

# 10

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**Architectural Proposals;  
Design Narrative**

## 10.1 Context

The proposed development at New Rotterdam Wharf sits within a context of rich industrial heritage, but also a contemporary context of changing attitudes towards the site - which continues to grow as a new cultural quarter for Glasgow.

The site sits on the threshold where the historic Forth and Clyde canal and Speir's Wharf area meet the more contemporary industrial developments along Garscube Road. This presents an opportunity to address the changing nature of the site and knit together these disparate contexts.

In the development of design proposals, various cues have been taken to inform the architecture so that it speaks to the immediate context, but also wider context of Glasgow. Inspiration has been drawn from the site's historic and contemporary industry, from the massing and materiality of buildings that were once built on the site, and from the impact on the wider views of the site from the rest of Glasgow City.

The following sections describe these cues and inspiration further, to show the journey that has been taken to develop the proposals at New Rotterdam Wharf.

Top right: Proposed visualisation of New Rotterdam Wharf development.

Bottom right: Historic aerial photo of the site, Glasgow Motorway Archive c.1960s



## 10.2 Industrial inspiration

The historic legacy of the Speirs Wharf and Port Dundas area is that of densely packed industry and large, muscular brick and stone buildings.

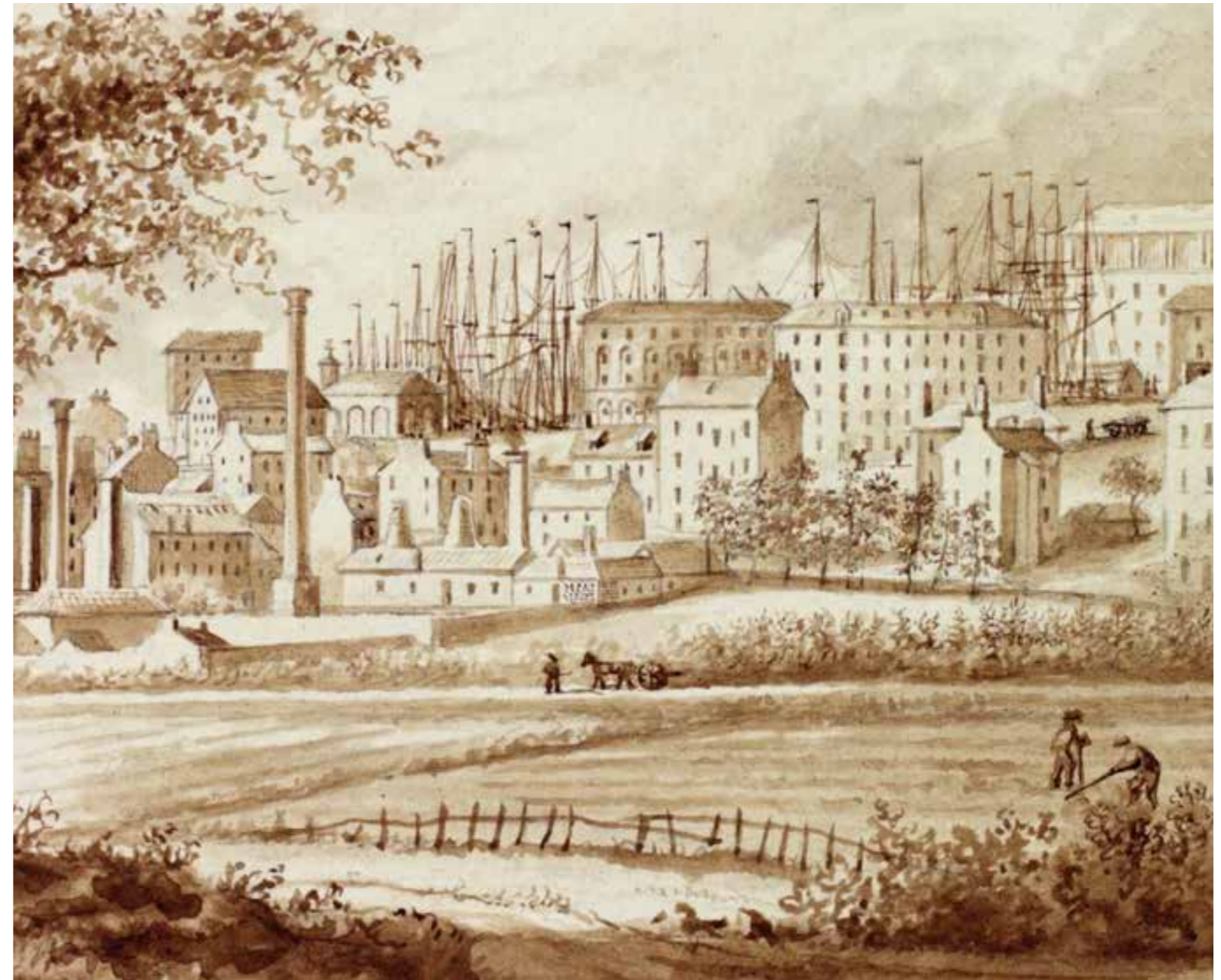
At the early stages of the design process historic etchings and paintings were uncovered, with romantic depictions of the Port Dundas area as a mound of densely packed industrial buildings, raised up above the city amongst fields of green pasture.

These depictions were particularly striking because they demonstrate not only the site's dramatic topography, but also the beautiful contrast between the delicacy of the ships docked at Port Dundas in comparison with the densely packed, heavy industrial buildings.

The ships' masts were prevalent in many depictions of the area over the past century, and reflect a bygone era of industry and infrastructure.

The contrast of muscularity and delicacy characterises the site of Port Dundas and Speirs Wharf in these etchings, and has been a key driver in the architectural narrative and design development of the proposals for New Rotterdam Wharf.

For the new development, there was an opportunity to build on this idea of heavy, monolithic architecture in contrast to delicate filigree sculptural elements.



## 10.2 Industrial inspiration

The new PBSA blocks take inspiration from the powerful Victorian industrial architecture that was historically located on the site and its surroundings, including the Port Dundas Electricity Generating Station that was demolished in the early 1970's, the Pinkerton Power Station and the converted granary buildings on Speirs Wharf.

Beyond these examples, there were many other large scale warehouses, industrial buildings and power stations constructed around this time. These buildings all followed the same pattern of large scale, utilitarian, mass blocks situated to tie in with the infrastructure of the canal.

Many of these buildings inadvertently created a landmark visibility with their various chimneys and towers, many of which would have been visible from across the city - as depicted in Alistair Grey's painting "Cowcaddens" where the former Port Dundas power station tower is central to the image.

The confidence and strength of these industrial buildings have been a large influence in the design development of the New Rotterdam Wharf PBSA designs, primarily through the following 3 principles;

**Powerful and muscular architecture.**

**Functional and honest architecture.**

**Ornate and economical architecture.**



Left: Series of historic etchings and paintings of ships around the Port Dundas area. "Port Dundas" by James Hopkirk 1827; "Granary at Port Dundas" by James Hopkirk 1827.

Right (top): Historic photographs of Speir's Wharf and Port Dundas, Canmore.

Right (bottom): Painting of Cowcaddens by Alastair Grey, showing the former power station tower.

## 10.3 Design approach to overall development

The location and topography of the site present various challenges in designing the three separate building elements (Scottish Opera building and 2no. PBSA blocks). Each building has its own complexities and constraints in tying in with the site and immediate context whilst meeting the needs of their respective briefs.

However, these challenges also come with opportunities to connect the upper canal towpath to the lower Edington Street, and can allow these buildings to have multiple faces which address the various levels of the site. Critical to this is how the buildings will turn to address the canal - aiming to activate and enrich this section of the canal which has previously been lacking in activity, amenity or visual interest.

Acknowledging that the three new buildings of the development span across a full urban block, there is a desire and an aspiration for them to be designed in a holistic manner, with common design moves across the whole development.

This is primarily achieved with the formation of a plinth block. To tie the three buildings together, a consistent datum has been struck at canal towpath level, which defines the height of this plinth. The plinth (in separate parts) will have consistent materiality and feel like an extension of the canal basin, whilst blending into the new landscaping which ties the site together.

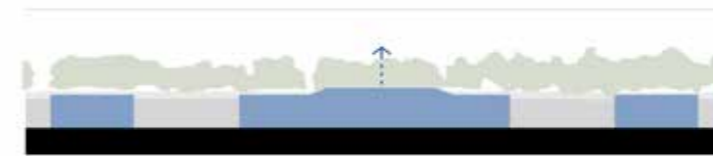
Articulating the buildings to sit on a plinth at canal level helps to break up the scale of the buildings, and allows them to have a dialogue with the canal itself, and the Speir's Wharf building's opposite.

The upper portions of the buildings then speak to each other architecturally, in their roof form, height, arrangement and detailing.

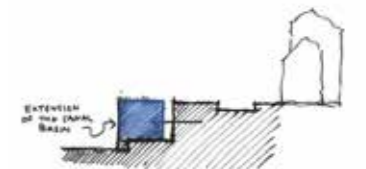
The scale of the upper Scottish Opera Pavilions is kept to a minimum, aligning roughly with the existing tree line along the canal. This ensures minimal impact to the existing views across this central portion of the site. It is anticipated that whilst walking along the canal you will get exciting glimpses of the Scottish Opera pavilions through the trees.



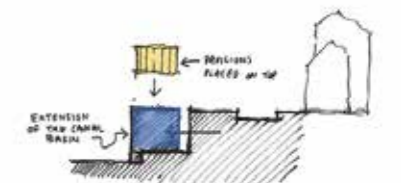
Site as existing



Introduce a "plinth" to tie in with the towpath



Place built forms top of this plinth



Built forms in dialogue with each other



## 10.3 Design approach to overall development

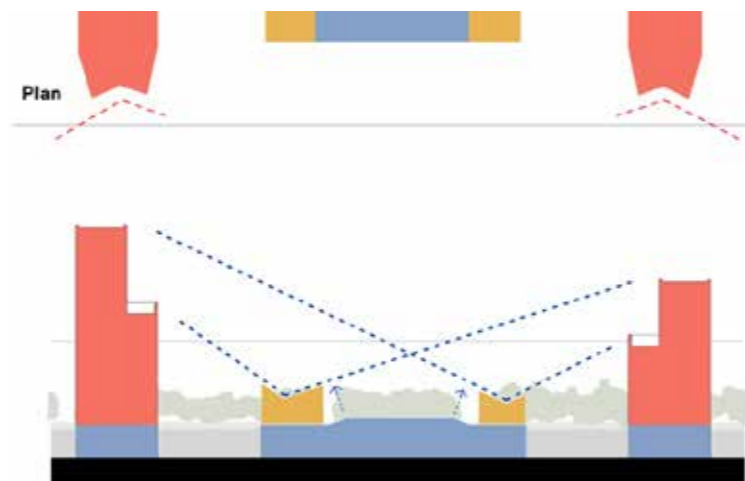
The Scottish Opera building and the two PBSA blocks may be separate buildings, but they form an urban block and need to be treated as such, with a holistic approach across all buildings.

The massing and formal design of the three buildings have influenced each other, ensuring that they are all in dialogue.

This can be seen in the geometric and angular treatment of roof form in the Scottish Opera pavilions, and in shaping the plan of the PBSA blocks.

This angled form can be read in different ways depending on where the buildings are viewed from around the site - but all tie back to a common language.

To assist with this approach to massing and form, matching and complimentary materials are being proposed across the three buildings.



Left: Concept diagrams relating to design approach to the site development.

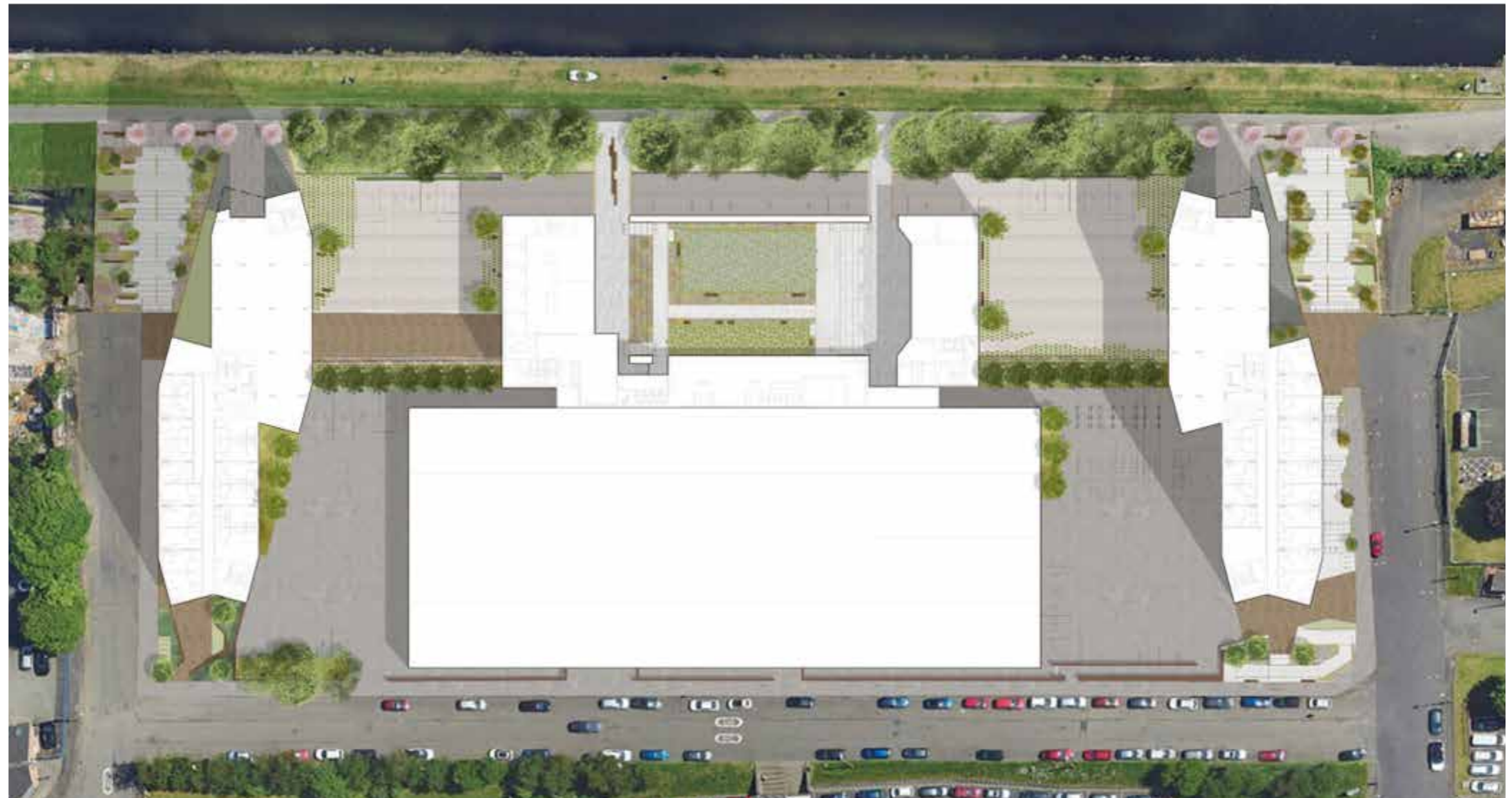
Right: Part visualisations of the proposed scheme



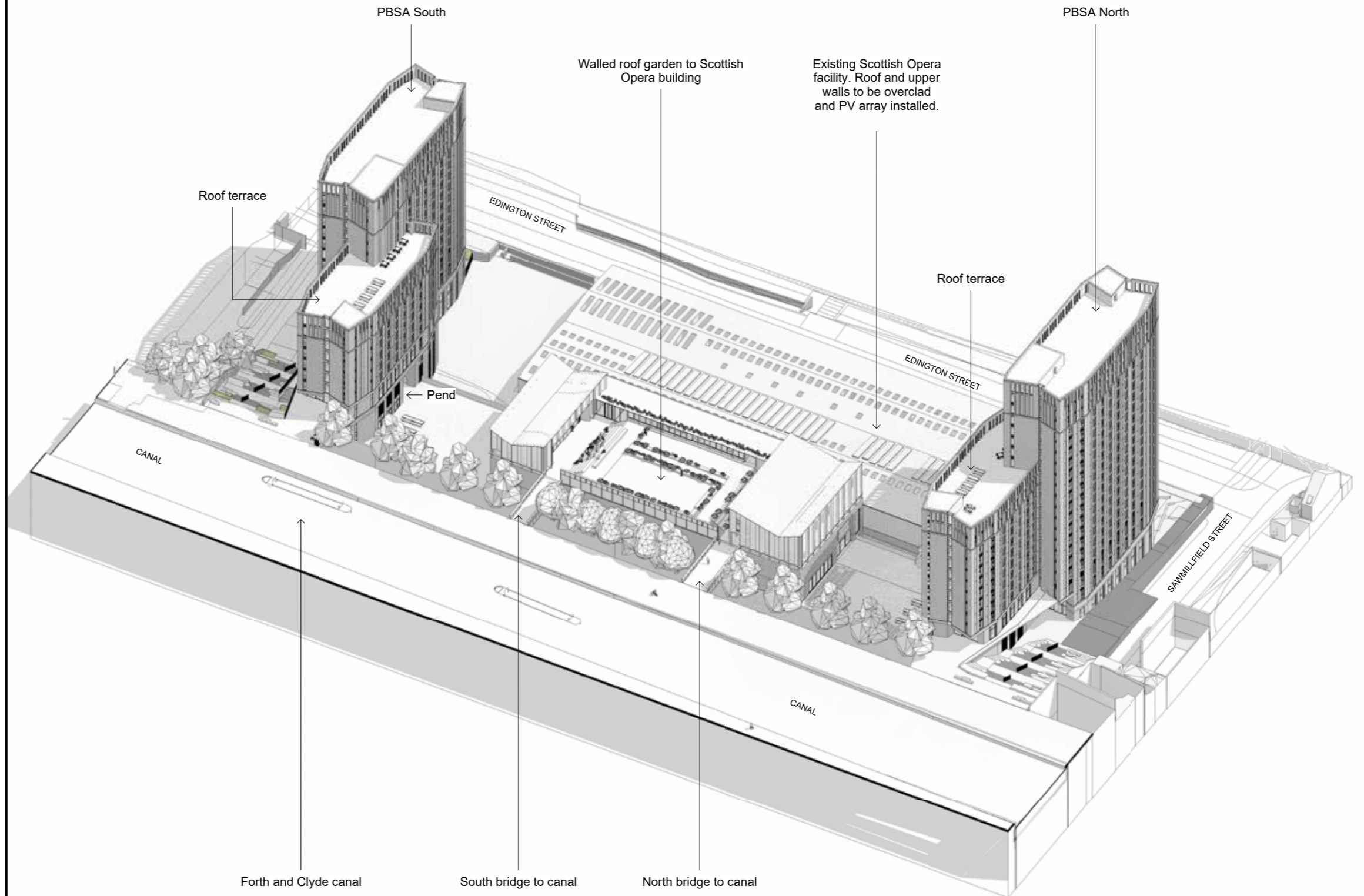
## 10.3 Design approach to overall development

The other critical design factor which aims to tie the overall development together is the landscape design and provision of attractive, usable green space for the public. This has been approached in a thorough and holistic manner to create a set of principles and design moves across very different areas of the site, depending on the brief requirements.

For further details of the landscaping designs, materials and detailing please refer to the previous section.



### 10.3 Design approach to overall development



Left: Concept diagrams relating to design approach to the site development.

Right: Part visualisations of the proposed scheme



# 11

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**Architectural Proposals;  
Scottish Opera building**

## 11.1 Brief

Scottish Opera have been based at Edington Street since 1999 when they moved into their purpose-built production facilities. This facility complements the existing headquarter premises on Elmbank Crescent and an orchestra rehearsal studio in Hillington.

Scottish Opera's Edington Street Production Studios are **the only integrated manufacturing and rehearsal facility in Scotland**. It is the workspace for highly skilled artisans; bespoke sets, props, costumes and wigs are made for each production alongside teams of specialist stage managers, lighting and stage technicians. The studios host orchestral players and singers from around the world for rehearsals, and is also the hub for a huge national education and outreach programme.

### The proposed development

The development of New Rotterdam Wharf will enable Scottish Opera to consolidate its activities onto a single site in a city centre location - with all the advantages that brings; including building organisational strength and sustainability.

The proposed facilities will provide new hire opportunities for Scottish Opera to diversify their income stream and support financial resilience. They will enable Scottish Opera to generally expand their engagement and participation programme and enhance their relationship with primary education providers in North Glasgow. This will be facilitated in the new education studio on Level 1, which will also be available to the wider community for meetings, exhibitions and other events.

A new café facility at the canal tow path level will complement the existing Willow Grove Café at Edington Street, to provide a wider offer to the general public, as well as social space for Scottish Opera staff, performers and building visitors during the week.

### **The key advantages of consolidating Scottish Opera's operation onto a single site include:**

#### Internal to the organisation:

- closer connection between the various aspects / departments of Scottish Opera
- greater efficiency and increased collaboration
- new and improved facilities allowing more varied and higher quality output



Visualisation of proposed new Scottish Opera building

#### External to the organisation:

- ability to host small scale performances
- broaden opportunities for engagement and participation activities
- provide facilities outside Scottish Opera's rehearsal periods to support the wider cultural sector – such as a TV and film sound stage
- programme of artist residencies and external events

#### **The new building is to accommodate the following:**

- A large orchestra rehearsal studio (20m width x 35m length x 10m height to provide 7000m<sup>3</sup> volume)
- Education studio (10m width x 13m length x 8m height)
- Multi-use studio pavilion - for rehearsal, performance, workshops, and exhibitions (10m width x 13m length x 7m height)
- Practice rooms, which can double up as dressing or meeting rooms
- Music library
- Instrument store
- Additional costume store
- Laundry department
- Offices and meeting rooms
- Café / social space

(plus ancillary accommodation such as WCs, plant rooms, circulation and storage).

It is envisaged that the new orchestra rehearsal studio will accommodate performances with an audience of circa 200, whilst providing lettable space for other cultural and creative sector organisations outside the Scottish Opera rehearsal period (approx. 10 weeks / annum).

In addition, the proposals will provide high quality public realm to enhance the wider development of New Rotterdam Wharf and surrounding context. This includes new landscaped courtyard spaces at Level 1 and a publically accessible rooftop garden that enables Scottish Opera to host a range of activities, such as small scale music performances in the warmer months. This rooftop garden will provide new green space adjacent to the canal, and provide panoramic views across the west of Glasgow city.

The building plan layouts have been developed in close partnership with Scottish Opera staff and other potential stakeholders.

## 11.2 The existing building

The existing Scottish Opera building on Edington street is a double portal frame industrial shed typology, with a masonry outer wall where the upper section is clad in a proprietary metal panel system. There are service yards used for both HGV access and car parking at both the northern and southern ends of the building, which are accessed from Sawmillfield Street and Corn Street.

The eastern half of the building houses the main workshop areas with a clear logistical sequence, where raw material comes into the main workshop areas at the southern end and leaves the northern end of the building as completed sets ready to be taken on tour. More cellular, 'clean' spaces are within the western half of the building, which also has a first floor level. Mezzanine floors have been added to the eastern half of the building to house an enclosed wardrobe store and additional 'open' storage for the LX (lighting and electrics) departments.

### The existing building comprises:

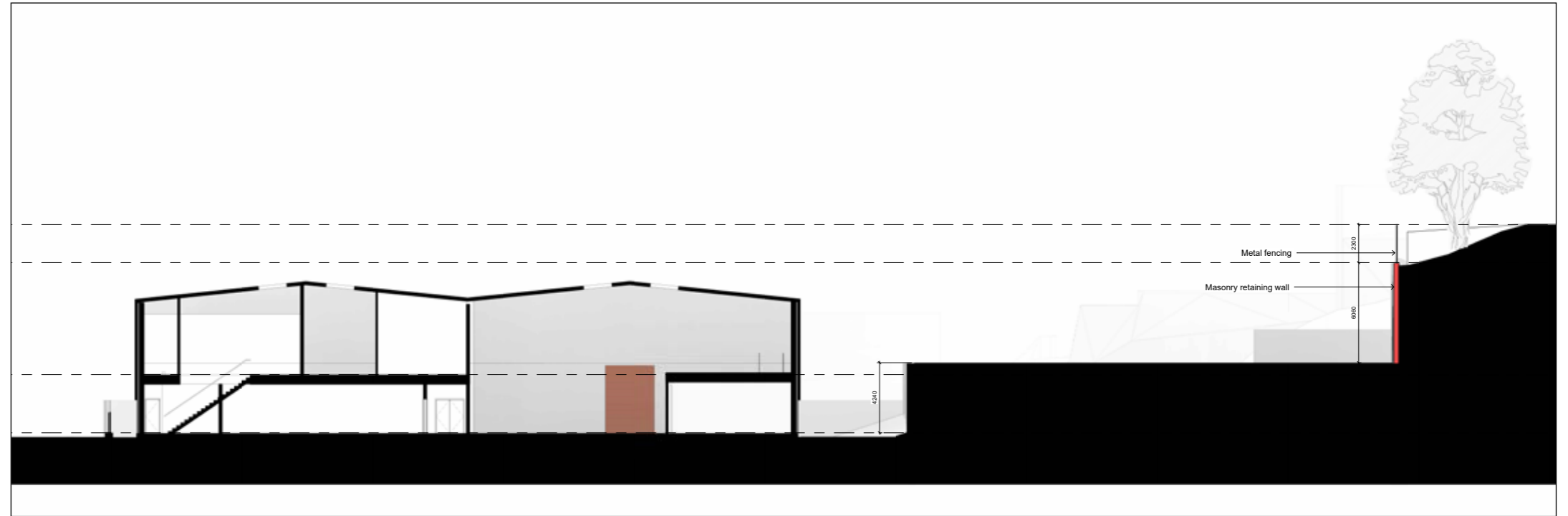
- Reception and café
- Joinery and metalwork workshop
- Paint workshop and spray booth
- Prop storage
- Wardrobe department and wardrobe store
- Wig department
- Education department
- Rehearsal Room
- Instrument store
- First aid room
- Practice rooms
- plus ancillary accommodation such as WCs and store areas.

The public visit the building for education activities, but generally speaking the building does not provide a 'public face' to the organisation and is of a functional, utilitarian design. There is lift access to the upper floor and level / ramped access to all non-storage areas.

The environmental performance of the building is typical of an industrial building of this nature and age. This to be improved as part of the proposals, with new PV panels to be added to the roof and overcladding to the external walls and roof. There will also be aesthetic improvements with a new feature 'portal canopy' around the existing Edington Street entrance to match the cladding to the new pavilions at tow path level.



Images from top in clockwise direction: Edington Street elevation showing existing entrance ramp / parking in north service yard / view of production studio workshop in eastern portal / general view of south service yard and material access into the production workshop



Existing Cross section through current Scottish Opera building



Existing elevation of Scottish Opera building (Edington street)

## 11.3 Inspiration and conceptual thinking

### Delicacy & Muscularity

The site around Speir's Wharf and Port Dundas has changed significantly over the past century, not only physically, but in perception also.

Historically, the area has been portrayed in numerous etchings and paintings which depict the site in its densely packed industrial setting.

Though most of this historic industry is now gone, there is a new form of industry - that of culture - growing in the area.

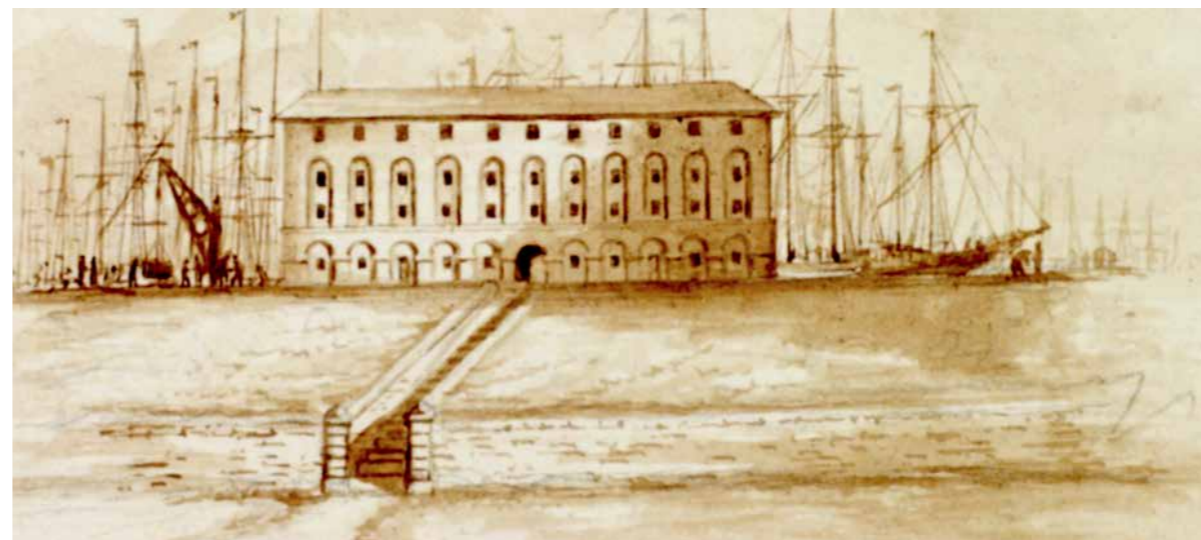
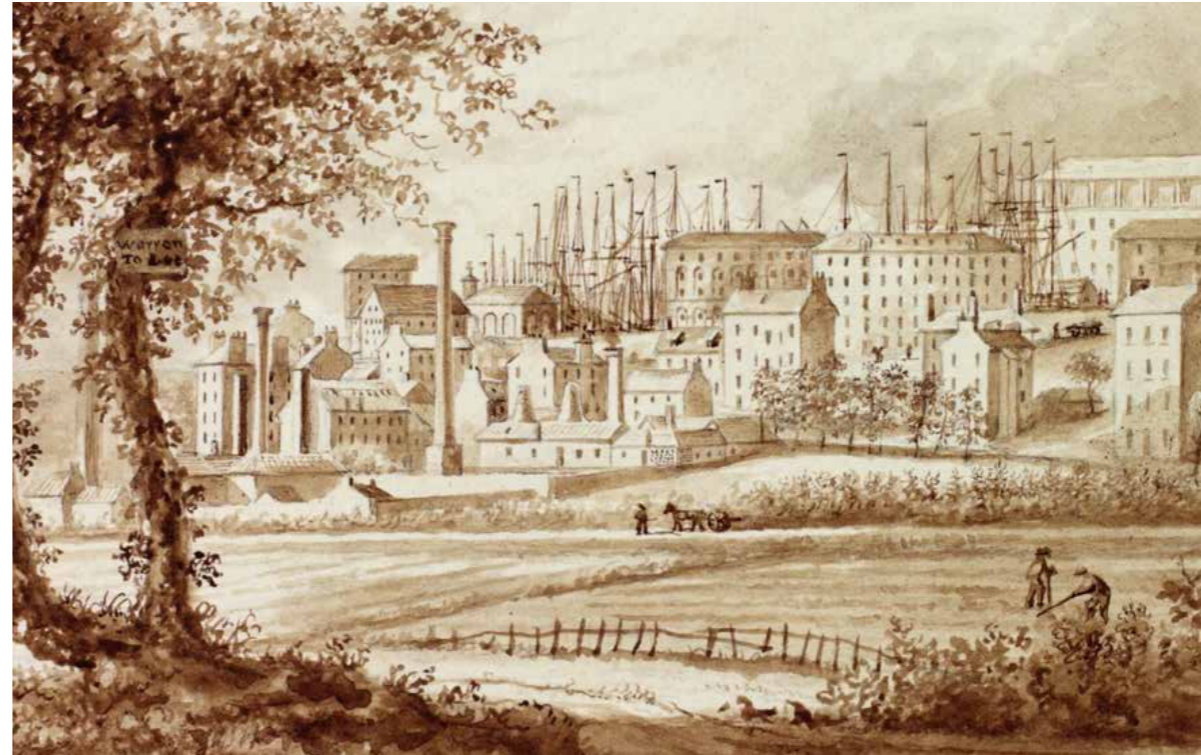
These etchings were of particular inspiration in how the designs for the Scottish Opera building were developed. Particularly in how they depict the densely packed, muscular industrial buildings built of stone and brick - in stark contrast to the delicate and sculptural essence of ships masts.

In James Hopkirk's etchings, these masts combine together, almost forming a single entity of delicate spindles and ships rigging - all intertwined. This sense of delicacy and filigree contrasts beautifully with the weight and power of the surrounding industry.

For the Scottish Opera building, this is an opportunity to reimagine this contrast of muscularity and delicacy, between heaviness and lightness.

"Port Dundas is situated, strange to say, at the top of a hill overlooking the city. The appearance of ships' masts in such a position, over-topping the houses, presented to us a **peculiar surprise.**"

Alfred Barnard, *The Whiskey Distilleries of the United Kingdom* 1887



# 11.3 Inspiration and conceptual thinking

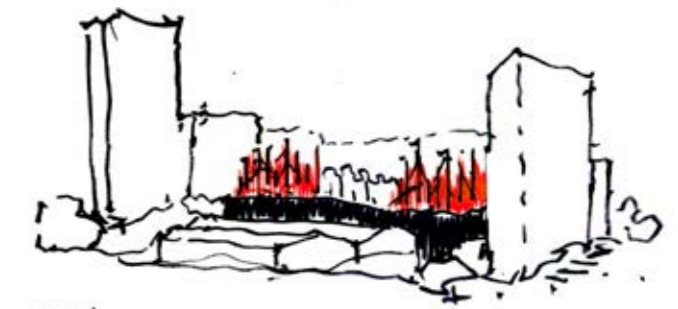
## A Cultural Acropolis

Referencing James Hopkirk's beautiful etchings of Port Dundas, and the striking contrast of muscularity and delicacy - the prospect of a contemporary interpretation of this idea has driven the design of the whole development.

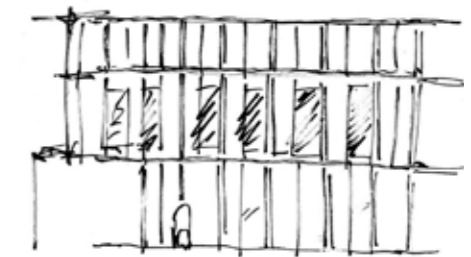
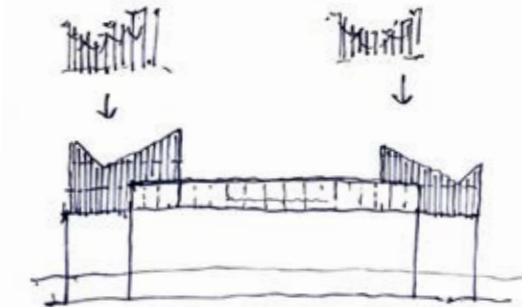
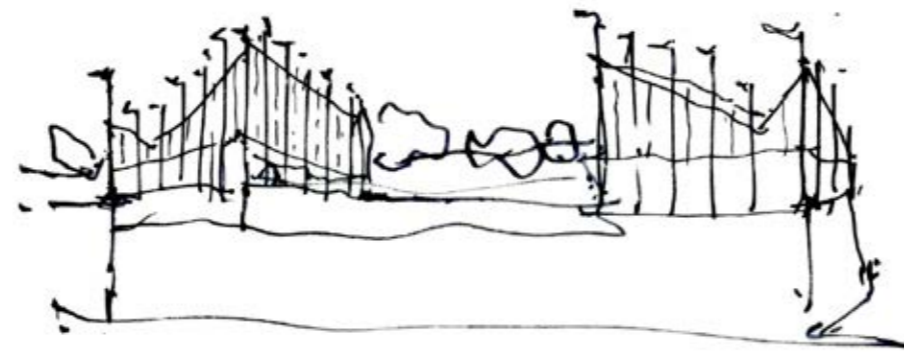
Much like the depiction in Hopkirk's imagery, the area of Speir's Wharf and Port Dundas still command views from across the city of Glasgow. The New Rotterdam Wharf site itself sits in the middle of this, and thanks to the topography, the new Scottish Opera building will sit like a "cultural acropolis" overlooking the city. Here is a real opportunity to create a new cultural beacon for Glasgow, with Scottish Opera sitting as a sculptural element nestled amongst its context.



1827

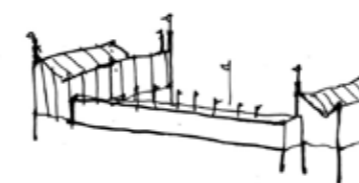
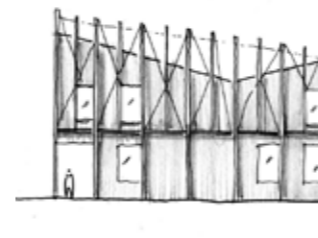
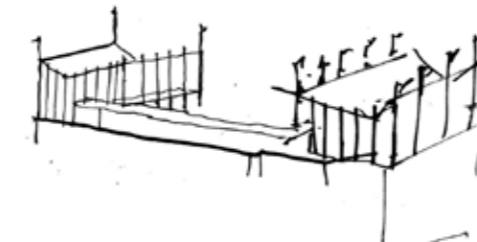


2024



Translating these ideas of delicacy, filigree and layering into a physical building required rigorous testing of designs and articulation.

The challenge was to portray a sense of the original inspiration and concept, without being too literal in how the buildings would appear. The aim was to use architectural articulation and materiality to bring through the sense of delicacy, and verticality of the ships' masts. By using repeated vertical members on the facade we could reference the bundling of ships' masts, whilst the cladding between could use transparency or articulation to reference the ships' rigging and sails. Using a combination of these in different ways, the ambition was to create a sense of depth and visual interest in the Scottish Opera building's envelope.



DENSE COLLECTION OF SHIPS' MASTS



Left: Series of historic etchings and paintings of ships around the Port Dundas area. "Port Dundas" by James Hopkirk 1827; "Granary at Port Dundas" by James Hopkirk 1827.

Right: Series of architectural concept sketches showing design development.

## 11.4 Massing and general arrangement

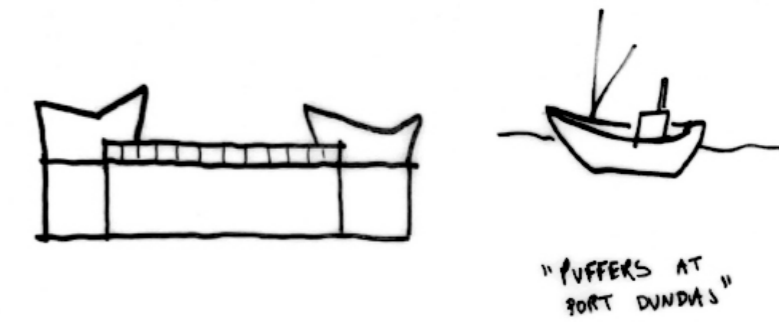
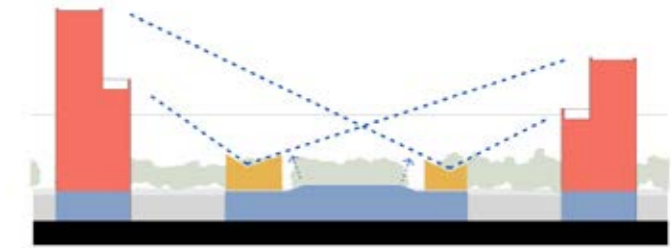
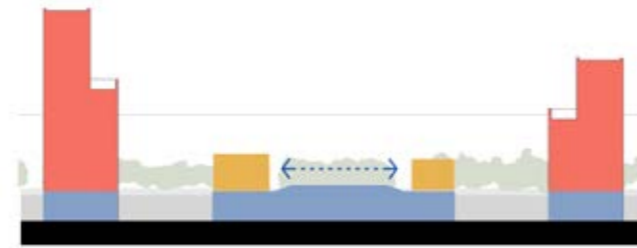
### General arrangement

As previously outlined, the site response has been to create a "plinth" base to the new Scottish Opera building and the two PBSA blocks, conceptually acting as an extension of the canal basin.

In the Scottish Opera building, this plinth block allows the main rehearsal studio and majority of other support accommodation to be tucked under the towpath level. On top of this plinth, the lighter pavilion buildings are placed on top as more lightweight, delicate structures.

These pavilions sit in dialogue with each other, face to face at opposite ends of the new roof garden, with a playful roof form and asymmetry.

The shaping of these pavilions has been partly in response to the varying roof heights of the PBSA blocks, with the pitches directing towards the varying heights of the neighbouring buildings. However these forms are also a playful nod to the silhouettes of "puffers" on the canal, as inspired by many of the historical etchings and paintings uncovered during the design process.



## 11.4 Massing and general arrangement

The key aspects of the new Scottish Opera building can be considered the combination of several distinctive parts, coming together to create an embedded and articulated cultural building set into a historic and industrial context.

### The Pavilions

On top of the plinth block, the accommodation requirements drop in scale, allowing the creation of smaller, more domestic scale pavilions. These pavilions are considered as the 'delicate' sculptural objects lightly crowning the lower plinth block and existing Scottish Opera building.

The size of these pavilions will compliment structural timber construction, and are currently proposed as CLT / Glulam construction. This is in line with the wider sustainability targets of the project in reducing embodied carbon in the building's fabric.

The placement of these pavilions create a sense of enclosure, forming a "walled garden" on top of the plinth.



### The Bridges

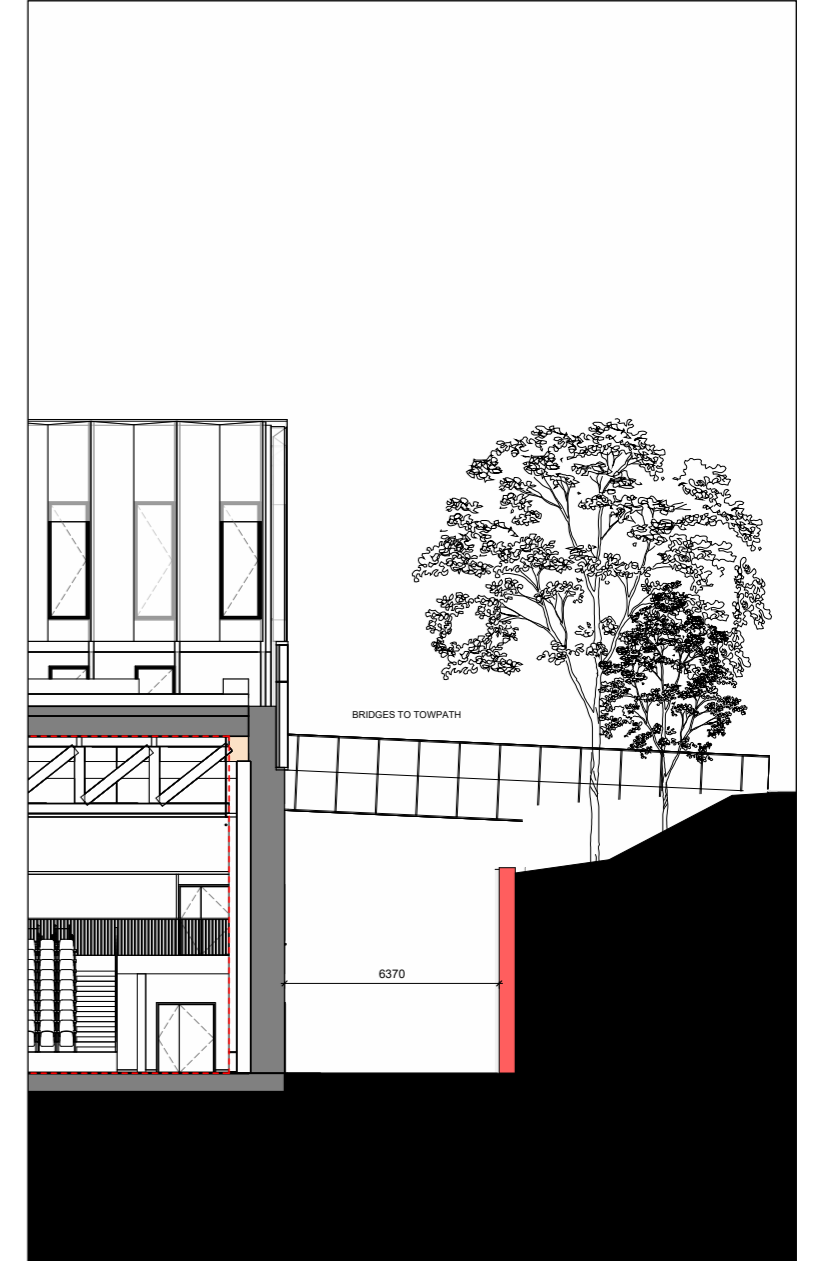
To connect the new Scottish Opera building to the canal frontage, two pedestrian bridges will span between the plinth block and the towpath. These are likened to gang planks resting between the towpath and a large barge that has docked at New Rotterdam Wharf.

Visually, these bridges will reference the industrial construction of canal footbridges and other canal infrastructure - using metal sheeting to clad heavy structural members.



### The Plinth

The lower plinth block has been considered as an extension of the canal wall - being pulled out from the historic Forth & Clyde canal. The intention is for this plinth to read as a heavy, monolithic plinth which tucks in behind the canal's retaining wall. Due to the large rehearsal spaces within the plinth block, which need to be column-free, the proposal is to build this in a steel frame and concrete slab construction, clad in masonry leaf.



Top right: Example CLT building, Kulturhus Skelleftea by White Arkitekter.

Middle: Example of canal bridge construction, Section through new Scottish Opera building.

Bottom right: Historic photo of barge on Forth & Clyde canal (date unknown); Brick substation building by NORD in London; Typical steel frame example.

Top left: Concept diagrams and sketches showing proposed massing. Also, Puffer moored at Port Dundas - Painting by William Crossbie

Bottom left: Design sketch showing general arrangement of new Scottish Opera building.



## 11.5 Design proposals

The new building comprises of four levels which align with the site levels as follows:

Level 0	Edington Street – ground floor of existing Scottish Opera building
Level 1	The "platform" site, accessed from Corn Street and Sawmillfield Street
Level 2	Level of support accommodation wrapped around the main rehearsal studio
Level 3	Ties in with canal tow path level
Level 4	upper floor of the 'pavilion' north and south blocks

The various spaces and levels of the building can be accessed via different routes. This reflects the complex topography of the site and provides a permeability through the new building, in order to encourage engagement and allow for different building user groups. This multi-faceted building arrangement also facilitates partial letting of the building without compromising Scottish Opera's autonomy of operation.

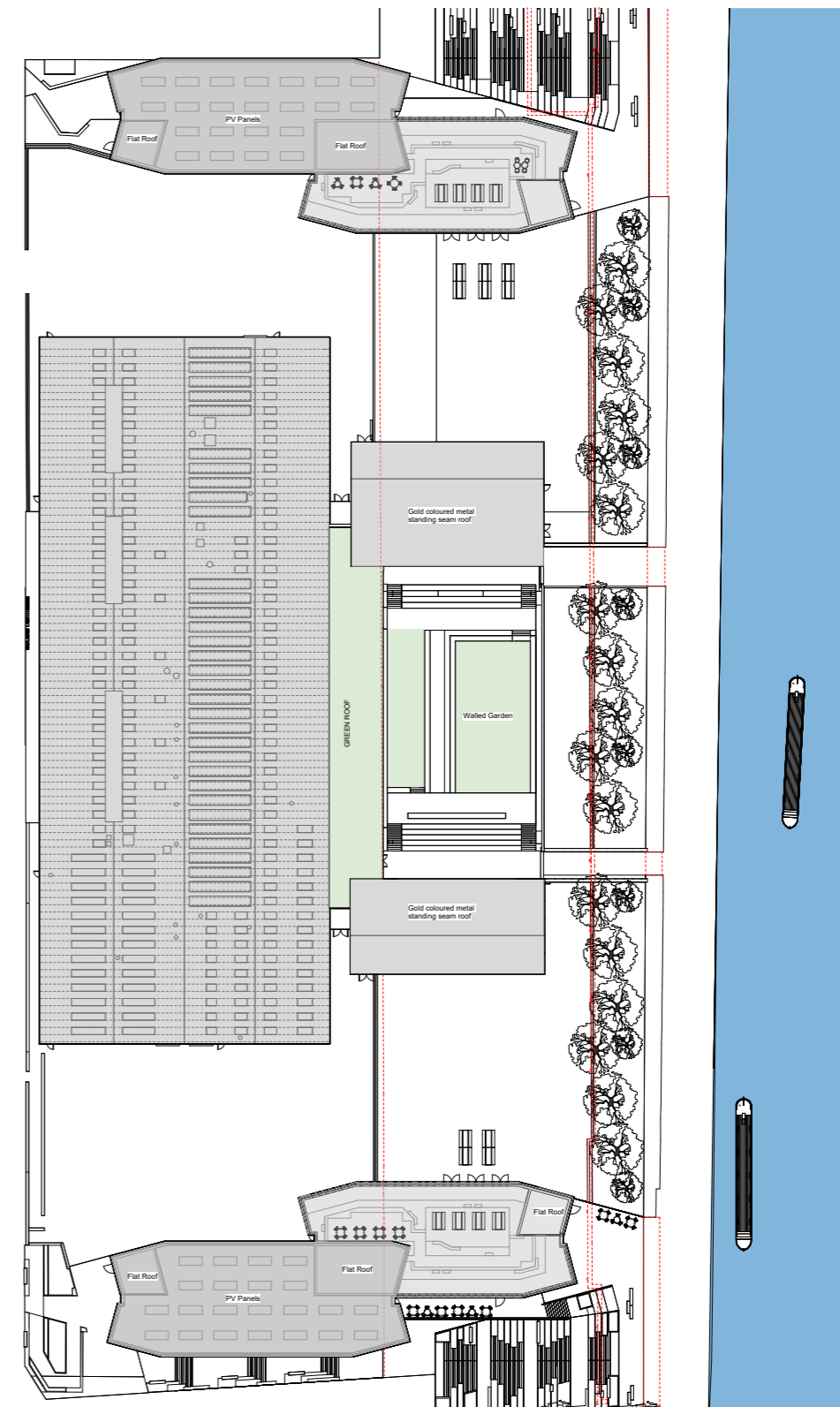
The new Scottish Opera building is situated with a standoff of approx. 6.5m to the canal boundary retaining wall to avoid disruption of this Forth & Clyde canal scheduled monument.

This space between the new building and the retaining wall allows for an external connection between the north and south courtyards at Level 1, and enables a north-south service access route for the site.

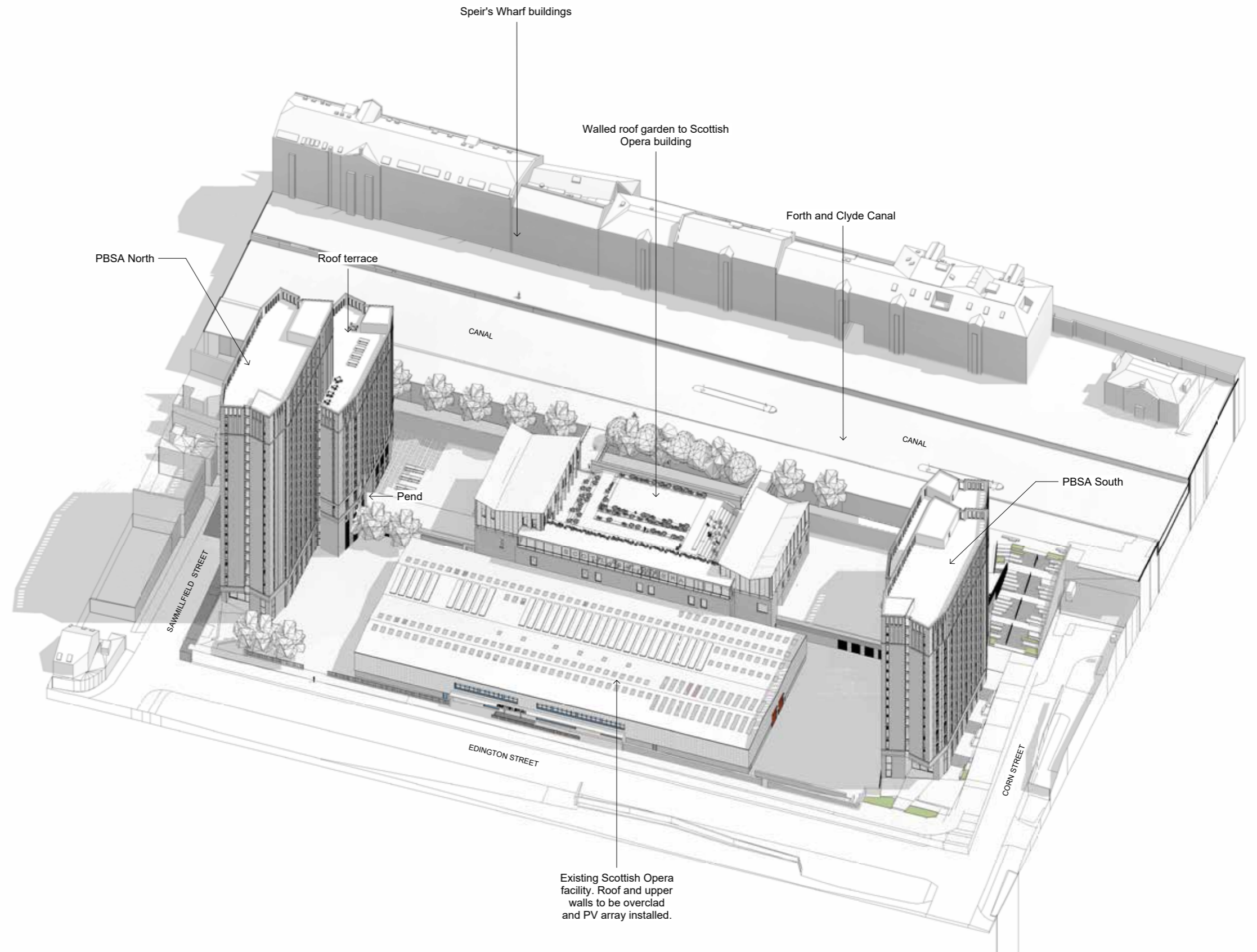
### Servicing

The new Scottish Opera facility can be accessed from both the north and south courtyards on Level 1, via a pend underneath each PBSA block. These will be accessed from Sawmillfield street and Corn street respectively. The north courtyard will primarily provide public access, and the south courtyard will provide service access and an entrance primarily for staff and performers.

Accessible parking and drop off will be provided around the site with 4no. accessible spaces. There will also be additional parking for staff to support the use of the main rehearsal space.



# 11.5 Design proposals



Left: Site plan showing key arrangement of the new Scottish Opera building and PBSA blocks.

Right: Axonometric view of the overall development proposals

Existing Scottish Opera facility. Roof and upper walls to be overclad and PV array installed.

# 11.5 Design Proposals

## Level 0

The existing main entrance from Edington Street into the production studios will be retained. Internally the existing entrance area is reconfigured to provide a new accommodation stair to the first floor that is visible from the reception area. This in turn connects to a new bridge link at Level 1, which is threaded through the eastern section of the building to connect through to the new facility.

A second bridge link is created at the southern end of the building to link the wardrobe department with costume facilities within the new building. This necessitates some internal alterations to offices and the relocation of the wig room.

These bridges have a gentle gradient to allow them to align with the platform site. They arrive in the linear 'spine' block that lies between the existing and new building. The spine block has a lift and stair core at either end to connect through all levels.

The spine block lowest level is at Level 0 - which sits in a narrow plot between the Eastern elevation of the existing building and a low retaining wall. This level provides some costume storage and plant areas. The lifts serve this level to allow for service deliveries to the upper levels from the existing yards at Level 0. Covered bin store areas are also provided at either end. Waste will be segregated to maximise recycling.

At Level 0 there is also some partial excavation of the Level 1 platform, to allow for a basement sprinkler tank room which will serve the new Scottish Opera facility. This room can be accessed from within the building at Level 0 or via the service yard externally.

Fire escape routes for the adjacent existing building are maintained into this new building through a compartment wall.



# 11.5 Design Proposals

## Level 1

The new building is primarily arranged around the large rehearsal studio space, with support accommodation provided to the south end and more public facing spaces to the northern end.

The south courtyard at Level 1 provides primary servicing access to the Scottish Opera facility, across the courtyard space. Refer to earlier sections on public realm for description.

The primary public access to the new building is envisaged at Level 1, via the northern courtyard (through the pend under the north PBSA block). A glazed entrance screen leads into a generous double height foyer space. The stair in the northern core is an open accommodation stair that connects with the foyer and encourages movement between levels.

Adjacent to the foyer is the Education Studio which can be opened up to provide further space to accommodate the audience pre-show and at intervals when there are performances in the main rehearsal studio. This double height space has large, glazed bi-fold openings to the courtyard to enable activity to spill outside as appropriate. A generous store provides space for furniture and equipment and can house a mobile bar unit which can be deployed when required in the studio space.

The main block of toilets are located at this level off the foyer and convenient to the Education Studio. These offer a choice of facilities including male and female WCs, unisex WC compartments, accessible WC, and a Changing Places Facility. These serve both the audience and visitors, and the orchestra / performers when the main studio is in use.

There is direct access from the foyer space into the main rehearsal studio through two acoustic / light lobbies.

Contd.



Left: Level 0 Plan  
Right: Level 1 Plan

To the south of the main rehearsal studio is support accommodation. This includes a large flexible use space and associated office to facilitate the use of the main studio for external hires. This can also be used as general storage or instrument storage by Scottish Opera when required.

A laundry facility is situated at the southern end of Level 1. This is to house specific cleaning equipment and is to include an 'ozone room' for cleaning costumes which required direct external extract ventilation.

Large doors lead from the southern courtyard into a generous circulation zone and through an acoustic and light lobby into the southern end of the large main rehearsal space.

The spine block to the west has a wide corridor connecting the north and south block which acts as an acoustic buffer to the main rehearsal studio. A costume store and instrument store are accessed from this corridor. The costume store is conveniently located close to the laundry and main wardrobe department at first floor in the existing building.

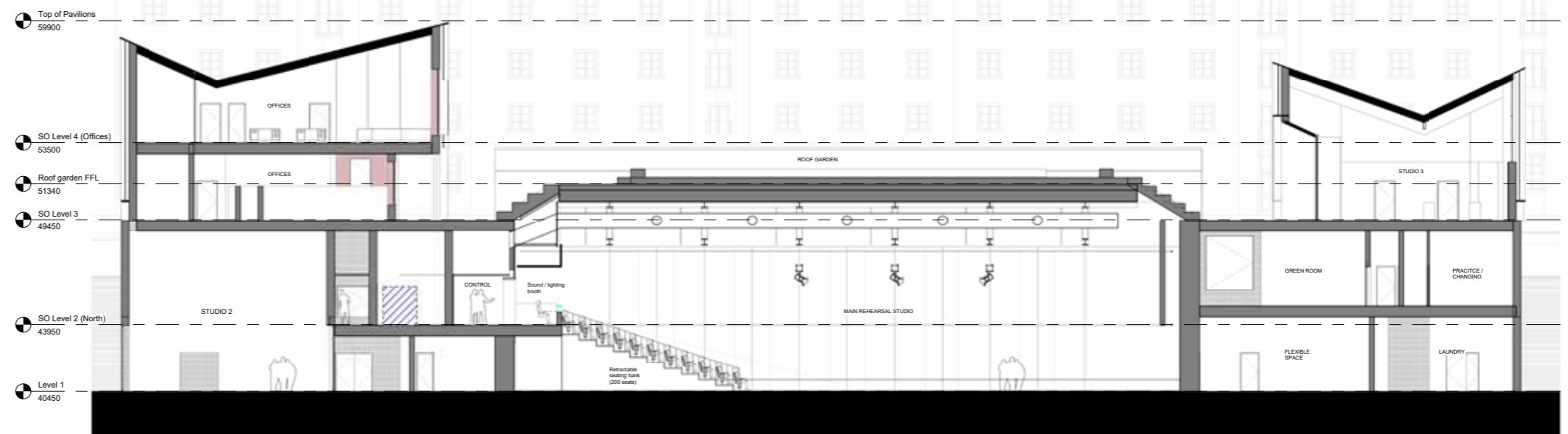
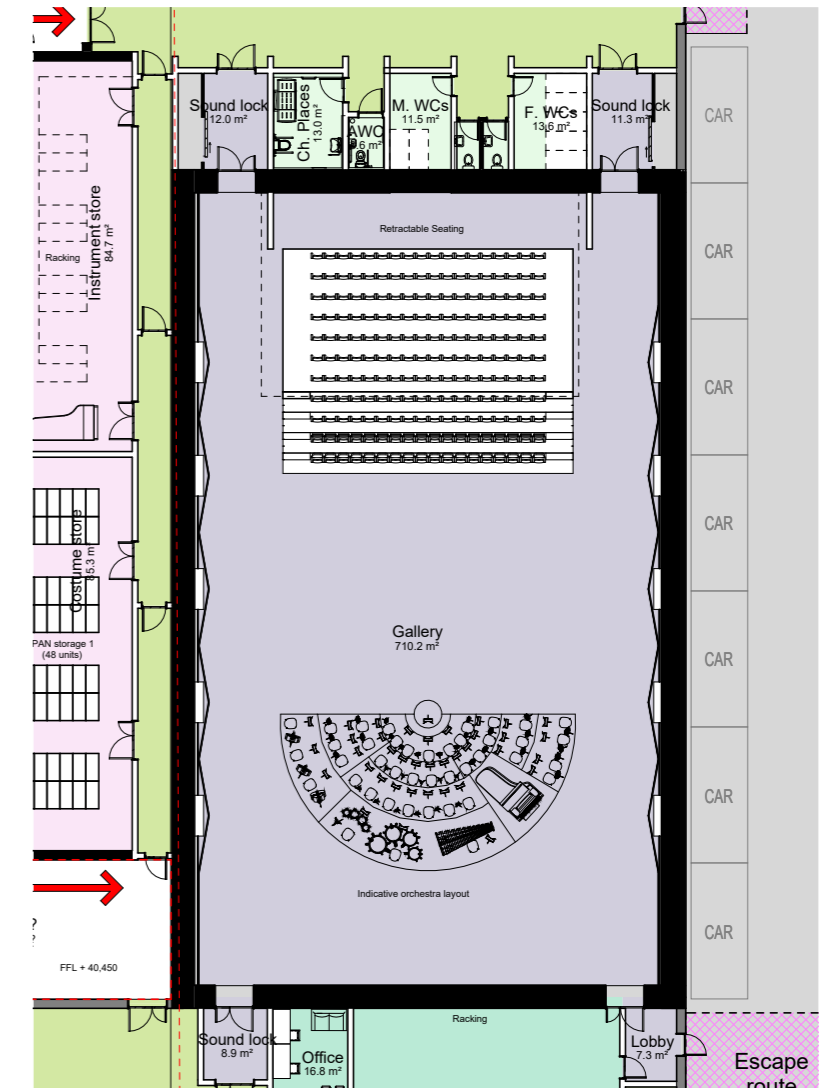
## Main rehearsal Studio

This is a large rehearsal studio proportioned to create advantageous acoustic conditions for orchestra rehearsals. This large 7000m<sup>3</sup> space is 20m wide by 35m length and a clear height of 10m to the underside of the soffit.

The space has a box-in-box construction to alleviate the risk of acoustic flanking transmission. Both noise ingress and egress is carefully controlled with acoustic lobbies, internal acoustic linings (hard and soft) and attenuation to the mechanical ventilation system.

Architecture, structure and services are carefully integrated to provide a controlled aesthetic that meets the acoustic requirement for orchestra rehearsal but can be adapted to suit other types of events and uses. This includes drapes on tracks for variable acoustics. The supporting roof trusses for the garden terrace above are expressed.

The side walls are undulating to conceal the ventilation ducts behind, and will include articulation/perforation to meet the specific acoustic absorption and reflection requirements.



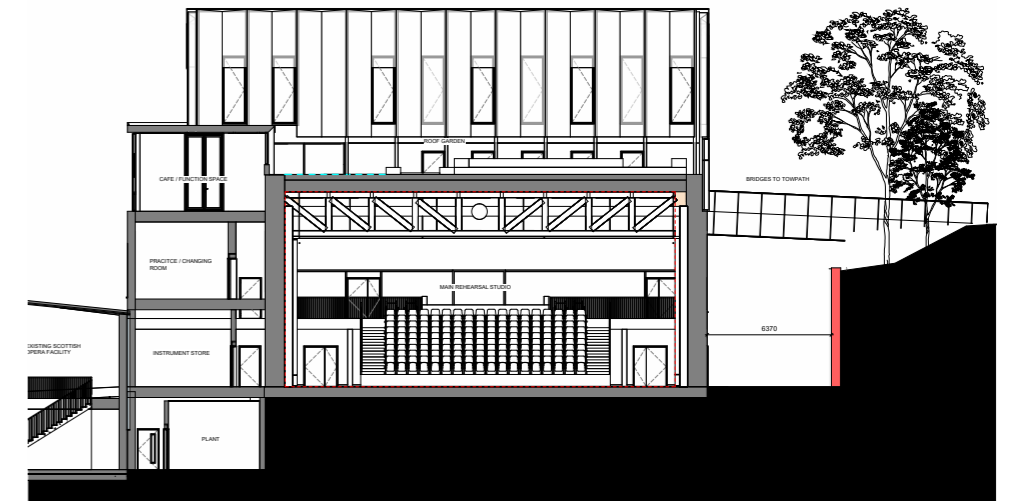
## 11.5 Design Proposals

A full array of house lighting is provided, along with a technical lighting grid on mechanical winches to automatically lower for maintenance/adjustment of lighting and equipment.

The primary purpose of the space for Scottish Opera is for orchestra rehearsals, with a secondary use for small scale performances. There is a motorised retractable seating bank at the northern end of the space which seats 200 – either audience or chorus for large scale rehearsals. This connects to a full width fixed balcony at Level 2 below which the seating bank is stored discretely. This balcony provides wheelchair and companion spaces either side of a centralised control room area.

The control room area facilitates the use of the space for various events and can house temporary lighting and sound control desks. There is an enclosed recording room for when performances are to be recorded. An outside broadcast cable route is provided, carefully coordinated with internal linings.

To facilitate the use of the studio as a sound stage for TV and film there is a large flexible room immediately to the south of the studio, plus a small separate office area. As servicing from the south is possible the studio and south block can be independently hired without disrupting Scottish Opera's core activity.



Top left: part plan Level 1

Bottom left: long section through main rehearsal studio and north and south pavilions

Right: Visualisation of main rehearsal studio

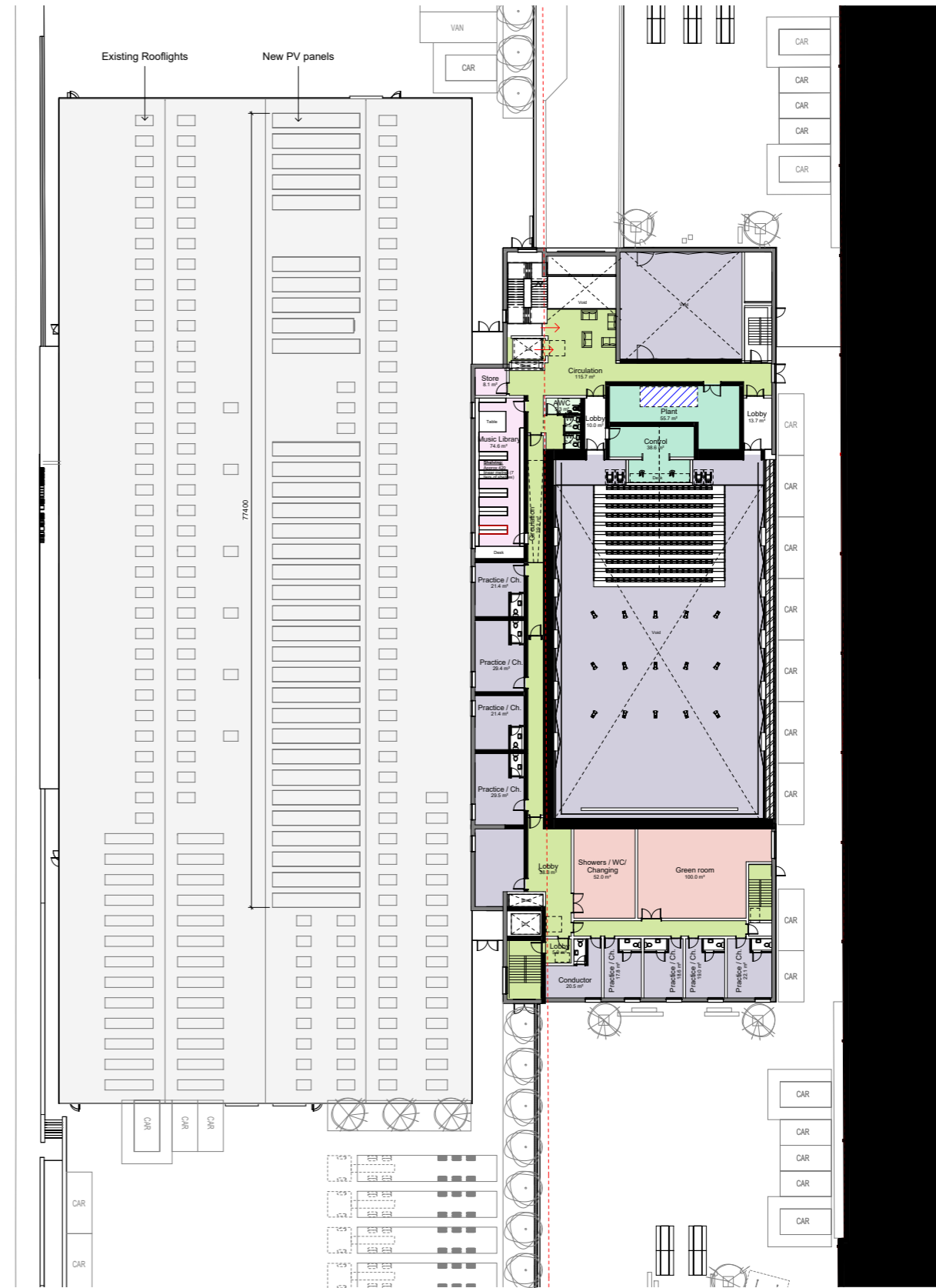
## Level 2

Level 2 accommodation is wrapped around the upper level of the centralised main rehearsal studio. To the north lies a plant room (housing the mechanical kit serving the Education and main rehearsal studio). To the south there is a large Green Room – a flexible space that can be appropriated as required depending on the use of the main studio. A series of practice rooms and a conductor room overlook the southern courtyard.

A wide corridor links the north and south block to the west of the main studio, acting as an acoustic barrier. Further practice rooms and a Music Library are accessed from this. The corridor has a series of gentle ramps to negotiate a change in floor level between the north and southern block. This reflects the increased floor to ceiling height of the southern block at Level 0, to provide good access into the large studio space for equipment, scenery etc.

The acoustically isolated practice rooms each have natural light and an ensuite WC to enable the rooms to double as dressing rooms or meeting rooms when required. Showers accessed from the communal areas supplement the ensuite facilities. Easy access to the main studio for performers and musicians is via the southern lift and stair core.

EDINGTON ST.



## 11.5 Design Proposals

### Level 3

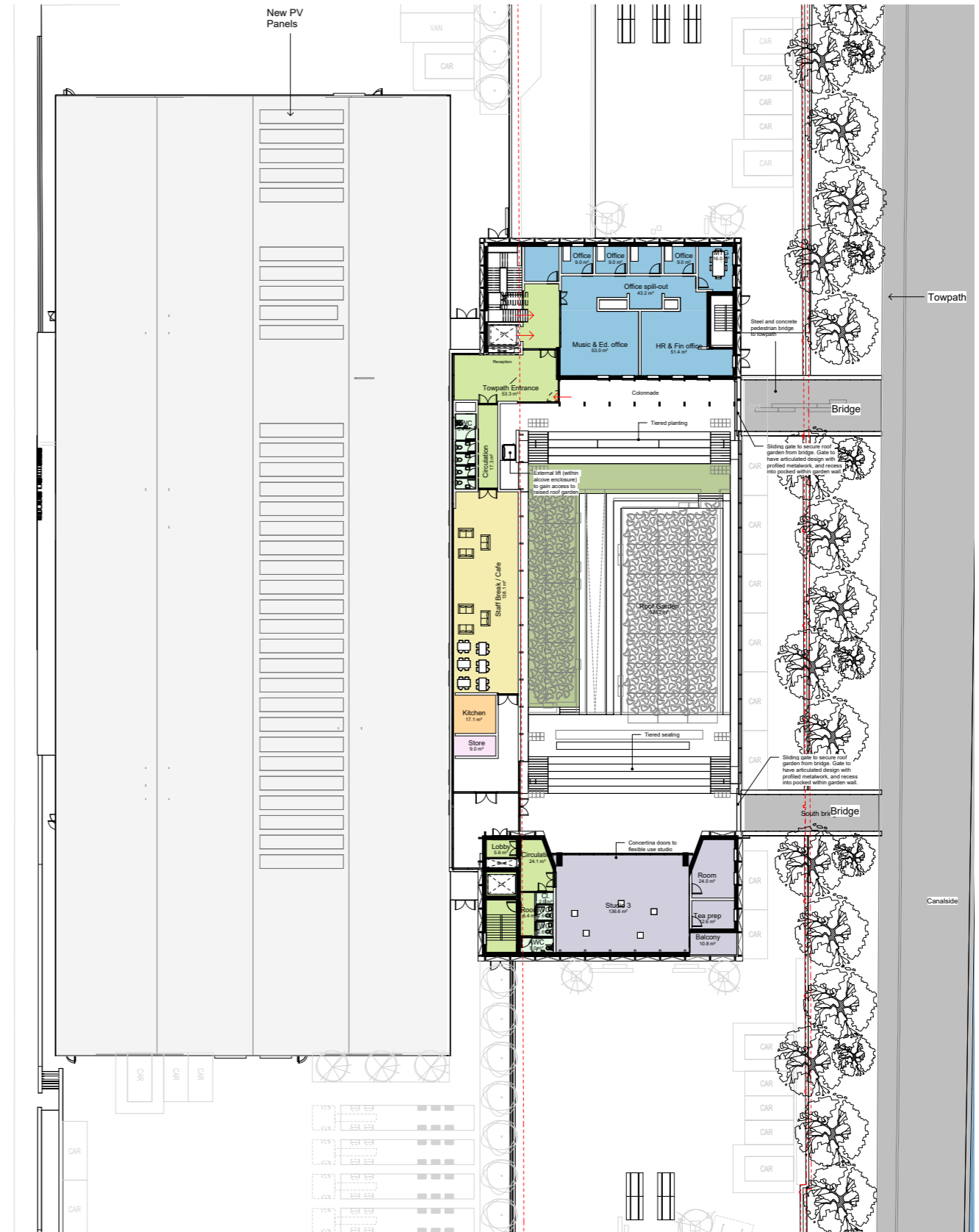
This level corresponds to the canal tow path level and is conceived as a series of pavilions around a raised rooftop garden, which sits above the main rehearsal studio.

This level can be accessed via two pedestrian bridge links from the tow path, which lead to the north and south pavilions. A covered external platform lift provides level access to the higher-level landscaped garden space.

The north pavilion houses an entrance area linking to the accommodation stair and lift of the northern core, and offices and meeting rooms for Scottish Opera staff. Cellular accommodation overlooks the north courtyard, with open plan spaces looking out over the roof garden. Dedicated ancillary accommodation such as WCs, tea prep and storage are provided.

The entrance area links into the spine block that bounds the western edge of the garden. This is conceived as a glazed pavilion with open aspects to the east and west, providing a strong visual connection between the garden and the view across the West End of the city. The pavilion houses a café and social / informal meeting space for use by staff, performers and visitors during the week and providing a weekend café offer to the public.

The southern pavilion houses a third flexible studio space. Whilst primarily for rehearsals this space will also provide opportunity for project-based work, artist residences, exhibitions and performances. The space has a large sliding folding screen can be opened to the garden space to become a 'stage' for outdoor performances playing to an audience sitting on the southern steps of the roof garden. This studio has support accommodation including storage, a kitchen, WCs and two small office / studio spaces.





## 11.5 Design Proposals

### Studio pavilion at Level 3

The pavilion at Level 3 (towpath level) will function as a flexible space for use by Scottish Opera and external companies alike. The space has been designed to facilitate multiple uses, primarily for rehearsal, but also to allow for performance, artist residencies, workshops, education, exhibition and more. To achieve this, acoustic rated doors and windows will be included, along with blackout blinds to the clerestorey windows. Internally, the structural timber will be exposed, with the Glulam beams and columns expressing the structural grid.

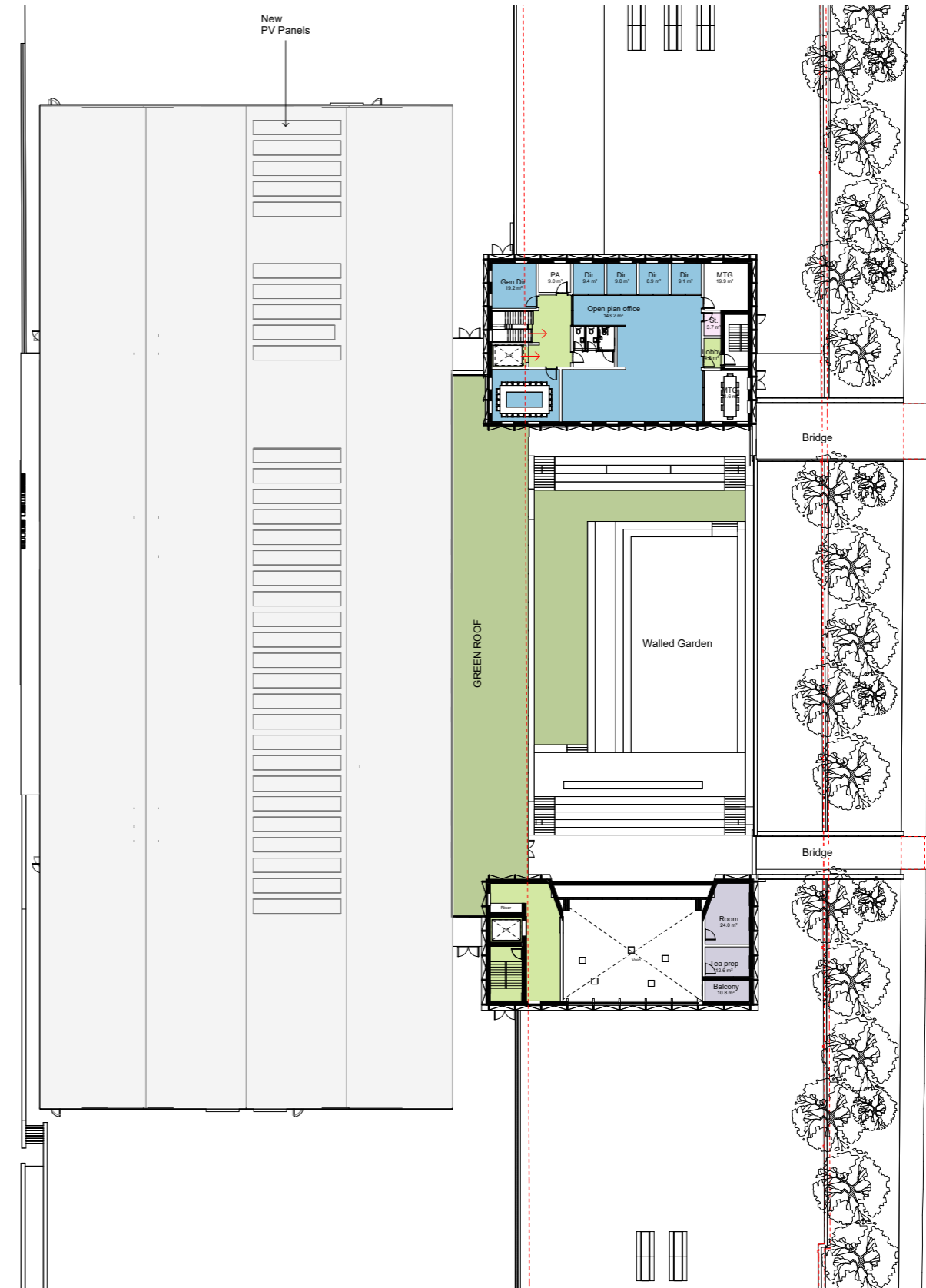


## 11.5 Design Proposals

### Level 4

This comprises an upper level in the north and south pavilion blocks. In the Northern pavilion, further staff accommodation is provided in cellular offices and an open plan office space. There are also several meeting rooms which take advantage of the elevation at this level and the panoramic views across the city, as well as the scenic views over the canal, Speirs Wharf and the new roof garden space.

The roof of the cafe pavilion along the western edge of this level will have a green roof - taking cognisance that the roofs of these pavilions will be overlooked by local residents.



Left: Visualisation of the southern studio pavilion during an exhibition.

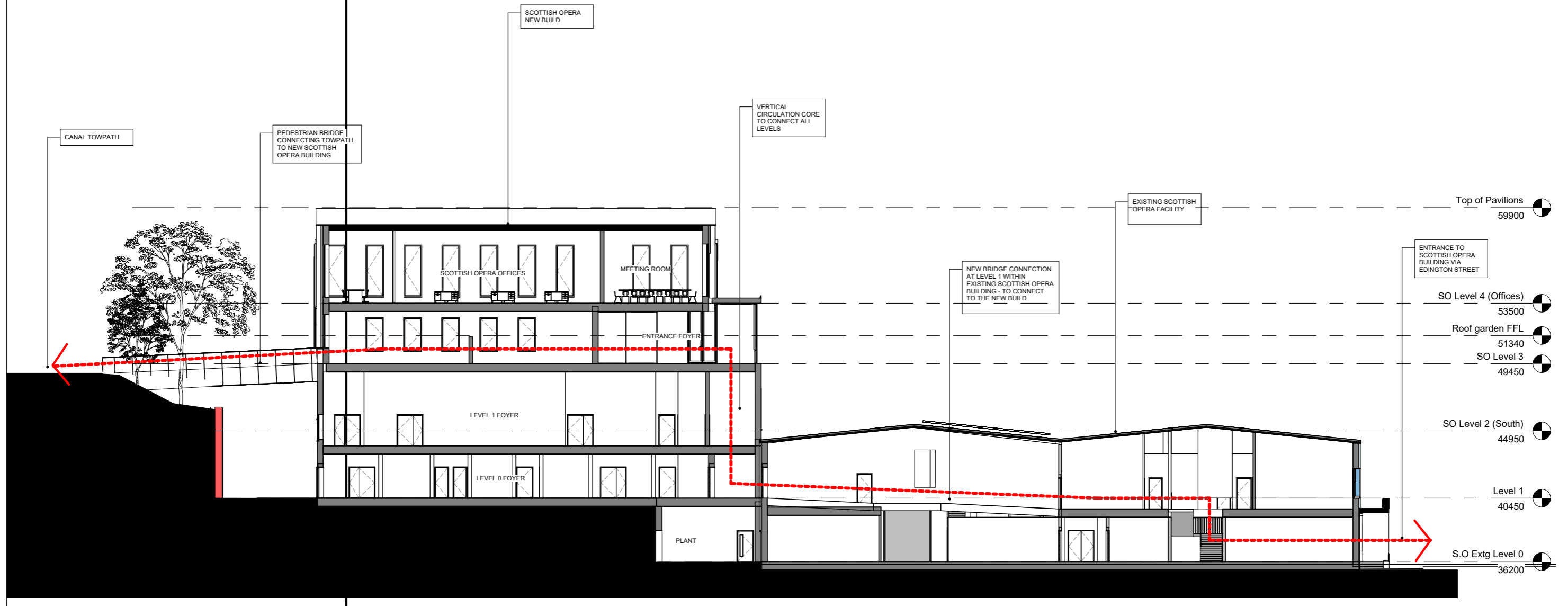
Right: Level 4 plan

# 11.5 Design Proposals

## A route through the building

The proposed development will not only form new pedestrian connections between the canal level and lower Edington street via external landscaping and steps - it will also create a circulation route **through** the Scottish Opera building to connect to the canal towpath.

This will be achieved with a new stair added to the existing Scottish Opera facility, which leads to new footbridges within the facility at level 1. These connect directly into the new Scottish opera building at its central spine, which contains 2 key vertical circulation cores (stairs and lifts). These cores lead up to towpath level (level 3) and connections made to the towpath via new external pedestrian bridges.



## 11.5 Design Proposals

Visualisation showing the northern pavilion (Scottish Opera offices) and the bridge connection from canal towpath into the new Scottish Opera roof terrace.



Left: Visualisation of the southern studio pavilion during an exhibition.

Right: Level 4 plan

## 11.6 Scottish Opera - Inclusivity and engagement

### Scottish Opera

As a cultural organisation who tour productions to a number of significant public buildings, Scottish Opera are constantly seeking improvements to their building and services in the context of equality legislation. Broadening engagement with opera and the creative activities that support the art form is a key driver for this capital development project - to expand their facilities at New Rotterdam Wharf, thus helping to meet the stated aims of Scottish Opera's EDI policy.

The new facilities will better support all performers and staff and provide enhanced spaces from which Scottish Opera can deliver their Education and Outreach programme. The new facility will better reflect the values this important cultural organisation.

The ambition is that Scottish Opera can better support their existing activity which includes:

- The Dementia choir – supporting those with memory loss and / or reduced mobility
- Accessible and relaxed performances at the Theatre Royal and other touring venues.
- Baby O – workshops for the very young
- Education workshops with local schools
- Development of small-scale work to tour to smaller venues around Scotland.

During the development of the proposals key staff have been consulted to ensure that the proposal will address operational challenges currently faced in the existing buildings.

As the proposals develop further consultation will be held with both staff delivering the education programme and people with lived experience (disabled people, neurodiversity and older people) to explore how the new facilities can best support their Education and Outreach programme.

As stated in Scottish Opera's Business Plan 2022-23 and 2024-25, a key aim of the company is to

**"Establish a strategic basis for best practice Equality, Diversity and Inclusion (EDI) internally, including work with educational partners to develop and maintain a diverse talent pipeline for recruitment and personnel development across the organisation."**

The development of a new facility to house all Scottish Operas activities onto a single site provides opportunity for the new facilities to meet best practice and provide an inclusive environment for all. This will enable Scottish Opera to better meet its obligations under the Equality Act 2010.

#### Relevant legislation

The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society. It replaced previous anti-discrimination laws with a single Act, making the law easier to understand and strengthening protection in some situations.

The Act is about access to services, facilities, employment and education - not building legislation - and the Act does not contain design guidance. Buildings cannot comply with the Act.

An initial access audit of the existing Scottish Opera buildings at Edington Street and Elmbank Crescent highlight access challenges (see next section). This is a useful tool for the Client to understand where physical improvements to their existing building can be made to assist them to meet their obligations under the Equality Act 2010.

Whilst the Building Regulations are statutory compliance, Code of Practice BS8399-parts 1 and 2:2018 offer guidance and recommendations. We recommend referencing the Code of Practice as this usually offers betterment to the building regulations.

'They all came away buzzing from excitement and were all singing opera on the way home in the bus. Please keep up your fantastic work of keeping music live, but more importantly bringing opportunities like this to the children who now have a memorable first experience of opera.'

Primary School Teacher

## 11.6 Scottish Opera - Inclusivity and engagement

### Engagement facts

#### Number of education workshops held per annum

- 65 SOYC sessions including 6 performances
- 5 Gateway sessions including 1 performance
- 30 Breath Cycle in-person sessions (24 song writing sessions)
- 49 Memory Spinners workshops
- 89 Disney Musicals in Schools workshops
- 70 Schools workshops (PST)
- 140 Schools performances (PST)
- 8 Access Opera performances
- 63 Pop-up Opera performances (38 for schools)

#### Average number of participants per annum

- 11206 participated in schools workshops
- 11876 attended schools performances
- 270 attended Breath Cycle workshops
- Over 600 Memory Spinners participations

#### Number of schools who engage / receive touring shows

- 6 Pop-up Opera
- 6 Primary Schools Tour (70 in Scotland / 6 in Newcastle)



**Access review of the existing Edington Street premises:**

The observations below do not constitute a full access audit of Scottish Opera's estate however highlight key issues.

Scottish Opera's production studios are one of three sites across which the work of the company is spread. The intent behind the proposed redevelopment of New Rotterdam Wharf is to bring the full 'Back of House' operation onto a single site at Edington Street, by building a new facility alongside and linked to the existing production studio building.

Whilst the Scottish Opera website provides information on accessible performances and the venues to which they tour, the website does not provide any information on the existing production studios or headquarters building.

Observations for the current Edington Street production building are as follows:

- There is ramped or stepped access from the street. The ramp has a red blister finish to the landings in contrast with the concrete slabs to the ramp. There is a handrail either side.
- A serving hatch from the café opens onto the ramp which could cause an obstruction.
- Automatic entrance doors with a level threshold lead into a generous foyer space.
- The reception counter is at a single height with no lowered section.
- There is a passenger lift.
- There is one accessible WC adjacent to the main gendered toilets at ground floor level.
- There are a further two gender assigned accessible WCs at first floor level, conveniently located close to the Education Room.
- Baby change tables are provided in the accessible WC compartments.
- The café counter is 850mm AFFL with no knee space. There is a selection of seating types and table heights in the café space.
- There is no designated Blue Badge parking however accessible parking bays are included in the north yard.

At Elmbank Crescent the current headquarters building is a listed historic building resulting in various access challenges.

**Observations for the current headquarters building are as follows:**

- The main entrance is stepped and is therefore inaccessible to those with reduced mobility.
- Level access is provided via a basement level service entrance at the rear of the building which does not provide an entrance equal to the main entrance.
- A passenger / goods lift that serves all floors of the building however to the level route to this is through the basement including up a non-compliant steep ramp.
- An accessible WC is provided on the ground floor however there is no level access to this space which necessitates the pre-arranged use of a temporary ramp.
- The building does not provide a democratic experience for a wheelchair user.

The current orchestra rehearsal facility at Silver Cloud Studios in Hillington is accessible to disabled performers and musicians, with level access and accessible WC provision.

The above highlights the need for Scottish Opera to occupy premises that can provide an inclusive and welcoming environment for all. The development of New Rotterdam Wharf enables them to address key issues and to occupy a home that better reflects their values and ambitions as an organisation.

**Legislative context**

This brief report does not constitute a detailed access audit, but it does serve as a useful tool for the Client to understand where physical improvements to their existing buildings are required. It identifies the particular challenges around the Elmbank Crescent Headquarters as a historic building, and highlights the need for Scottish Opera to occupy premises that can provide an inclusive environment for staff, performers and visitors.

The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society. It replaced previous anti-discrimination laws with a single Act, making the law easier to understand and strengthening protection in some situations.

The Act is about access to services, facilities, employment and education - not building legislation - and the Act does not contain design guidance. It should be noted that the Scottish Opera buildings cannot comply with the Act.

Whilst the Building Regulations are statutory compliance, Code of Practice BS8399-parts 1 and 2:2018 offer guidance and recommendations.

We would recommend referencing the Code of Practice as this usually offers betterment to the building regulations.

The following documents are referenced in the design proposals:

Scottish Building Regulations  
Section 2 Fire,  
Section 3 Environment  
Section 4 Safety.

BS8300:20018, Design of an accessible and inclusive built environment – Part 1 External Environment – Code of practice.

BS8300:20018, Design of an accessible and inclusive built environment – Part 2 Buildings – Code of practice.

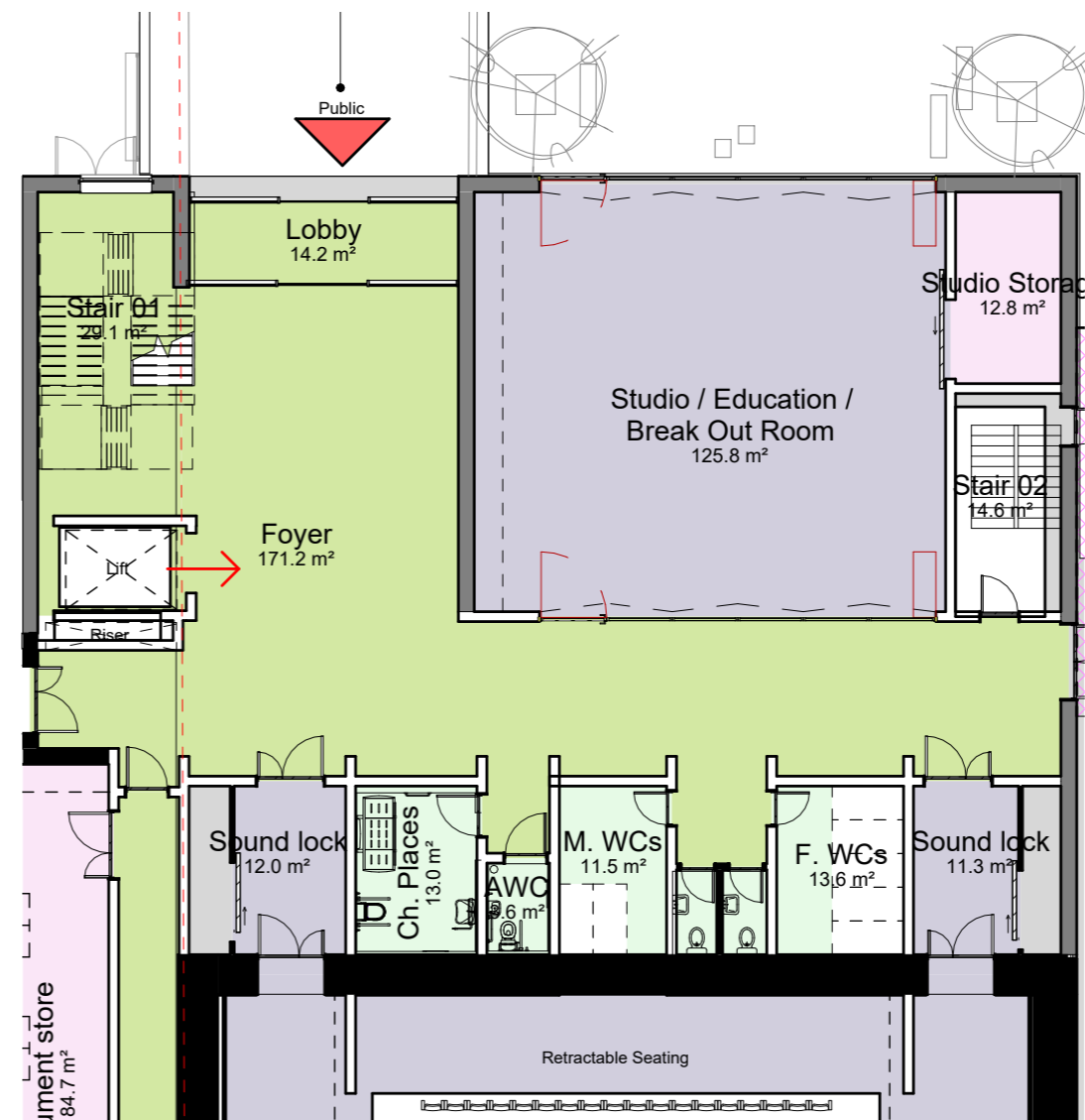
PAS 6364: Design for the mind. Neurodiversity and the built environment. - Best practice guidance.

## 11.7 Inclusive Design

### Key access features of the proposals

The new building will provide fully accessible facilities.

- The north and south approaches which will be well signposted from Sawmillfield Street and Corn Street.
- The pend access under the PBSA provides a clear line of sight to the entrances on Level 1.
- 4no. Accessible parking bays are provided in both the north and south courtyards.
- Entrances are generous in width with level thresholds.
- Automatic sliding doors provide ease of entry.
- Circulation is generous in width (min 1500mm) and colour will be used to aid orientation.
- Doors will generally be a larger single leaf door plus half leaf rather than equal width double doors.
- Entrance at Level 0, 1 and 3 provide various ways to independently egress the building without reliance on assisted evacuation.
- Handrails will be easily graspable. There will be no recessed handrails.
- Contrast nosings will be used on all stairs.
- A mix of WC facilities are provided for the building user. This includes accessible WCs at every level with alternating transfer position.
- Baby change tables will be provided in male and female toilets and the accessible WC at levels 1 and 3.
- A Changing Places Facility is provided at Level 1 close to the Education Studio and main rehearsal space.
- Handles and taps will be easy to operate and not require high dexterity.
- Any electric hand driers will be low noise.
- Induction loops will be fitted at fixed counter positions.
- Reception counters will be at a height of 750mm AFFL with suitable knee space below.
- Any café counter will have a lowered section.
- Dedicated wheelchair and companion positions will be provided on the balcony to the rear of the main rehearsal studio.
- The retractable seating bank will have removal seats to the front row to accommodate further wheelchair users. To provide a min of 6 wheelchair spaces.
- One practice room will be designated as an accessible dressing room with an accessible WC compartment.
- A larger accessible shower room will be provided on Level 2.
- Assisted hearing systems will be provided in the studios, café space at Level 3 and the meeting rooms.
- Flashing beacons will be provided in any areas of potential single occupancy.
- Interior finishes and decoration schemes will provide visual contrast and meet recommendations of PAS 6364.
- Wayfinding signage to be as inclusive as possible, following the guidance of the Sign Design Guide. Tactile building directory signage at Level 1 will be considered.



Right: part Level 1 plan showing main toilets near large rehearsal studio and education studio.



## 11.8 Materiality

As previously noted, the plinth block of the Scottish Opera building will read as a heavy, monolithic base to the building - using dark grey engineering brick. Recesses and articulated coursing will be used in key areas to highlight entrances and fenestration.

The pavilions on top are proposed to be constructed in structural timber (Glulam / CLT) with some of this timber being expressed internally.

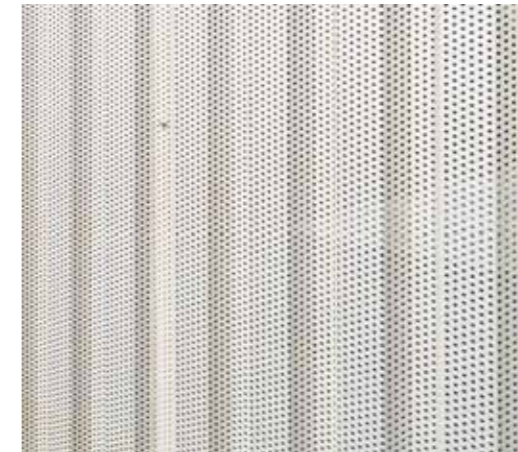
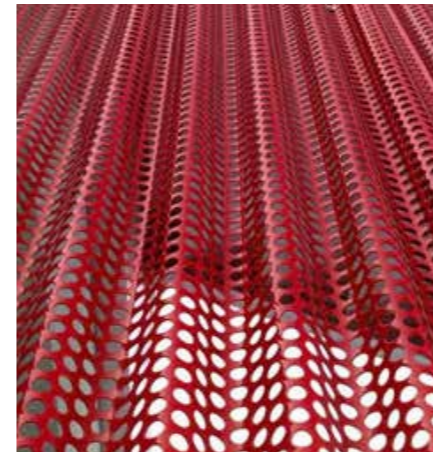
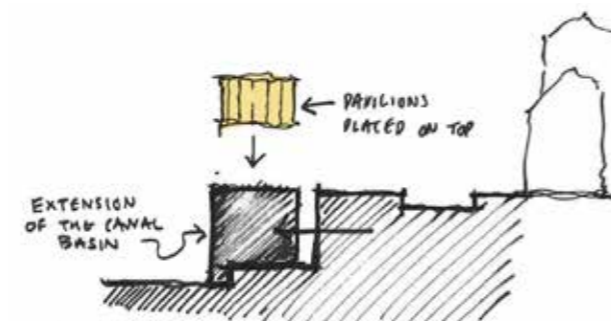
As highlighted in the previous section, the Scottish Opera pavilions aspire to reflect a sense of delicacy, layering and lightness as taken from the architectural inspiration. This also has to be achieved in a practical, buildable and economical manner - so it is proposed that relatively industrial, off-the-shelf materials could be used, but in interesting ways, to achieve this effect.

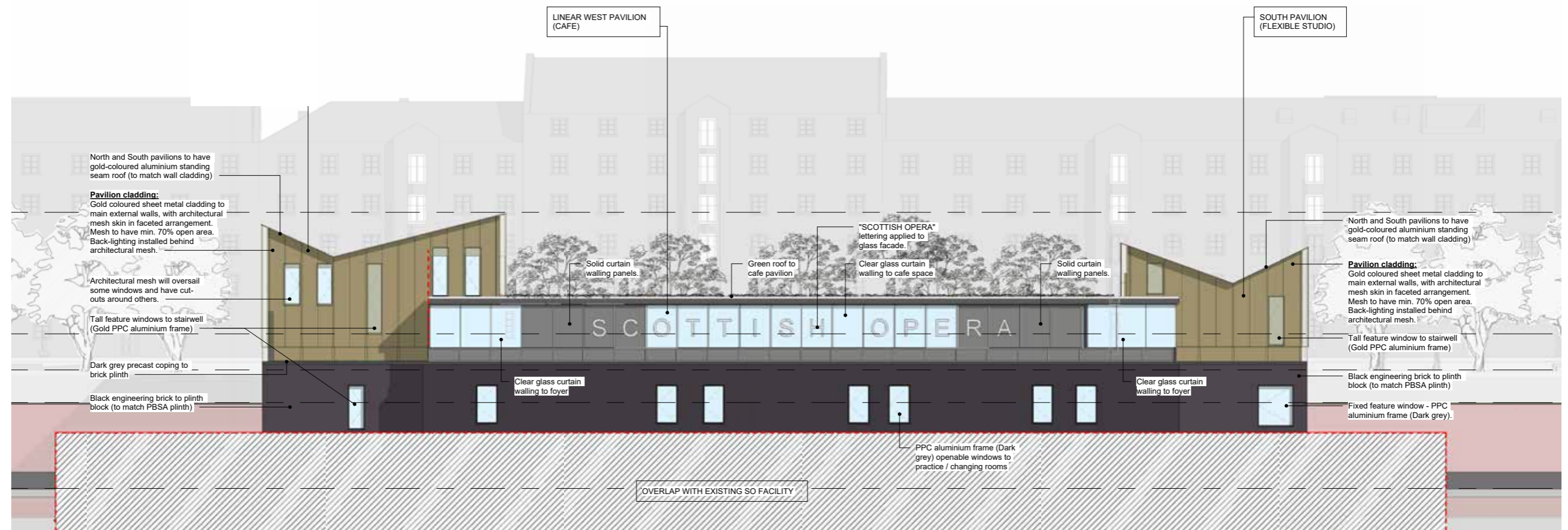
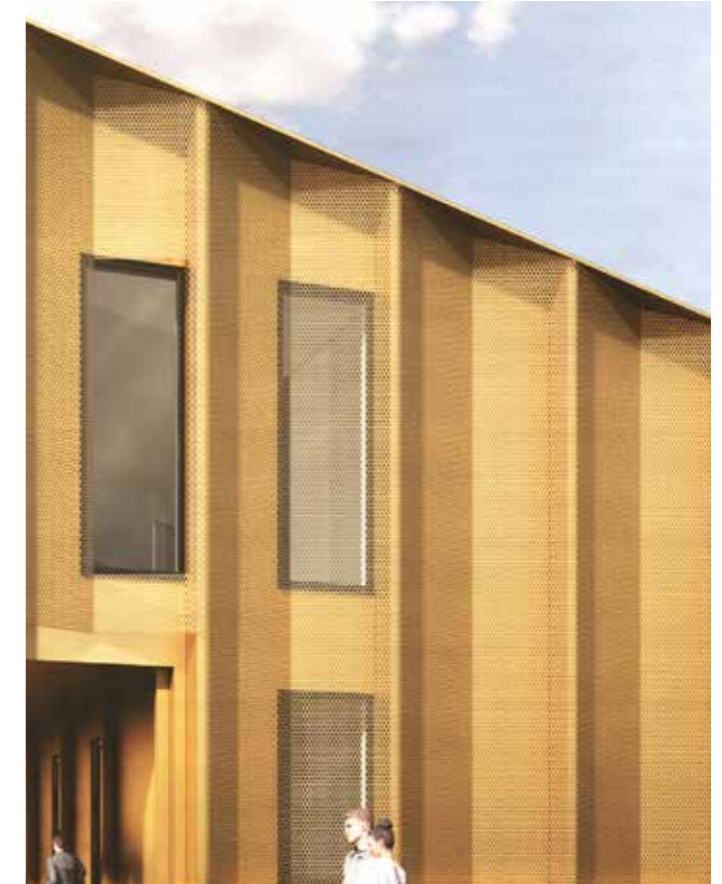
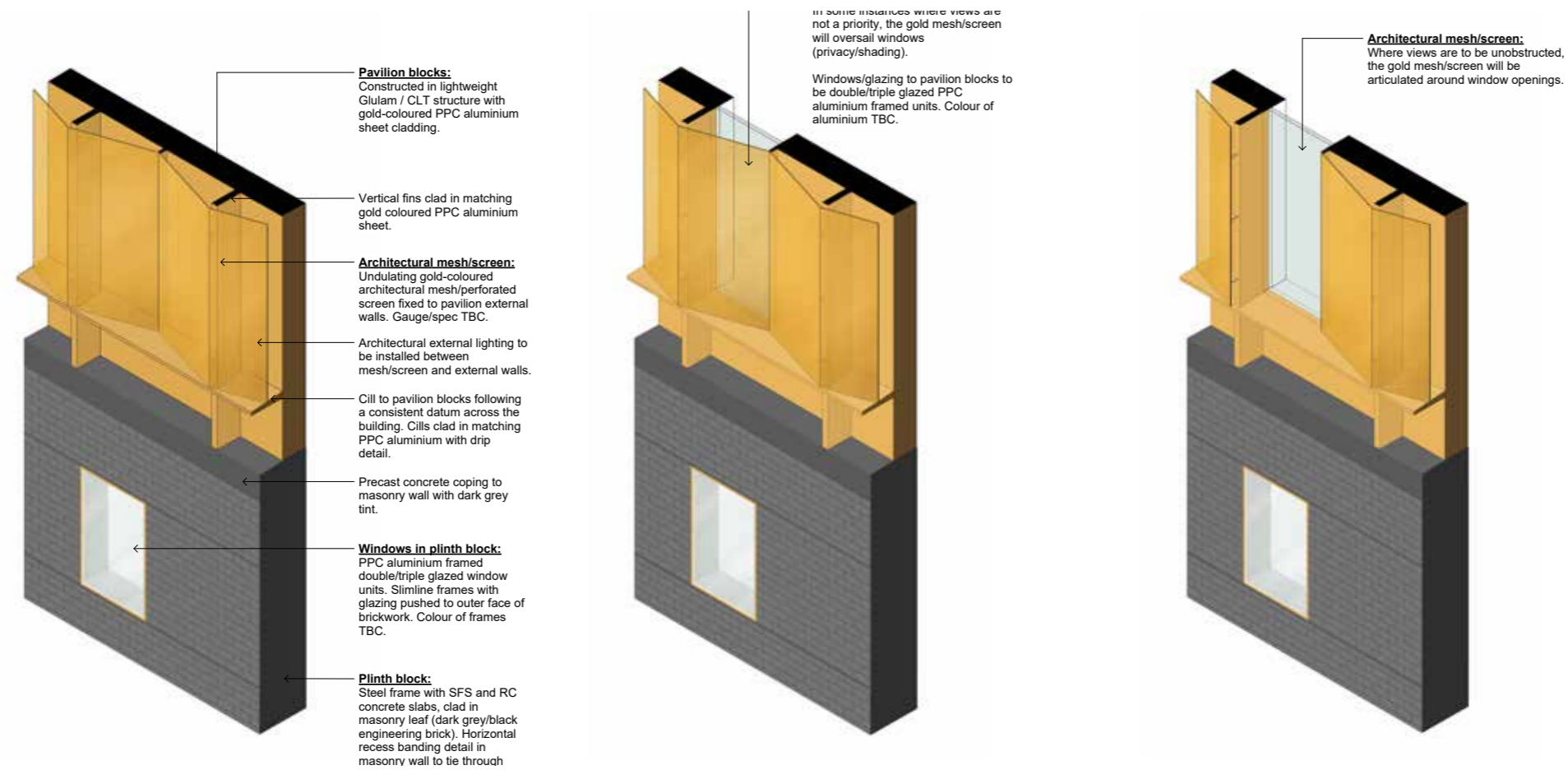
Externally, the pavilions will be clad in a metallic sheet material, with an architectural mesh/perforated screen wrapped around them. Industrial perforated sheet metals and architectural mesh of varying gauges are currently being investigated.

This mesh skin will help portray the desired sense of depth and delicacy, whilst allowing for an ethereal glow from back-lighting and fenestration. The mesh skin will also allow the inner cladding material to be relatively cost effective.

It is intended that the colour choice of the metal and mesh cladding to the pavilions is bold and playful, to stand out from the surrounding context of stone and industrial cladding, to allow the Scottish Opera building to act as a beacon across the city as described previously.

The use of industrial materials will also tie back to the heritage of the site, however it is of critical importance that the industrial materials are used in clever ways so as not to feel industrial in nature; this is a cultural building for Glasgow of great importance, and needs to have an aesthetic of civic and cultural nature.





## 11.9 Works to existing Scottish Opera building

As noted in previous sections, the existing Scottish Opera building on Edington street does not generally have a 'public face' for the organisation, despite its extensive outreach and engagement with communities locally and nationally.

The current building is of functional, utilitarian design and is showing signs of its age - so part of the proposed development seeks to address this and allow the existing building to feel a part of the new development, tying in the new building with the existing.

As part of the proposed development, works will include an overcladding of the existing building, to assist with environmental issues and to provide cosmetic improvements to the building. Alongside this, a new feature 'portal canopy' will be constructed around the existing Edington Street entrance to match the cladding of the new pavilions at tow path level. This new entrance aesthetic is important to visually show that the main entrance to the overall Scottish Opera development will still be via Edington street, but new routes will be created through the existing building and up to the towpath level.

The roof of the existing facility will also be overclad, alongside a new array of photovoltaic panels, spanning one full pitch of the portal frame.





## 11.10 Visualisation - North courtyard space (Level 1)



## 11.10 Visualisation - Main rehearsal studio (Level 1)



## 11.10 Visualisation - Studio pavilion during outdoor performance (Level 3)



## 11.10 Visualisation - Roof garden looking South (Level 3)





### **Technical summary - MEP**

The Scottish Opera building will be designed to provide a world class orchestra rehearsal and recording space, with additional studio space and staff and performer facilities.

The key aspects of the mechanical, electrical, and public health (MEP) systems will be that they are energy efficient, comfortable, robust, and meet the stringent acoustic requirements of a performance space.

A fabric first approach will be followed to minimise energy demand, with the building designed to have a highly insulated and air tight envelope. This also assists with maintaining good acoustic isolation from the outside world for noise entering or leaving the spaces. A further key pillar of the Energy strategy will be avoiding fossil fuels, so it is proposed to use electric air source heat pumps for heating and either air source heat pumps or direct electric water heaters for domestic hot water. Although there is no opportunity at present to connect into a local district heating network, the heating and hot water systems will be designed to allow transition to a district heating network at the end of the heat pumps design life should this be available.

The low carbon heating strategy will be complimented by using mechanical ventilation with heat recovery throughout the building to minimise ventilation heat loads, particularly for higher occupancy spaces such as the main rehearsal space. In addition to the energy benefits, this allows improved thermal comfort and tight control of acoustic environments.

A new electrical substation will be installed to replace the existing Scottish Opera substation and accommodate the increased electrical load associated with the larger building footprint and transition from natural gas to electrical heating and hot water. It is proposed that a new Photovoltaic array will be installed on the roof of the existing Scottish opera building to offset the electrical demand of the extended building and reduce CO2 emissions.

Water and drainage systems will both be designed to reduce demand, for example utilising low flow

appliances to bring down incoming water flow rates and connecting into new SUDS to manage rainwater outflow to local sewage systems, as set out in the drainage strategies.

New telecommunications systems will be provided to the new Scottish Opera building and integrated into existing infrastructure to provide modern connectivity. In addition, new modern security, CCTV and life safety systems will be provided to ensure the building operates effectively and safely.

### **Technical summary - Civil and Structural**

#### Substructure

Given the ground conditions encountered during the site investigations and taking into account the loadings imposed by the various building structures, piled foundations are considered to be the only viable foundation solution for the new building structures on this site.

The substructure solution for the main rehearsal studio will consist of pile foundations and pile caps, tied together with an arrangement of ground beams. The clear span aspirations within the studio space together with the heavy roof garden build-up loadings, preclude the use of shallow foundation systems to maintain stability and control building settlements to permissible limits. The ground floor slab will comprise a lightly reinforced ground bearing slab 150-200mm in thickness.

#### Superstructure

A series of steel trusses will be employed above the main rehearsal space to provide a column free environment. The depth of the truss has been optimised to control deflections and a Vierendeel has been introduced at mid-span to form a central walkway above the studio space. Demountable rigging systems will be attached to the underside of the trusses with clamped connections to provide flexibility for different rigging configurations to suit the needs of the end users. The loads imposed at roof level from the roof garden together with dynamic performance considerations would preclude the use of other materials such as glulam for the roof trusses. Composite slabs utilising shear stud connectors will span between the main roof trusses.

The mixed-use spaces around the main rehearsal studio will generally be formed in composite steel construction, Timber frame construction will be considered in some areas where clear spans and acoustic performance requirements are perhaps less onerous.

The pavilion blocks on the roof level adjacent to the central roof garden will generally be formed with glulam frames for the larger span applications and a mixture of timber frame construction and CLT cassettes for the less demanding smaller span areas.

#### Design Criteria

All structures will be designed to support all dead, snow and wind loads in accordance with the relevant BSI Eurocode Standards Eurocode Nos 1 to 7 and the Building Standards (Scotland) All foundations and main structural frame elements will be designed for a minimum lifespan of 50 years, other secondary elements and components will require periodic inspections and ongoing maintenance.

### **Technical Summary - Acoustics**

A survey of representative existing ambient noise levels on-site was undertaken and found to be:

- 52 dBA – Daytime (07:00 to 23:00)
- 46 dBA – Night-time (23:00 to 07:00)

The representative existing background noise levels on-site were found to be:

- 44 dBA – Daytime (07:00 to 23:00)
- 38 dBA – Night-time (23:00 to 07:00)

Noise emissions from the new buildings have been designed such that the combined noise from all new primary items of plant equipment result in a "low impact" at a nearby noise sensitive receptor when assessed in accordance with BS 4142:2014+A1:2019.

Similarly, daytime plant noise emissions are expected to comply with the proposed noise rating level limit and therefore represent a low impact at the nearest noise sensitive receptor. Night-time plant noise emissions and daytime emergency plant noise emissions were found in assessment to exceed the proposed noise rating level limit and therefore acoustic interventions have been incorporated to meet the required noise levels such as screening or siting in acoustic enclosures. To control internal ambient noise from the external noise sources, façades will provide a minimum sound insulation under background ventilation conditions capable of meeting the internal ambient noise levels as given in the BS 8233:2014 standard (shown below).

- 35 dBA daytime (living room)
- 40 dBA daytime (dining room)
- 30 dBA night-time (bedroom)

Mechanical ventilation systems, including both continuous and intermittent mechanical ventilation, will be designed and installed to meet the internal ambient noise levels as given in the BS 8233:2014 standard.

Minimum façade glazing acoustic requirements to achieve 35 dBA and 30 dBA ambient noise levels during daytime and night-time hours, respectively, have been defined and will be incorporated into the specification of the glazing. Solid façade elements will achieve at least 40 dB Rw+Ctr.

All items of plant (including emergency plant equipment) will be acoustically treated as necessary to achieve the noise level limits at the nearest noise sensitive receptor. This assumes all items of plant running at 100% duty (i.e. worst-case scenario).

Based on this it is expected that noise from plant equipment associated with the development should result in a "low impact" as per the guidance in BS 4142:2014+A1:2019.

As a higher noise item of plant, the diesel sprinkler pump associated with the Scottish Opera building has been carefully considered. It requires a sound power level of no more than 90 dBA to meet the proposed emergency plant level limit during daytime hours so will be provided with appropriate acoustic enclosures.

### **External Event Noise**

External event noise levels for Scottish Opera have been assessed and found to be less than 15 dB above the representative background noise level at all NSRs and is consistent with the guidance in The Code of Practice on Environmental Noise Control at Concerts.

The Code of Practice goes on to state that "It is believed that compliance with the guidelines and the other advice given here will enable successful concerts to be held whilst keeping to a minimum the disturbance caused by noise."

The proposed restrictions for external events are summarised then as:

- No more than 12 events per year
- Events must not continue beyond 11pm
- Each event should consist of unamplified music from an ensemble with a total sound power no greater than 103 dBA which is approximately equal to one of the following numbers of each instrument category:
  - o 1 Brass Instrument
  - o 5 Adult Singers (and Piano)
  - o 10 Woodwind Instruments
  - o 21 String Instruments

Please refer to full report.

### **Technical summary - Drainage**

The developed site will have new, separate foul and surface water systems. Both Scottish Water and Scottish Canals have been consulted and agree, in principle, with strategy to route all foul to the public sewers around the frontage of the site.

For surface water, the only areas that can feasibly connect to the canal are the PBSA roofs. All other areas are below canal water level and will therefore drain to the combined sewers via attenuation. Scottish Water will consider a surface water connection to the combined sewers provided a volume "betterment" is offered from that of the predeveloped site.

Scottish Canals will consider connection of all new roof areas to the canal provided design is in accordance with the "MGSDP Sustainably Drain Glasgow" Document compiled by four-storey NGIWMS Project Group. The principle of above ground storage i.e. Green/Blue Roofs in this case, is also in accordance with Glasgow City Council's Water Environment Guide SG8.

Once developed, hardstanding plus the new SO roof, on the high-level platform, will drain to the combined sewers via attenuation. The opportunity will also be taken to attenuate run off from the existing low-level yards and this will reduce impact on the combined sewers. The restriction in surface water flow will be achieved by using a flow control device at the downstream end of the system.

### **Foul water**

The new wastewater generated by the development will be from toilets, sinks and the proposed laundry. The new foul drainage will be routed north and south, at the upper platform level, and connect to the public combined sewers in Corn Street and Sawmillfield Street.