsubishi split heating/cooling system; our understanding from discussions with staff was this is also defunct. The lack of a working heating system is exacerbated by chronic damp problems and it is therefore very difficult to maintain conditions that are suitable for human comfort or for conservation of the historic objects and archive materials, which include paper records as well as objects from the historic Herring trade.

Biomass boiler and dehumidifier

There are LTHW radiators in some locations but these are not in use due to the defunct boiler system.

Dehumidification is managed using plug-in dehumidifiers.

As part of any future development project it is likely that targeting Net Zero carbon will be priority therefore transferring to non-combustion methods of heating will be the preferred strategy. It's likely that this would be most readily achieved through addition of air source heat pumps but further work is required to develop the best strategy.

2 Ventilation

There are a series of heat recover mechanical ventilation systems serving the main museum and gallery spaces; as built information indicates there are three separate systems. Supply and extract ductwork distributes to ceiling mounted air terminals throughout. The café kitchen area relies on local extract fans.

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3 Water services and drainage

Existing water and drainage serves appliances in the kitchen and WC areas. The biomass boiler system appears to have capacity for hot water generation but it was not clear from the site visit how this operates at present. In future it is likely that the most appropriate method of hot water generation would be point of use electric water heaters (balancing carbon emissions, running costs and maintenance).

4 Electrical distribution systems

There is a 100A three phase incoming electrical supply to building, along with main electrical distribution board in the shop area and smaller DBs in other areas of the building. This serves MEP installations, sockets and AV equipment throughout the building.

Existing electrical incomer and main DB

As part of any future move to using heat pumps the electrical supply capacity will need to be reviewed and may need to be upgraded to accommodate the increased load of heat pumps.

5 Lighting

Lighting is a mixture of recessed downlights and track mounted spotlights, and stand alone emergency light fittings and escape signs. Generally control is via manual switching.

6 Fire, security and communications

The building has an existing automatic fire alarm system, with addressable zones controlled from a panel in the shop area and ceiling mounted heads throughout. There is an existing security system with volumetric detection (PIRs) in key spaces and a main panel at the shop entrance. In both cases the future installation would likely be similar unless insurance requirements or similar dictate otherwise

There is an existing data network serving AV installations, Wi-Fi and EPOS. There are several AV installations throughout the gallery and exhibition spaces; our understanding from briefing information and the site visit is that these are in need of renewal.

There is an existing audio frequency induction loop system.

7 Lift

The building has an existing lift installation but during the site visit it was noted as being out of order.

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Timespan Project

Stage 2 MEP Scope of Works

P01

01 October 2025

`Status Code	revision	status description	project code		originator		volume		level		type		role		number
D1	P01	Issued For Costing	J7695	-	MXF	-	XX	-	XX	-	RP	-	J	-	30100

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ISSUE HISTORY

Issue	Date	Description
P01	01/10/25	Issued for Information

MAX FORDHAM LLP TEAM CONTRIBUTORS

Engineer (Initials)	Role
DM	Principal Engineer
SB	Engineer

CONTENTS

1.0 INTRODUCTION

This scope of works covers the MEP installations that required to facilitate the architectural plans for Timespan.

The building is primarily a public museum, with café and shop, but also contains some archive spaces to store collections while not on display, and staff spaces.

Due to the sensitivity of some of the artifacts and objects that are part of the museum's collection, maintenance of stable environmental conditions is an important part of the museum's operation. The building fabric itself is in poor condition and suffers from chronic damp which has made this difficult to achieve.

Advice received by the museum to date was to aim for target conditions for internal environment is given below.

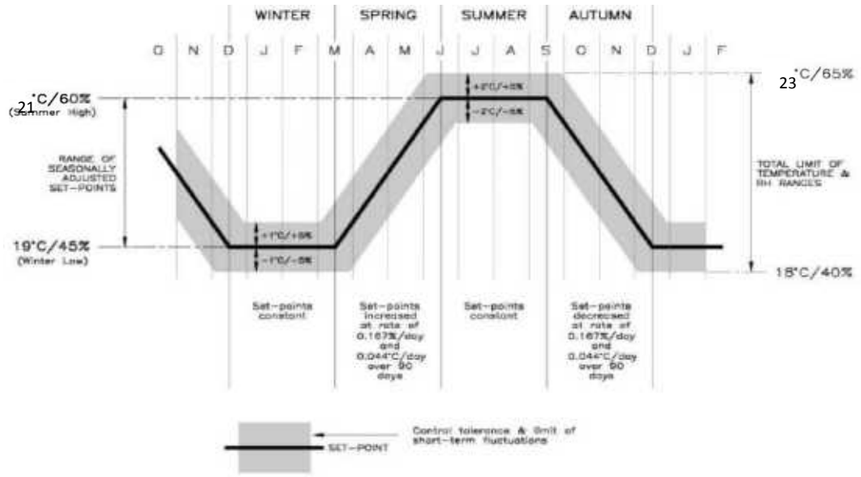
1.1 Museum & gallery environmental conditions

Target conditions for collections:

Parameter	Target Condition
Temperature	18–22 °C, stable within ±2 °C daily
Relative Humidity	45–55%, stable within ±5% daily
Air changes	4 ACH (galleries), 2 ACH (store/archive)
Air filtration	G4 pre-filter + F7 fine filter

The conditions noted above are not unusual but are relatively onerous to achieve, requiring conditioning plant with high energy demand. The RH range is relatively narrow band, and it would be beneficial (from an energy demand point of view) to consider wider bands which respond to seasonal variations in external conditions (cooler low moisture winter conditions vs higher temperature and moisture summer conditions).

The figure below shows a more 'energy efficient' protocol. In terms of **daily** variations (generally the most critical parameter for object conservation), the ranges for temperature and humidity are the same as the table above, but the overall bands are wider. In addition to reducing energy demand our experience is that environmental stability tends to improve when working more closely with external conditions. We would recommend Timespan consider this approach.



Another key aspect will be to establish key 'zoning' principles; essentially rationalise and reduce the areas which need to be kept at closely controlled 'conservation' conditions. Spaces that are maintained at human comfort conditions will generally require less energy.

2.0 SITE SERVICES

The existing building has water, electricity and telecoms connections.

2.1 Electricity

The capacity of the existing LV connection will need to be reviewed as the design progresses.

Currently there is a 100A TPN utility cut out. As assessment of whether this is sufficient capacity to support the refurbished museum will be required as the design progresses. The new building heating systems are likely to use electrically fuelled heat pumps rather than biomass however if fabric upgrades limit heating demand, then this may be relatively modest. The future use of the café (and therefore power demands) will also need to be taken in account.

We would recommend that the local DNO SSEN are contacted early in Stage 2 once electrical loads are known to ascertain available capacity and any costs that would be associated with upgrading. For purposes of this study, we would recommend a cost allowance is included to cover this.

2.2 Natural Gas

No gas supplies are available at the building currently and are not proposed for the building It is assumed that the building will operate without fossil fuels as a key component of the sustainability strategy.

2.3 Water

The building has an existing Scottish Water connection which we assume will be retained and re-used.

Firefighting water strategy is subject to advice from a fire engineer. Depending on availability of existing fire hydrants, additional hydrants may be required as part of any building warrant application to ensure compliance with Non-Domestic Technical Standards.

2.4 Data

The building has an existing BT connection which we assume will be retained. This should be arranged as a 'client direct' works.

3.0 MEP SYSTEMS

3.1 P11 Rainwater Disposal

A new rainwater installation is to be provided to convey water from the roof of the museum building to below ground drainage connection points.

The system to comprise of gutters at each roof's eaves for pitched roofs, draining to downpipes to the below ground drainage system. Gutters should include high-capacity proprietary roof outlets specified by the architects as part of the roofing system. Internal rainwater pipes will be HDPE with electrofusion joints. All pipework to be insulated for noise breakout, acoustic flanking and the elimination of thermal bridging. All external rainwater pipework and gutters will be specified by the architect.

The system will be designed in accordance with BS EN 12056 with the design rainfall intensity appropriate to the choice of gutters and outlets (assumed to be at least a 1 in 50-year storm). Overflows should be provided to deal with severe weather events or blockage of outlets.

3.2 P10 Above ground foul water drainage

A complete above ground drainage installation will be provided to suit the sanitary layout and convey wastewater from all sanitary and other devices within the building to the below ground drainage system.

All above ground drainage will run in dedicated service voids and risers or within local vanity units. HDPE pipework with electrofusion couplings to be used throughout. All pipework to be insulated for noise breakout, acoustic flanking and the elimination of thermal bridging. Any exposed traps/pipework to be chrome plated copper. The complete system to have adequate access for rodding through dedicated rodding points and appliances with removable traps.

Appliances at ground floor level away from main SVPs can drain via internal stub-stacks.

All heat recovery unit systems and cooling systems will need condensate drains to run in DN22 copper to a HEP20 waterless traps with the drain downstream being DN40 HDEP. Both trap and downstream pipe to be insulated.

3.3 P43 Sprinklers and Fire mains

We are assuming at this point that the fire strategy for the building will **not** require automatic sprinklers or other fire suppression systems, however this will require to be confirmed by a fire engineer and the client's insurers. It is assumed that dry risers are not required; this also requires to be confirmed by a fire engineer.

As noted above requirements for any new fire hydrants over and above the current provision will need to be confirmed by a fire engineer and building control.

3.4 P50 Hot and Cold-Water Services

We have assumed that a cold water storage tank and pressure booster set will be required.

Cold water is to be distributed via copper pipework with crimped joints within building. All internal cold-water pipework to be insulated with foil faced mineral wool insulation.

A centralised Hot water strategy is assumed for the building at this stage with Hot water generated by the air source heat pump system provided for space heating and stored in an indirect storage cylinder; we have assumed this will be modest (say 300 litres) at this point but further development of the brief with respect to activities and catering will be required to confirm this. Consideration could also be given to use of electric point of use water heaters to reduce maintenance requirements and capital costs.

Water meters with pulsed output to be provided on hot and cold-water pipework to enable connection to a monitoring system for all main water consuming activities.

A Category 5 water booster system should be allowed for to support irrigation and other activities in the garden areas.

3.5 M10 Heat Pumps

Design flow temperature for low-grade heating: 45°C
Design return temperature for low-grade heating: 40°C

A full turnkey package electric air-source heat pump installation is to be provided as primary heat source for heating. We would recommend this is made up of multiple outdoor units e.g. 2no heat pumps each with duty 25kW located within the rear external area.

Costs should be allowed for providing each of these with a bespoke acoustic enclosure.

3.6 M15 Low Temperature Hot Water Heating

Proposed internal design conditions and Heat emitter strategy will vary across the spaces. Stage 2 proposals can be summarised as follows:

Space	Winter internal target temperature	Heat Emitters
Main Museum and Gallery Spaces	19°C +/- 1	Radiators for 'day-to-day' background heating with option for dedicated humidifcation and dehumidification plant, and cooling if required.
Archives	19°C	LTHW Radiators Local dehumidifiers to maintain low humidity conditions
Workshop	21°C	LTHW Radiators
Shop	21°C	LTHW Radiators
Café	21°C	LTHW Radiators
WCs, Circulation Spaces	19 °C	LTHW Radiators
Stores	15 °C	LTHW Radiators
Plant space	12°C	Electric panel heaters
Flat	21°C	Radiators with Local TRV control assumed

External Design Conditions: For Winter and summer performance the design will assume the following peak external temperatures.

Season	External Design Temperature
Winter	**-6 °C**
Summer	**23 °C**

Low temperature hot water (LTHW) generated by the roof mounted ASHPs will be distributed to first floor plant room. The plant room will then boost LTHW to all parts of the building and to all heating emitters (fan coil units, AHUs, radiators).

The system includes:

- Variable speed primary pump set
- Low loss header
- Variable speed secondary pump set
- Buffer vessel
- Expansion vessel
- Pressurisation unit
- BMS control panel

Pipework will distribute vertically through the building via dedicated mechanical risers. Horizontal distribution at each level will generally be at high level and generally hidden within a ceiling void.

This LTHW system is to operate as variable speed secondary, constant speed primary circuit. Two port motorised control valves and differential pressure valves to be provided to all equipment except end of runs where minimum circulation is to be maintained.

All LTHW pipework and fittings will be steel, insulated throughout to minimise heat loss. Assume screwed for 50mm pipes and below and flanged steel for larger diameters to avoid hot works on site.

A multi-zone heating control system is to be provided, controlled via a central BMS which allows the following:

- Separate time schedules for the individual heating zones
- Temperature setpoint of the individual heating zones
- Differentiation between zones by bespoke naming
- Remote access for setting heating set points

We assume that the flat can be part of the central building systems.

3.7 M11 Cooling

We anticipate that most of the building will be cooled via Natural Ventilation for summertime comfort.

Consideration could be given to adding in an air conditioning system to help maintain summertime temperatures but this would add costs to be the capital project and an ongoing maintenance, and will require additional space externally for an out door unit.

As noted above the condition control strategies need to be developed in detail to help maintain stable conditions without incurring significant maintenance and capital costs.

3.8 M20 Ventilation and Condition Control

It is proposed to use a combination of mechanical ventilation with heat recovery and natural ventilation for fresh air supply and summertime comfort where possible within the building.

The building has historically suffered from high moisture levels due to chronic problems with damp due to poor fabric condition. Improvements to fabric are likely to go a long way to improving the stability of internal conditions.

While we are conscious that a full temperature and humidity control system across the museum will be very costly and take a large amount of space, we would recommend that zones (i.e. rooms) are identified where close control of humidity can be maintained. This could be done by installing smaller scale (but still permanently installed) dehumidification and/or humidification plant.

In archives with mostly paper objects where low humidity conditions are generally required this could be in the form of a desiccant dehumidifier which is ducted permanently to outside.

Main Museum: The Main Museum space is proposed to utilise mechanical ventilation with heat recovery for wintertime ventilation, with a HRU located in the plant room and ducted to the main spaces.

Archives: the archive space should be provided with in-room conditioning. Exact requirements should be developed with the client team but we would anticipate this focusing on keeping relative humidity levels low so could be done with LTHW radiators plus local dehumidifiers.

Workshop: we would assume that the workshop will be relatively lightly occupied so fresh air can be provided by natural ventilation. We would recommend that mechanical extract is provided in addition to remove any

pollutants and that if work is being undertaken that would create fumes or dust that a Local Exhaust Ventilation (LEV) system is installed (this would require input from a specialist designer).

Shop and Cafe: the shop and café can be provided with a HRU as part of a combined system for both spaces. Opening windows should also be provided for summertime comfort.

Upper Gallery 1 and Gallery 2: we would anticipate these Galleries being provided with dedicated HRUs located in the loft.

WCs: WCs should be provided with mechanical extract

Office and Kitchen Areas: again we would anticipate a dedicated MVHR unit (domestic type) serving these spaces, with opening windows for summertime comfort.

The Flat: the flat should be provided with a dedicated domestic MVHR unit

It is assumed that no mechanical smoke extract ventilation systems are required for the building.

3.9 E22 Low Voltage Distribution

As noted above, further work is required to determine whether the electrical supply should be upgraded to serve the Museum once the brief is developed.

We would recommend allowing for a full re-wire of the Museum as part of the works. The incoming supply should be connected to an MCCB panel board that allows sub distribution to local distribution boards located across the key spaces. LV distribution will be via LSZH submains. Supplies will also be provided to plant, lifts and life safety systems.

Each final circuit way to be provided with MCB/RCBO protection, with AFDD protection provided to socket-outlet circuits.

New small power outlets will be provided across the building to support the Museum's activities as required.

Sub metering to be provided to all main power and lighting loads.

Electrical infrastructure to support audiovisual systems will be required; the brief for this is to be developed with the client group. This will include power for temporary installations as well as hard wired links between key spaces.

All outgoing ways to be metered. Power factor correction to be provided (capable of correcting the power factor to 0.95 lagging).

3.10 Photovoltaic Panels

Installation of photovoltaic panels could be considered as part of the energy strategy for the new building. Array size and output will need to be developed further but we would recommend an allowance is made at this stage for a small array of around 10 kWp.

3.11 EV Charging Points

New Scottish Building Standards require all new car parking to be provided with EV charging infrastructure. It is assumed that no new car park is proposed for Timespan. Should this be desired it is likely that the existing electrical supply would need to be upgraded to accommodate capacity for this.

3.12 E30 General Lighting

New lighting and lighting controls is to be installed throughout the building. The museum lighting requirements are as follows:

Lighting Requirements

- Zoned lighting controls (≤50 lux and ≤200 lux areas)
- No UV or IR in any collection zone
- All daylight must be fully filtered – avoid direct sunlight
- Blackout capability for light-sensitive displays
- Allow for internal lighting within display cases (cool, LED, fibre optic preferred)

These requirements are relatively straightforward to achieve. Lighting should be 'museum quality' fittings with control of colour temperature, high colour rendering and controlled lux output.

Daylight requirements can be met by considered positioning of objects and exhibits (out of direct sunlight) and where required adding glazing treatments (either treated glass or applied films) to filter out UV and manage light levels.

Lighting levels tabulated below at work surface level, unless otherwise stated:

Area	Lighting level
Museum and Gallery Spaces	Dependent on collection requirements (as above)
Main Museum Space	200-500 lux
Archives	200-300 lux
Workshop	300-500 lux
Shop	150-250 lux variable
Cafe	100-250 lux variable
WCs, Circulation Spaces	150 lux
Stores	100 lux
Plant space	150 lux

These are "background" light levels. This to be supplemented with "task" lighting where appropriate, such as at desks.

Lighting efficiency to be ≥ 80 lumens/W (internal or ≥65 lumens/W (external). All lamps and light fittings to have a glare index <19 and colour rendering index >80 in general space and CRI >90 in gallery and museum spaces.

Fittings within offices and other working spaces to meet SLL LG7.

Architectural or specialist lighting to the spaces is assumed to be specified by the architects.

Light fittings to be LED throughout.

All key spaces will have lighting that is dimmable and incorporates absence detection control. WCs are to have presence and absence detection.

Circulation areas to have a night-time setback brightness controlled on a timeclock.

The building is to have an emergency lighting installation consisting of self-contained, self-testing emergency lighting. This will be combination of dedicated fittings and emergency capacity integrated with the normal light fittings.

3.13 E31 External Lighting

External lighting to be provided within the new landscape to final exits, paths and access roads. External lighting to be controlled by time switch and photocell.

Architectural lighting to the building exteriors is to be specified by the architect.

3.14 E51 Data Distribution and Telecommunications

The extent of the structured cabling installation is to be confirmed, but it is expected that the building will have RJ45 outlets throughout to support the Museum's activities and enable good wi-fi coverage throughout the building.

RJ45 outlets to be served by Cat 6A UTP structured wiring. Installation comprises wiring, containment, terminations, equipment racks, patch panels (but not active equipment).

A new data racks should be provided for the building.

3.15 E52 Public Address

It is assumed that public address and voice alarm systems are not required.

3.16 E61 Access Control

The access control strategy is to be developed but it anticipated that no electronic access control will be required.

3.17 E62 Surveillance Systems

The extent of CCTV coverage is to be developed. It is anticipated that coverage to be provided at least to each entrance to the Museum building.

3.18 E63 Intruder Detection and Alarm

The class of intruder alarm is to be confirmed by the client as the design progresses. For costing purposes, it is assumed that detection is required to be provided by contacts on all external doors and windows and dual-tech PIRs to spaces that are readily accessible from outside.

3.19 E70 Call and Alarm

Local audible and visual alarms should be provided to the accessible WCs in the building. This can be a self-contained single WC system if staff are able to monitor the WC. Consideration may be given to allowing for a repeater panel at a continuously manned point in the building if not.

3.20 E71 Fire Detection & Alarm

An open-protocol, fully addressable, automatic fire detection system is to be provided to BS 5839. The class of system is assumed to be L1/P1 given the presence of the museum collections. Detection to be provided via smoke detectors with integral sounders generally and heat detectors in the kitchen areas. Beacons to be provided within accessible rooms and bathrooms.

3.21 E72 Lightning Protection

New lighting protection systems should be allowed for the building including air terminations, down conductors and surge protection devices on electrical equipment.

3.22 E80 Building Management Systems (BMS)

For simplicity the main mechanical plant can be controlled with proprietary manufacturers controllers rather than a central BMS, but some costs should be allowed for systems integration of the main controls systems.

Consideration should be given to installing a small-scale energy monitoring and reporting facility to assist the museum with energy management.

3.23 J30 Lifts

A new passenger lift is proposed for access to the upper level and prayer room area.

At this stage it is assumed that the Lift will **not** operate as an evacuation lift as part of the fire strategy and that escape will not rely on it.

3.24 J20 Builders work in Connection with Services

Proposals for BWICS will be developed at later stages but general allowances should be made within the cost plan at this stage.

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