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Architects

Pump House Redevelopment, Barry

Architects Design and Access Statements

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Barry Docks c.1929



Aerial view with pumping station

1. Overview:

Barry Docks were developed to capture a share of the coal export trade in South Wales.

The dock opened for trade in 1889, with further docks added later. Coal export grew from 1 million tons in the first year to 9 million by 1903, and by 1913 Barry was the largest coal exporting port in Wales.

Barry Pumping Station was built during the 1880s to provide hydraulic power to operate coal drops, lock gates, swing bridges and other equipment around the docks. It is one of the only remaining industrial buildings in the area.

The collapse of Welsh coal trade after the war led to the decline of the docks during the 20th Century.

In the 1960s the area adjacent to the pump house was used as a scrapyards for steam engines by the Woodham Brothers.



Woodhams Scrapyard c.1970



Barry Pumphouse with scrapped steam engines c.1982

Barry Docks History



2. Existing Site and Buildings

The Hydraulic Pumping House in Barry Docks, built in the 1880s has been disused for several years – in 2009 being still included on the Buildings at Risk register, but has recently been subject to a £1.4m refurbishment paid for by the Vale of Glamorgan council and Welsh government and overseen by Holden Acanthus Architects. This work consisted of re-roofing in Welsh slate, refurbishing the cast iron trusses and re-pointing the brickwork, including the 42m high, landmark chimney.

The Pumping House provided hydraulic power to operate coal drops, lock gates, swing bridges and other equipment around the docks. The initial building was probably the higher, North Range, with the later South Range, a storey height lower.

Listed in 1992, the pumping house was put on the market for the first time last year and our client, DS Properties was successful in their bid.



Pumphouse Site

3. Building Listing

“Location

At NW corner of No 1 Dock, set back from the dockside.

History

Built in 1880s to provide hydraulic power to operate coal; drops, lock gates, swing bridges and other equipment around the new docks.

Exterior

Two ranges in red and blue engineering brick in matching styles with corbel-headed panels and segmental arched small-pane windows. Both had double-gabled roofs constructed of wrought-iron trusses and partially timber-panelled ceilings, a slate covering, and raised louvred roof-lights.

North range contained workshops and hydraulic controls and has 2 gables at each end of 3 bays width, with a dividing wall running down the middle. This range is the longer (9 bays). There are segmental-arched windows at one level, with round windows to the gables. The western section has a dado in brown glazed tiles and gauges fixed to one wall, and a travelling crane by East Ferry Road Engineering Works, Millwall, dated 1912. The Eastern section contains smithy hearths and the main chimney rising through the roof. The chimney is of square section, circa 42m high, tapering to a corbelled band, and a massively-corbelled ring.

The south range contained the boilers and steam engines and has two gables to each end, each of 3 bays width. There are segmental arched windows at ground level, with circular openings to the gables and a partial basement for servicing the plant. Several windows retain wooden multi-pane frames. Engine beds of concrete and granite blocks survive although the plant has been removed. Short cast-iron pipes are fixed vertically to the walls at regular intervals. The hydraulic accumulator tower itself stood at the N of the building but has been demolished.

Reason for Listing

Listed as one of the few hydraulic power houses remaining in Wales, part of this important dock complex.”

References: Hywel G Thomas, Barry Docks History, (Vale of Glamorgan Borough Council Information Leaflet) 1991, pp 1-2.





J Shed, Swansea



Albert Road Church, Penarth



Castle Buildings, Swansea

Oriel Mostyn, Llandudno

The Empire, Liverpool

4. Development team

DS Properties have much experience in the conservation of historic properties, including the following:

The J-Shed, Swansea SA1. Refurbishment of Listed Grade II, early Victorian, dockside warehouse and conversion to create B1 offices, A3 restaurants and a range of live-work units above.

Albert Road Church, Penarth. Refurbishment and conversion into apartments. Won VoG design award, 2013.

Castle Gardens, Castle Square, Swansea. The refurbishment of an important, surviving example of neo-classical, commercial architecture, which escaped total demolition in the blitz. The Portland stone main elevation has double-height, blind arcading and the storeys above the ground shops have been converted to residential, loft-style apartments.

EWA Architects also have a strong track record with historic buildings, with some of the following notable examples:

The BALTIC, Gateshead.

The Empire, Liverpool.

Oriel Mostyn, Llandudno.

Garden Corner, Chelsea Embankment – an intact example of Voysey domestic architecture.



The BALTIC, Gateshead



Garden Corner, Chelsea Embankment

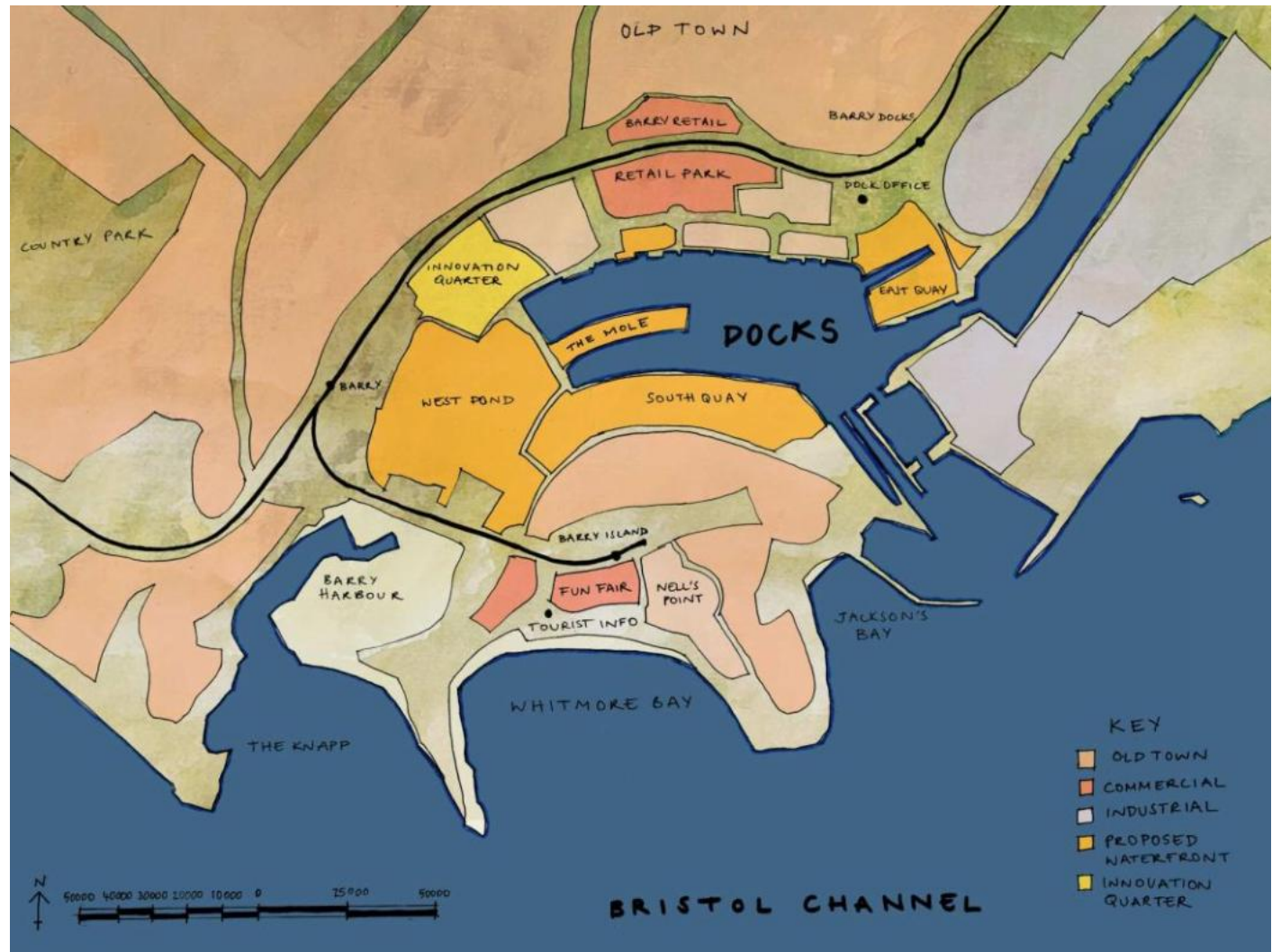
Involvement

5. IQ Quarter Masterplan

Barry Pumpouse is located at the waterfront of Barry Docks, in an area which is undergoing regeneration as the new Innovation Quarter (IQ), facilitated by a partnership between the Vale of Glamorgan Council and Welsh Government. The 19-acre mixed-use development area comprises of a mix of learning, employment, tourism and leisure, to complement and enhance the wider Waterfront.

The IQ is located in the heart of The Barry Regeneration Area, one of the UK's largest dockland regeneration schemes. A partnership called the Barry Joint Initiative between the Welsh Development Agency and Associated British Ports has seen the construction of 600 new homes and retail stores. The £230 million second phase has commenced on site by a ground of national house builders forming the Barry Waterfront Consortium. They aim to build 2000 new homes, supermarket, cafes, bars, restaurants, hotel and offices on the adjacent land.

The Barry Regeneration Area





6. Site Analysis

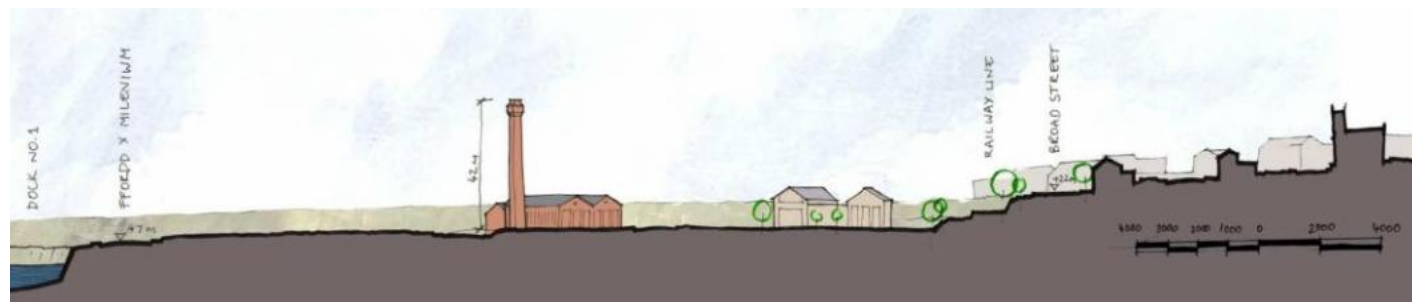
The Pump House sits in a prominent position within the Masterplan area, at the head of the docks and elevated from them, so that stood outside of the building there is a good view outward towards the docks.

The new hotel and proposed buildings along Ffordy Mileniwm will frame the view of the docks but retain the open connection between the Pump House and dockside.

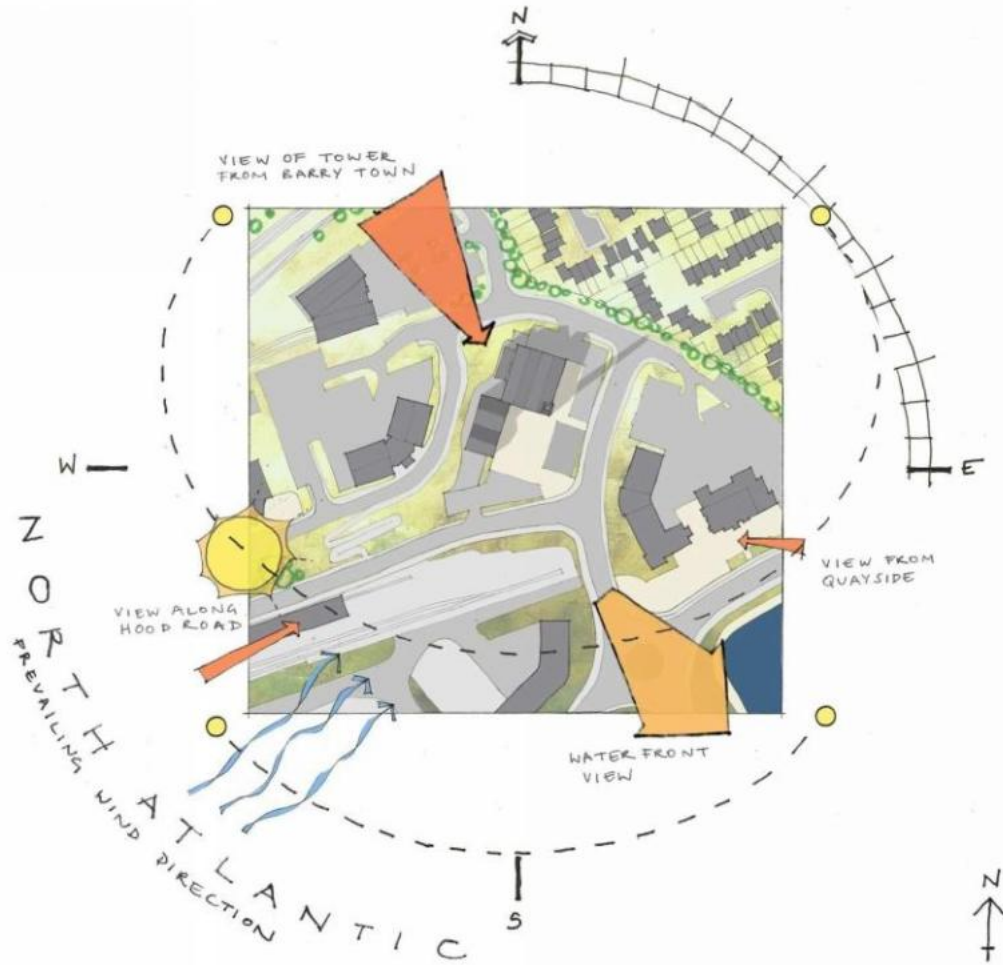
The main vehicular access onto the site is already established from the north and south as part of the masterplan highways works, also a pedestrian crossing position to the south-east corner of the site across to the hotel has been established by a dropped kerb and tactile paving.

The Pump House is contained and sheltered by a tall retaining wall wrapping around the west and north: the BSC and Skills Training buildings behind are set at 3-4m higher than the Pump House due to the slope of the land.

The site otherwise is on two principle levels relating to the internal level of the north and south ranges, the north range being approximately 2.5m higher. The lower half of the site gently slopes towards the south-east (towards the dock).

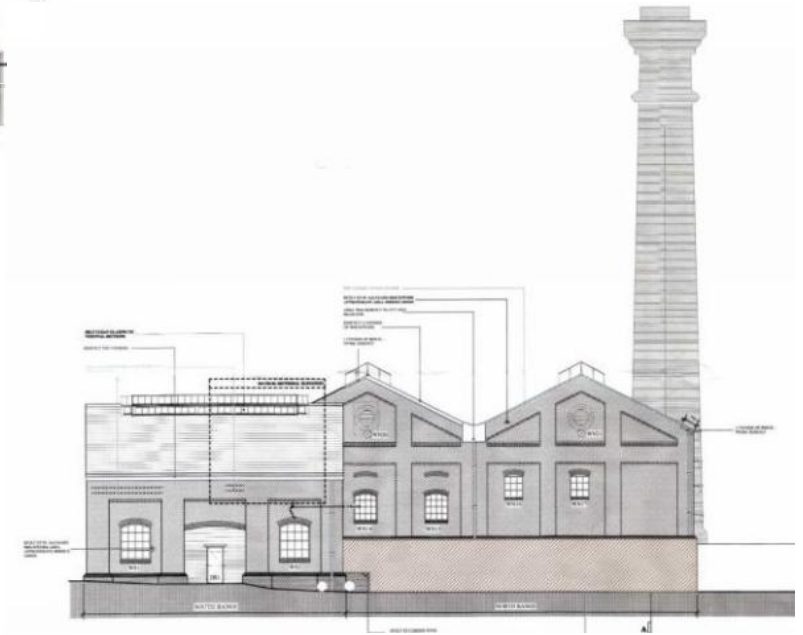
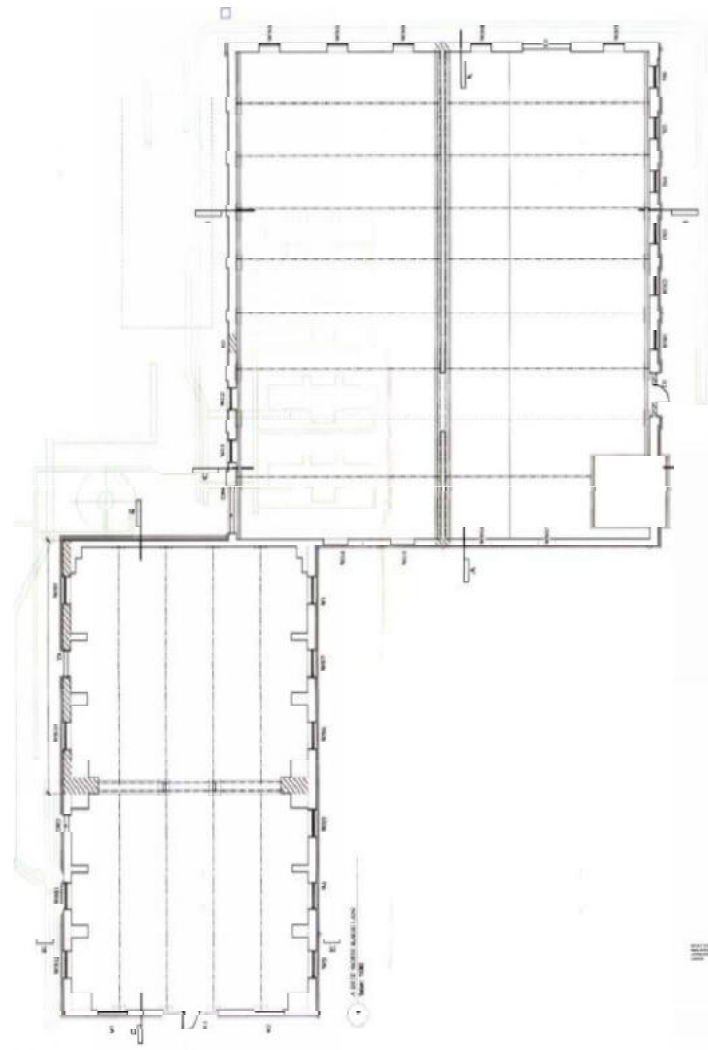


Site Plan and Section



6. Site Analysis

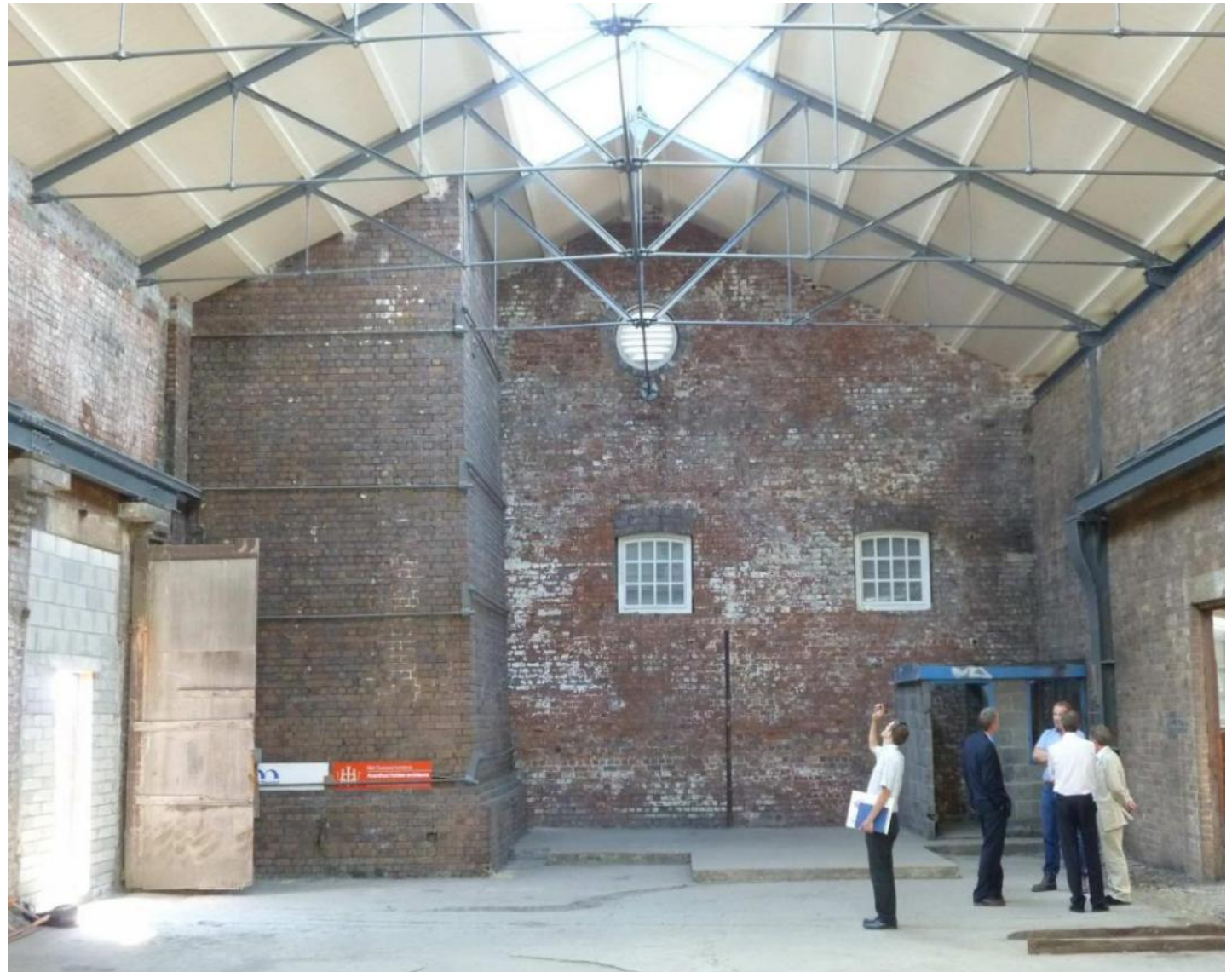
7. Existing Building



Existing Plan and South Elevation- Acanthus Holden



North Range East Bay



North Range East Bay with Base of Chimney



North Range West Bay with Crane



South Range Machine Bases

8. Design Development

The Planning Statement issued by VoG as part of the marketing exercise, states that ... “The special interest of the former pumphouse is both architectural and historic but the building’s character is primarily a result of its architectural form and the nature of its construction. It is therefore considered of vital importance that the exterior of the building should remain as originally conceived. Extensions to the building will only be considered subject to their impact being fully justified against the building’s special interest.”

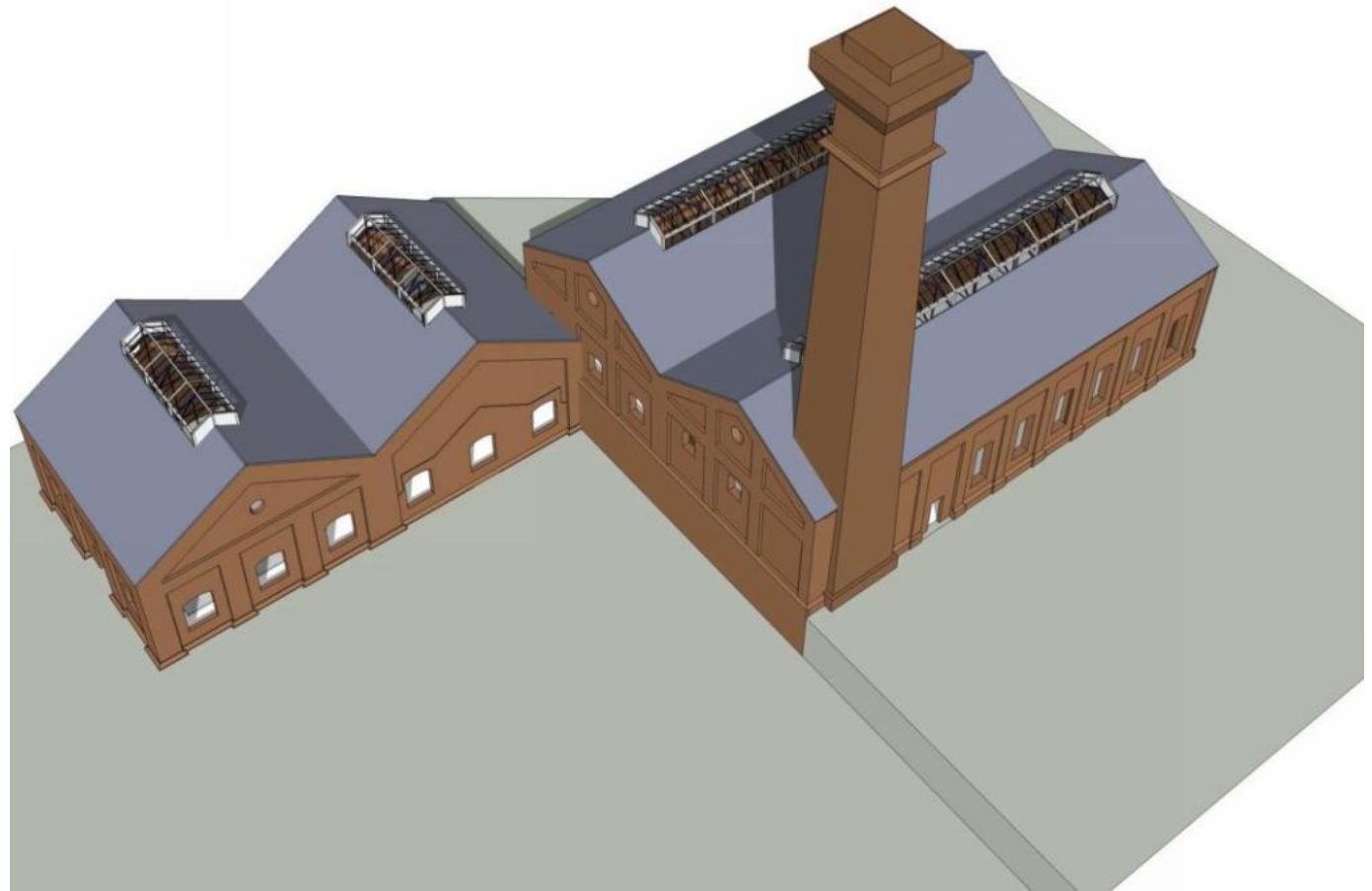
8.1 Proposed Uses:

DS Properties’ initial response to the building was to recreate the format, successfully delivered in the J-Shed and the brief to EWA was to create a range of commercial – A3/catering uses on the ground floor, with live-work units above, with commensurate on-site car parking.

Providing live/ work units will require the insertion of new floors into the building, which will alter the currently empty volume of the interior, which is an important part of the building’s history and character. EWA were very keen to retain the experience of this full height in key areas.

EWA considered the greatest design challenge to be to overcome the vertical circulation issues to the new floor levels in a sensitive manner, made more difficult by the level difference between the North and South Ranges. Also, how to signify the proposed public, commercial activity to the immediate surroundings, without compromising the integrity of the original building.

Lastly, the external area – this was seen as an opportunity to create an important piece of public realm in front of the building as it will be seen and approached from the Dock, one appropriate and relating to the building’s industrial past.



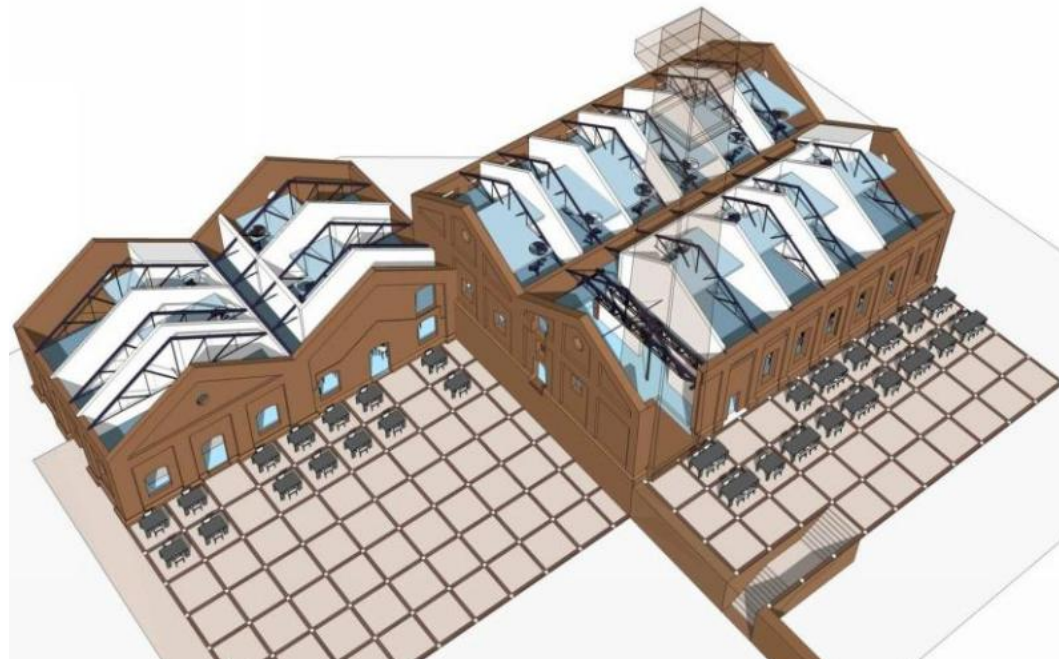
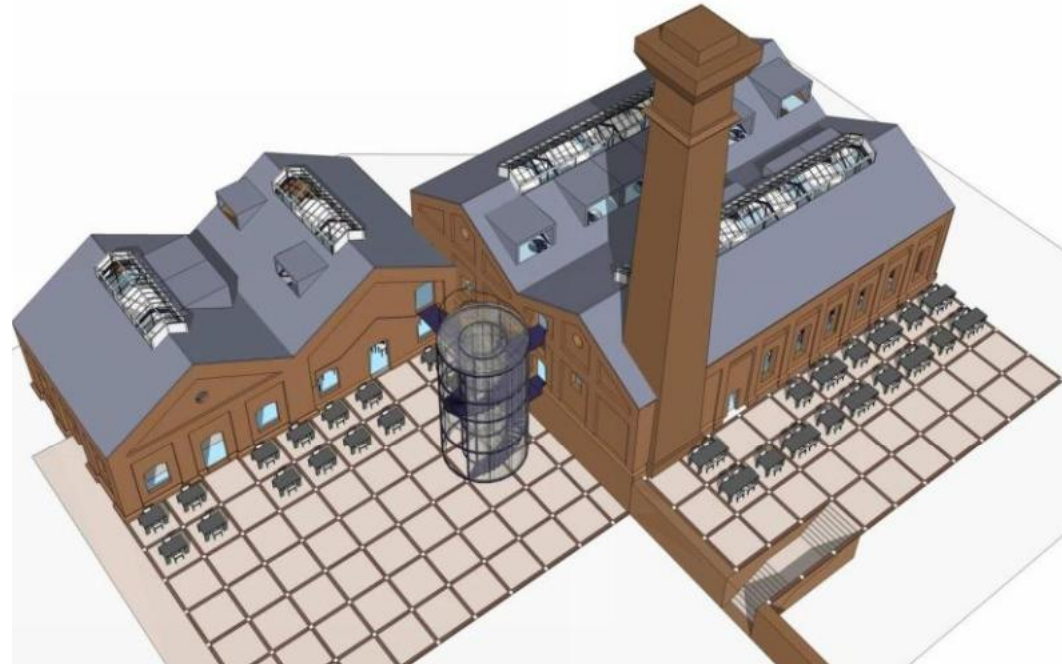
Existing Building 3D View

8.2 Initial Designs

The initial design proposals presented to Vale of Glamorgan Council suggested the retention of the existing building, with the insertion of new intermediate floors to allow live/work units to be provided on the upper floors, all linked by a feature external stair 'drum':

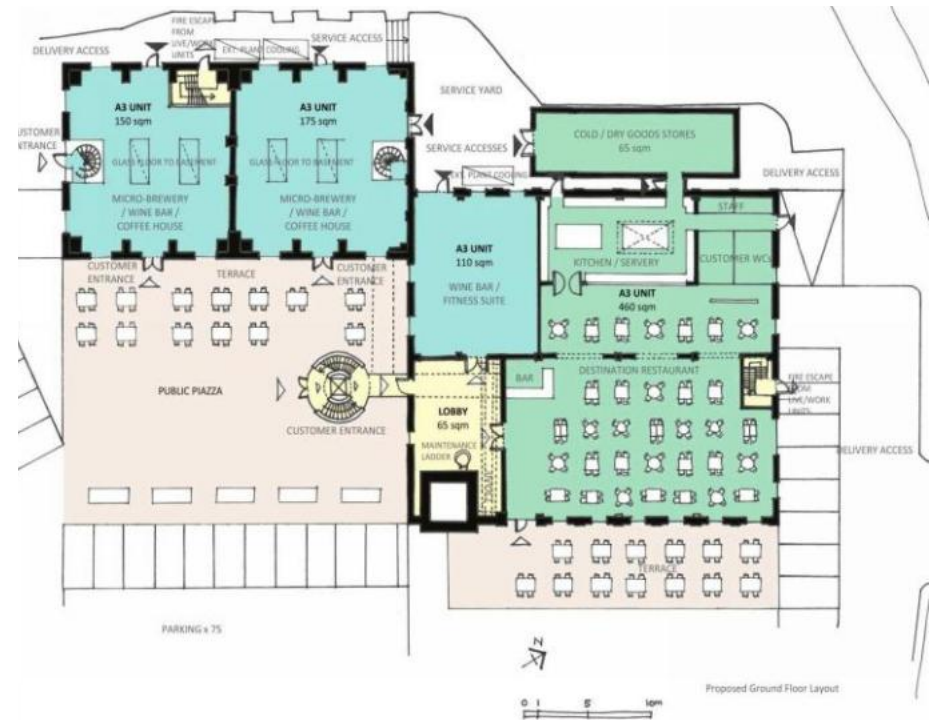
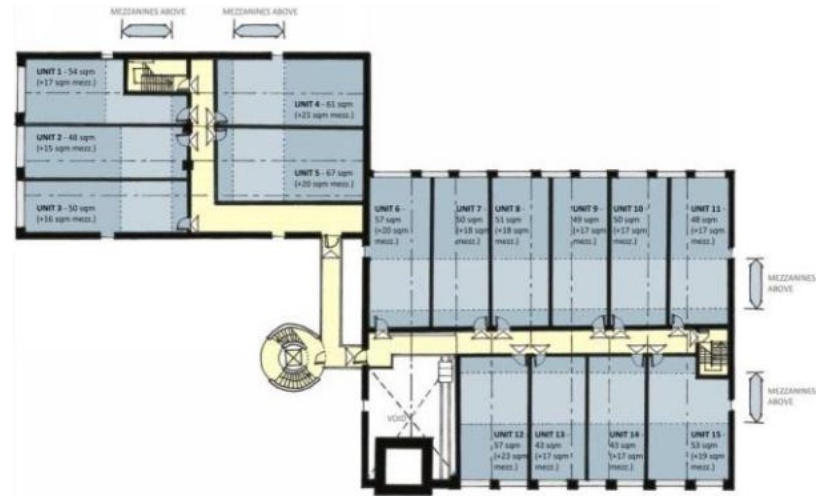
Vertical Circulation – To link the disparate storey heights of the North and South Ranges and to provide access to the new upper storey, a free-standing, translucent drum, located on the axis of the East gable of the North Range. This will accommodate a circular staircase around a lift thus solving the issue of accessibility in a very visible way. Access to the Ground Floor of the North Range and the live-work units is by means of bridges from the drum, appearing to be spun centrifugally from the drum and entering the building by a small number of new incisions into the massive, brickwork elevations.

Signification – The drum will be clad in vertical, cast glass sections, which will enable it to glow like a lantern in the evening, providing the building with a new "sign", that there is a public function to the building. The lower part of the South Elevation of the North Range can also be clad in a similar way and back-lit, providing a back-drop to the new public piazza. The drum will form the principle entrance to the large restaurant proposed for the Ground Floor of the North Range, where visitors will enter the building proper, to arrive into a double height volume.



Initial Proposals: 3D Views

8.2 Initial Designs: Plans

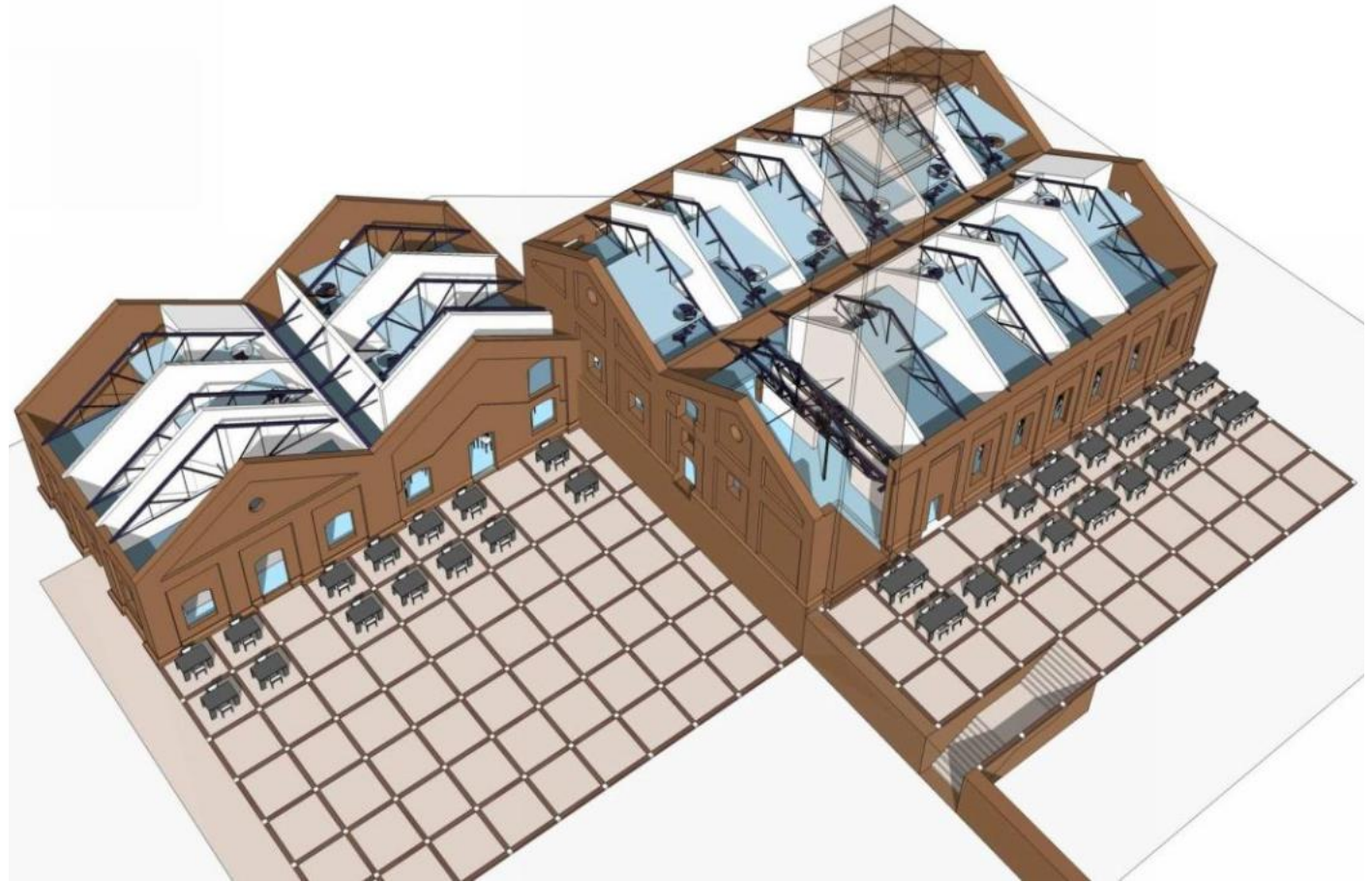


Initial Proposals: Plans

8.3 Design Development

Insertion of floors – our proposal is to retain the double volume of the North Range, at the key point of entry to the restaurant and create a vestibule where the full height of the building can be seen and understood. Here will be the travelling crane, “parked” adjacent the chimney, which will be visible through the existing roof light. The live-work units will also enjoy double-height experience, with mezzanine, decks suspended over the lower – work areas. These decks will accommodate sleeping and washing spaces, thus providing some separation between the dual uses. Natural light will be from overhead, through the large, existing rooflights and views out over the dock will be provided by means of new “letter-box” window, inserted in the tops of the recessed panels, housing the main windows. Elsewhere, Louvered, roundels in the gables will be fitted with windows.

Contrasting new with historic – where new incisions will be created in the brick elevations to create new entry points or windows, we will create a distance between the old and the new – to give a breathing space and carefully denote the distinction.

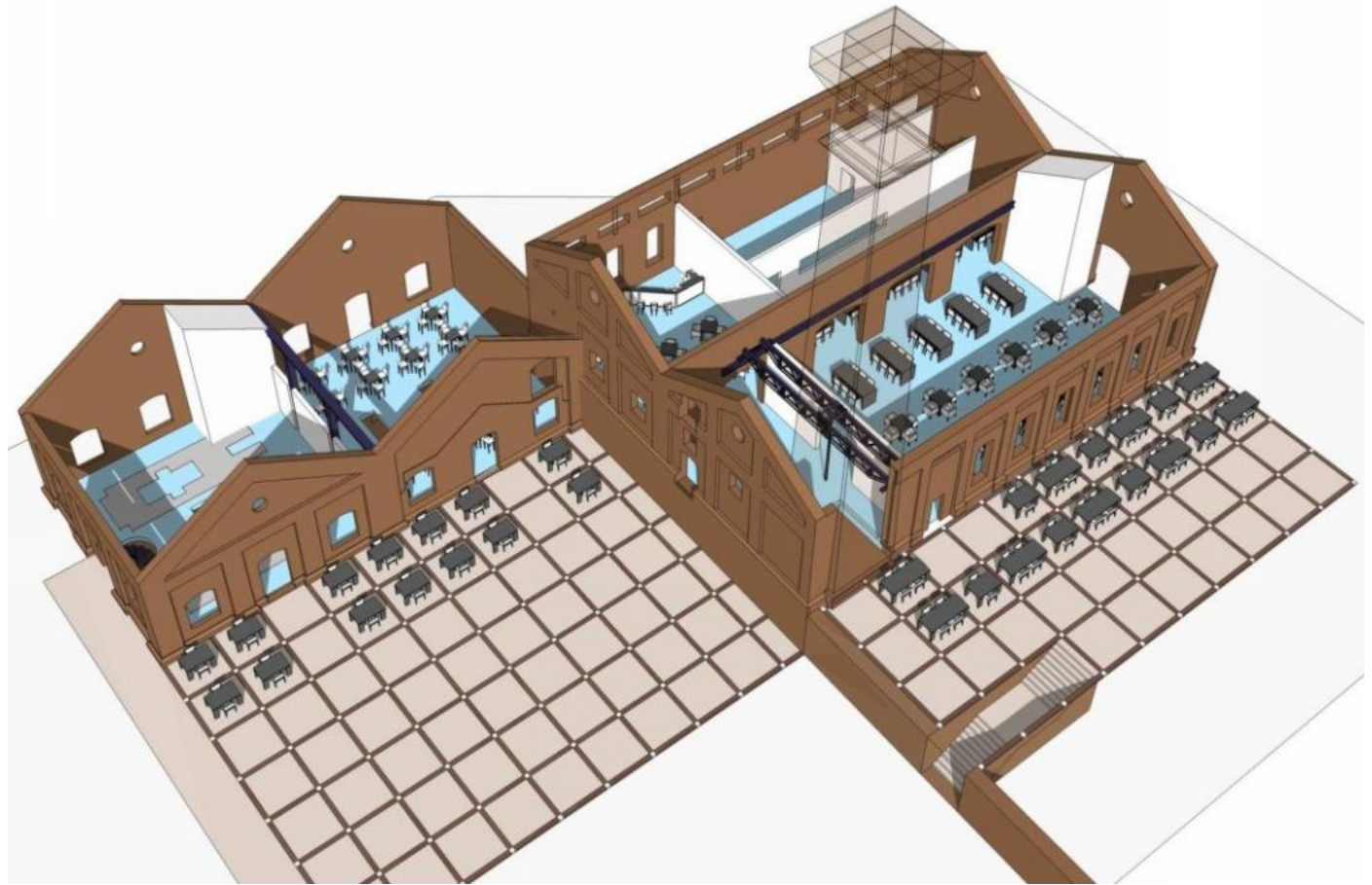


New inserted first floor: Live / work units

The two Cafe/ Restaurant units on the Ground Floor of the South Range will each have an enlarged opening on the axes of the two gables. Thus following the essence of the stated VoG requirement, to minimise the extent of change to the historic fabric.

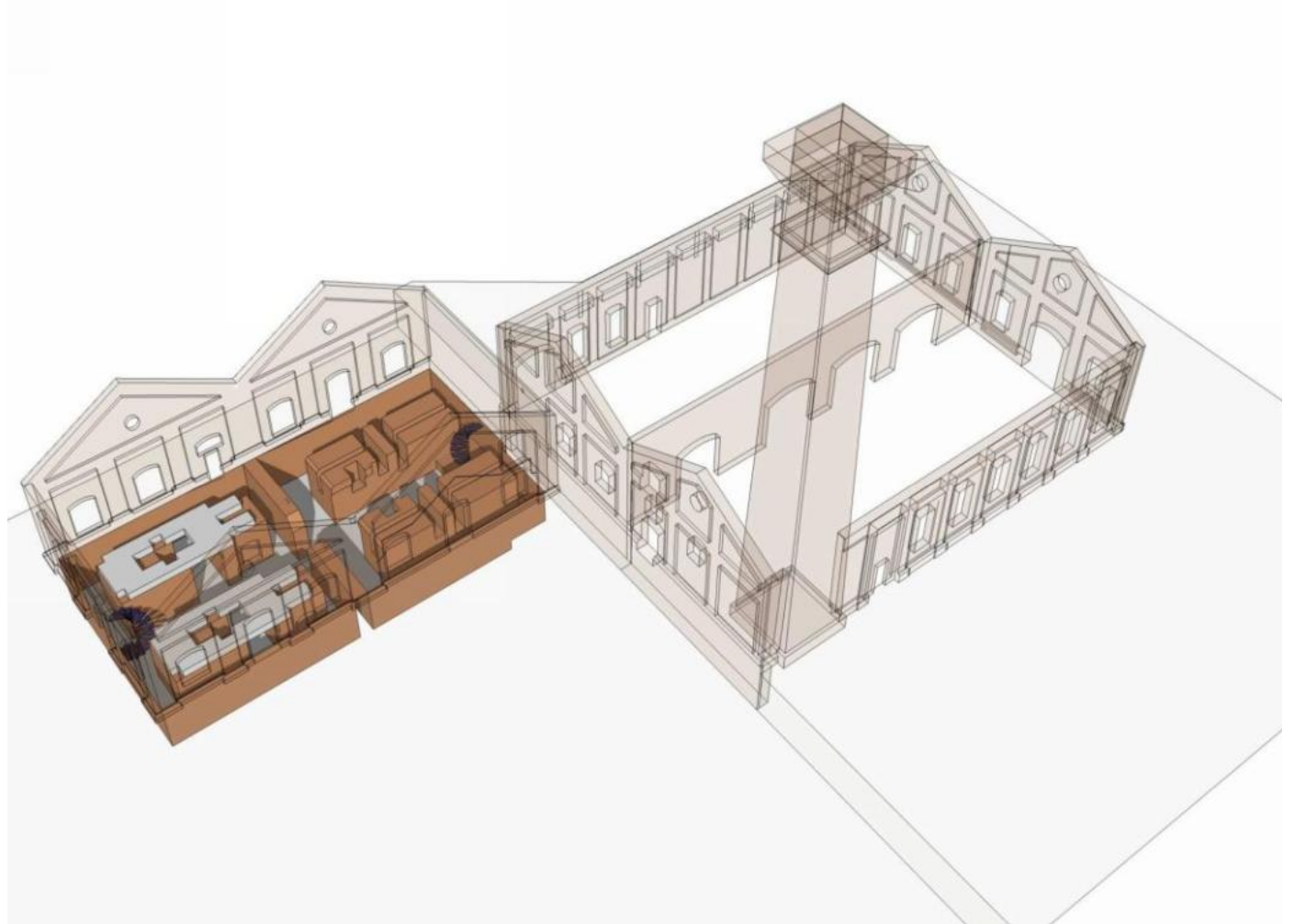
A double height lobby area will be formed in the North Range, to express the original form of the building and emphasise the mass of the chimney. One of the historic travelling cranes will be positioned in this lobby and become a feature.

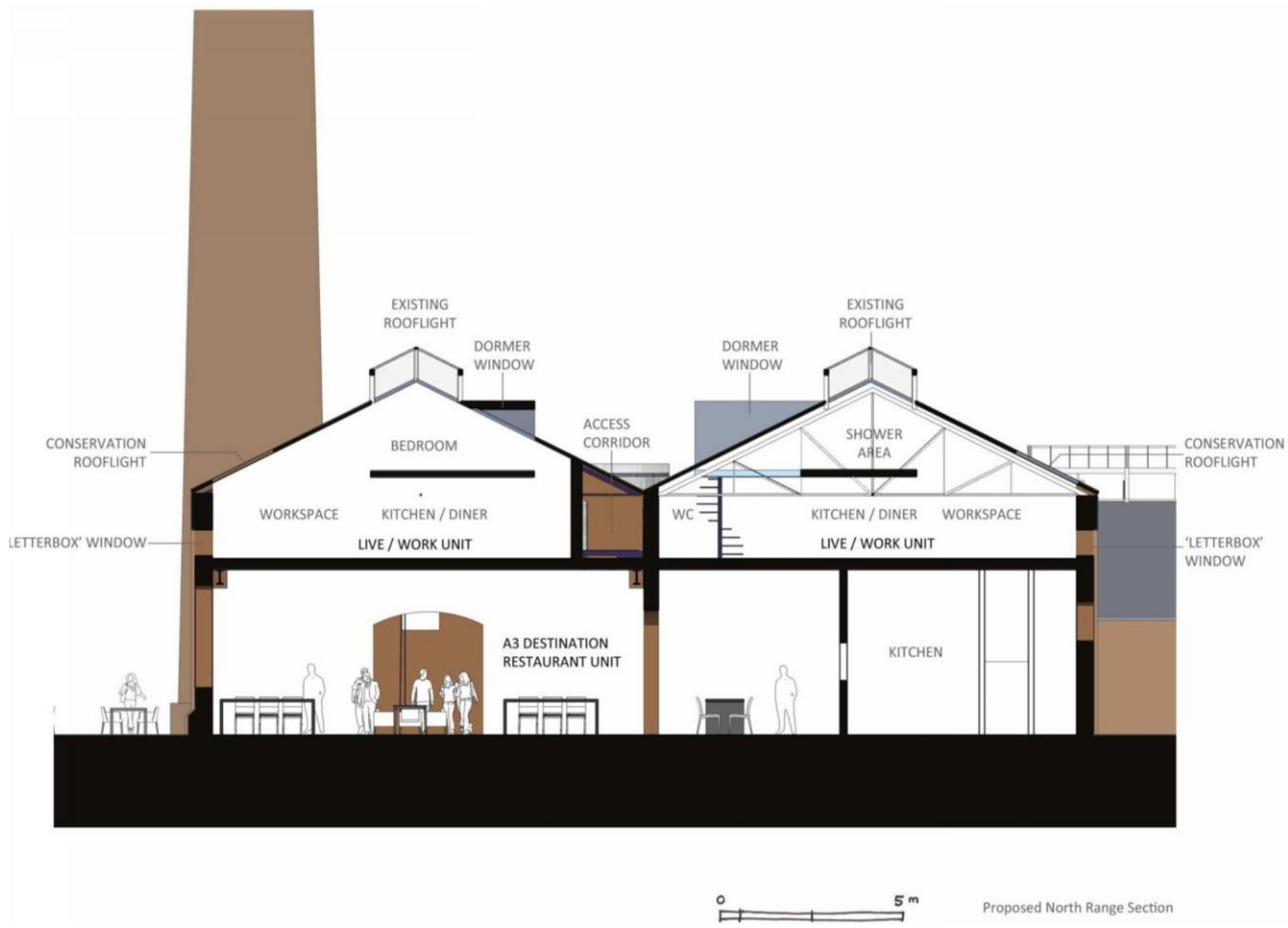
In the South Range, the machine bases will remain in position, with new floor with cast glass elements installed to level with the existing stone. This will allow some views to the historic constructions in the basement below.

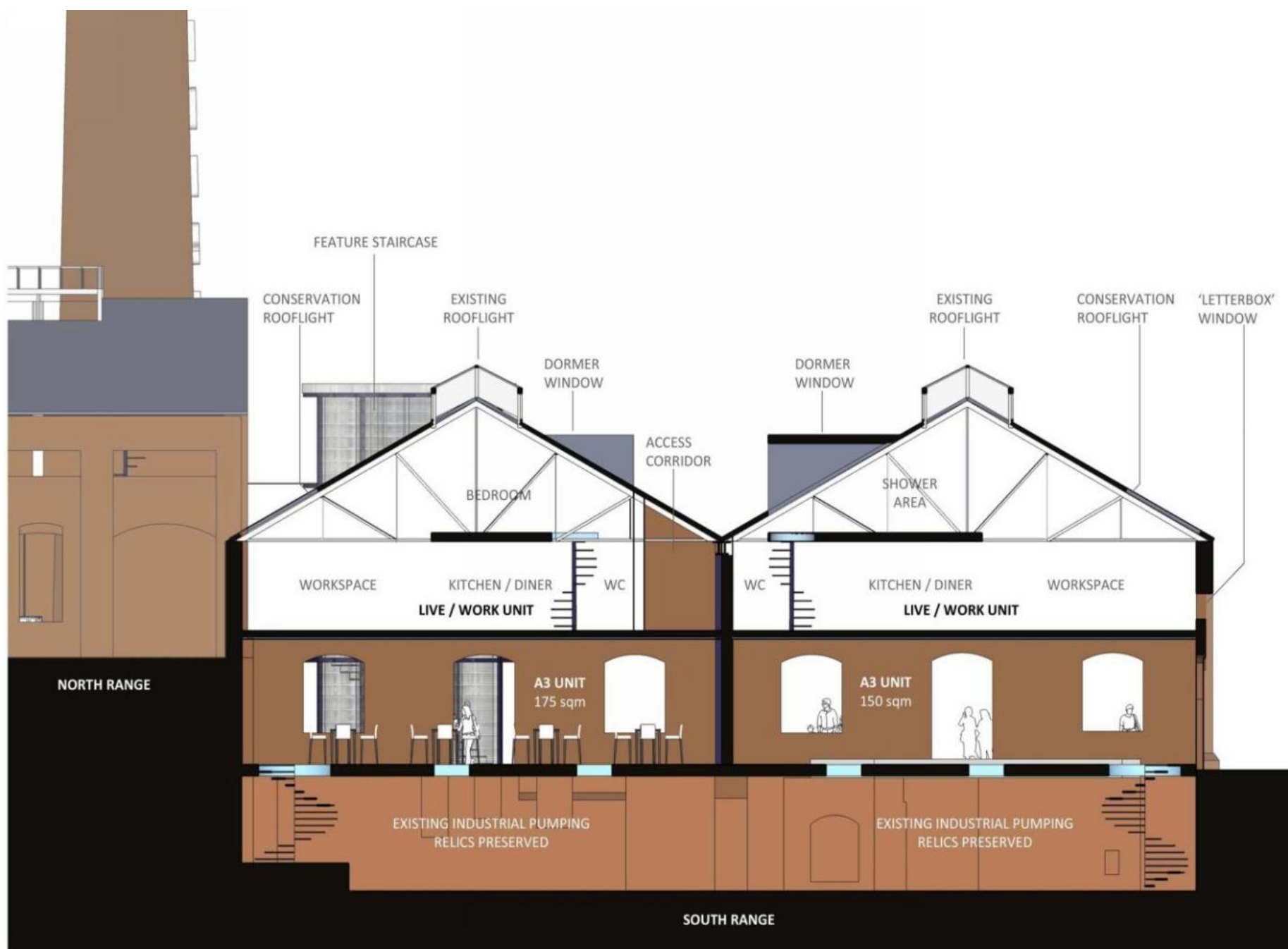


The existing basement of the South Range is approximately 3m deep and consists of a series of interlinked cellar-like spaces around the original machine spaces. Originally spaces for maintenance, fuelling and pipe routing, they offer an opportunity for a unique space celebrating the solidity and ambience of the brick and stone structures that could be developed, for example as a micro-brewery, coffee roastery or cellar bar etc.

The design intent is to secure the basement spaces, provide new water proofing to the north wall, and to clean and secure the structures without invasive cleaning so that their character remains. The new floor to the cafe/bar units will go in level to the top of the old machine bases, including cast glass floor sections and new stairs linking the basement to the new ground floor level.







Proposed Section: South Range



9. Evaluation

The initial proposals were presented to Vale of Glamorgan Planning officers at a pre-application meeting on 26 February 2014, and the subsequently worked up designs were submitted for review by the Design Commission for Wales on 22 May 2014.

9.1 DCfW Review Comments

The Design Commissions Comments are included separately, the main points were:

1. They supported the scheme overall and thought the proposals were of high quality and they welcomed the contemporary interventions into the Listed Building.
2. Concerns were raised over the design of the circulation 'drum' feature – the Commission thought an internal solution for the new stairs and lifts linked by a new bridge/ walkway along the south elevation of the North Range would be more appropriate.
3. The DCfW were concerned about parking being too prominent, in particular they wanted to see the new plaza clear of parking.
4. Pedestrian links to the other IQ buildings needed enhancing.
5. Concerns were raised about the amenity of the live/work units on the north range facing west – their view was mostly obstructed by the existing concrete water tank. The DCfW considered that this structure didn't merit retention and it would be beneficial to the residential amenity of the new occupiers if it were removed.
6. Concerns were raised over the mechanical ventilation and kitchen extract strategy as these can become obtrusive and unsightly additions to any building.
7. The DCfW supported the designs of the new additions and the design of the new window and door openings/ reveals. They suggested that more larger openings could be provided without it being to the detriment of the old building.

9.2 Responses to DCfW Comments:

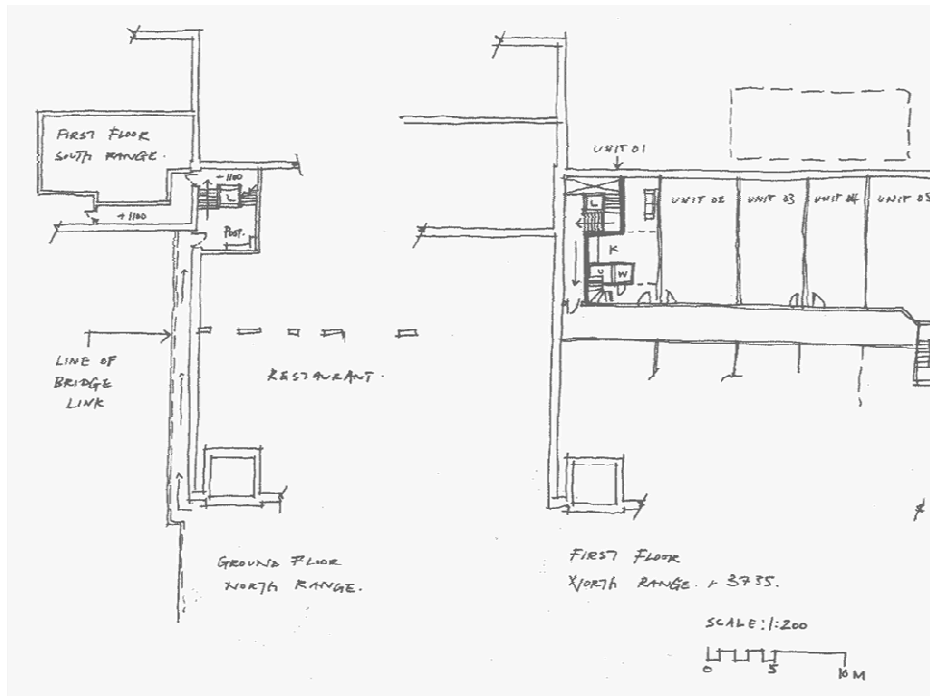
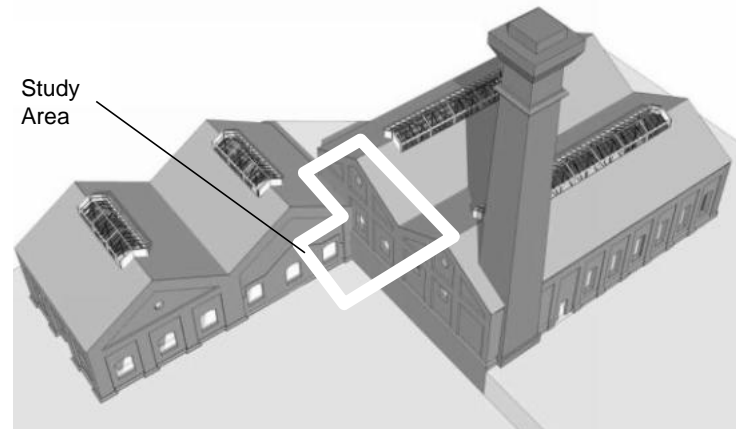
1. The designs proposals submitted for Planning have generally followed those submitted for review.
2. The nature of signifying the entrance to the new uses, and of allowing people entry and circulation to the new floor levels was looked at again by EWA from first principles. The following pages detail the design studies undertaken. The conclusion was that the drum could be removed in line with DCfW comments, and that a neat internal circulation method was found that allowed better security and separation of entry for residents and restaurant users. The idea of the bridge link was liked and has been developed in the final proposals.
3. The Plaza is now clear of cars, the developer and Council are investigating other ways to boost parking provision to support the activities of the IQ quarter generally.
4. An additional pedestrian link is proposed from the high level of the BSC building to the north-west into the new plaza via the ramps already established by the IQ project. It wasn't considered practical to create steps/ entrances into the rear of the Pump House down the retaining wall as the space here is limited, and it was felt that the new café/ bar units should rather face out onto the new Plaza in order to strengthen this element of the urban design, rather than try to face two ways.
5. EWA discussed this issue further with the Listed Building Officer at VoG, who agreed that the water tank is of lesser value than the main building. The proposal is now to remove the upper storey – the tank itself, but leave the concrete slab and columns supporting the tank, and to use these to enclose the new mechanical plant/ kitchen extracts as the existing concrete will help deaden the noise of this equipment and also shield it from view.
6. See above.
7. Following the removal of the entrance stair drum, it was felt important still to signify the 'renewal' of the Pump House, therefore additional tall glazed windows are proposed in the south elevation of the north range which will add a dramatic new experience to the building viewed from the inside – capturing some of the south light and allowing views out to the dock over the new plaza. The height of the new windows will accentuate the height of the original building. The windows are proposed following the positions and widths of existing already established openings in order to be sensitive and follow the established language of the original building.

9. Evaluation

9.3 Design of vertical circulation.

Following the comments raised by the DCFW, the entrances into the building, and vertical circulation to the different levels were reviewed from first principles. The following 5 options were explored as shown below and following pages. In each case, the split in level between north and south ranges complicates the arrangement: in particular the First Floor of the South Range is only 1.1m above the Ground Floor of the North Range, therefore one cannot pass underneath any corridor linking the two ranges at this level.

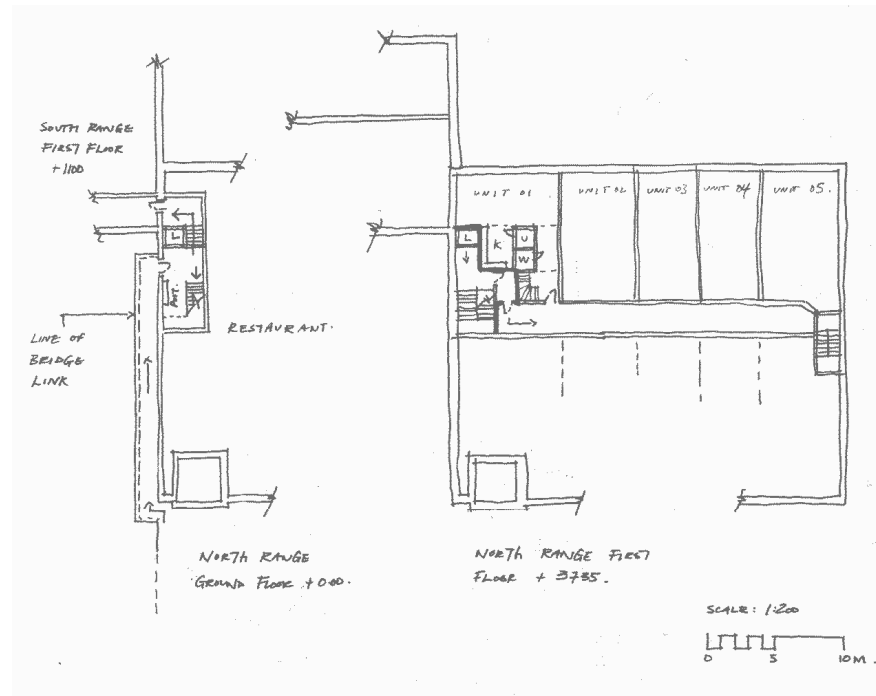
After consideration, Option 2 has been developed into the final proposals as it provides the neatest arrangement of circulation, with simple, legible internal lobbies./ corridors and keeps all the circulation to the live/work units internal, and separate from the restaurant enhancing resident's amenity and safety.



Option 1

Internal circulation positioned in the north range, in the western corner adjoining the south range.

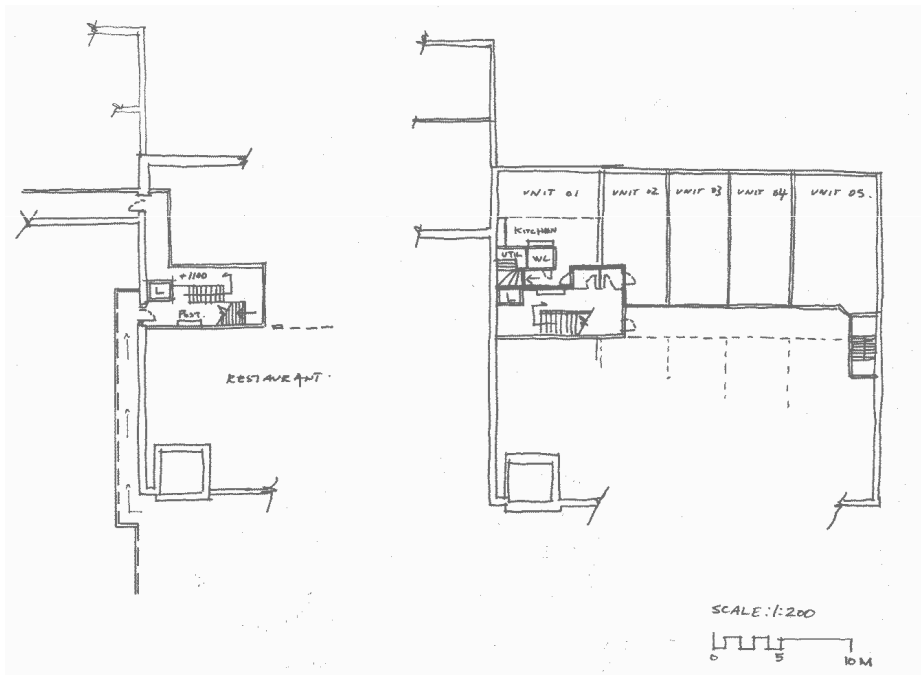
- The stairs and lift take up valuable façade space on the north range, reducing the number of live/ work units.



Option 2

Internal circulation positioned in the north range, similar to option 1 but moved away from the external façade.

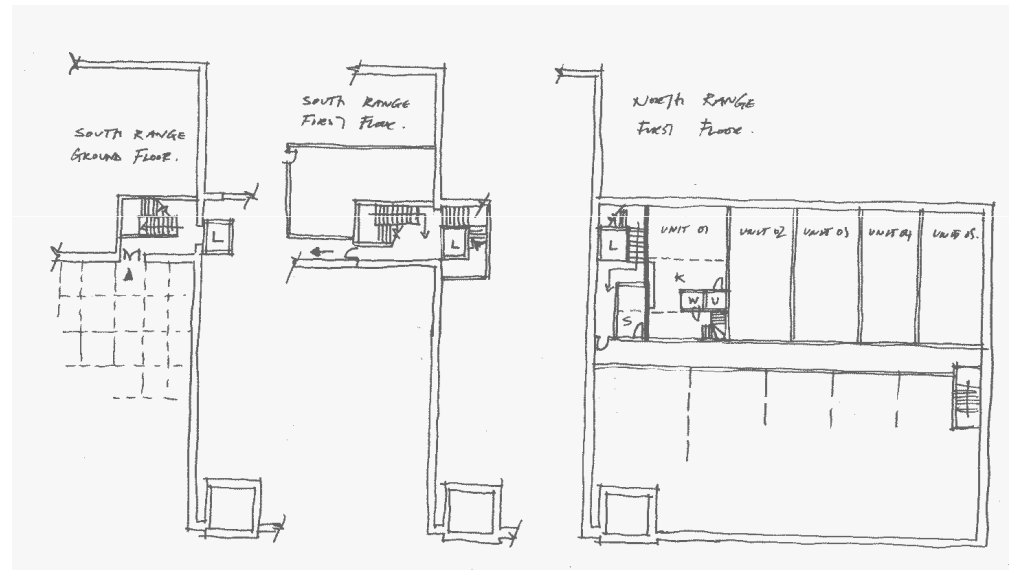
- A compact and neat stair and lift arrangement is possible, linking both to north and south range units without having complex corridors.



Option 3

Internal circulation positioned in the north range, similar to option 2, but rotated 90 degrees to be in line with the existing dividing brick wall.

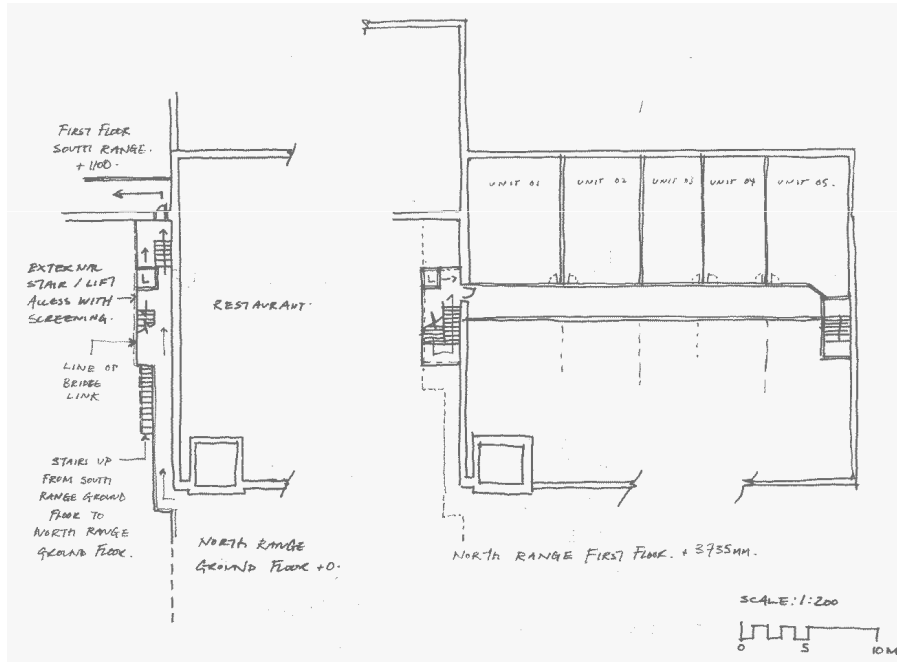
- The result is similar to Option 2, but this arrangement creates more of an obstruction in the restaurant unit at ground level, and the corridor/ lobby arrangement is more complex.



Option 4

Entrance from Plaza level into the South Range, circulation located within the corner of the south and north ranges.

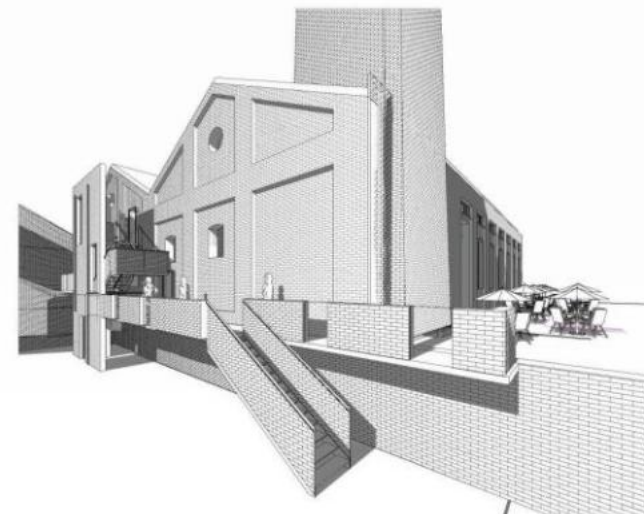
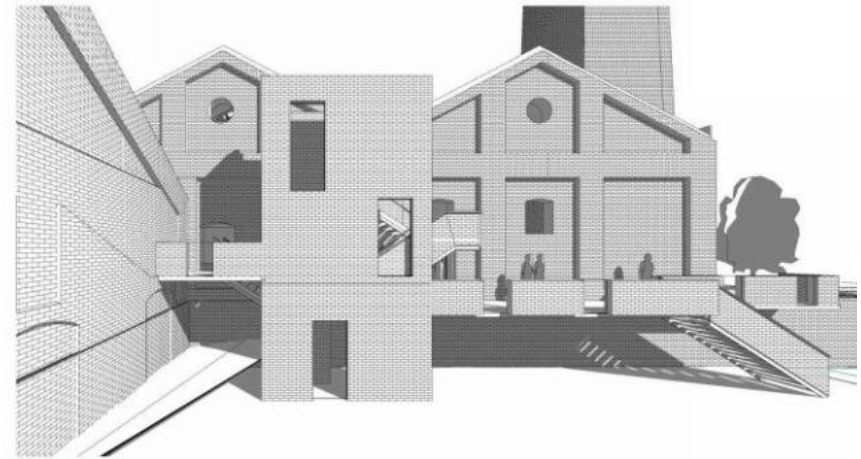
- This option takes out valuable space from the south range café/ bar unit, and involves more stairs than the other options to overcome the levels.
- Overall this option is felt to be too complex.



Option 5

External circulation positioned alongside the north range façade.

- A possibly exciting solution of an alternative external stair arrangement, which could be contained within a brick or steel enclosure.
- This arrangement does not fully address the DCFW comments about not blocking the view of the old building and providing internal secure circulation, and was felt to have it's own design issues with it's relationship to the existing building.



10. Design Proposals



Proposed view of north range interior.

10.1 Summary

The proposals submitted here retain the existing Listed Pump House building, but provide new commercial uses at ground floor with live/work units above, working within the existing structure.

The intention of the proposals is to work with the existing structure, to retain it wherever possible, and to make sensitive interventions that allow the new uses of the building to sit within the existing building and enjoy the space and character of the existing building.

The materials proposed for the new additions will create a deliberate contrast to the original building, but have been chosen to also reflect and pick up on the building's industrial heritage. New works are designed to have an 'industrial' aesthetic of simple exposed steel support structures and robust utilitarian materials.

The new works will require re-opening some existing bricked-up openings, and the creation of other new ones in order to give appropriate daylight and views out to the new users. The designs have been developed to minimise the new openings, and to propose them where they are appropriate to the listed building and a practical minimum required by the new uses.

Equal Access will be created to all new facilities and units by way of new level or gently sloped paving approaches, accessible carparking close to entrances, and by a central lift serving all the live/work units on the upper floors.

A plaza – a new major public open space will be created in front of the Pump House, framed by the two wings of the existing building. The landscape design emphasises this space as an outdoor room and allows the plaza freedom to be developed in future for any number of activities related to the building users or Barry as a whole.

Pedestrian access to the Pump House links into the wider IQ masterplan, linking both to the dockside and the east and BSC building to the west. Pedestrians and vehicles are kept separate to maximise the feeling of a pedestrian urban space. Parking and servicing on site is provided for commercial requirements, and to satisfy VoG standards for the live/work units, but planned to be constrained to the perimeters to keep the central plaza open and pedestrianised.



10.1 Summary



North Range Cross Section

10.2 External Elevations

The design intent is to retain and enhance the original building and celebrate its character by the new works. The proposals retain the existing brick elevations and windows that have been recently refurbished, and also retain the new roof and rooflights as provided by the previous project.

The main interventions visible in the external elevations will be a number of additional or amended new window and door openings, and the introduction into the existing roof of a number of conservation type rooflights.

In designing the new openings, we have been sensitive to the original layout and sizes of existing openings, and to the pattern of the original brick piers.

The Live/ Work units on the upper levels will rely on the new façade windows for their principle view out. These new windows have been proposed within the existing brick recesses on the existing façade. The full-width 'letterbox' format is proposed so the windows are as simple and un-fussy as possible.

The existing entrances present on the existing building will be reopened and re-used as entrances to the various units, with new fully-glazed metal framed secure doors in the existing openings. Additional entrance doors are proposed to the live/ work units and restaurant along the south façade of the north range, and to the café units along the east façade of the south range, also with glazed metal-framed secure doors.



Proposed external concept views

10.2 External Elevations

New tall windows are proposed on the south façade of the north range providing a dramatic new experience inside the existing building, and improving connections from inside to out to allow some of the life of the new building to be visible on approach from the new Plaza. The tall slender windows follow existing bricked-up openings on the façade and will retain the arched window heads, with simple curtain walling infill glazing recessed into the brick opening below.

All new openings will be detailed in a similar manner in order to clearly denote the new works separate from the original windows. Where new openings are made, a reveal lining in bronze finished metal will be introduced, with the doors and windows set back into this reveal within the depth of the existing brick walls.

Linking the north range entrances to the site perimeter will be a new linear walkway/bridge, partially supported off the existing retaining base to the north range. The design of this walkway is to be read as a lightweight industrial metal access walkway, providing a clear contrast to the solidity and weight of the original building. The metalwork has been designed to give a slim linear profile to the walkway, with a simple black metal handrail and matching black metal support steelwork.



Proposed concept views of new window and door openings.

10.3 Artist's Impression Views

View from dockside approach



View from North entrance



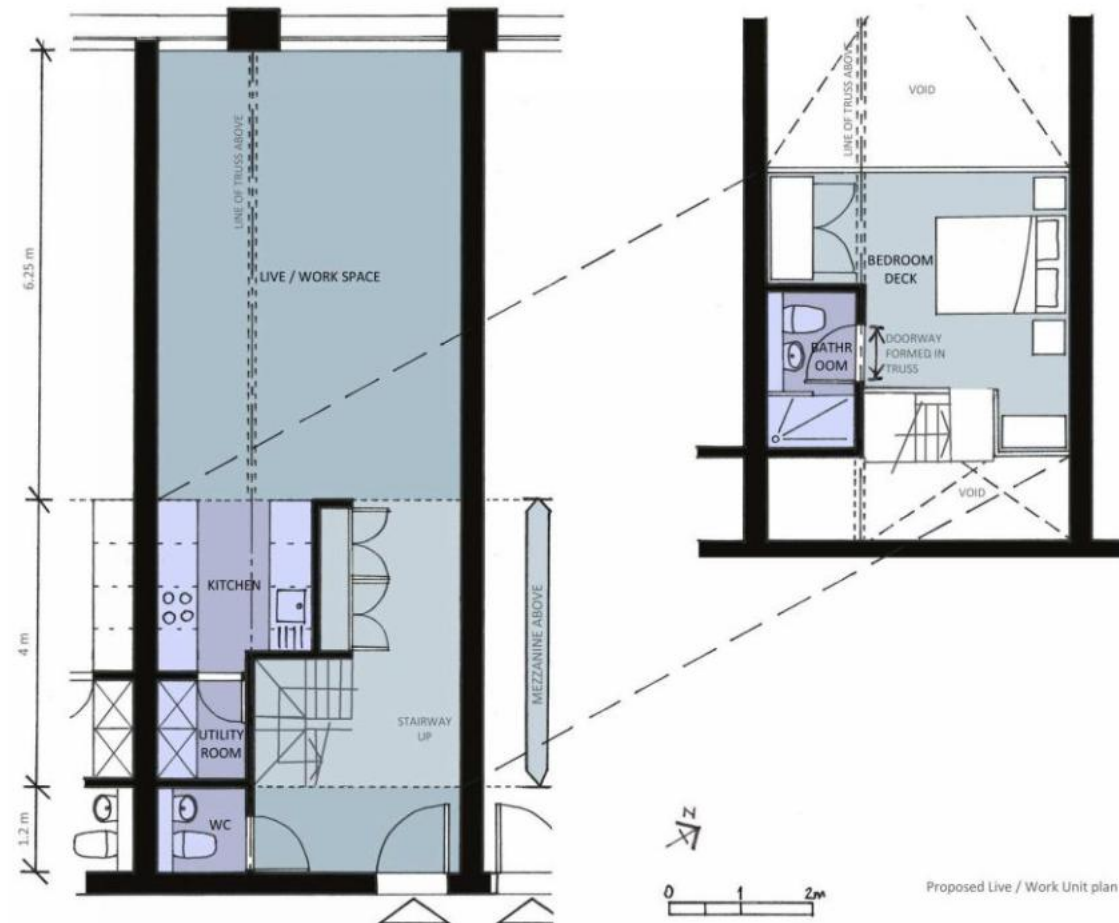
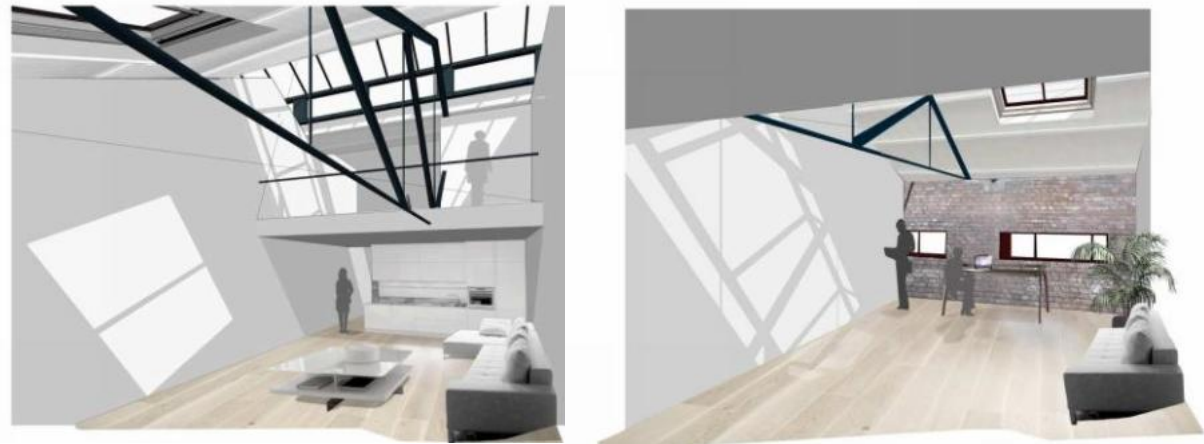
10.4 Live/ Work Units

The layout drawings opposite indicate in concept the arrangement of the Live/Work units.

The main floor level (entrance level) is a large loft-style open-plan space capable of being adapted to all the different variations of living and working space found in these developments once they are inhabited. The main space has windows out positioned so that a view out is possible at seated height, with additional daylight from the existing long rooflights over the mezzanine and new rooflights positioned over the main space.

Immediately inside the entrance door is a 'core' of facilities within a solid enclosure including storage, WC, utility room and kitchen. This area sits beneath the mezzanine floor above so as to be neat and contained and keep the rest of the unit as open as possible.

A mezzanine platform is provided, with a floor level to the existing bottom chord of the original roof trusses. The exact design of the stair up to the mezzanines has been a subject of much design development, and varies between units to make best use of the available space. The mezzanine space has a sloping head height, generally at least 2.1m around the bed area - the positions of the shower room and bed are planned to make maximum use of the available headroom.



Concept views and plans of live/work units



IQ Materials Palette

10.5 Landscape Design

The proposed materials palette follows that of the existing IQ Masterplan design guide, including concrete flags and setts in a traditional finish, with coursings, trims and rumble strips in natural granite cobbles and setts.

Grid layout of piazza to reflect the previous industrial use of the site and define the piazza as a public space. LED uplights and strips integrated into grid for lighting.

Street lighting to match existing Urbis black column and lantern design. Blenheim column with Albany lamp and cast stirrup bracket. Low level lights in car parking areas installed in bollards, similar to existing systems around Goods Shed Building.

New retaining walls to have brick facings to match surrounding historic buildings, similar to Premier Inn. Freshfield Lane selected dark facings, or similar.

Planting to continue established character and suit difficult soil conditions and exposed maritime environment.

Trees: Fastigate Hornbeam used both in pleached form to create a formal enclosure to the new plaza, and also allowed to grow in natural form as large trees to the northern boundary of the site to form a backdrop to the Pump House and a screen between the commercial uses of the IQ quarter and the residential area to the north.



Design Precedents



Soft Landscape and Furniture

Landscaping Materials



Note
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SURVEY INFORMATION PROVIDED BY THIRD PARTY

KEY:

- Site Boundary
- Existing soft landscape grassed areas (retained)
- Tegula paving with flush concrete kerb edges and flush LED lights at alternate intersections.
- Railway rails set flush to paving
- Tarmac surfaced parking areas on roadbase with Tegula paving edges to mark out spaces.
- Resin bound gravel surface on suspended walkway bridge structure.

1. Stainless steel marker studs to demarcate parking spaces and roadways
2. New retaining walls faced in reclaimed masonry to match old retaining wall
3. Steel balustrade to match access bridges
4. Fencing 2m height with secure gates

Proposed Trees (Perimeter):
Hornbeam
(*Carpinus betula Fastigiata*)
1.5-1.8m bare root plants, planted in prepared tree pits with irrigation pipework to BS 4043.

Proposed Trees (Plaza):
Hornbeam
(*Carpinus betula Fastigiata*)
3-4m high trees when planted.
Kept trimmed into square pleached form, on a steel frame, canopy height 1.8m above ground level once established.
Planted in prepared tree pits with irrigation pipework to BS 4043.
Porous resin bound gravel protective surfacing over tree pit.

9.800 Existing Site Level
 9.800 Proposed Site Level

North Point

Proposed Site Plan

11. Access Statement

11. Access Statement

11.1 Vehicular and transport links

The Pump House site is part of the wider IQ Masterplan redevelopment by Vale of Glamorgan Council and WAG, which includes the new link road to Barry Island and improved roads around the site linking the new buildings in the masterplan. These roads are either in process of being constructed or are already complete. The Barry quayside is accessed by the harbourside road from the A4055 linking the town to Cardiff and by train connections from Cardiff to Barry and Barry Docks Stations.

There are two proposed vehicular entrances: There is one at either end (north and south) of the site relating to the two principle levels on the site. The positions of the vehicle entrances follow the IQ masterplan layout. Their position allows access to the site away from other road junctions, and also leaves the important corner open looking over the quayside to be developed into a pedestrian access route.

The Pump House is served by local rail services from Barry Town railway station, approximately 1/2 mile to the west, and by local bus services.

It is expected that a large number of people using the Pump House restaurants and bars will arrive on foot from local hotels and approach via the quayside.

Secure cycle parking and electric car charging points will be provided to the front of the building for visitors to the new public facilities, and also separately for staff and for residents.

11.2 Inclusive access

The proposed development will provide a range of public facilities which will all provide equal access and facilities in accordance with the Equality Act 2010. The Live/Work units on the upper floors will also be provided with level access, wayfinding signage, colour contrasts and highlighting, all in accordance with the Building Regulations Document M.

The current building is divided into two parts: North and South Range, set at different levels approximately 3m vertically apart. The proposed development includes two new car parking areas to allow users to approach and park at the building level to the facility they are visiting. The design also includes the new feature stair and lift tower which provides lift access to each of the public and live/work levels for users.

Within each unit, the layouts will be developed to ensure that they meet the requirements of the Building Regulations Document M through the detailed design stage.