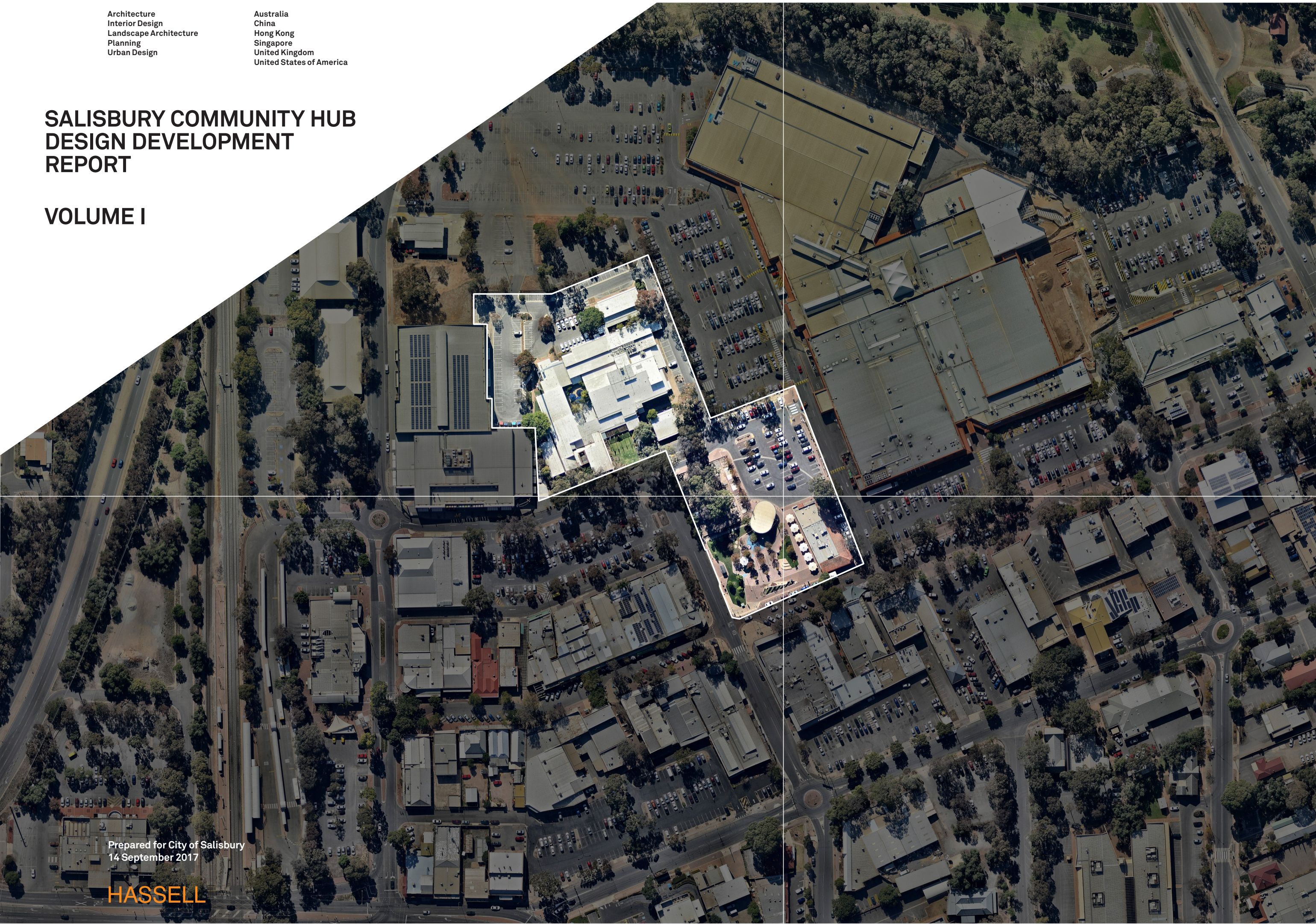


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SALISBURY COMMUNITY HUB DESIGN DEVELOPMENT REPORT

VOLUME I



Prepared for City of Salisbury
14 September 2017

HASSELL

Front cover image: Salisbury Community Hub
Imagery by HASSELL

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Document control

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03			

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Executive summary

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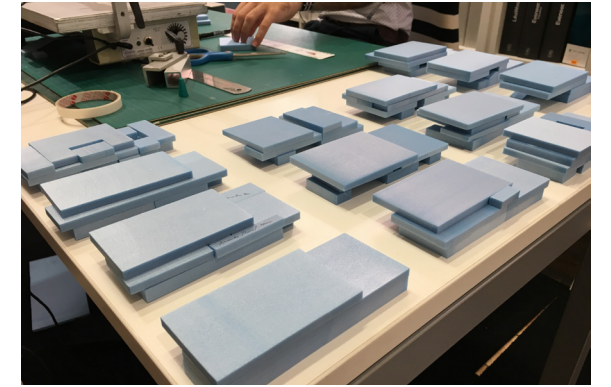


02

Project development

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The Design Development Report presents to the City of Salisbury the developed building form and function following endorsement of the Concept Design. The integrated design (Architecture, Landscape Architecture and Interior Design) has been coordinated with structural and building servicing requirements, ultimately confirmed against the Design brief, Community Engagement feedback and project budget.

Executive Summary

The Design Development report outlines the design progression of the new Community Hub following endorsement of the 4-level Option B building proposed in the Concept Design Report issued July 2017.

Throughout Design Development, HASSELL have maintained regular communication and worked closely with the City of Salisbury to ensure stakeholders remained in the decision making process and informed the building's development.

Members of the HASSELL team also attended Community Engagement sessions, arranged by the City of Salisbury in mid-late August. At these sessions, the project along with a massing model was presented to curious and interested members of the Salisbury Community, to garner their feedback and ensure it corresponded with the briefed requirements to that point in time. New ideas raised during these sessions were captured and passed on to HASSELL and the wider design team for further consideration and are reflected in the design plan contained within this report.

With the key aspirations for the building established during the Concept Design phase, the Design Development phase focussed more so on the detail of stakeholder requirements.

The consultation process through Design Development has continued with the project Executive Group, Elected Members and other authorities and community stakeholders, however detailed dialogue was assigned to smaller focus groups to agree the functional and spatial requirements of individual areas within the building, particularly Information Learning and Community Spaces.

The key themes identified for further consideration by the Design Team and recommended approach in

the design brief and Concept Design Report are detailed in Chapter 02 of this report. The key themes specifically include:

- _ Confirmation of Project Scope
- _ Built Form and Landscape Philosophy
- _ Functionality and circulation
- _ Event Modes (internal and external,
- _ Civic Square pedestrian security from vehicles
- _ Customer Service Strategy
- _ Catering Strategy
- _ Future Expansion
- _ Emergency Mode (a section of the building that can be zoned to operate for a period of time in an event, such as major storm with loss of power to provide critical services to the Salisbury Community with back-up generator plug-in capacity should this be required.
- _ Building Zoning (security, mechanical and circulation)
- _ Building Structure
- _ Life Cycle Costing

It is also important to note that the functional requirements have regularly been tested against the Design Guiding Principles endorsed by Council at Concept Design, to ensure the aspirational brief was not compromised (and if so brought to the attention of the stakeholders to appease both functional and aspirational needs).

Further to this, during Design Development, the base building design and internal space layouts and area allowances were peer reviewed by HASSELL Heads of Design and our experts in Workplace design (based in Melbourne). This feedback has provided the design team with recommendations to allow functional planning and spatial requirements to be tested and further challenged with the City of Salisbury.

Advice was sought from the Department of Transport and Infrastructure as to the authority responsible for Development Plan assessment, ie. Development Assessment Commission or the City of Salisbury. Formal confirmation has been received as

of 1 August 2017 that Council can be the assessment authority via their Development Assessment Panel to provide independence.

The Design Developed scheme still maintains the project budget established during Concept Design phase. To achieve this, Value Engineering opportunities identified by the Project Team have been considered for implementation in the design without compromising aesthetic or functional integrity.

Construction works are forecast to commence in the second quarter of 2018 subject to Council decisions.

The Design Development Report is presented to the City of Salisbury for review and written approval to proceed to the 50% Tender Documentation phase. This will allow the design team to proceed into 50% Tender Documentation Phase knowing the requirements workshopped and briefed thus far by the City of Salisbury stakeholders and Community have been captured.

Project development



02 Project development

2.1 Project Scope

Project Scope

The Community Hub encompasses the Civic Square and new 4 storey building, bounded by John Street to the south, existing lane way to the east, James Street to the north and Church Street to the west.

Existing carparking lost as a result of the new building will be relocated to the existing Civic Centre site at 12 James Street site upon its demolition.

A new illuminated footpath will connect the new carpark with the Community Hub site with additional pedestrian crossings proposed across James Street (between the new car park and Community Hub site) and across Church Street (between the existing Sexton car park and Community Hub site).

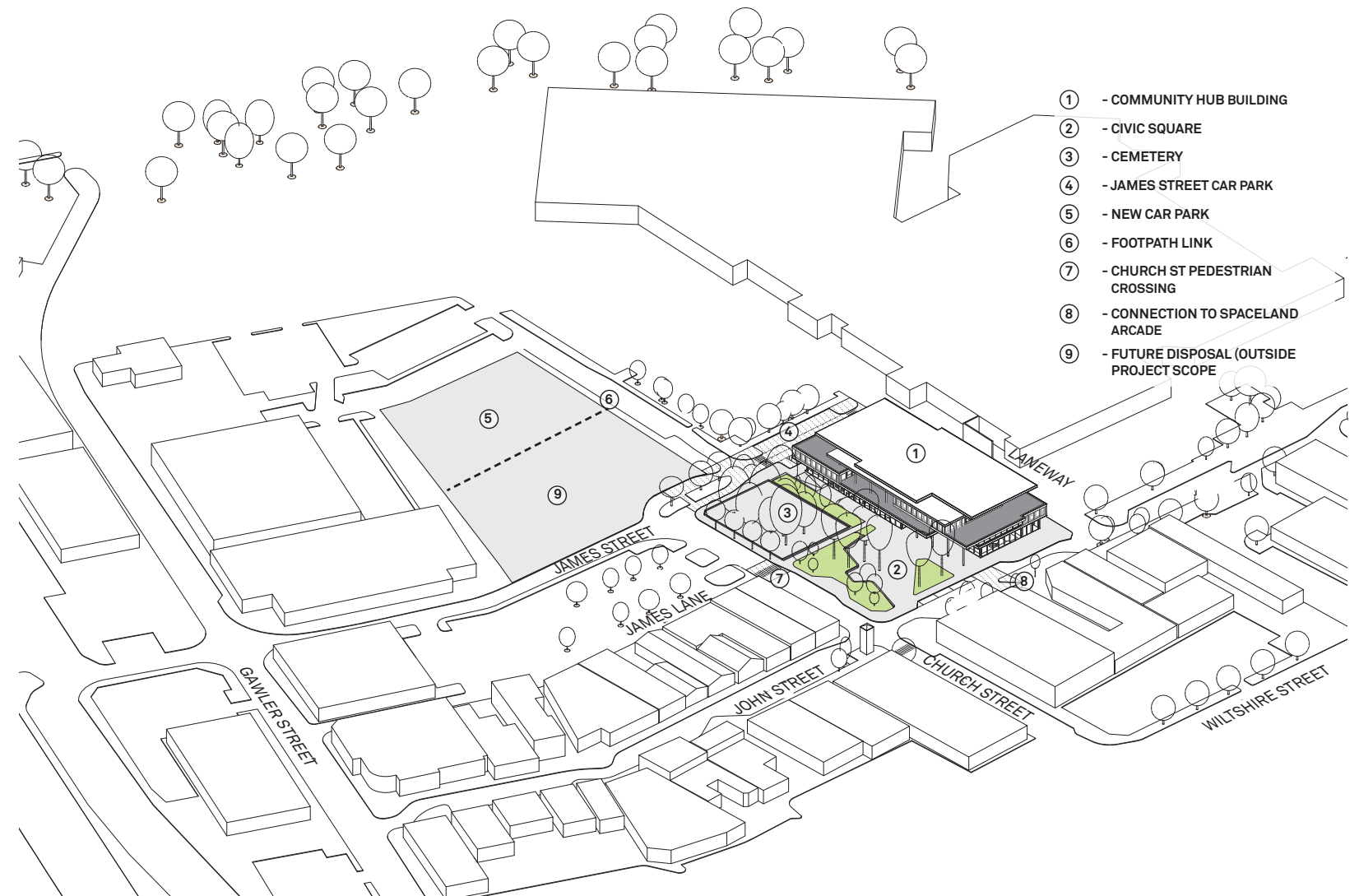
During site planning for the new building, it was identified that the proposed building entry aligns in the North/South direction with Spaceland Arcade to the southern side of John Street. To improve pedestrian safety across John Street when linking these two important nodes within the City Centre area, the project scope proposes the consideration of the removal of two short term parallel car parks on the northern side of John Street through discussions with affected stakeholders. The footpath would be widened in this area and the affected car parks would be relocated as part of this project to deliver no net loss of car parking.

On the eastern service laneway side of the Community Hub site, the new building will be setback from the property boundary to accommodate 5 disabled access and priority staff car parks along with a staff loading area. It will also include delivery/pick up zones for larger vehicles including waste collection. The area dedicated for staff car parking is also proposed as the location for the generator delivery and connection point in the event of an emergency that requires the need for back up power generation.

On the southern side of James Street, 12 new carparks are proposed for community use. These carparks will be short term parking only, limited to an amount of time to be determined by the City of Salisbury for members of the community dropping in and out of the Community Hub (eg. paying rates or returning library books)

The balance of parking for staff will remain on the existing 12 James Street Site, and carparking relocated as a result of this development built in a temporary configuration on 12 James Street to ensure no net loss of carparking as a result of the community hub project. The reconstruction of the carparking areas, pathways, crossings, lighting and CCTV are part of the Community Hub project scope, along with the demolition of the existing Council Civic Centre.

The adjacent three dimensional contextual plan highlights the project scope of works.



Project scope in the context of the Salisbury City Centre

02 Project development

2.2 Built Form and Landscape Philosophy

Built Form Philosophy

The Design Brief and aspirational workshops investigated the qualities demanded in the new building. This was to explore how floor plate efficiency could be maximised, encourage interaction, provide a building that was grounded and real, and something that the Community would be proud of and call their own. The following themes have been achieved and implemented in the new building form, internal planning and positioning in the future context of the wider City Centre precinct (as per the Urban Design Framework Guidelines):

- _ Scale
- _ Natural light considerations and outlook
- _ Building circulation
- _ Building connection to the wider site
- _ Relief (weather and climatic conditions)
- _ The building as public realm

Scale

The developed four storey scheme represents metaphorically the diverse range of community groups coming together, reflecting the program within the Community Hub, and celebrates Salisbury's diverse cultural history and future. The ground level is proposed a double height space (6.0m floor to floor) to enable maximum flexibility for programming of the ground level and ensure that are activities taking place within are clearly revealed to passers by and the curious observer. Floors above are at 3.6m floor to floor.

Floor plates are 'pushed in and pulled out' typically across each level. The floor plates are set back on levels 2 and 3 in response to the scale of John Street, while the level 1 overhang creates a wider footpath along John Street, continuing the deep awning theme embedded in the retail outlets fronting John St (west of Church St).

Natural light considerations and outlook

The low lying nature of the City Centre precinct and setback from adjacent buildings means the site has excellent opportunity for maximising views and

admission of natural light. The building core is proposed on the eastern side of the building where outlook is considered inferior to the other elevations (due to views predominantly of the Parabanks shopping centre roof). The northern, western and southern facades are designed to be transparent to maximise the admission of natural light, reflecting strong feedback from the community consultation for a building full of natural light. Intermittent use of solid elements will be required in some areas to provide privacy to some internal spaces fronting these elevations.

The push and pull approach of the floor plates also creates external terracing opportunities on the upper levels. The Community terrace proposed at Level 01 will allow building occupants to look across the City Centre, and visibly witness the activities across the Civic Square and John Street. This space can also be programmed for Community use when weather conditions are suitable. This concept was highly valued in the community engagement.

Building circulation

The building layout is articulated to create a sense of discovery, reflecting the guiding principle of surprise, delight and inspire. Meeting pods, fixed and loose furniture have been carefully considered in plan to encourage visitors to meander through the space and discover the offerings of the Community Hub. The idea of using objects to change the perception of space is also considered with parts of the ground level considered full height while bulkheads suspended from the ceiling will define space and inform users of the types of spaces they are entering.

Further information regarding building circulation can be found in section 2.3 of this report.

Building connection to the wider site

The ground plane facing the Civic square is designed to be permeable, providing a simpler transition between indoor and outdoor space particularly when programming demands this. An opening is proposed to link the Community Hall with the outdoor space between the new building and

cemetery. This will allow internal events to spill to the outdoors in more private type settings. The opening also serves as a means of egress in instances where this small section of the building operating during an event where power is lost to the balance of the building.

The facade facing the Civic Square proper proposes two sets of large glazed sliding doors, to allow pedestrian flow between indoor and outdoor spaces, particularly when large events are held internally within the ground floor event space.

Relief

Floor plates from the Ground level up have been articulated to enhance shading of perimeter glazing and importantly provide relief from inclement weather (this lack of shade amenity was continually raised at the Community Engagement sessions).

The level 1 floor plate purposely steps out beyond the ground level envelope, creating an awning to the Civic Square and John St sides of the building. This is something currently missing from the Civic Square site and will provide relief for both pedestrians circulating through the site and for those entering or exiting the building, as well as those moving through the square from John Street to the Parabanks Centre.

The extent of slab area to achieve the 'push and pull effect' for relief also provides an opportunity for a portion of the level 2 slab to be used for expansion in the future (if required). Refer to section 2.6 for further details.

The building as public realm

The site will be highly activated and to further promote wayfinding, vibrancy and movement expected both internally and externally of the building, material selections are critical to further enhance these qualities (particularly through the use of reflection and transparency. This is applicable not only to floor and wall finishes, but ceiling and soffit linings.

Landscaping

The public realm and Civic Square surrounding the building will require some redevelopment to integrate the Salisbury Community Hub building and associated infrastructure. The Public realm will facilitate active, transparent, open and flexible edges and access, balancing space for play, events, active and passive recreation, while ensuring space for movement to/from and around the Community Hub. The ground plane proposes to soften the hardness of the existing Civic Square by introducing turf to certain parts of existing paved areas. The existing deciduous trees (12 off.) in the hard paved area central to the Civic Square are proposed to be removed and replaced with a taller evergreen species to allow views across the site and into the building, while providing increased shade from the summer sun. Furniture selections for the area will generally be loose with two services 'plug and play' points provided for community events (power and potable water).

The western side of the site where the raised mound and children's play equipment are located will remain in its current form and is not proposed for redevelopment. This was strongly supported by the community when discussed at the Community Engagement sessions. Refer page 6 of this report for details concerning Civic Square works required as a result of the Community Hub development and extent of the square remaining untouched.

As the cemetery is immediately adjacent to the Community Hub, opportunities for integration need to be explored to reflect the qualities of permeability and surprise, delight and inspire, and to connect members of the community with the history of Salisbury. Further discussions are required with the Methodist Church but it is proposed to identify what is possible within this space.

The diagrams on pages 6-7 show the extent of changes to the existing square.

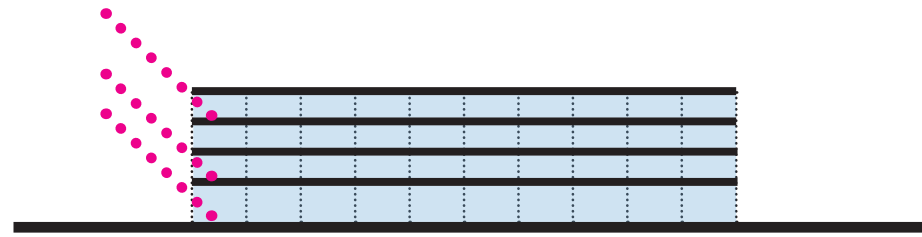
02 Project development
 2.2 Built Form and Landscape
 Philosophy



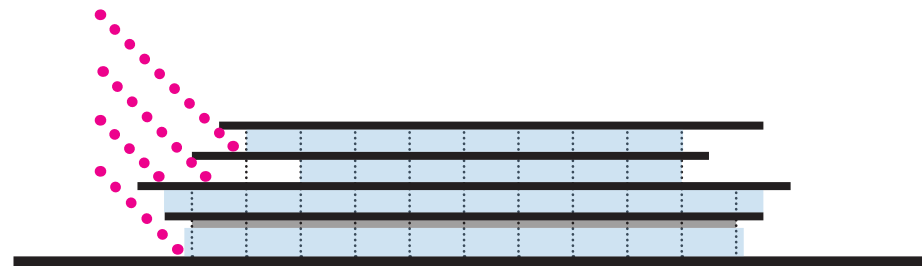
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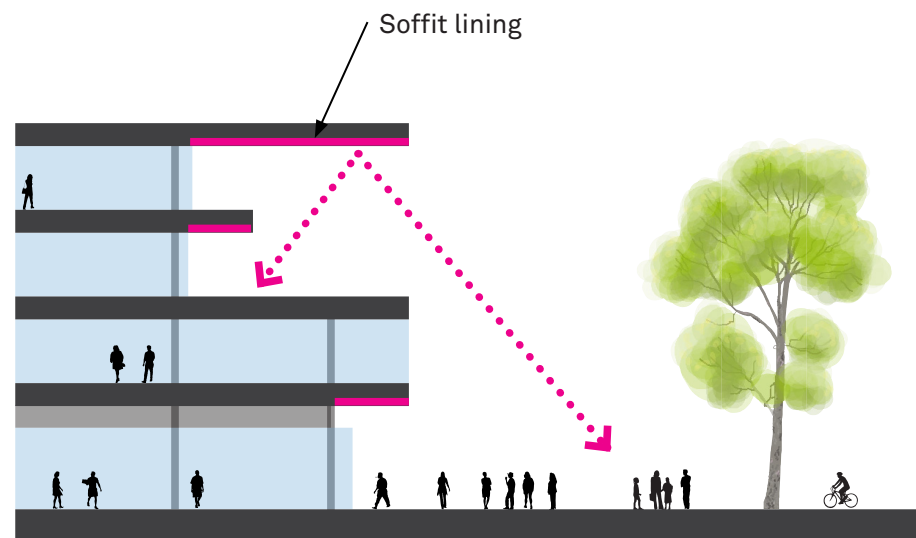
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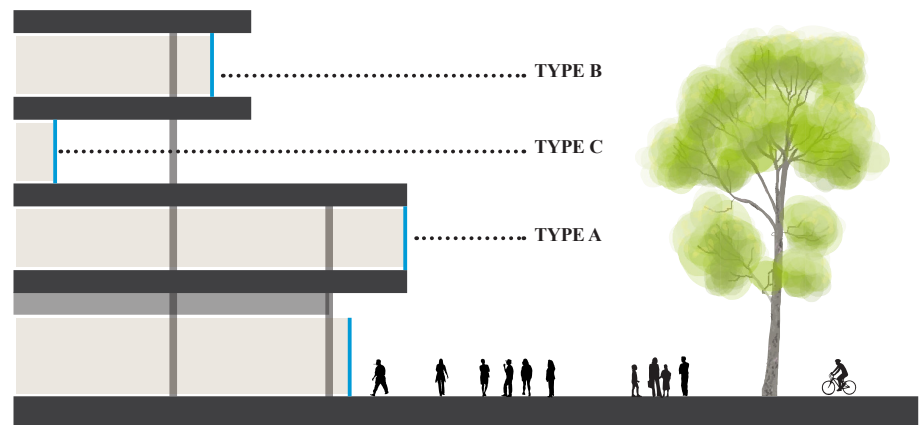
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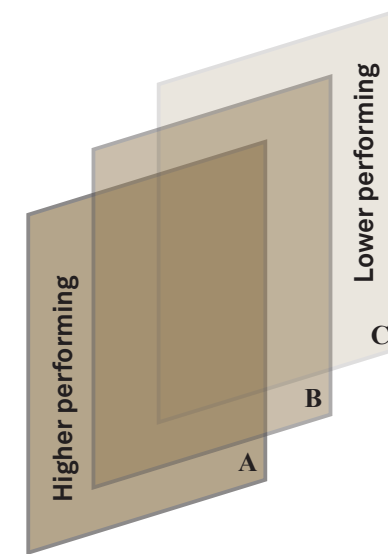
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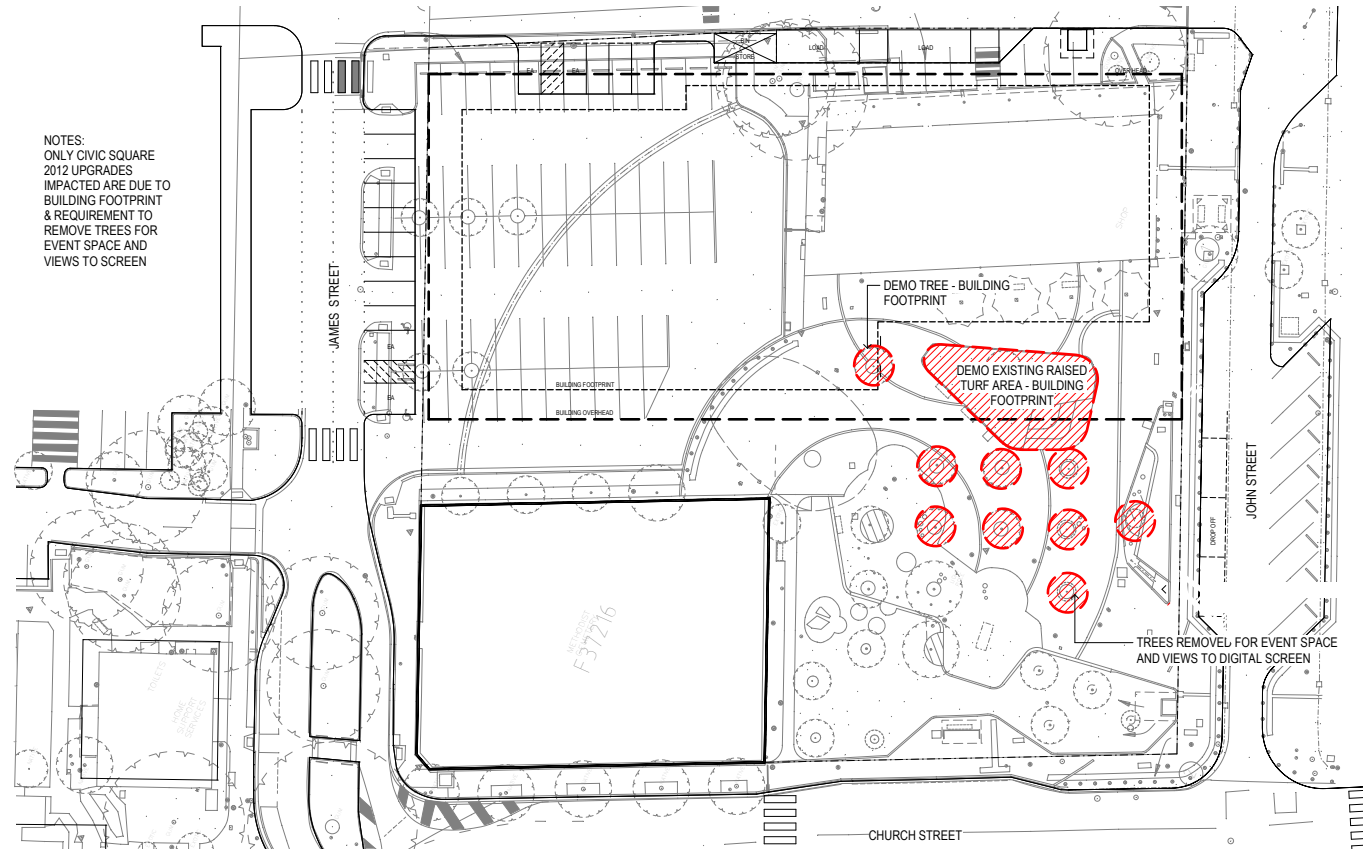
Activity, texture and materials reflected in specific parts of the soffits



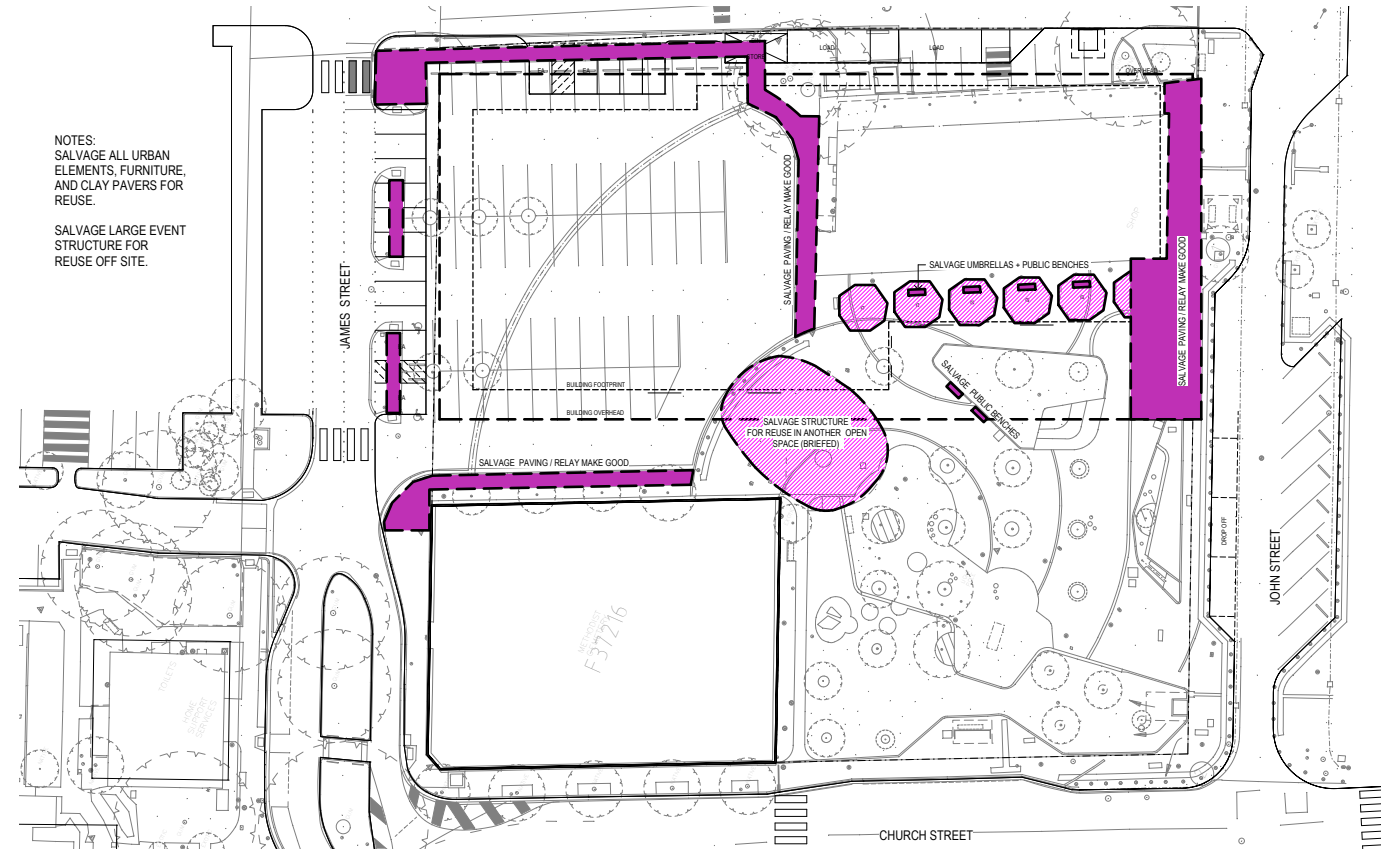
Glass performance responds to setback



02 Project development
2.2 Built Form and Landscape
Philosophy

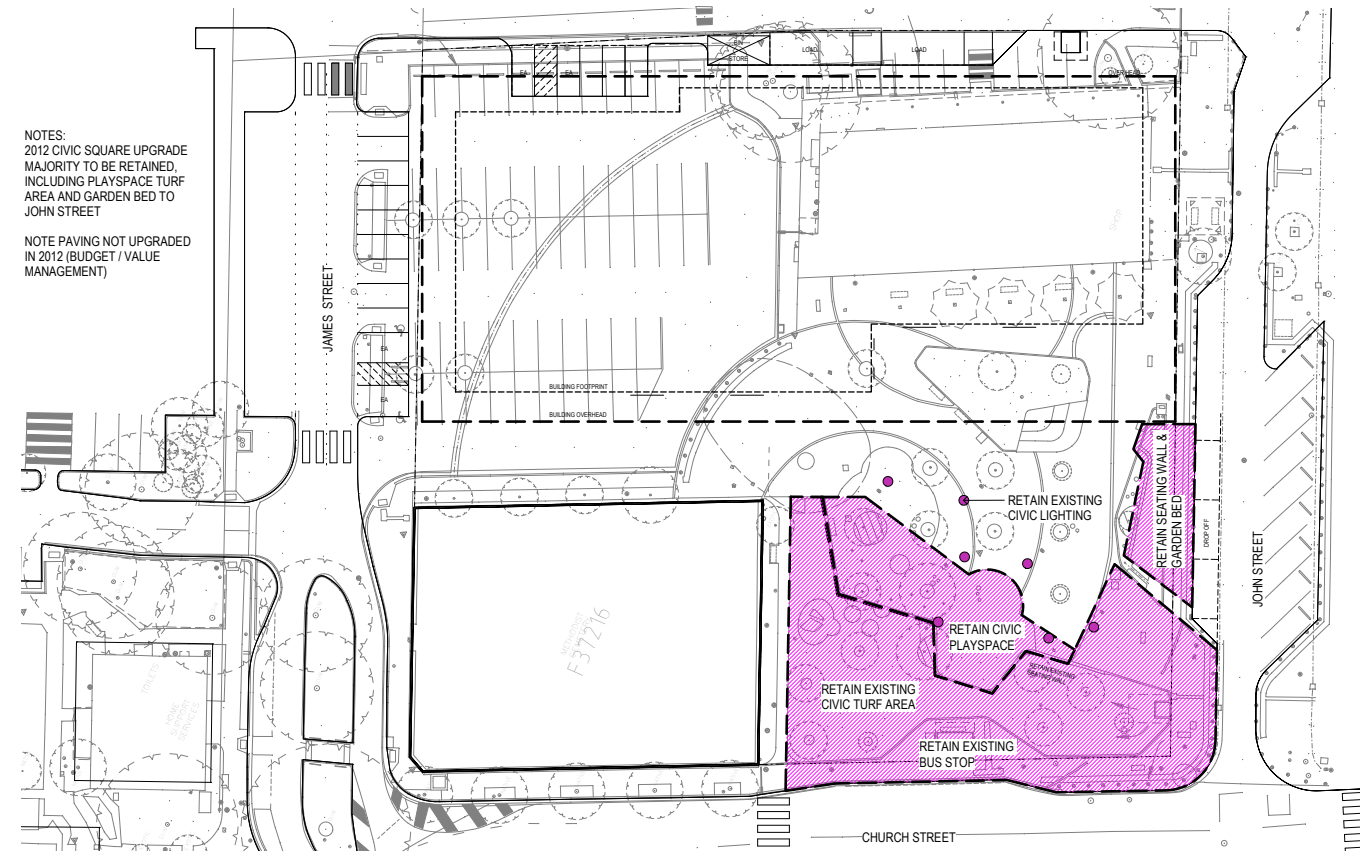


Civic Square - Impact

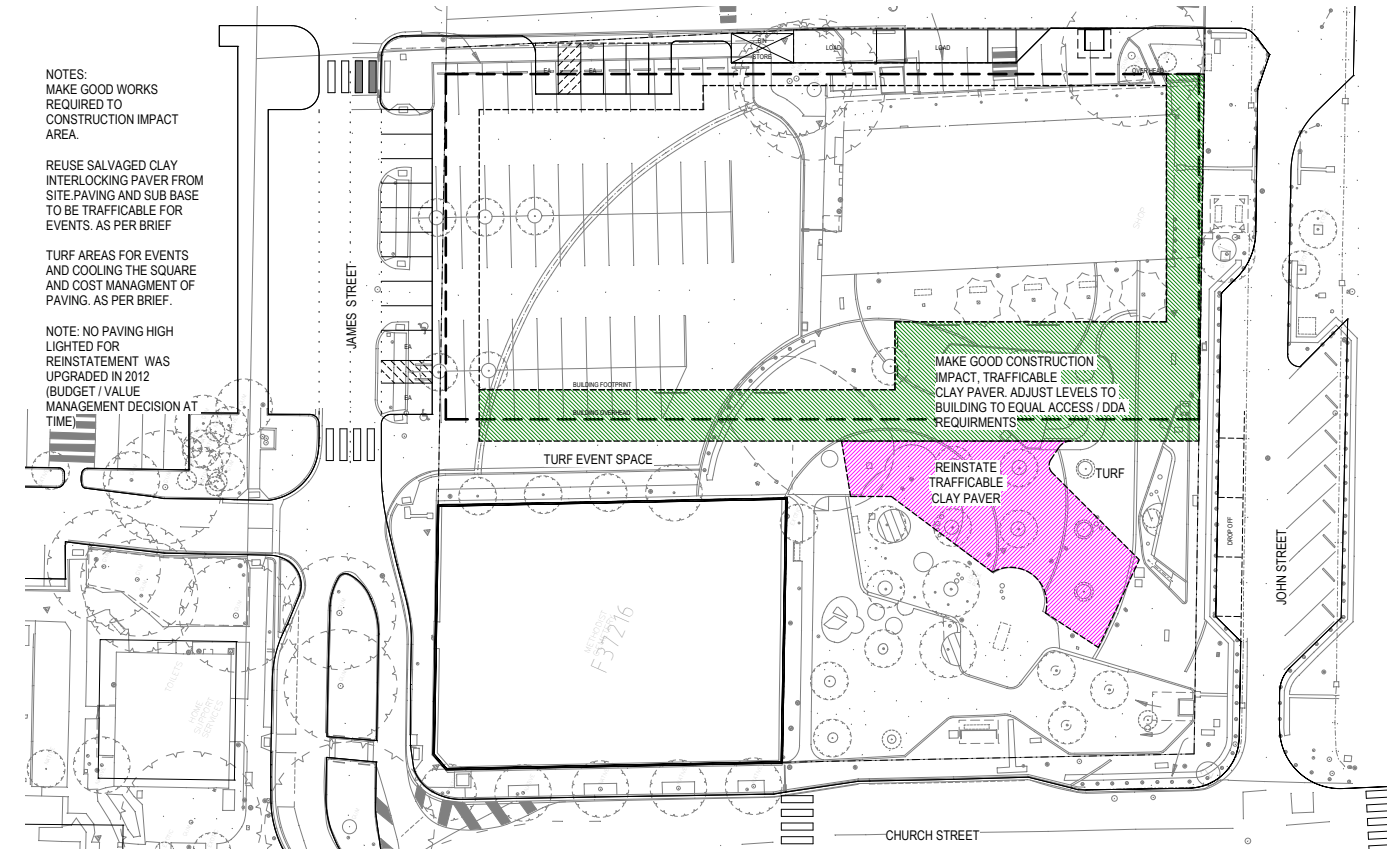


Civic Square - Salvageable Materials and Equipment

02 Project development
2.2 Built Form and Landscape
Philosophy



Civic Square - Retention of Existing Elements



Civic Square - Reinstatement Extent

02 Project development

2.3 Functionality + Circulation

Information Learning / Community

The continuous development of technology is rapidly changing the face of libraries and community centres. It is a requirement that the design supports continuous change whether it be technology or people driven. It is the intention of the Council to provide a more flexible and 'open' customer service model where staff are supported by mobile devices and not stationed at a service counter or workstation. This friendly and more approachable model allows the plan and design to be more open and transparent, and blends the customer service, community and library areas together.

A dispersed model for the collection (books, magazines etc), study and lounge is proposed where we will create pockets for quiet, contemplation, reading, study and other spaces for more active and noisy pursuits. Information learning services will be woven into the fabric of the ground floor and Level 1 to fully integrate and activate the activities of both information learning and community. It is important that easy access to programming spaces is achieved, to ensure that people feel welcome and invited to participate. A centralised workroom will be collocated with the loading dock, combined with a records and mail room.

There will be no formal boundaries between areas within Information Learning. The space will be flexible and adaptable with a place to suit diverse demographics, cultures, learning and relaxation styles. The library will enable re-configuration quickly and efficiently with minimal cost or 'down time'. This kit of parts is provided with a more 'fixed' framework of spaces, technology and reformed service delivery and work flows. The space is designed to accommodate a 20% increase (56,632 people) in foot traffic (conservative estimate) ie. total: 339,791 per annum.

Transactional services (payments or borrowing items), will be part of a broader customer service strategy.

This will require staff roles, responsibilities and work flows to change.

Adult Collections

With the exception of the Children's collection, items will flow seamlessly from one collection to the next. Consideration will be given to the location of various collections to suit mobility, vision impairment and safety as required. The size of the future collection to be accommodated is approximately 26,000 items (44,000 items in total are available with the balance of the collection anticipated to be out on loan).

Generally, it is the intention to provide low height shelving (approx. 1400-1500mm high) in open spaces to promote a feeling of openness and enable staff visual observation. Shelving at the perimeter of spaces (against solid walls) may increase to 1800mm height.

To encourage browsing and active promotion, the current floor space allocated would allow up to 40% of the collection to be displayed face out with the remainder of the collection displayed spine out. The Young Adult collection will be integrated within the Adult collections.

Books will not dominate the floor space and book collection will be mobile where possible. Outward facing shelves will be prominent.

Children's Collection

The Children's space accommodates child specific collection and will be at scale that is comfortable and attractive to children and their carers. Collection will be accommodated on shelving (between 1000-1400mm high) or crate/box type units with a large proportion of the collection on face out display. Spaces for reading, relaxation and play will be provided with child and carer appropriate furniture, with access to natural light and views.

Considerations for the children's space include:

- _ Safety and security: Children's area to be located such that small children are not able to easily 'run outside'. Visual observation of children's area required by staff.
- _ Space for the children to make noise/ be themselves without disturbing the wider information learning space.
- _ A small playspace that considers how play elements can introduce Salisbury children to their heritage eg a small rocket in the library as

identified in the community engagement and encourage exploration with learning interactive and digital elements

- _ Close to or with visual connection to amenities, particularly the parent's room. If not located adjacent to facilities, then provide visual connection to facility.

Provisions:

- _ 2x Online Public Access Catalogue (OPAC) units
- _ Greater proportion of face out display in lieu of spine out display.
- _ 'Child' appropriate/friendly shelving and furniture, whilst also considering carer requirements.
- _ Furniture, fittings and equipment (FF&E) selections, materials, finishes (robust and easy to maintain).

Young Adults Collection

The Young adult's collection will be incorporate within the main adult collection. The collection shall have the flexibility to grow and contract as demand varies. 'Full height' shelving of approximately 1800mm high to the perimeter of spaces will be provided. Any free-standing collection with bays no more than approximately 900mm wide x 300-350mm deep x 1400mm high. Allowance for 1 x OPAC unit has been made for this collection and anticipates a greater proportion of face out display in lieu of spine out display.

Considerations for the Young Adult collection include:

- _ Access to natural light and views
- _ Integration of interactive devices
- _ Proximity to Lounge/ relaxation/ reading/ study (collaborative, informal, formal, group and individual) spaces
- _ The ability/permission to make pockets of space, temporarily 'their own' within information learning

Furniture + Seating

Lounge/seating and study will be dispersed within the information learning and adjacent foyer/ gallery space. There will be no clear delineation between the spaces and a mix of general seating for learning, programmable space, lounge, reading, collaboration and meeting, study and relaxation will be provided. Lounge and study will be provided with both

informal and more formal options, open, semi-open and closed options, individual and group options (refer figure 02 on page 11).

Based upon "People Places, 2011" guidelines, it is anticipated that up to 195 seats will be provided. Seating will be located in information learning with 30% located in the foyer/gallery space. The seating will be provided in the following proportions of the total information learning area:

- 30% Reading and lounge;
- 70% Quiet study, collaborative study, meeting.

Seating considerations include:

- _ Comfort, mobility, flexibility and ergonomic benefits
- _ Ease of movement (where appropriate)
- _ Australian design and manufacture, with particular emphasis on South Australian content and a preference for Northern Adelaide Region manufacture and/or assembly
- _ High durability, low maintenance
- _ Commercial warranties - preference for minimum 5 years or above structural warranties;
- _ The location of spaces in consideration to acoustics eg. quieter spaces for reading, study, relaxation are away from noisier spaces.
- _ Security (particularly of child lounge/ reading spaces)
- _ Access to natural light and views (either internal or to the external) near lounge and study areas
- _ Diverse range of seating to suit various demographics eg. chairs with higher seats and sturdy arm rests for elderly, comfortable/ ergonomic seating for study
- _ Mix of mobile and more 'fixed' furniture selections
- _ Flexible furniture to enable ease of reconfiguration and relocation where suitable

Public Computers

The number of public accessible PC's to be provided are based upon projected population numbers (People Places 2011). Utilising data provided by the CoS, up to 11 PC's are recommended according to this guideline. It is anticipated that the PC's will be in high demand and based on demand we recommend increasing the number of PC's to 20 terminals. An adjacent space to the public PC's will

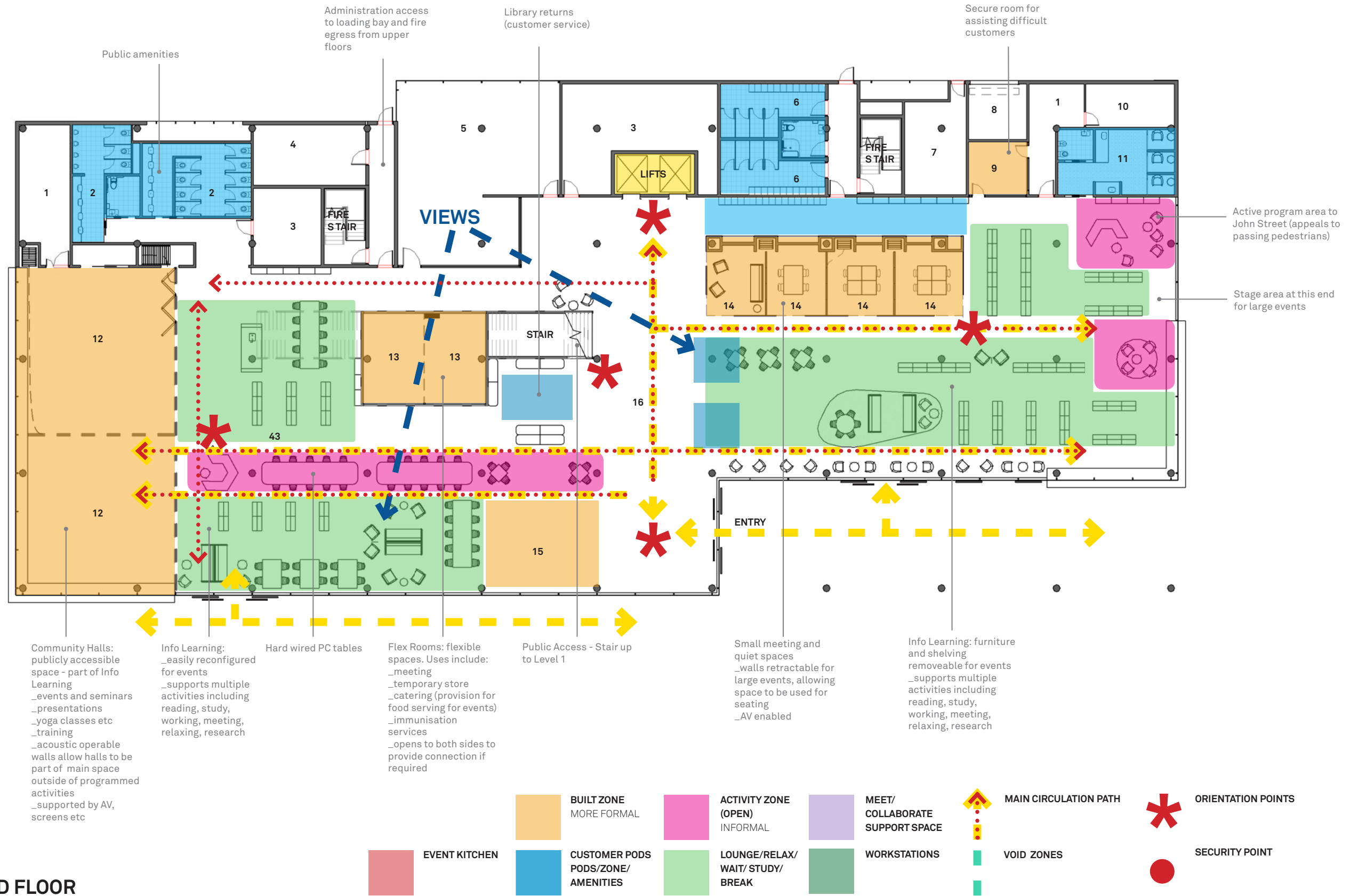
accommodate public accessible printing and scanning facilities. The desks provided will be a mix of sit-to-stand which will provide more equitable access and allow users a degree of flexibility. Other considerations include:

- _ Security of people and equipment
 - _ Access to natural light and views, glare on screens
- Refer figure 01 on page 11 for PC terminal example.

02 Project development

2.3 Functionality + Circulation

1. FURNITURE STORE
2. PUBLIC AMENITY
3. RECORDS STORE / COMPACTUS
4. DATA CENTRE/FUTURE BATTERY STORE
5. LIBRARY WORK ROOM + RECORDS
6. END OF TRIP FACILITIES (STAFF)
7. WATER TANK + PUMP
8. GAS
9. SECURE ROOM
10. AFTER HOURS RETURNS
11. PARENTS ROOM
12. COMMUNITY HALL
13. FLEX ROOM
14. SMALL MEET
15. CAFE
16. FOYER / GALLERY
17. COMMITTEE ROOM
18. 8P MEET
19. EVENT KITCHEN
20. MULTI PURPOSE ROOM
21. PRIVATE AMENITIES
22. PRIVATE KITCHEN
23. WAIT
24. MAYOR
25. CEO
26. ADMIN RECEPTION
27. BOARDROOM
28. MULTI-PURPOSE LOUNGE/ MEETING
29. 4P MEET
30. QUIET ROOM
31. COLLABORATION BOOTH
32. WORKPLACE
33. BENCH TABLE
34. COUNCIL CHAMBERS
35. TERRACE
36. STORE
37. FIRST AID
38. HOME BAY
39. QUIET BOOTH
40. LOUNGE
41. IT HELP
42. BREAKOUT
43. PRINTING/COLLATING POINT



GROUND FLOOR

02 Project development

2.3 Functionality + Circulation

Information Learning (cont.)

Self-Check and Returns

Self-Check units will be located on the ground floor. Approximately six units will be accommodated with at least one terminal at child appropriate height and another DDA accessible. A separate RFID connected returns book shelf will be located adjacent the self-check units. The units will enable customers to check in and check out items by themselves and be located such that staff can be made aware and provide assistance when required. Considerations for the units include:

- _ Circulation
- _ Disability access
- _ Child access
- _ Visibility and intuitive location.

Digital Technologies

Interactive technology centred activities will be incorporated in the learning space. Their location will allow visual observation, be mindful of potential noise and allow for either individual or group participation. Their location will also not limit the use of interactive technology to just children and young adults. Devices will be located where users of all ages feel comfortable to use it. Interactive devices include tablets, consoles, and other education and creative technologies.

If 'closed' space is required, this activity may be accommodated in the Ground floor 'flexi rooms'.

History Collection

The History collection will be dispersed and contain local history information, collocated with other exhibition and display. The intent is to provide a space which constantly evolves and be refreshed and grow or reduce in size if necessary.

Displays will be integrated where possible into other built forms e.g glazed partitions (building elements 'working harder' with double use). Any free standing displays will be mobile. Refer figure 03 on page 11 for example of integrated display.

Outdated equipment will be accommodated but space provided should not be customised to enable future conversion when the equipment is made redundant.

Programs

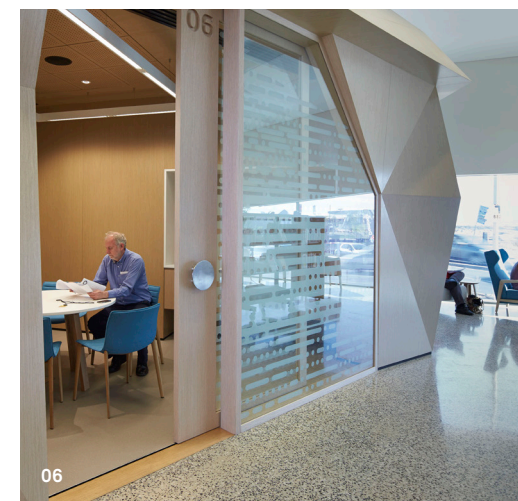
It is anticipated that the majority of information learning programmes will occur in shared community spaces such as the Community Hall, Committee Rooms, Public accessible meeting rooms, Council Chambers, Training room, Outdoor Terrace and the foyer and gallery space. This will provide improved capacity for programmes and events to be held than within the existing facilities.

Workroom and Returns

A number of workroom models have been investigated with the CoS. In reviewing the workflows and in consideration of other functional requirements of the Ground floor, it appears that the 'Partially Separate Model' of returns and workroom provides the best efficiency for the CoS. At the time of this report, the 'Returns' workflow is currently under review with the CoS.

The ability of staff to observe information learning space to provide visual observation 'security' to 'back up' those staff working at the front of house customer service has been provided. Easy and efficient courier loading, pickup and delivery has also been provided.

02 Project development
2.3 Functionality + Circulation



- 01 City Library (PC terminals)
- 02 Melbourne University (Informal study)
- 03 City Library (Integrated display)
- 04 City Library (Maker Space)
- 05 Stretton Centre (Training Room)
- 06 Cove Civic Centre (Study Spaces)

02 Project development

2.3 Functionality + Circulation

Level 1

Level 1 is connected to the ground floor with a large open void and generous stair creating an extension of the ground floor publically accessible space.

It houses predominantly community spaces alongside workplace requirements which are deliberately collocated with the intent to invite the community to utilise the spaces provided and share the resources with workplace.

A generous community terrace is provided connecting the Information and learning space with external gathering space and provides views to the town square below.

Library collections will be housed on this floor, focussed on self directed learning.

Community

Customer Service

_ 2 X customer service pods will be located in the open space shared with the information and library programmed area. This service will be highly visible and easily navigated to.

Council Chambers

_ The Council Chambers are located at the top of the main stair access with its' primary function being to accommodate Council meetings which generally occur in the evenings. it will be of a similar size to the current chambers. The space is used by the community during the day for a diverse range of activities, and will include additional functionality to host business and catered dining events and use as a hire or Council event space over and above the event modes on the ground floor.

_ Solid acoustically rated operable walls to the Chambers allow it to be fully connected to the Information Learning space or closed off as required. This connection allows the space to be used as a waiting area for community attending Council Meetings and an overflow space for major decisions where a larger gallery may attend

supported by digital screens within the information learning area. Flexible furniture is provided in the Chambers to ensure the space can respond to the various modes of operation. A second door has been provided from the chambers to the committee meeting room adjacent.

_ Advanced audio visual equipment will be included for presentations, meeting recording etc.

Meeting, Committee Rooms and Multipurpose room
_ Adjacent to the Chambers are the two Committee meeting rooms suitable for seating up to 20 people. These spaces are bookable rooms and designed to facilitate a range of diverse activities with an operable wall allowing them to be opened up and used as one 100m2 space or as independent isolated spaces. AV is embedded in the spaces and joinery is provided to house the AV equipment. The acoustic properties of these spaces will ensure audible privacy is optimised with perforated acoustic ceiling solutions and wall panels absorbing sound. They are located on the northern perimeter of the building with external views. Window treatments will be provided to support various function modes, pinboard, whiteboard and flexible furniture incorporated.

_ Additional bookable meeting rooms are located in close proximity to both committee meeting rooms. These spaces are suitable for a diverse range of functions and available for use by both the community and workplace. This can include quieter uses such as confidential JP functions and community meetings that are better held in a quieter area of the building than in the ground floor semi transparent meeting rooms. These rooms will be fully carpeted and where possible walls will be glazed to promote transparency. Window treatments will be provided to support function and flexibility.

_ The multipurpose room is approximately 75m2. The flooring will be suitable for a range of activity such as training, dining, meeting and literacy classes. The space is located adjacent to the main lift access and opposite a large open area of information and learning program therefore it is accessible and an optimal space for community

use. Walls containing the space from the will be glazed to allow borrowed views to the eastern façade and community to see activity within the space. Window treatments will be provided to accommodate all scenarios of use.

Support spaces

Event Kitchen

_ The event kitchen is within close proximity to the suite of meeting spaces and will be used to efficiently and discreetly service these. It is intended that this space will be used predominantly by caterers required to support an event. The finishes will be both robust and suitable for a space that will be used by a diverse group of people.

Storage

_ A furniture store is co-located with the meeting spaces housed on Level 1 to hold excess furniture when not in use. This is vital to support the high flexibility of the spaces provided, including event mode.

Flexible Community Meeting

This area is framed by a semi enclosed collaborative booth and a 4 person meeting room, enabling the walls to these spaces to be clad in writable surfaces and provide a backdrop to the island bench meeting space which also has a water refresh point. It is located near the doors to the outdoor terrace. Two quiet rooms are co-located with this area. The final FF&E layout inclusion is yet to be confirmed

A utility point for printing and copying is embedded in the joinery connected to the meeting pod.

Diverse furniture settings are provided to support a range of activities. Where solid walls are indicated they are clad in writable or pin-able surface, glazed walls and doors are used to facilitate connection to borrowed views.

Controlled Staff

Access to Level 2 is located in this area within a void.

Workplace

An area is accessible via a secure entry for the elected members, CEO, Mayor and support staff. Spaces contained within this zone include:

- _ multipurpose space: workspace, dining and meeting space for elected members use but when available can be booked by other workplace groups. The space will house both flexible furniture to support various activities and joinery to conceal servery bench and fridge and workpoints.
- _ Mayor office: workspace, joinery and lounge space
- _ CEO office: workspace, joinery and 4-6P meeting space.
- _ Admin space for 2 x staff including storage for files.
- _ Waiting space for 4 people.
- _ Access for the CEO to secure workplace space adjacent
- _ Kitchenette
- _ Amenities
- _ Coat and robe storage

Workplace

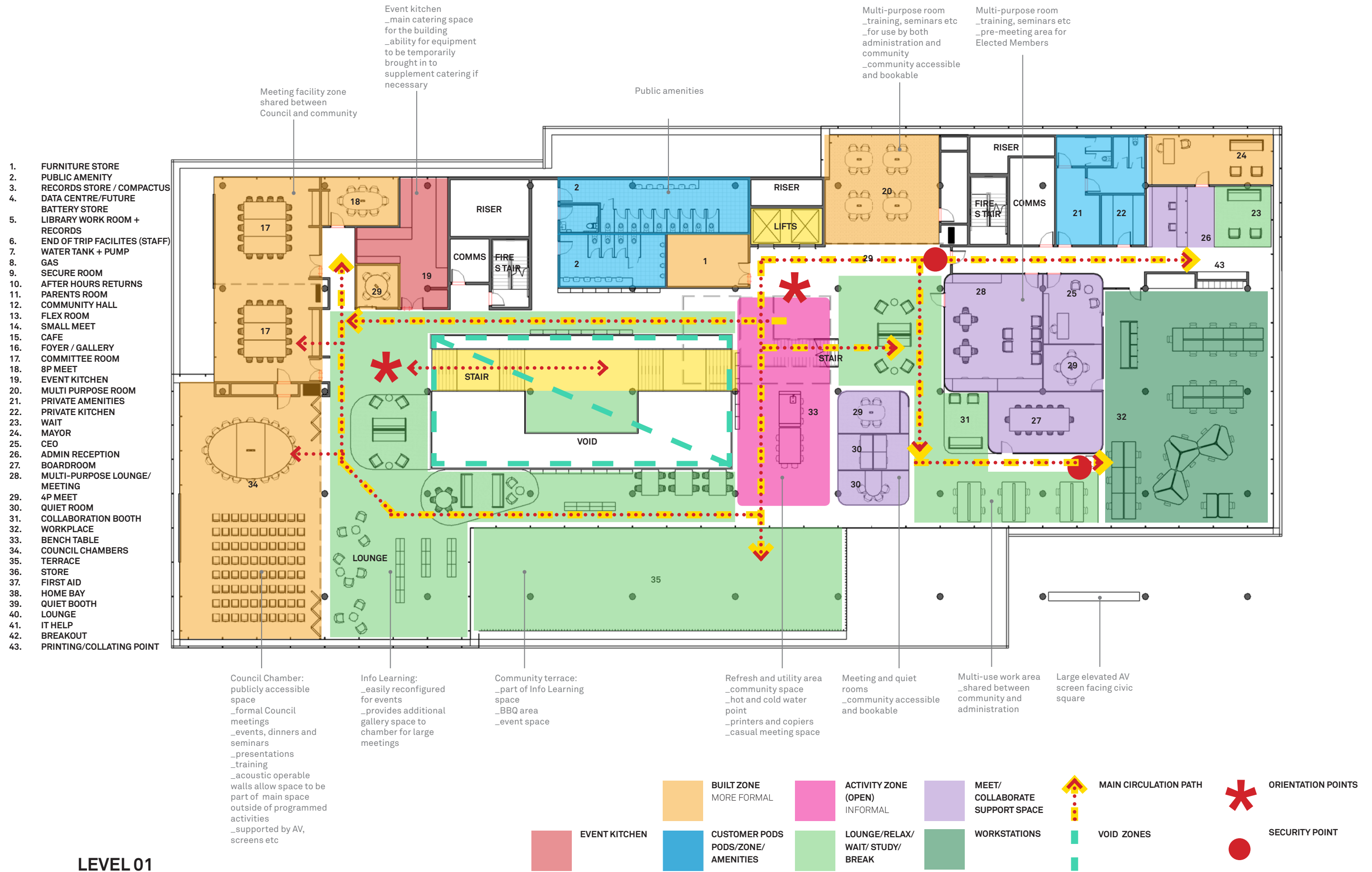
Enclosed space has been located off the perimeter of the building to allow access to natural light for maximum workpoints.

Spaces contained within this area are:

- _ JB Boardroom: 12 person meeting space with electronic card reader directly adjacent to the work place with joinery to house AV equipment
- _ 4 person meeting room
- _ Utility space, file storage, lockers and coat storage
- _ Range of workpoints
- _ Writable and pin-able surfaces embedded in walls
- _ Access to mobile whiteboards
- _ Access to 2 X 2P quiet rooms shared with community

02 Project development

2.3 Functionality + Circulation



LEVEL 01

02 Project development

2.3 Functionality + Circulation

Work Place - Level 2

The workplace has been designed to ensure more efficient use of space, with designated areas for quiet focus work, collaboration work and meetings with the balance ergonomic work stations that focussed on promoting cross organisational collaboration.

Pods of built enclosed space have been created as islands off the perimeter of the building to enable optimum equitable access to views and natural light for all staff.

These pods are modular in form containing spaces requiring acoustic division and varying levels of privacy. They are used as a design device to create some division across the floor space gently enclosing space, creating neighbourhoods and providing wall space for pin-board + whiteboard cladding.

Main circulation routes wrap the void and define active areas from the more protected quiet pockets of space on the floor. Focus corral desks are located on the quieter perimeter of the floor plate to minimise passing traffic. Team bench tables are clustered in more active spaces. Two different shapes and sizes of sit to stand desks are scattered through the main body of the floor. A mix of desk options are provided to ensure that the diversity of workpoints defines a more flexible way of working and the design approach is achieved.

The stair and void linking the Level 2 work place with Level 3 is easily navigated to around the void circulation route and deliberately located so as to promote opportunity for informal interaction.

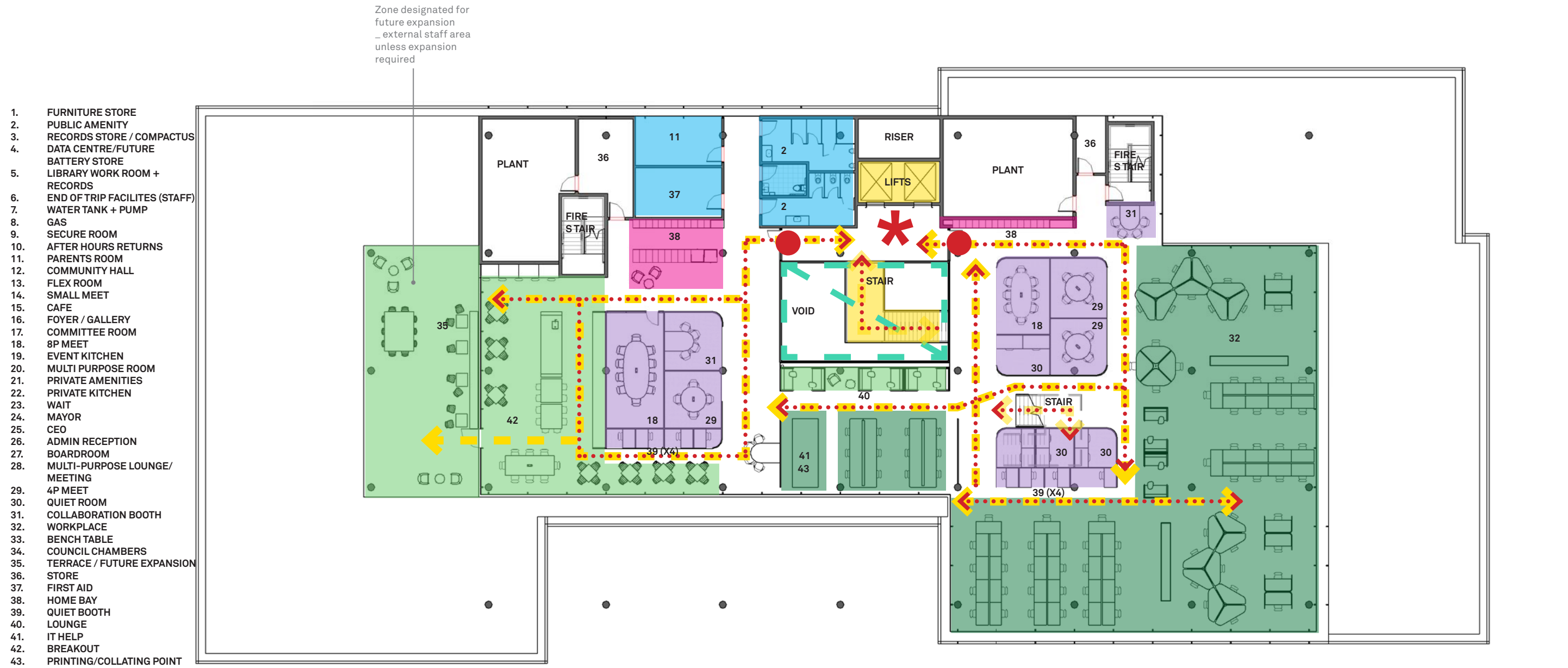
The following spaces and functions are accommodated on this level:

- _ Core: plant, riser, stair, comms, lifts
- _ Male, female and access amenities
- _ Home bays: incorporating lockers, coat cupboards, set down bench, laptop charge
- _ Staff parent room and first aid.

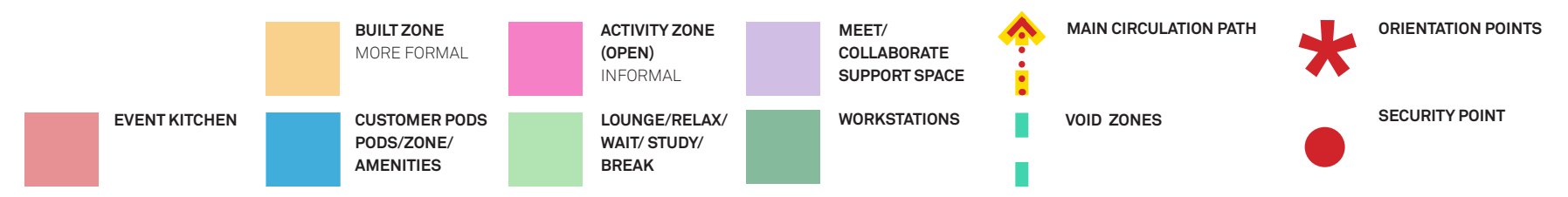
- _ Support spaces: utility, filing and storage, printers
- _ Staff breakout + terrace with seating for up to 80P (total both areas) within future expansion space
- _ A range of meeting room spaces as shown on the plan opposite that is indicative and will be refined as detailed fitout is complete.
- _ IT help Desk
- _ Diverse furniture settings have been selected to promote the fundamental theory of flexible, modern workplaces allowing staff to select the appropriate work setting depending on the nature of the activity.
- _ High back booth seating, bench tables for teams, back to back sit to stand desks, sit to stand workstations and study corrals

02 Project development

2.3 Functionality + Circulation



LEVEL 02



02 Project development

2.3 Functionality + Circulation

Work Place - Level 3

Workplace

The planning pattern established for Level 2 is similarly repeated on Level 3 to promote efficiencies in modular construction. The void connection to Level 2 is generous and facilitates a strong connection between the two levels.

Staff working on this level will use the breakout space on Level 2 for lunch and tea breaks however a refresh point will be located in the home bay space to provide convenient access to hot/cold water and tea/coffee. The A1 planning tables are located at the top of the stair connection in an open circulation space. They are back dropped by a wall of whiteboard cladding to a pod behind creating an open meeting space when not in use for reviewing plans. These active areas are strategically located around the prime circulation routes surrounding the core in order to activate 'corridor' routes and protect work points from active spaces. Team tables have been co-located in this space. A variety of furniture settings will be located around the void activating the area for impromptu informal meetings.

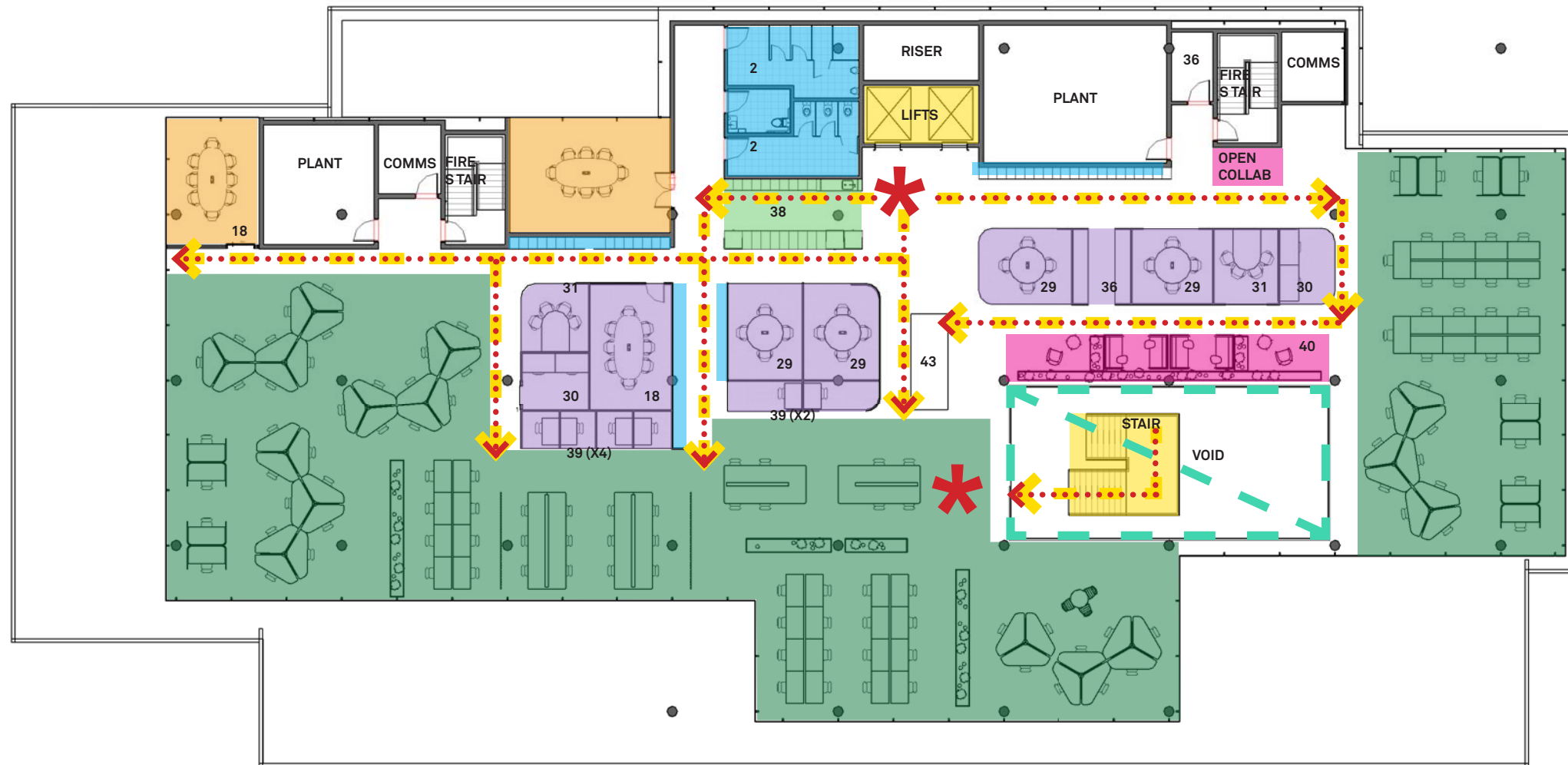
The following spaces and functions are accommodated on this level:

- _ Core: plant, riser, stair, comms,
- _ Male, female and access amenities
- _ Home bays: incorporating lockers, coat cupboards, set down bench, laptop charge
- _ Support spaces: utility, filing and storage
- _ A range of meeting room spaces as shown on the plan opposite that is indicative and will be refined as detailed fitout is complete.
- _ A1 planning tables
- _ Diverse furniture settings have been selected to promote the fundamental theory of flexible, modern workplaces allowing staff to select the appropriate work setting depending on the nature of the activity
- _ High back booth seating, bench tables for teams, back to back sit to stand desks, sit to stand workstations and study corrals

02 Project development

2.3 Functionality + Circulation

1. FURNITURE STORE
2. PUBLIC AMENITY
3. RECORDS STORE / COMPACTUS
4. DATA CENTRE/FUTURE BATTERY STORE
5. LIBRARY WORK ROOM + RECORDS
6. END OF TRIP FACILITIES (STAFF)
7. WATER TANK + PUMP
8. GAS
9. SECURE ROOM
10. AFTER HOURS RETURNS
11. PARENTS ROOM
12. COMMUNITY HALL
13. FLEX ROOM
14. SMALL MEET
15. CAFE
16. FOYER / GALLERY
17. COMMITTEE ROOM
18. 8P MEET
19. EVENT KITCHEN
20. MULTI PURPOSE ROOM
21. PRIVATE AMENITIES
22. PRIVATE KITCHEN
23. WAIT
24. MAYOR
25. CEO
26. ADMIN RECEPTION
27. BOARDROOM
28. MULTI-PURPOSE LOUNGE/ MEETING
29. 4P MEET
30. QUIET ROOM
31. COLLABORATION BOOTH
32. WORKPLACE
33. BENCH TABLE
34. COUNCIL CHAMBERS
35. TERRACE
36. STORE
37. FIRST AID
38. HOME BAY
39. QUIET BOOTH
40. LOUNGE
41. IT HELP
42. BREAKOUT
43. PRINTING/COLLATING POINT



LEVEL 03

HASELL
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02 Project development

2.4 Event Modes and Catering

Event Modes

Large openings of the ground level are permeable to create an easy transition between indoor and outdoor space. Flexible furniture and services provides the opportunity to curate the ground floor area for any event for up to 500 seated people. (The desire for a 500 seated space was first confirmed in the design brief and received considerable support when discussed with Elected Members, community focus groups and the Northern Adelaide State Secondary Schools Alliance who all noted a lack of large seated venues within the City of Salisbury).

Although the building accommodates a large number of male, female and disabled toilets due to the space uses within the building, during large scale events such as the Salisbury Secret Garden and Christmas Pageant, surplus toilets may be required depending on the predicted numbers.

Key event modes have been selected to inform how the ground level space and level 1 could be programmed (*Note images on pages 19-21 correspond with the following event mode descriptions):

01_Community Hall event

The Community Hall can accommodate up to 150-200 standing people. During these events, attendees can spill out to ground floor information learning area and the exterior if required.

Some furniture will need to be relocated internally, and should the external area require cordoning off, this is possible without impacting pedestrians circulating between James Street and John Street (the link between the building at ground floor north and cemetery is approximately 10m clear in distance).

02_250 Seated People event/Potential future 460 seat event (James Street End)

With the Community Hall opened (via stackable doors) and furniture relocated, this area has the potential to be repurposed to accommodate 250 seated people and a small stage (there is the potential for a future adaption of the space to accommodate a greater capacity if parts of the fixed elements within this space are reconfigured).

Important to this will be use of Audio Visual technology, particularly for those seated at the rear of the audience or have sight lines constrained by the columns within the space.

Furniture can also be used to direct attendees to the seated area. This option also allows general circulation to level 01 and the southern portion of the ground level to be used by members of the community not involved in the 250 seated event.

With the proposed planning arrangement, events requiring more than 250 seats will be held at the John Street end of the ground floor (refer event mode 03), however in the future, this space could be adapted to accommodate up to 460 seated people if the computer desks and services are relocated elsewhere in the building.

03_500 Seated People event (John Street End)

The majority of the walls of the meeting pod located at the John Street end of the ground floor are moveable, allowing them to be retracted to reconfigure the space to accommodate 500 seated people and a small stage area.

The permeable facade between this area and the Civic Square, people can spill out comfortably into the Civic Square space.

When this event mode is employed in Ground Floor South (John St) end, circulation in and around the remainder of the ground level and to level 01 will still be possible. Wayfinding through the use of temporary directional signage and furniture placement will be required to inform members of the community not involved in the 500 seated event of how to access the northern part of the ground level and level 01. It is not considered that this will be a regular occurrence with large 500 people events most likely to be held outside core opening hours.

Audio visual technology placement will be important for those seated at the rear of the audience due to longer viewing distances as a result of the proportions of the space.

When this event mode is employed, some sight lines will be impaired due to the regular structural column grid of the building, however digital screens will

provide alternative view points.

Should this space be required for a dining type event, it is expected that 150 people could be accommodated (16 x 10 person tables). Refer diagram 04 opposite.

05_Level 01

Similar to the approach for the Community Hall, the Council Chambers at level 1 can open (via stackable doors) into the adjoining open area to accommodate larger scale events with the community external terrace located adjacent, this makes this area ideal for community or Council events with local business and community groups (including formal dining events, refer diagram 06 on page 20). There is also the opportunity to hire this space out for private events.

Loose furniture on level 1 can be used to direct attendees to events held at level 1, although wayfinding should be much simpler given the main ground to level 1 stair discharges at the proposed event location.

Larger scale events at level can also make use of the adjacent community terrace space facing the Civic Square, particularly in the warmer months when the weather is more favourable. (refer diagram 07 on page 20).

08_Moonlight Cinema/Prominent TV Viewing Events

The installation of a large LED screen adjacent the main building entry will allow members of the community to come together to view live streamed televised events (eg. Olympics, World Cup Soccer matches, AFL Grand Final). This was the item most supported by the community in the recent engagement.

The Civic Square area immediately adjacent the screen has been redesigned to be flat with trees removed and replaced with a species that has a higher canopy to maximise views toward the building from both the Civic Square, and the intersection of John Street and Church Street. The flat site will make it comfortable for both standing viewing and laying of picnic rugs and deck chairs (for example) for family oriented events such as a moonlight cinema.

The flat site with trees strategically replaced and a higher canopy will also make marquee set up more straight forward and flexible in terms of locating within the Civic Square site.

09_Large Scale event (Festival)

The open nature of the site and shared pedestrian zones along John Street make it possible to cordon off this area for large scale events such as the Salisbury Secret Garden. The permeable facade at the ground level of the building also means that external activities can overflow internally if space demands require this.

Food + Beverage

Business Case Brief from City of Salisbury

The brief applies to the Workplace, Community, Information Learning spaces and also includes a catering kitchen that is utilised during Events and functions.

- _ Cafe space with seating for up to 20ppl - cold shell leased supported by outdoor dining capacity in the Civic Square and side wall servery
- _ Parenting facilities
- _ Programme/meeting tea & coffee, refreshments
- _ Workplace breakout facilities for tea/coffee, eating and alternate casual workpoints appropriate for 243 FTE (allow seating for 50ppl) with associated external space to seat up to 24 people.

Catering

Catering facilities will be provided in the building to support a variety of functions, meeting and events. The majority of functions will have food and beverage provided by an external caterer. The types of events include:

- _ Training, sit down, light meal/refreshments (10 - 20ppl)
- _ Working meetings, sit down, light meal/ refreshments (5 - 20ppl)
- _ Functions/events, various, refreshments (30 - 100ppl)
- _ Function/ events, various, light meal/ finger food, refreshments (200 -500ppl)
- _ Functions/events, sit down (~100ppl)
- _ Functions/events, stand up, cocktail (up to 500ppl)
- _ Elected members, sit down (25ppl) _ Council events, various, light meal, finger food,

refreshments (120 - 300ppl)

Facilities

A dedicated workplace centralised hub is to be located on Level 2 with heating and refrigeration facilities. The hub will accommodate seating for up to 50 people, high quality domestic dishwashers and refrigeration, microwaves and coffee machine. The provision of a tea facility on each floor which has tea making facilities, small bar refrigerator (for milk only) and water access point. Located centrally on each floor, these tea benches aim to discourage personal or dedicated team facilities. Appliances will be of a high domestic quality.

A community accessible and bookable shared outdoor BBQ facility is provided on level 1.

For functions utilising an external caterer, we have proposed a 'light touch' commercial event kitchen. Not accessible to the general public (except when booked as part of an event), the kitchen is centrally located on level 1. The space will include cooking, heating, exhaust hood, refrigeration, plate up and clean up facilities. Temporary equipment may also be plugged in and utilised when required (e.g hot boxes).

Parenting facilities will include heating up and water facilities.

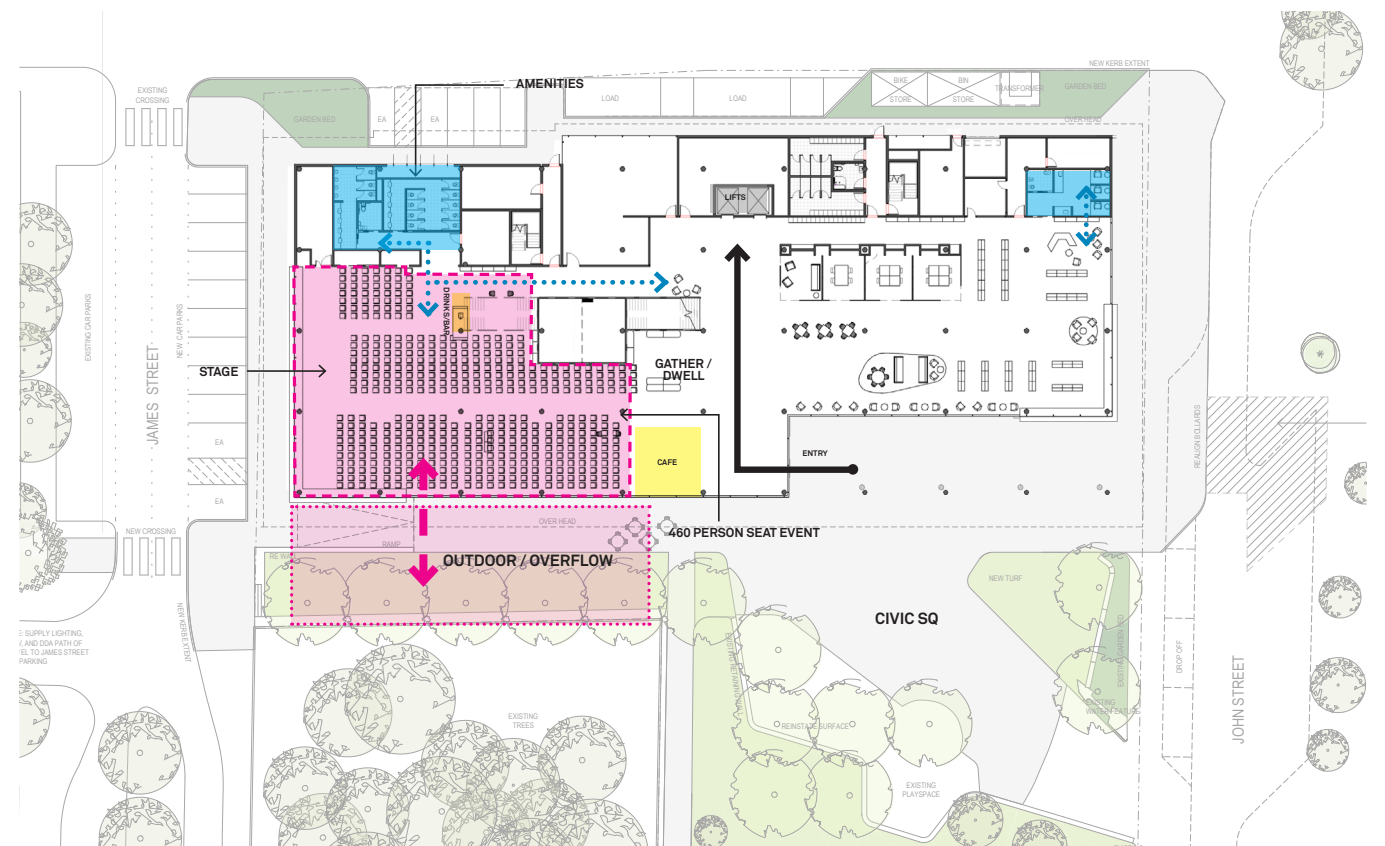
A dedicated cafe tenancy zone to be operated by an external stakeholder is provided on the Ground floor. With access externally to the Civic Square, a 'cold shell' (inc. services connection and pass through window to the facade) will be provided.

A servery capacity has been designed into the ground floor flex rooms that can be used as a catering holding/plating area with equipment required to host major events, supported by plug and play hot box and other solutions with direct access to the rear loading bay. This solution has been tested with an external caterer who has confirmed suitability, supported by catering kitchen on level 1 and the lift access.

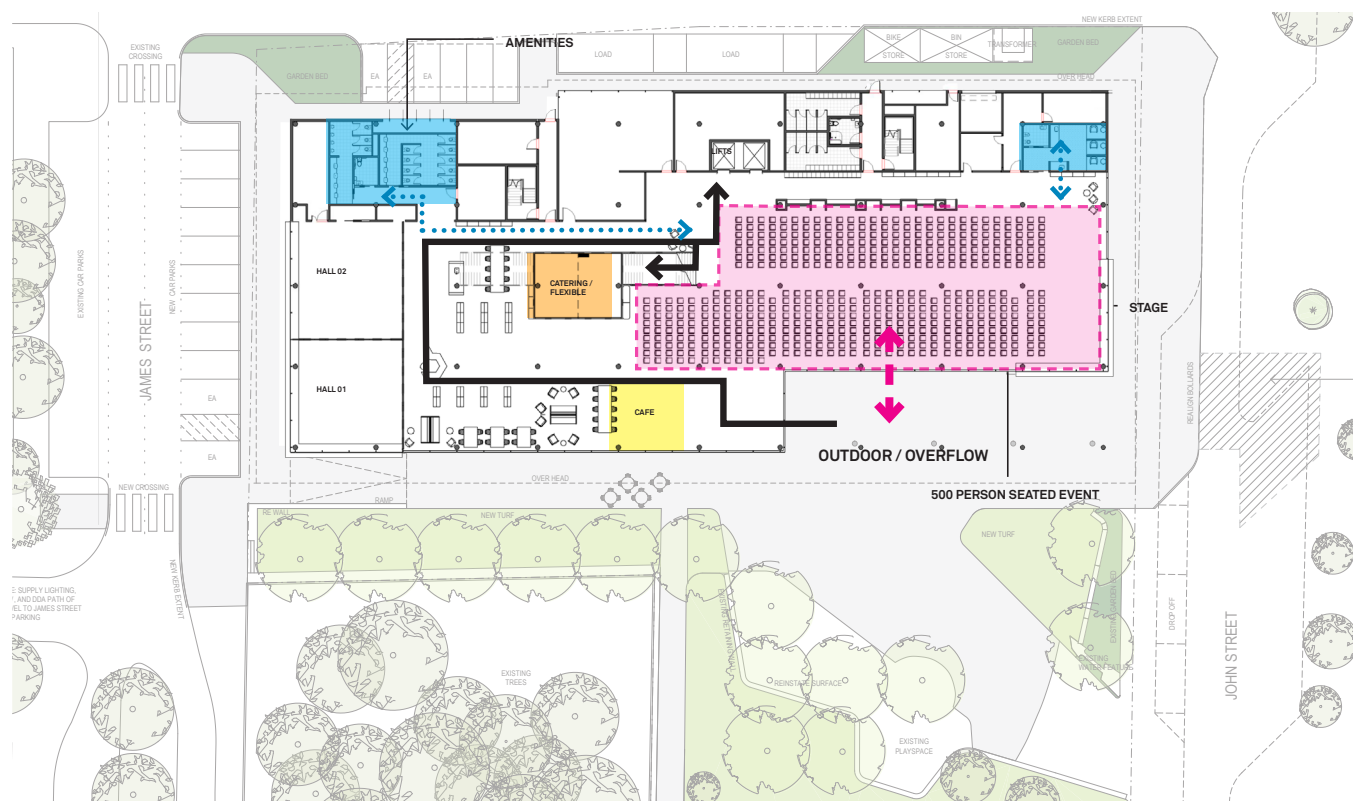
02 Project development
2.4 Event Modes and Catering



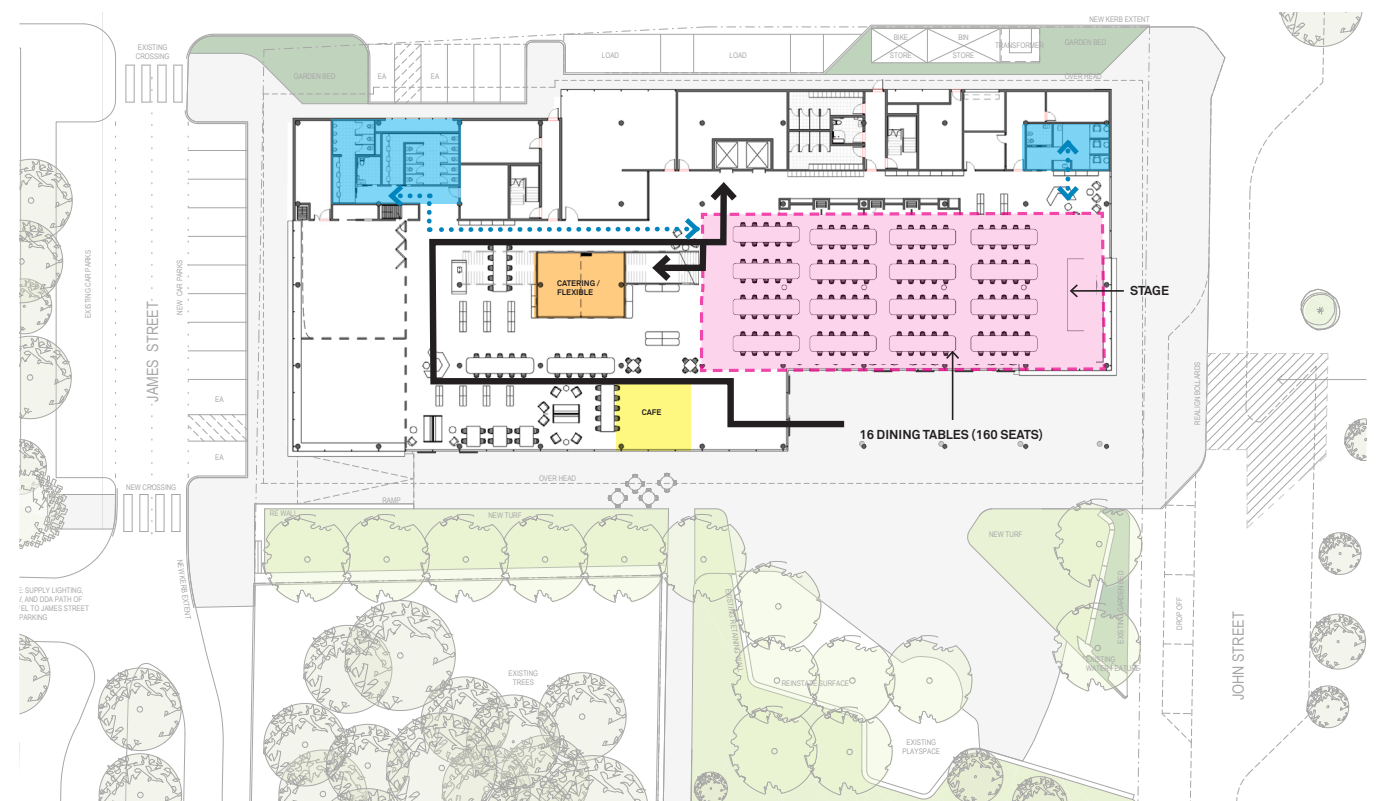
01_200 STANDING COMMUNITY HALL EVENT MODE



02_FUTURE POSSIBILITY: 460 SEATED EVENT MODE



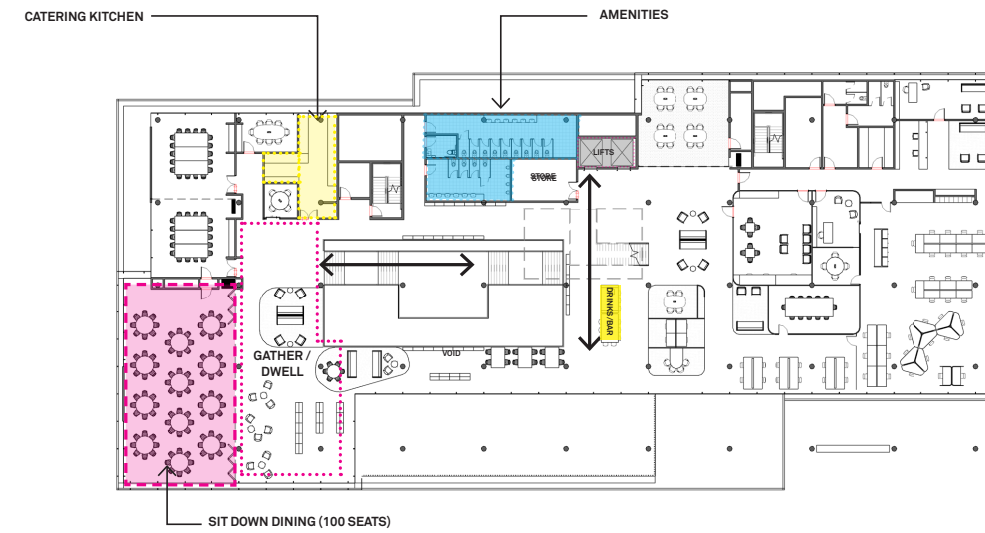
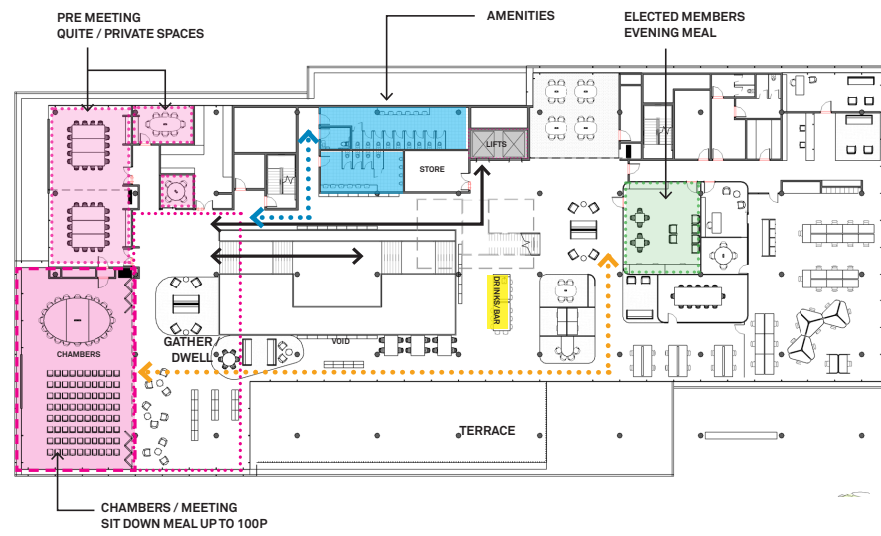
03_500 SEATED EVENT MODE (JOHN STREET END)



04_160 SEATED DINING EVENT MODE (JOHN STREET END)

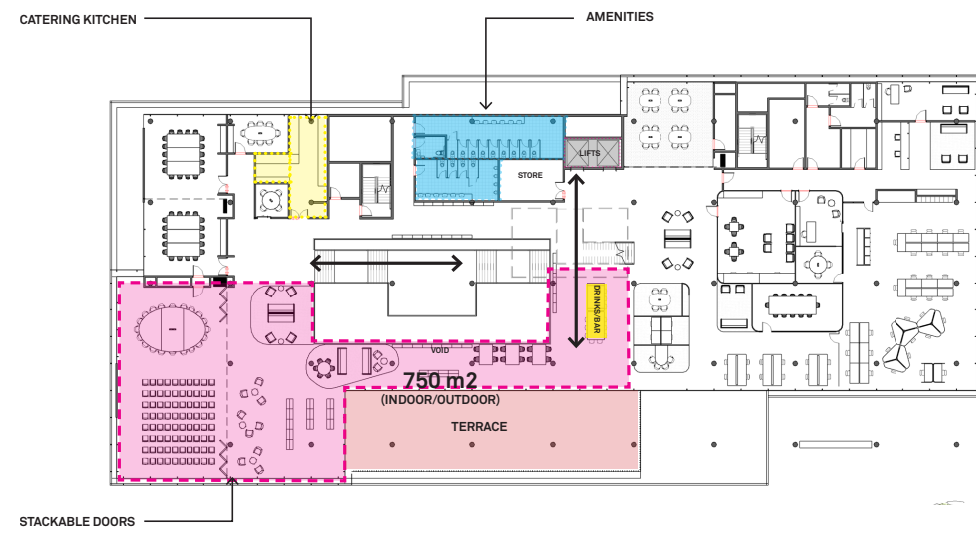
02 Project development

2.4 Event Modes and Catering



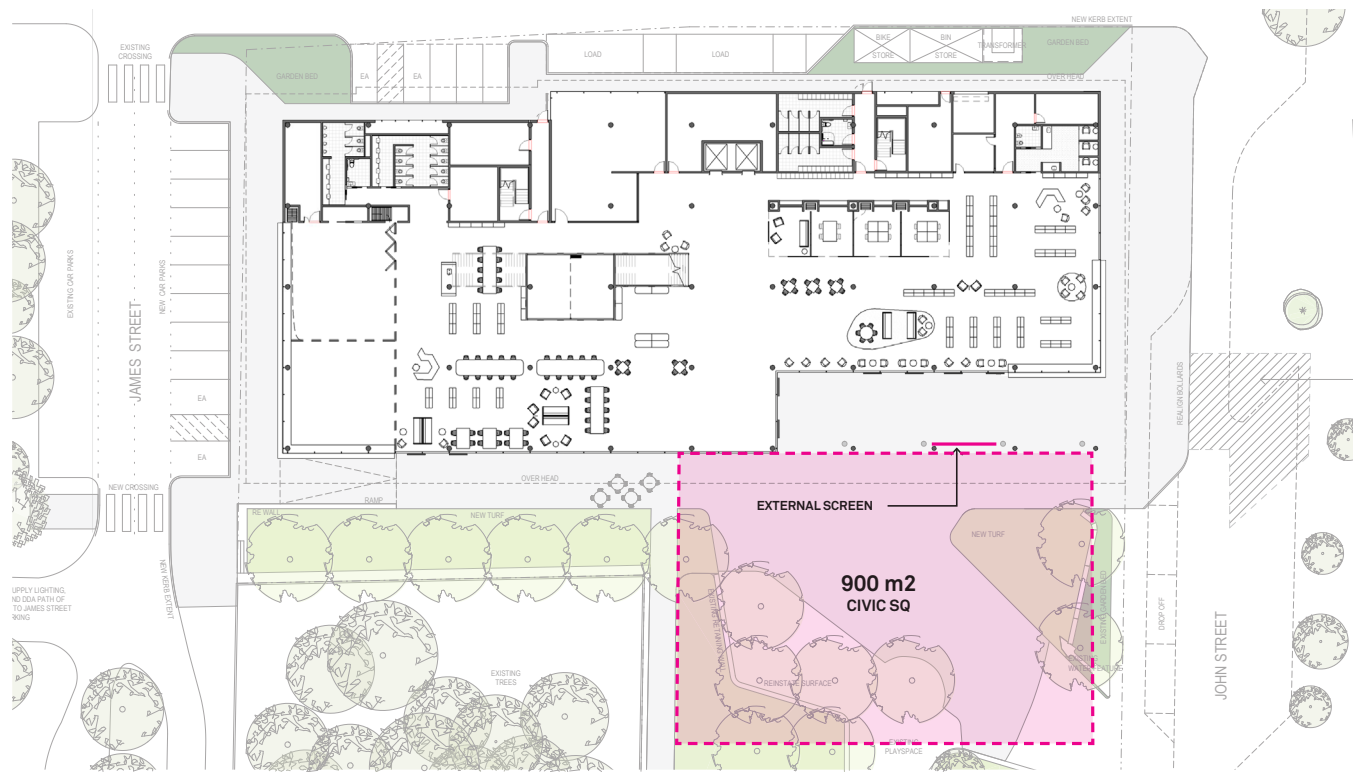
05_LEVEL 01 COUNCIL SESSION EVENT MODE
(75 PUBLIC SEATS)

06_LEVEL 01 EVENT MODE - FORMAL DINING
(UP TO 100 SEATS)

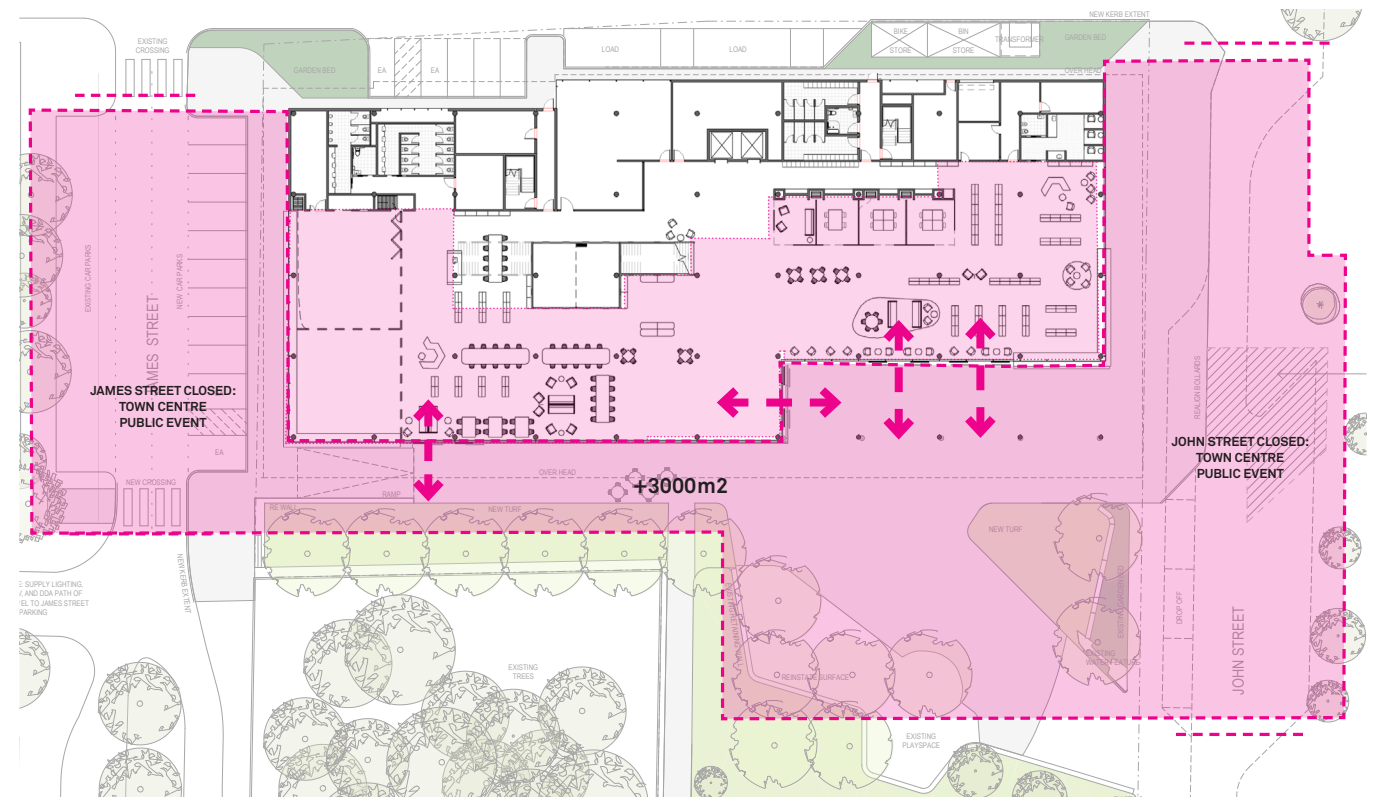


07_LEVEL 01 LARGE SCALE EVENT MODE
(UP TO 350 STANDING)

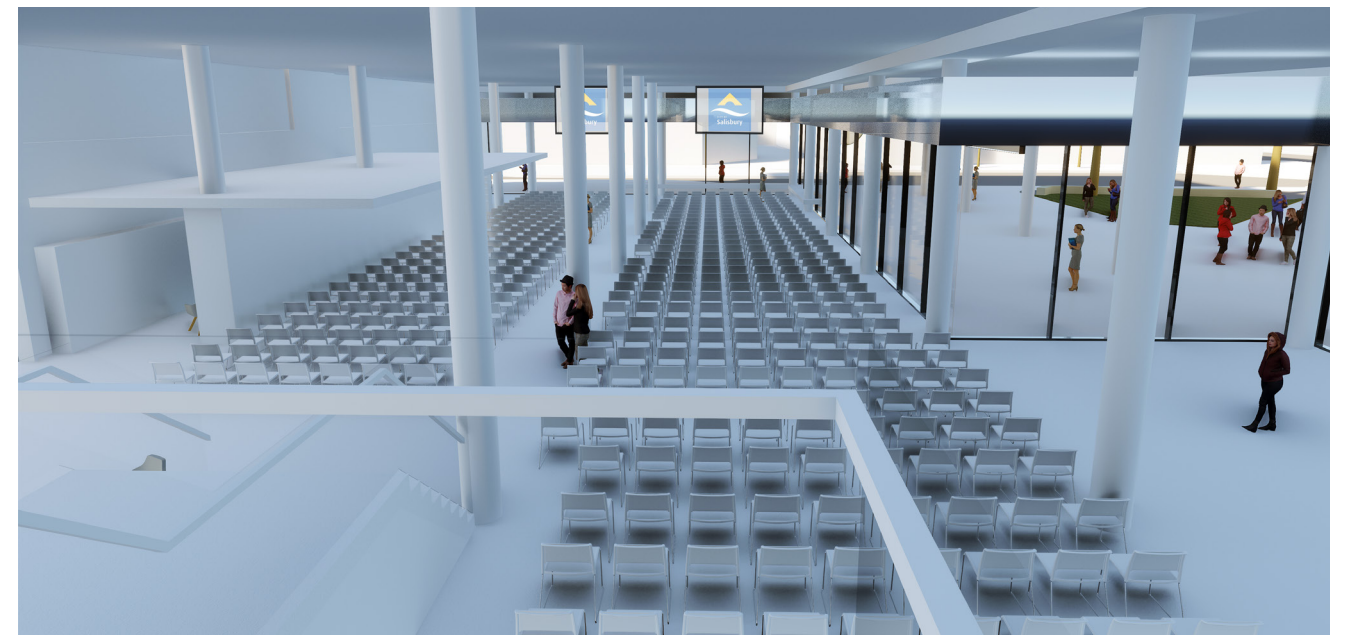
02 Project development
2.4 Event Modes and Catering



08_MOONLIGHT CINEMA EVENT MODE
 (UP TO 450 SEATED)



09_LARGE SCALE EVENT MODE (FESTIVAL)
 (UP TO 1500-2000 STANDING)



_500 SEAT EVENT (ARTISTS IMPRESSION)

02 Project development

2.5 Customer Service

Customer Service

The customer service model will be a hybrid of both a self service model with face to face contact (being a concierge and a mixture of roaming customer service staff and customer service pods). The experience will start with a first impression of openness, activity and movement and a concierge who role is to triage the customer to the most appropriate level of service. This activity is facilitated by seamless interconnected technology allowing the concierge and roaming staff to be completely mobile while servicing, directing and alerting key administration staff of customer requirements utilising a mobile technology supported by customer pods

The Community Engagement undertaken across August strongly reinforced the idea that while there should be a move to technology, the smiling face at the door and the hosted concierge model is fundamental to community acceptance and use of this building and part of what makes Salisbury “Salisbury” and should not be lost to technology.

Specialised staff will work shifts on the ground and first floor using the customer service pods from which they will assist all inquiries. It is anticipated that during peak times of day there is the ability to increase the number of staff rostered to cope with demand.

Four pods will be located on the ground floor in the entry lobby and 2 will be on the first floor near the top of the stairs and the lift lobby. Navigating to the pods will be simple with obvious strategically located signage to assist the community to access help as efficiently as possible. The pods will be mobile to allow for the service model to respond to future change and the needs of the community.

Fundamentally the success of this model is equally driven by clear management, cultural change and technology embedded in the architecture.

Essential components are:

- _ Welcome pods
- _ Concierge service
- _ Mobile staff greeting customers
- _ Staff and guest WIFI

- _ Mobile devices (tablets) for staff
- _ Interactive digital signage accessible to all
- _ Multi-function devices

The Architecture and spatial design will respond to the requirements of the technology and the flow and volume of customers requiring service in the following manner:

- _ 4 x customer service pods will be located on the ground floor
- _ 2 x customer service pods on the first floor.
- _ Clear circulation space at the main entry to allow for large volumes of people entering and exiting the building
- _ Clear navigation and way finding the assist the customer to self help and navigate the building simply.
- _ A variety of spaces supporting the nature of the activity of the customer, such as:
 - _ Enclosed private spaces
 - _ Open lounge spaces
 - _ Semi enclosed meeting spaces
 - _ Play equipment
 - _ Parents room
 - _ Community hall
 - _ Terrace

The payment system incorporated in to the customer service model will enable both cash and electronic payments to be processed. it will be arranged to allow self service, but with pods easily visible to staff should assistance be required.

It will include individual cashless payments at each customer service pod, enabling planning and other service staff to process fees directly rather than referring customers to customer service staff.

The capacity can be temporarily ramped up during busy periods by supplementing service pods with staff at fixed PCs.

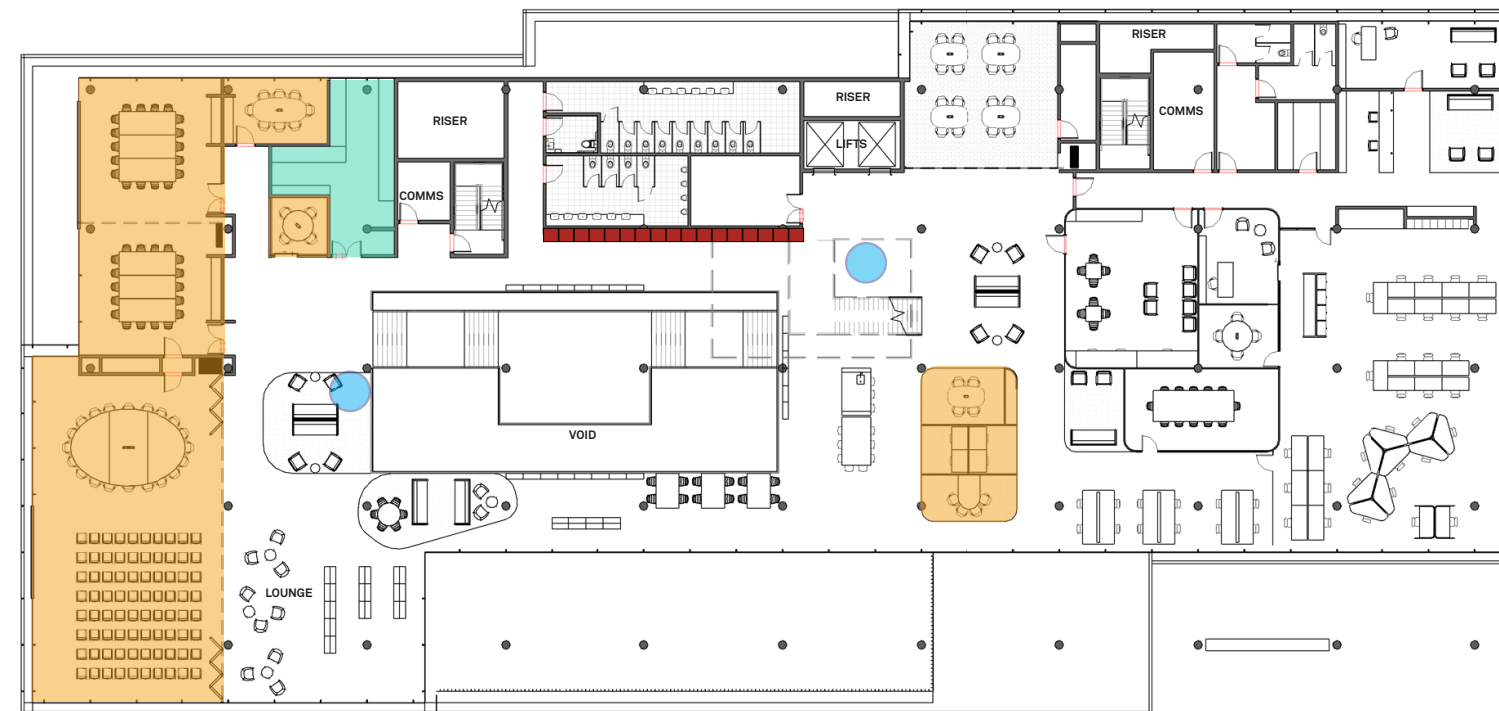
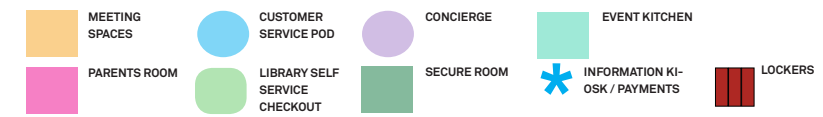
The system will avoid the current requirement for staff handling of cash with its associated security and safety issues.

The final number of customer service pods will be confirmed through tender drawings with additional plug points charge points provided to allow relocation/expansion as need requires

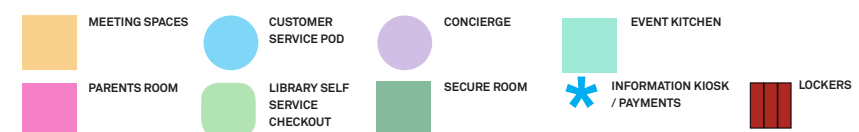
02 Project development
2.5 Customer Service



GROUND FLOOR



LEVEL 01



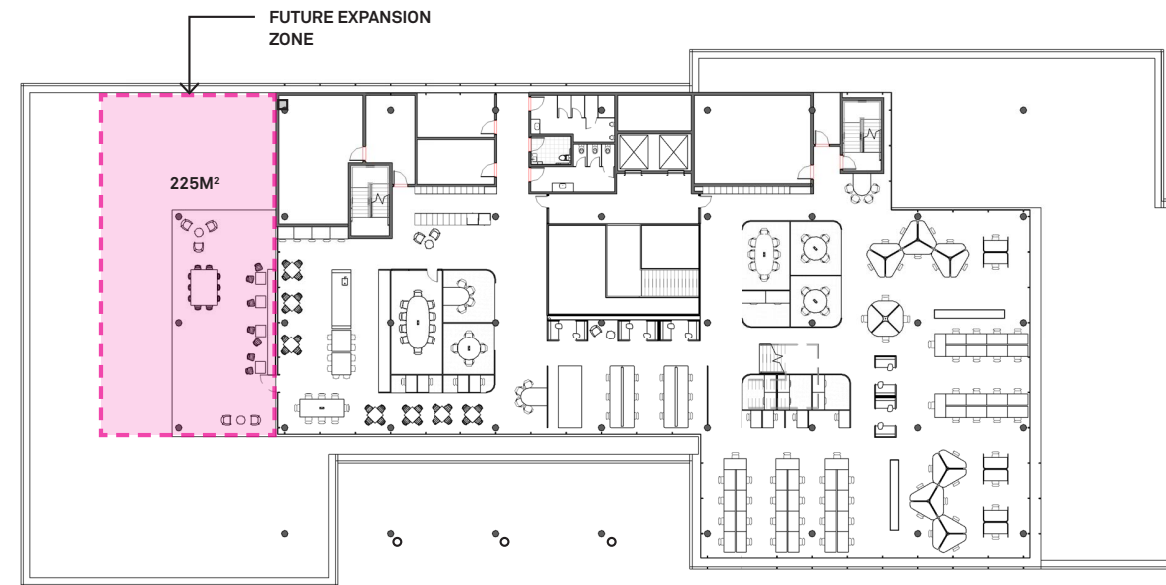
02 Project development

2.6 Future Expansion

Future Expansion

The shifting nature of the floor plates as the building rises has created the opportunity for purposing the roof space north of the level 2 interior for future expansion. The total area suitable to expand into is estimated at 225sqm, an area that can roughly accommodate up to 22 more staff (assuming this space is dedicated to workplace).

In the interim, the area can be utilised as an external terrace for staff use. The floor loading capacity needs to be higher for increased live loading.



02 Project development

2.8 Building Zoning

Building Zoning

The building can be zoned accordingly both across floor plates (horizontally) and between floor levels (vertically). The key elements surrounding the zoning modes concern security, mechanical air-conditioning and circulation.

Security

Much discussion has occurred for the optimal location of security zoning between community and workplace within the building.

Although a dispersed model of Community and Workplace was initially considered throughout the building, the City of Salisbury and Elected Members have advised that this scenario is not considered appropriate at this point in time and a horizontal layering approach of the buildings functions is preferred. The building layout is therefore 'stacked' as follows:

- _ Ground Level - Information Learning/Community
- _ Level 1 - Information Learning/Community/Council Leadership Suite
- _ Level 2 - Workplace
- _ Level 3 - Workplace

As the building is 4 storeys with an interconnecting void, the building is required by code to be fire separated so that no more than three levels connect openly to one another. This affords the opportunity to satisfy the code requirement by providing fire separation but also physically securing the Workplace on levels 02 and 03 from the lower parts of the building.

The Leadership suite is also secured from the Community space as guests need to be invited in.

Mechanical Air-Conditioning

Locating the mechanical plant on each level of the building provides the ability to zone levels from one

another and within the floor plate itself. This approach will assist in minimising future running costs of mechanical plant equipment as it is dedicated to each floor.

Should demand change in the future and parts of the useable floor area be considered surplus to Community or Workplace needs, this area could be leased out, with mechanical plant simpler to meter for tenant use.

Circulation

The building can be zoned horizontally during 500 person seated events. Critical to this however will be the use and placement of existing loose furniture and library stacks. These elements can either be stored, pushed against perimeter walls or strategically placed to direct building users around the building when 500 person seated events (or other highly populated events) are taking place.

02 Project development

2.9 Building Structure

Building Importance Level

The Salisbury Community Hub is understood to be classified as an Importance Level 3 Building in accordance with the National Construction Code (NCC). This is driven primarily by the requirement for 500 people to congregate in one area which exceeds the 300 person limit imposed by the NCC for Level 2 classification.

The base building has been designed as a concrete frame (refer following sections for further explanation) and therefore it is expected that the requirement to fire rate steel elements will be minimal. The architect and building certifier will define the fire rating extent.

The base building is expected to be rated as 120/120/120 generally in accordance with the Nation Code of Construction requirements and as defined by the building certifier. Certain rooms and areas may require higher than this and these can be achieved by supplementary linings or treatment as required. These are contained within the current budget estimates.

Regular Column Grids and Slab Configuration

A significant contributing factor to future flexibility is the provision of a regular column grid arrangement. This allows for greater flexibility in future planning than being confined by odd arrangements that were created for unique planning considerations. This has been a key aspect of the design.

Columns are spaced on a regular 7.2m spacing in each direction with typically a cantilevered edge of up to 3.6m.

This regular grid avoids the need for deeper beams and allows for a simple flat slab design and construction. It also assists in the layout and installation of ceiling based building services as well as providing flexibility for future reconfigurations.

The relatively modest column spacing naturally

reflects the size of the site and allows for a flat slab without the need for drop panels at column locations (local thickenings to stiff the slab). An allowance for key areas requiring column free space (such as the halls and chambers) has been made in the design and is included in the current budget estimate.

The cantilever edge is a feature of the architectural design and is used to create the feature articulated building shape. To achieve the cantilevers effectively and manage deflection at the edges, the slab requires a thickened perimeter and post-tensioning.

Future Expansion

An external terraced area has been designated as a 'future expansion zone'. This slabs has been designed to support standard internal loads should it be converted to internal functional space. It is set down with falls to deal with drainage in the external environment. The floors will be designed to support the additional weight of a levelling screed or topping slab to bring them back to internal floor levels.

Structure options

The design team also considered the following forms of construction:

- Conventionally reinforced concrete. The slab thicknesses required to achieve the desired cantilevers became too thick with conventionally reinforced concrete. Post-tensioning is required to keep slab thicknesses to a minimum and therefore maintain lower floor-to-floor heights. The conventionally reinforced option would be heavier and more expensive.
- Concrete slabs suspended on steel frame (composite construction). The cantilevers in two directions makes steel framing difficult to achieve. In addition, a steel framed solution would be considerably deeper than the flat slab solution which would prohibit services reticulation which is already challenged by the flat slab option. In addition, fire rating of the steel structure would add

significant cost and time implications.

The selected flat slab option has the following advantages:

- Local resources and materials are readily available
- Lower floor to floor heights are more readily achievable.
- Cantilever edges are efficiently achieved.
- Fire rating can be inherently achieved.
- Façade detailing is simplified.
- Vibration and deflection performance is better than a steel framed solution.
- Concrete construction is less crane intensive than steel structures. Crane access is likely to be restrictive on this site.

Floor Loads

The floor design loads reflect the desire to allow flexibility in the use of the floor areas. Levels 0 and 1 are identified as areas that may be subject to change of use in the future. On this basis, Ground Level will be designed for 5kPa which allows for overcrowding and the potential for vehicle access or heavy items for display purposes and the like (such as gallery spaces). Level 1 will be designed for 4.0kPa which allows for library loads, general public assembly areas and gallery spaces.

It was acknowledged that Levels 2 and 3 of the building would only ever be office space. Limitations such as stair and lift access as well as services for heating and cooling are the fundamental factors that define this. Therefore, these levels can be designed for 3kPa which is the typical design load for an office space in accordance with AS1170.

The following design loads specific to this project are shown adjacent.

Description	Super-imposed Dead Load (kPa)	Uniformly Distributed Live Load (kPa)	Concentrated Live Load (kN)
Ground Level Floor	1.0	5.0	4.5
Level 1 Floor	1.0	4.0	4.5
Level 2 & 3 Floor	1.0	3.0	2.7
Ceilings	0.5	-	-
Plant Rooms	-	Floor: 5.0 * Slab/roof over: 1.5kPa for suspended services *May require higher loads for certain equipment	-
Balconies/Terraces	2.5 (Tiles)	4.0	2.7
Non-trafficable Areas	2.5 (Gravel and screed)	2.5	2.7

02 Project development

2.10 Life Cycle Costing (Mechanical Systems)

The City of Salisbury Community Hub building is a four storey building comprising; Ground and three semi-typical floors. The ground floor and Level 1 accommodates function areas and spaces open to the public, while Levels 2 and 3 are mainly office spaces comprising offices as well as meeting rooms and utility areas.

The geometry of the building, especially on the ground floor, allows for the deployment of the partial / mixed mode ventilation concept.

Air Handling Strategy & Configuration

Options & Analysis

In discussions through the Schematic Design phase of the project, the following options were considered as a possible proposed air handling strategy for the building:

Option A – Roof Mounted Air Handling units (AHUs)

Option A entails mounting of the main building AHU plant on the roof of the building. This option will require risers from roof level to serve all levels of the building. Floors will be served via Variable Air Volume (VAV) boxes to suit the required spaces. Based on our previous experience and building type, Option A provides the lowest capital cost, but higher operational costs.

Option B – On-Floor AHUs

Option B incorporates on-floor AHU plant in lieu of air risers reticulating through the building, with fresh air brought in from the facade at each level. Risers are reduced throughout the building as ductwork is not required to be carried from the roof to all floors. Also note that additional on-floor plant rooms will need to be constructed to accommodate this option. This solution allows for more efficient zoning and better control.

Option B is generally less cost effective than Option A, however more cost effective than Option C.

Option C – Chilled Beam Solution

Although usually a very energy efficient option, chilled beam systems are very “rigid” and pose problems when flexibility is required. Chilled beams are also not suited to highly populated areas and generally suit the population densities of a typical office environment only, due to the latent heat of people causing a humid environment. Individual control across multiple enclosed spaces is a typical challenge in chilled beam systems. Response to load requirements is also slower than fully active conventional air conditioning systems.

The thermal plant and fresh air AHU’s would be roof mounted, with high temperature chilled water reticulated to the on-floor chilled beams. Option C is the least cost effective Option.

Using Option A as the baseline, the following table compares the proposed options with respect to various design aspects.

Conclusions

Option B is the most flexible option with respect to part load response, zoning and individual control. This option is more adapted to the building nature and utilisation which is expected to be highly variable. The number of AHUs to be included in Option A with the air handling units (AHUs) on roof is less than the number of AHUs in Option B. Option B will require two units per floor in order to maintain acceptable and applicable air distribution system and zoning per floor. Option A will generally include

a total of six (6) AHUs located on roof with the possibility of locating three AHUs out of the six on the mezzanine plant room to serve the ground level. It is worth noting however, that individual zoning capability is reduced with this option, and it may require a large AHU to run in order to serve a small area.

Option B will generally include a total of ten (10) AHUs distributed throughout the building floors including the mezzanine level for the units serving the ground floor and level 1, allowing for better zoned control and adaptability for future use. This

option also reduces the roof plant footprint significantly, and is highly beneficial for future expansion requirements and potential of installing PV solar panels.

Air Handling Strategy Recommendations

Based on the above analysis and in conjunction with Hassell, we have based the Air-Handling strategy on Option B due to:

- The increase in flexibility of the system;
- Reduced roof space required; and
- Better zone control due to an increased number of smaller Air Handling plant.

As part of the next phase of design, Option B will be further investigated, noting however that the final decision on the preferred option will be determined through the tender drawing phase subject to budget and detailed cost analysis. At this stage, the project cost opinion is based on Option B.

Table 1: Comparative Air Handling Strategy Analysis

Comparison	Option A	Option B	Option C
Capital Costs	Baseline Cost	115% x Baseline Cost	170% x Baseline Cost
Operational Costs	Baseline Costs	85% x Baseline Cost	75% x Baseline Cost
Roof Spatial Requirements	Baseline Spatial impact	65% x Baseline Spatial	70% x Baseline Spatial
Floors Spatial Impact	Baseline Spatial impact	120% x Baseline Spatial	80% x Baseline Spatial
Complexity of Air Distribution System	Baseline System	Less complex than baseline	Least complex air distribution system.
Chilled / Heating Hot Water System	Baseline System Mostly horizontal on roof	Slightly bigger than baseline Mostly vertical through building floors	Significantly larger than baseline system.
Maintenance Accessibility	Access mainly localised to roof	Access on floors	Main system components, e.g. chilled beams are installed in the occupied space at high level
Maintenance Requirements	Baseline System	Higher than baseline	Less maintenance requirements
Turn Down and Redundancy	Baseline System	Higher turn down and redundancy than baseline	Less turn than baseline Same redundancy as baseline
Flexibility and Zoning	Baseline System	Most flexible system	Least flexible system

Table 1 provides a summary of the main points of comparison between the different air handling strategy options.

02 Project development

2.10 Life Cycle Costing (Mechanical Systems)

Thermal Plant Concepts

We understand the City of Salisbury's desire for a highly efficient building and have taken this into account in the following options

(NB: options are to be discussed and agreed with the ESD consultant to ensure compliance with required targets).

_ **Option 1:** Active VAV (Variable Air Volume) air conditioning and heating utilising air handling units, water cooled chillers and gas fired boilers.

_ **Option 2:** Active VAV (Variable Air Volume) air conditioning and heating utilising air-cooled chillers and gas fired boilers.

_ **Option 3:** Adaptable mode system comprising; Active VAV (Variable Air Volume) air conditioning and heating utilising adiabatic air-cooled chillers and gas fired boilers. This system will also include three (3) modes of operation mainly for the high occupancy function spaces on ground floor and Level 1 as follows:

I. Full active air conditioning mode: During hot summer days with full active cooling via air conditioning system

II. Partial / Mixed Mode: Function areas will be supplied with only pre-cooled / tempered outside air whenever outdoor conditions are within acceptable range.

III. Economy Cycle Mode: The normal full passive forced ventilation during mid seasons or whenever outdoor conditions are within acceptable range.

_ **Option 4:** Active VAV (Variable Air Volume) air conditioning and heating utilising reverse cycle DX systems (e.g VRV/VRF) throughout.

NDY wish to note that the building geometry and final structure is not yet finalised. Accordingly, the figures used for the purpose of this analysis are indicative only and don't represent the final calculations and/or modelling for the building, which will be considered as part of the tender drawing.

Proposed Thermal Plant Options

The four options used for the comparative analysis are listed below:

Option 1 – Active VAV Cooling, Water Cooled Thermal Plant

Thermal plant would comprise; Water Cooled Chillers, Cooling Towers & Gas Fired Boilers

Air conditioning and heating to the building would be provided via central chilled water / hot water AHUs dedicated for office spaces. Other main areas such as Board Rooms, would be served by localised FCUs.

VAV Air distribution system utilising low temperature air will allow for individual control and provide highly efficient operation.

This option allows for cooling to the entire building during all operational hours.

Salisbury recycled water supply is proposed to be utilised to serve the cooling tower water make-up supply. This will improve operational economics and boosts the sustainability approaches for the building.

Option 2 – Active VAV Cooling, Air Cooled Thermal Plant

Thermal plant would comprise; Air Cooled Chillers, & Gas Fired Boilers.

Air conditioning and heating to the building would be provided via central chilled water / hot water AHUs dedicated for office spaces. High occupancy and high load areas such as Board Rooms, would be served by localised FCUs.

VAV Air distribution system utilising low temperature air will allow for individual control and provide highly efficient operation.

This option allows for cooling to the entire building during all operational hours.

Option 3 – Mixed Mode Utilising Adiabatic Air Cooled Thermal Plant

Thermal plant would comprise; Adiabatic Air Cooled Chillers, & Gas Fired Boilers.

Air conditioning and heating to the building would be provided via central chilled water / hot water AHUs dedicated for office spaces. Other high occupancy areas such as Board Rooms, would be served by localised FCUs.

VAV air distribution system utilising low temperature air allows for individual control and highly efficient operation.

In addition to active cooling, the ground floor accommodating the main function space would have forced tempered ventilation capability via the air handling system. This provides an option to switch and toggle between highly adaptable air conditioning modes following the actual demand of the building. The building operation and utilisation of the ground floor is expected to be highly variable and on demand considering the function spaces will not be utilised all the time. The Council Chambers, Community Halls and the additional area to cater for a 500 people function represents approximately 30% of the building area. By switching between tempered ventilation and full active air conditioning via the AHUs dedicated to these spaces, the load on chillers can be reduced by approximately 40% for a fraction of the operational time.

The solution provides an option to utilise adiabatic air-cooled chillers with a low load chiller to cater for the cooling demand most of operational time. Air cooled chillers would be equipped with evaporative pads for improved efficiency. This will take advantage of Adelaide's dry conditions (low wet bulb temperature) and the availability of the Salisbury recycled water at low cost which can be utilised for evaporative cooling.

Option 4 – Active Cooling Reverse Cycle DX / VRF Systems

Thermal plant would comprise; Reverse cycle DX / VRF systems with the air cooled condenser farm located on roof.

Air conditioning and heating to the building would be provided via Direct Expansion Variable Refrigerant Flow (DX/VRF) systems. The associated air cooled condenser farms will be located on roof.

VAV air distribution systems cannot be fully adopted with this option as the indoor units are typically not equipped with variable speed fans. However, the main DX systems serving the function areas and high occupancy spaces on ground floor and level -1 will be served by VAV DX Air handling units. The central DX air handling units are typically constant refrigerant flow systems and they are not available as variable refrigerant flow (VRF) systems.

This option allows for cooling to the entire building during all operational hours. This option is the least expensive option in terms of capital costs being the most basic system. It is the least flexible system, least energy efficient with lowest adaptation and

response to part loads. It is mainly included in the comparison to justify the cost of ownership of other more advanced and adaptable systems.

02 Project development

2.10 Life Cycle Costing (Mechanical Systems)

Thermal Plant Concepts (cont.) Comparative Analysis

The following comparative analysis has been made between the proposed system options. The analysis explores different aspects affecting the selection of a preferred system including; achieving comfort conditions, energy and water usage, capital costs, spatial requirements and maintenance requirements.

Comfort Conditions

This attribute is to compare between the proposed options in terms of achieving the comfort conditions commonly adopted over a whole year.

- _ **Option 1:** This option has been used as a baseline to compare all other Options, as the comfort design conditions can be achieved throughout the year using active cooling and heating systems solely.
- _ **Option 2:** This option is similar to Option 1 with respect to comfort conditions. The comfort design conditions can be achieved throughout the year using active cooling and heating systems solely.
- _ **Option 3:** The mixed mode operation of this Option allows for temperature control within specific design conditions whilst the cooling systems are operational. When the ambient temperature permits, the tempered ventilation mode will be activated (active cooling/AHU's partially deactivated) to provide higher adaptation to load demand and ambient conditions. However, this will not be fully active controlled and therefore the nominated areas may drift from the common room conditions during the tempered ventilation mode.
- _ **Option 4:** This option adopts active cooling and heating to all spaces and accordingly conventional room and comfort conditions can be achieved.

Energy Usage

An indicative energy analysis was conducted to compare the overall system energy consumption between the four options.

Estimated Annual Energy Consumption

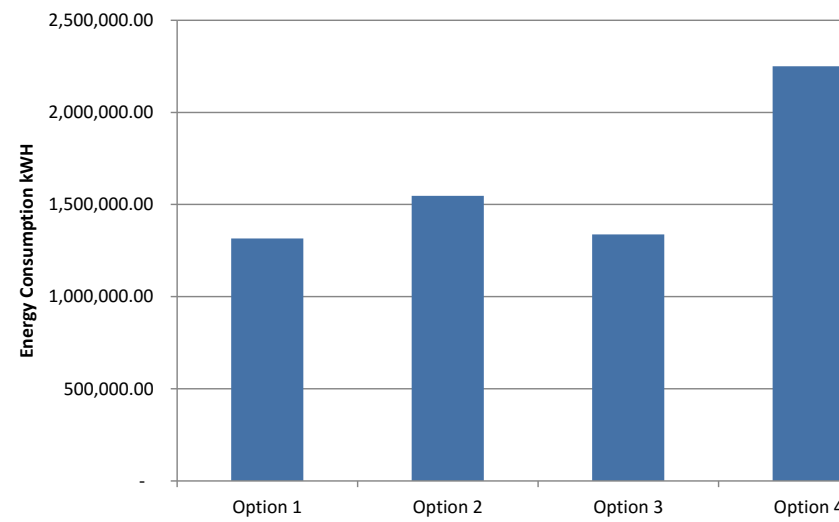


Figure 1: Estimated Annual Energy Consumption

Figure 1 shows estimated annual energy consumption of the four options based on adopted hours of operation of the building and the expected loading profile. Assumes 8 hours/day operation for comparison

Peak Energy Consumption Ratios

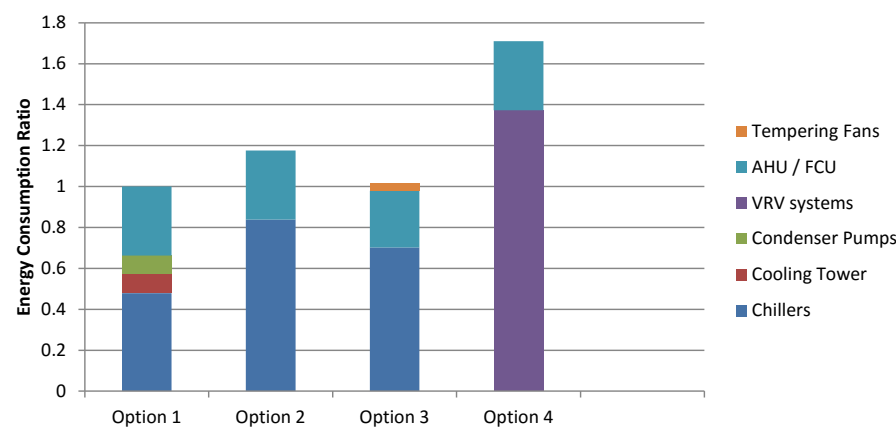


Figure 2: Comparative Energy Consumption Ratios

Figure 2 shows peak electrical load ratio of Options 2, 3 and 4 compared to Option 1. Therefore Option 1 is used as the baseline for energy consumption (with energy consumption ratio of 1).

Note that three options utilise gas fired boilers and pumps. Accordingly, the heating energy consumption was not factored in the analysis will be summarised separately just to compare the approach of passive hydronic slab heating for ground floor.

Thermal Plant Concepts (cont.) Water Consumption

Indicative water consumption calculations were conducted to identify the magnitude of utilisation and the following were the outcomes:

- _ Estimated annual water consumption for Option 1 (water cooled plant) is 6,800 kL
- _ Estimated annual water consumption for Option 2 (Adiabatic plant) is 1,360 kL

Using Option 1 as the baseline, the following table compares the proposed options in terms of water consumption:

Comparison	Option 1	Option 2	Option 3	Option 4
Water Consumption	Baseline Consumption	No water Consumption	20% x Baseline Consumption	No water Consumption

Table 2: Comparative Average Water Consumption

From the analysis, it appears that the water consumption for Option 3 is relatively minimal especially for the purpose of analysing economics. This takes in consideration the utilisation of Salisbury recycled water at low cost tariff as per the assumptions made.

02 Project development

2.10 Life Cycle Costing (Mechanical Systems)

Conclusions

The following table-5 compares the proposed options in terms of capital costs, spatial requirements, maintenance requirements and various aspects to be considered for the system design. Note that whilst Option 1 includes cooling towers, Option 2 and 3 have the same thermal plant configuration.

Option 3a is added to the comparison summary which includes the slab hydronic heating system for ground floor. This is generally considered as addition to the whole system components and is not a complete system in itself.

Comparison	Option 1	Option 2	Option 3	Option 3a (Hydronic Slab Heating)	Option 4
Capital Costs	Baseline Cost	45% x Baseline Cost	75% x Baseline Cost	85% x Baseline Cost	30% x Baseline Cost
Operational Costs	Baseline Cost	118% x Baseline Cost	102% x Baseline Cost	Same as Baseline Cost	171% x Baseline Cost
Spatial Requirements	Baseline Spatial impact	63% x Baseline Spatial	63% x Baseline Spatial	70% x Baseline Spatial	75% x Baseline Spatial
Maintenance Requirements	Baseline Maintenance Requirements	Lowest maintenance (i.e. no cooling tower)	Low maintenance (i.e. no cooling tower)	Less than baseline Slightly higher than Option 3	Highest Maintenance requirements due to multiple systems
Operating Weight	Highest	Low	Higher than Option 2	Higher than Option 3	Same as option 2
Maximum Turn Down & Part Load Adaptation	20%	15%	10%	10%	25%
Response to Actual Demand	High	High	High	Slow	Medium
Comfort Conditions	Highly Achieved	Highly Achieved	Achieved (When on mixed mode tolerated conditions)	Less responsive than Option 3	Achieved
Extent of Associated Control System	Extensive Control System (Control requirements for condenser water circuit)	Typical Control System	Typical Control System	Control System more complex than option 3 (control requirements for hydronic slab heating circuit)	Limited Control System (Interface from DX/VRF system has limited features available)
Effluents & Green Gas Emissions	Water drift to surroundings (Cooling Towers) Lowest CO2	Low CO2	Minimal water drift Lowest CO2 same as Option 1	Minimal water drift Lowest CO2 same as Option 1	Highest CO2
Noise	Highest	High	Lowest Noise Levels	Same as option 3	High

Table 5: Comparative Conceptual Aspects

02 Project development

2.10 Life Cycle Costing (Mechanical Systems)

Thermal Plant Recommendations

Option 1 provides the highest energy efficiency however the energy savings compared to Option 3 are minimal. This is driven by the building demand and expected utilisation of the thermal plant. Based on five (5) year life cycle analysis, Option 3 is considered the most cost effective option compared to Option 1 and Option 4 and is only second to Option 2. However, Option 3 is considered the most cost effective option against all other options if a life cycle analysis of ten (10) years is considered.

Option 3 is recognised as the most cost effective option (over 10 years) requiring the least amount of building space and least amount of ongoing maintenance. This option also constitutes the second most energy efficient option with negligible deviation from Option 1. The Comfort conditions to the building occupants will be compromised with Option 3 however, and the client / end user must be happy with the elevated internal temperatures on warm days in the nominated ground floor. Our preliminary analysis estimates this to occur approximately 16% of the year during the 9am to 5pm working hours. If this option was to be considered by City of Salisbury council as acceptable, further energy modelling would be required. The users would then have to agree to this performance prior to proceeding with the design.

Option 1 (detailed in the Energy Consumption section) does not provide significant benefit to justify the additions of major components to the system. Such additions to the system would consequently lead to extra controls, extra components to be monitored and maintained, more components for failure possibility and troubleshooting.

The payback for the water cooled thermal plant Options 1 versus Option 3 is expected after 25 years which appears to be unacceptable from feasibility and operation point of view.

As part of the next phase of design, Option 3 will continue to be investigated to validate cost, operating efficiency and effectiveness.

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Area reconciliation



03

03 Area reconciliation

Area Reconciliation

At the completion of the Concept Design phase, the total briefed building area could reduce overall by approximately 6% across all space types due to improved functionality and identified sharing of spaces.

At the completion of Design Development, the project remains on target to achieve the fully enclosed covered area (FECA) target of 6,270sqm, determined on a cost per square metre rate advised by Rider Levett Bucknall (Quantity Surveyors and project Cost Manager). With the area reduction in mind, the Design Team believe that the target area reduction will not compromise functionality or future agility of the briefed spaces.

Functionally, the design has embraced a dispersed model for the Information Learning/Community and Workplace spaces. This provides a greater degree of flexibility in locating these areas on alternate floors of the building. It has also realised some minor efficiencies in circulation, as areas deemed dedicated circulation spaces can in fact be considered as Information Learning/Community or Workplace.

Some key area changes identified during Design Development include:

Amenities increase

With the requirement to cater for seated events of up to 500 people, and in part the agreement to proceed with the 4 level Option B, amenities have increased by approximately 89sqm.

Transformer/ Waste Area/ Bike Store

Consideration has been made to locate these elements external of the building to make better use of internal space for Community use at Ground Level and reduce costs associated with housing these elements within the building footprint.

External Terrace

As this space at Level 01 can be programmable for community use, it can be considered as useable floor area.

Floor by Floor Mechanical Plant

Rather than centralising plant on the roof or ground, the building design proposes to locate these on each floor. This adds additional area to levels 02 and 03 of the building, however for Ground and Level 01 area is technically not added as plant to service these areas will be located in the Ground Level mezzanine area. The floor by floor mechanical plant approach provides many benefits for the building (including operationally), which are outlined in Section 2.10 of this report.

Storage

Area from adjacent compactus reduced to accommodate the increase. Refinement of storage requirements from current facilities continues to be undertaken.

'Unallocated' Space

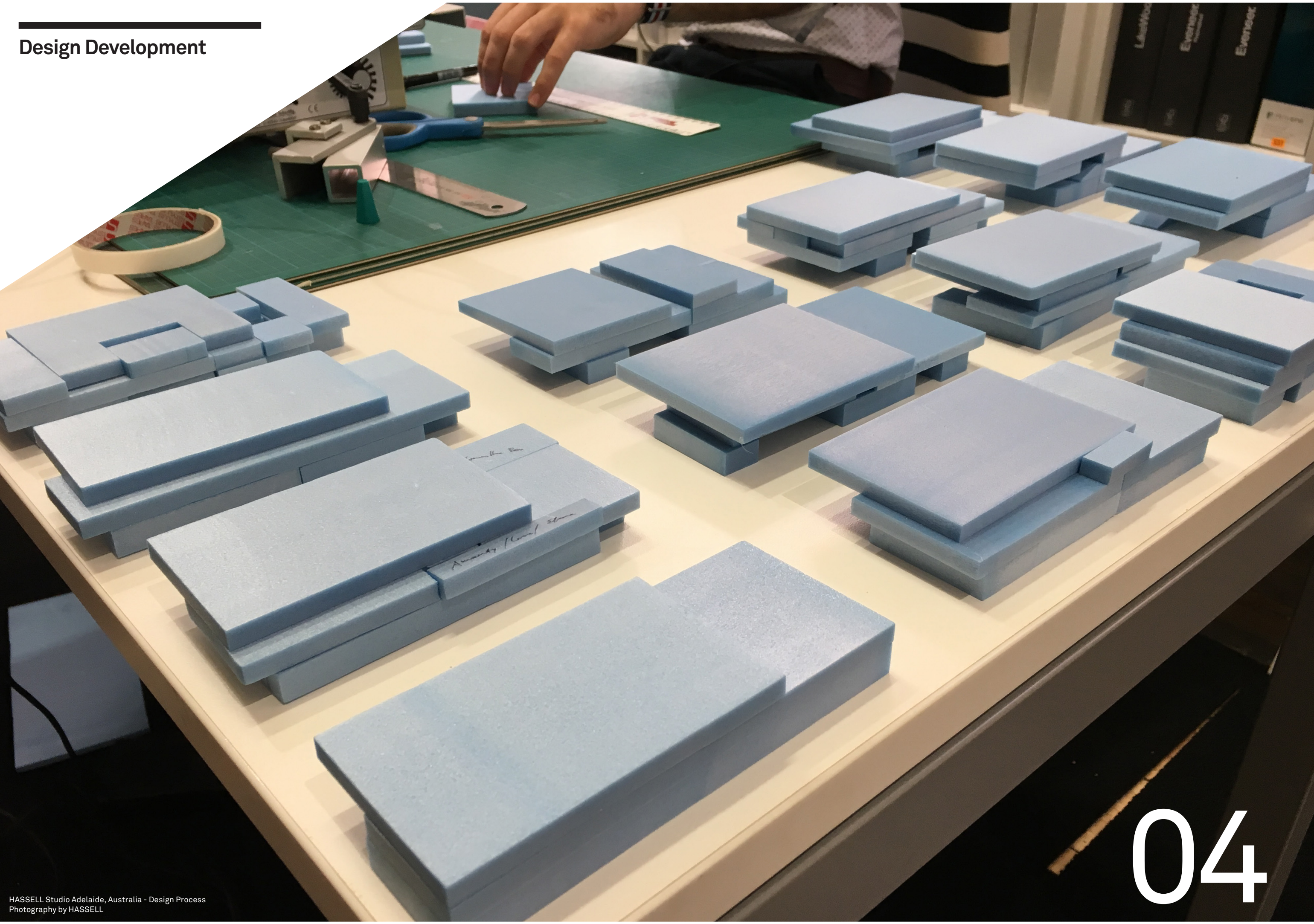
The 'unallocated space' allowance of 450sqm listed in the Design Brief has been absorbed by the area required to accommodate the as mentioned area changes.

Workplace

HASSELL has spent considerable time with the City of Salisbury testing layouts with consideration to staff per square metre allowances and seat to staff ratios in an effort to make the layout as efficient as possible. Circulation factors too have been tested for the workplace component of the building to make this as efficient as possible without compromising functionality and future efficiency.

A comparison of the schedule provided in the Design Brief against Concept Design and Design Development is provided opposite, noting the requirement to comply with the 6,270sqm (FECA) target.

Design Development



04 Design Development
4.1 Location plan



04 Design Development

4.2 Site + Landscaping Plan



Disclaimer:

- _ Furniture, Fixtures and Equipment (FF&E) configuration, layouts and selection to be confirmed in detailed design. Provided for context only at Design Development.
- _ Drawings are indicative of the Design Development Phase, subject to detailed reconciliation during detail tender documentation phase

04 Design Development

4.3 Ground Level Plan

Scale 1:250



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04 Design Development

4.3 Mezzanine Plan

Scale 1:250



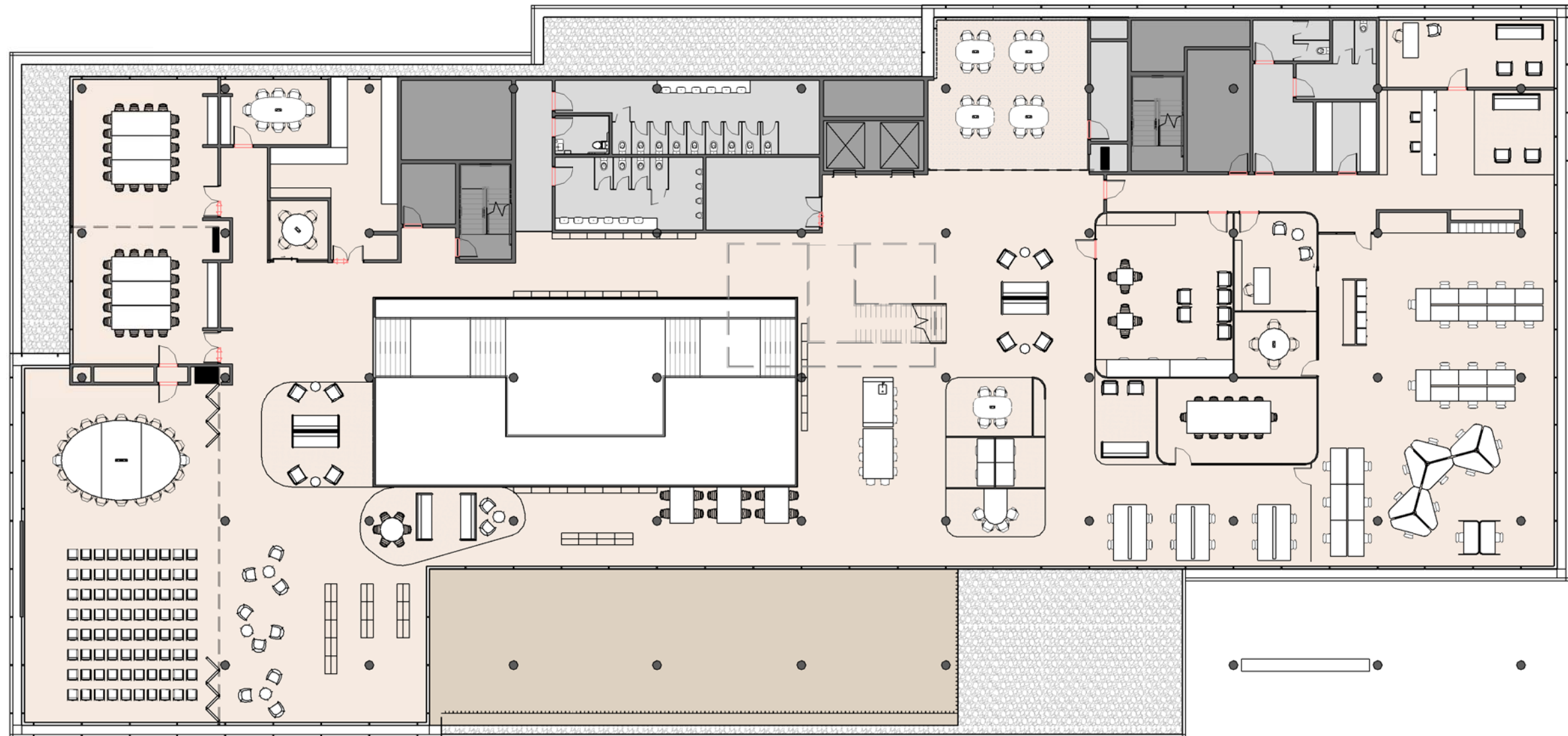
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04 Design Development

4.3 Level 01 Plan

Scale 1:250



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04 Design Development

4.3 Level 02 Plan

Scale 1:250



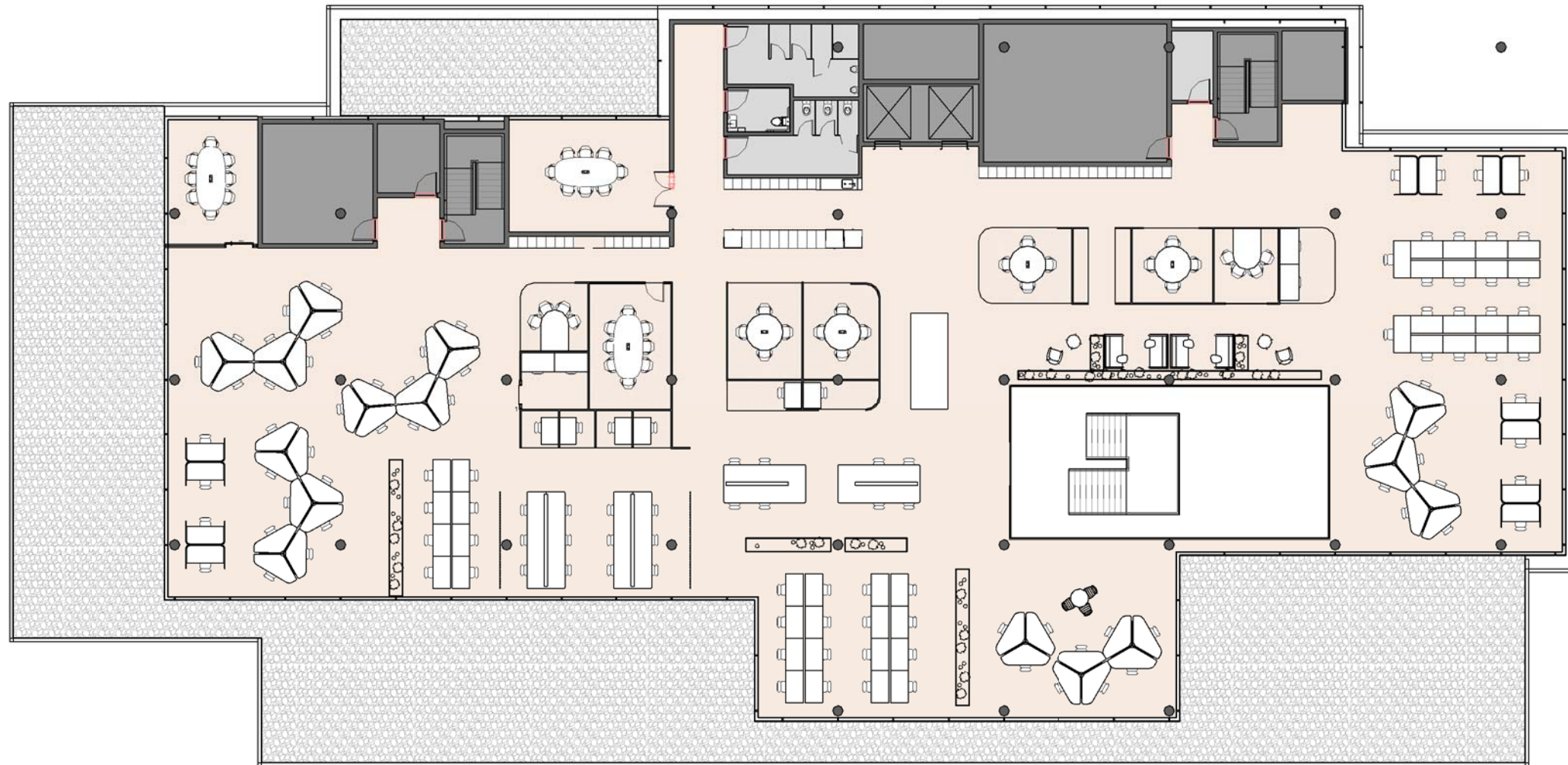
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04 Design Development

4.3 Level 03 Plan

Scale 1:250



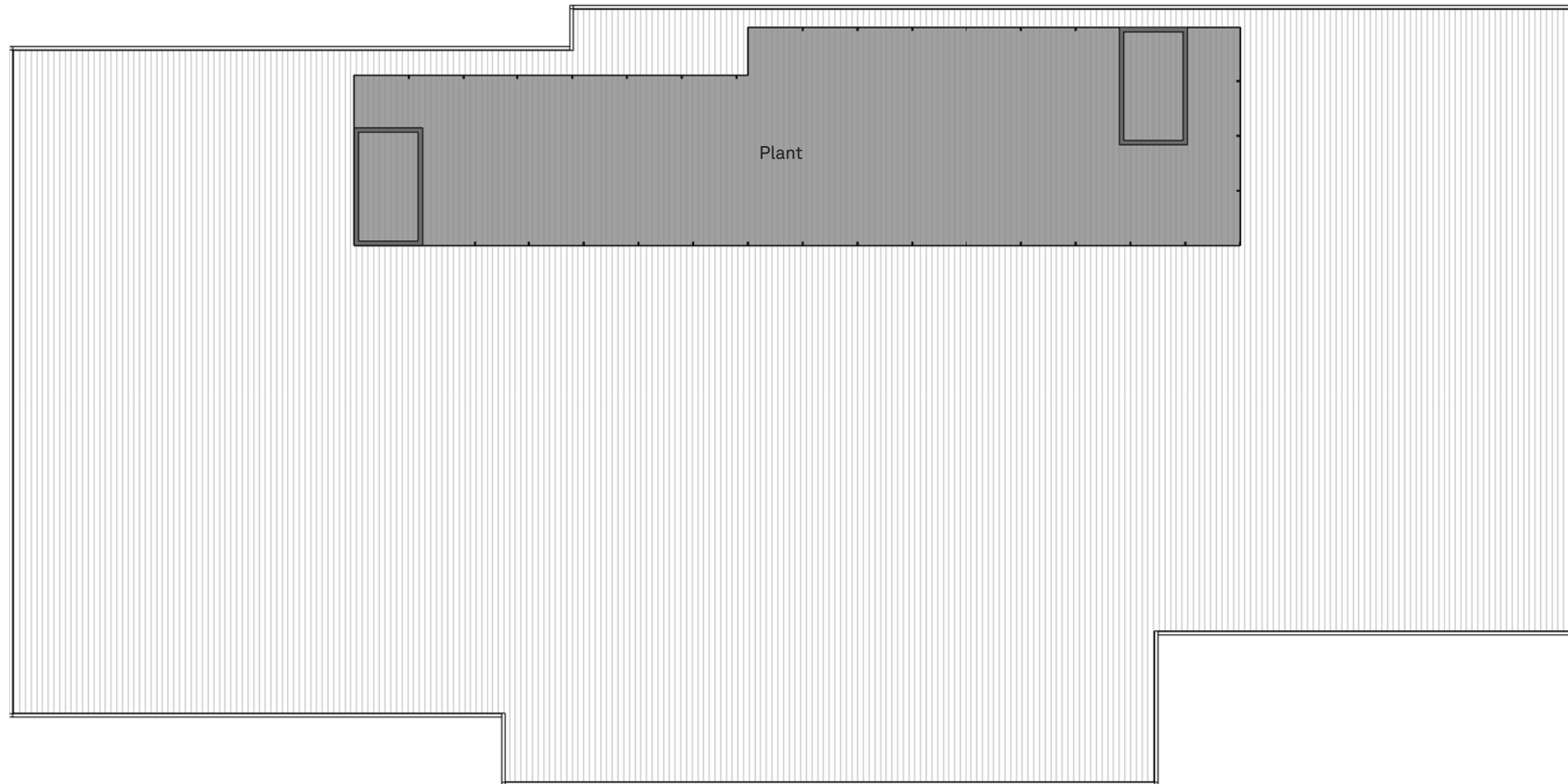
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04 Design Development

4.3 Roof Plan

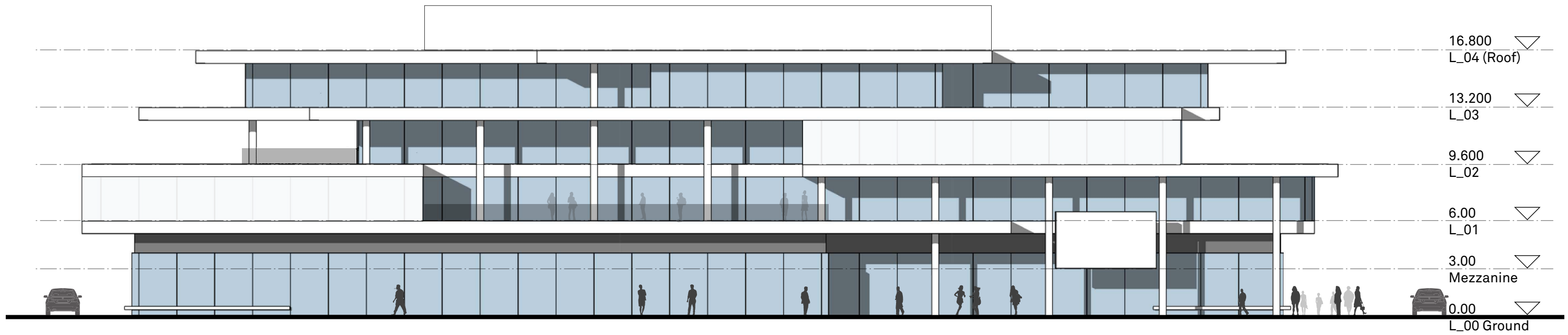
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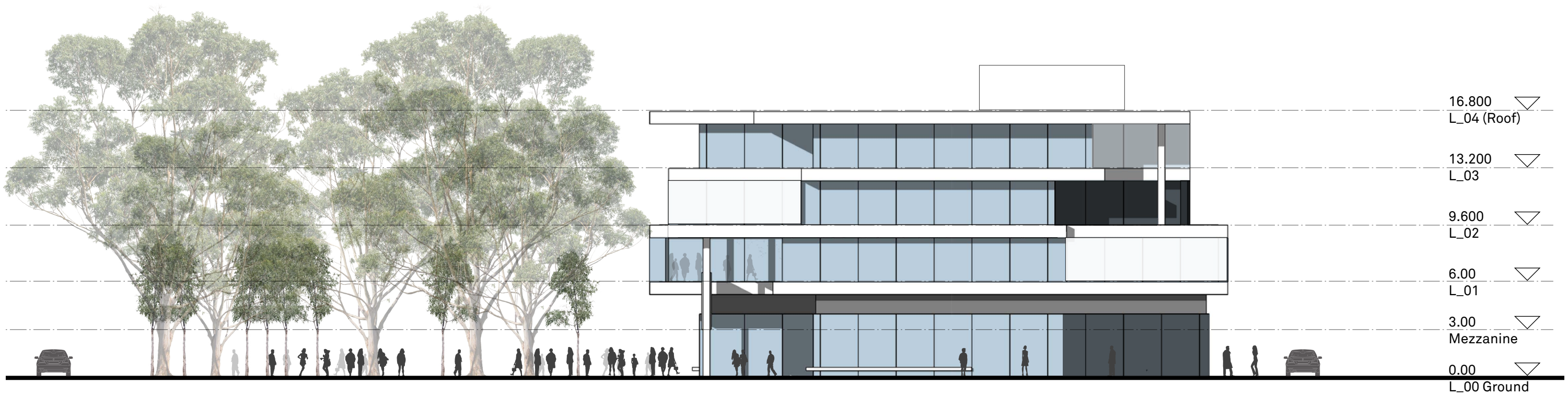
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04 Design Development
4.4 Elevations

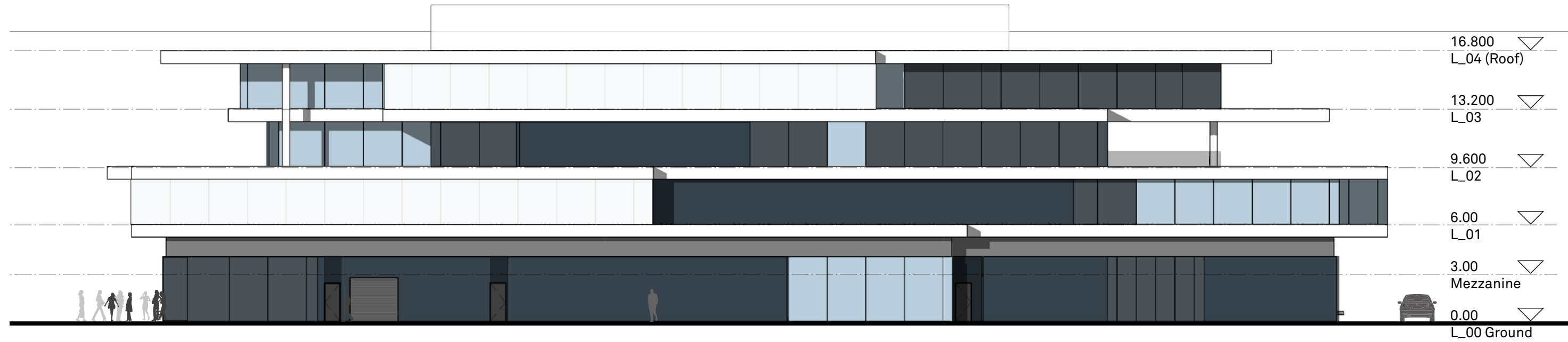


Western Elevation (from Civic Square)
Scale 1:250



South Elevation (from John Street)
Scale 1:250

04 Design Development
4.4 Elevations

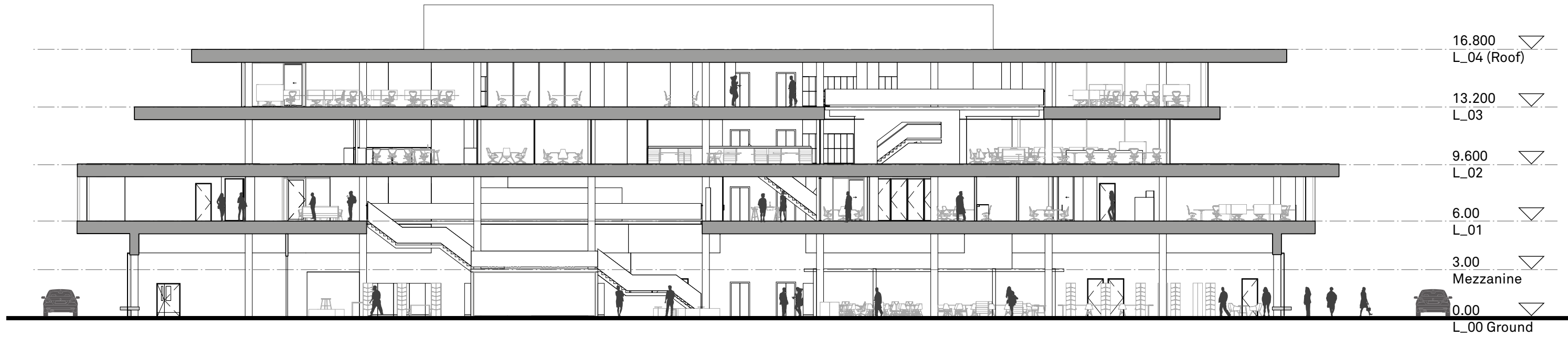


Eastern Elevation (from laneway)
Scale 1:250



North Elevation (from James Street)
Scale 1:250

04 Design Development
4.5 Sections



North - South Section
Scale 1:250

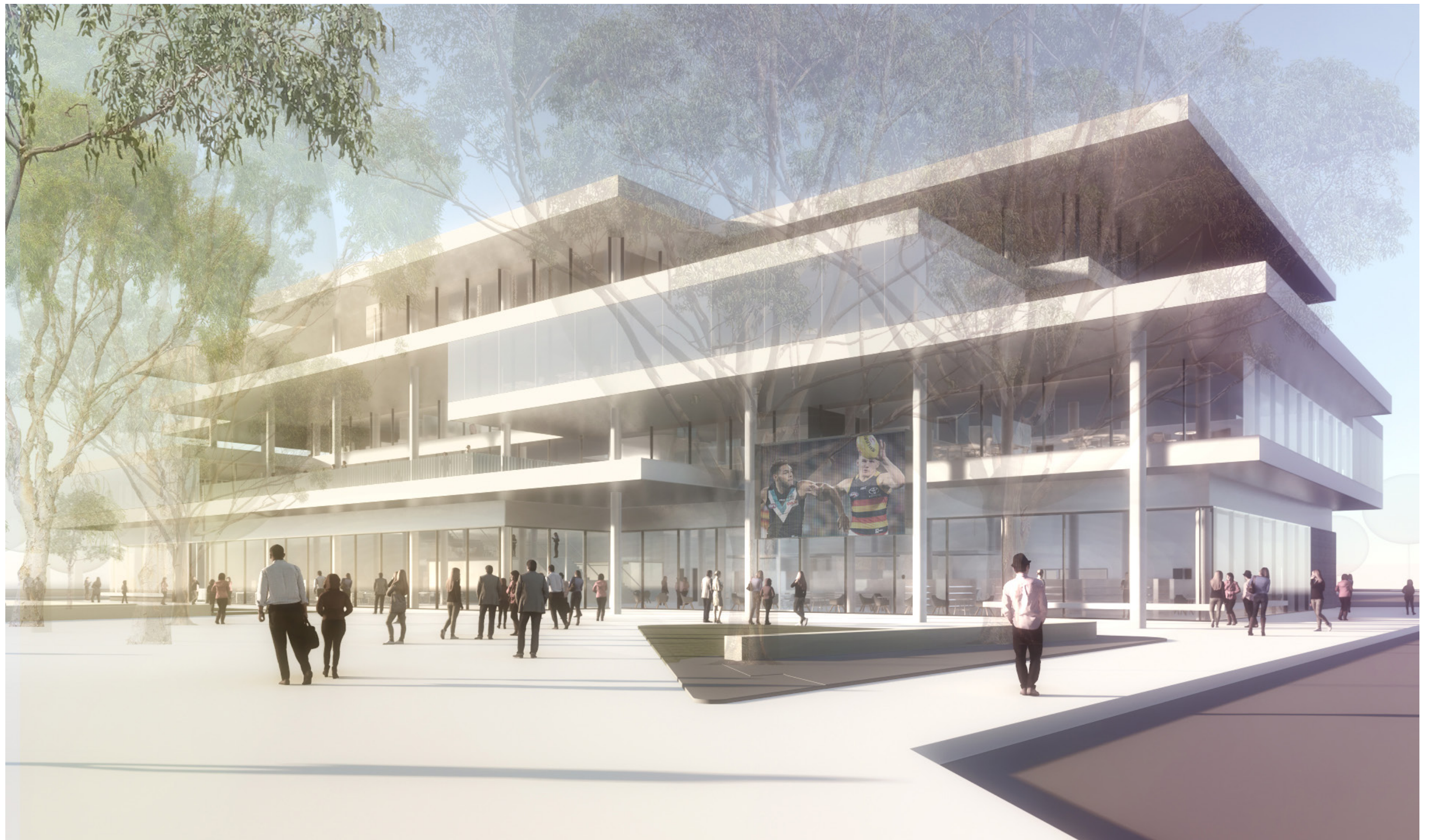


East-West Section
Scale 1:250

04 Design Development

4.7 Perspectives

View from South West
Artists Impression Only



04 Design Development

4.7 Perspectives

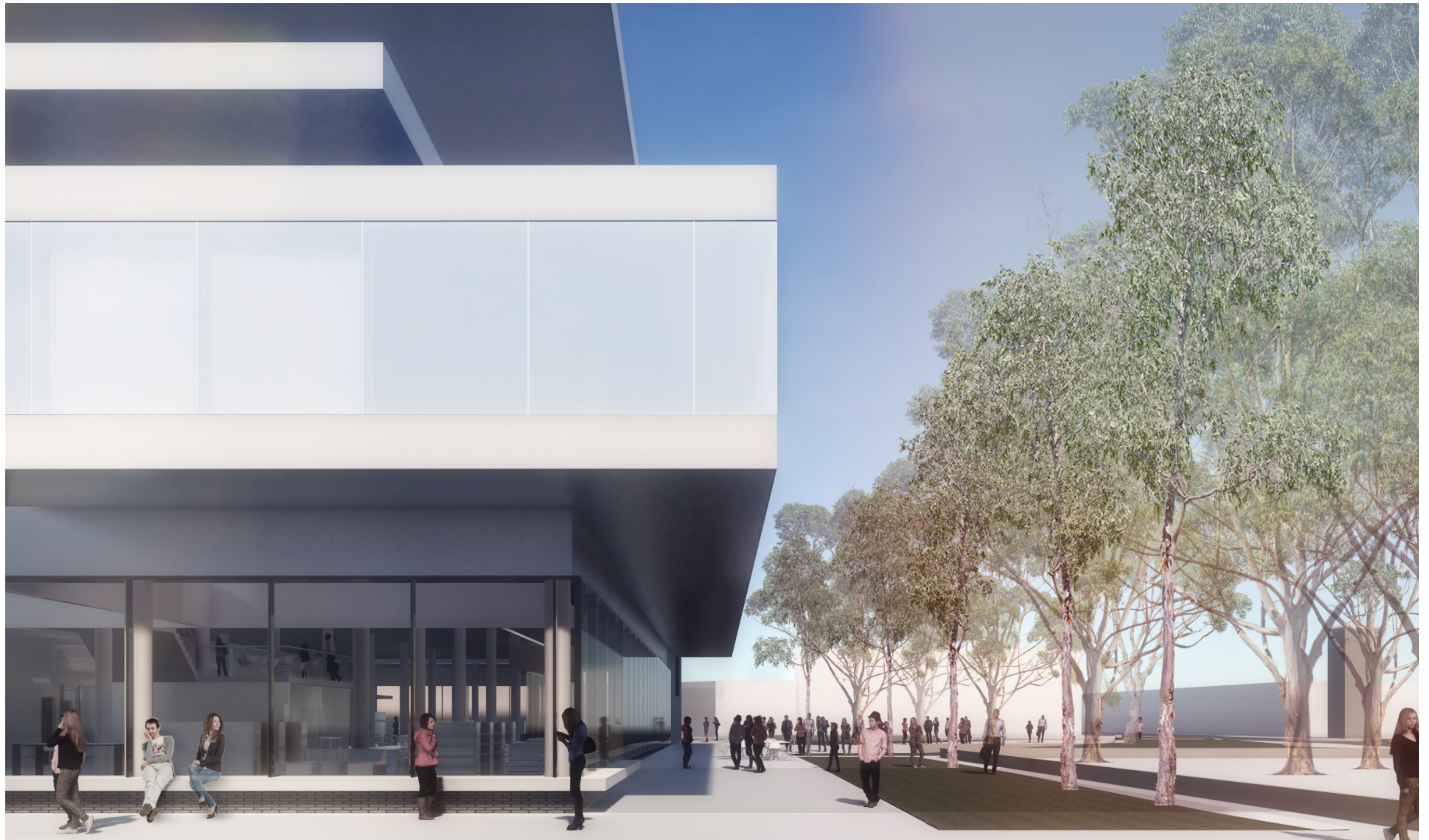
View from John Street
Artists Impression Only



04 Design Development

4.7 Perspectives

View from James Street
Artists Impression Only



04 Design Development

4.7 Perspectives

View of building entry and External Screen
Artists Impression Only



04 Design Development

4.7 Perspectives

View from John St/Laneway intersection
Artists Impression Only



04 Design Development

4.7 Perspectives

View overlooking Civic Square from Community Terrace

Artists Impression Only

