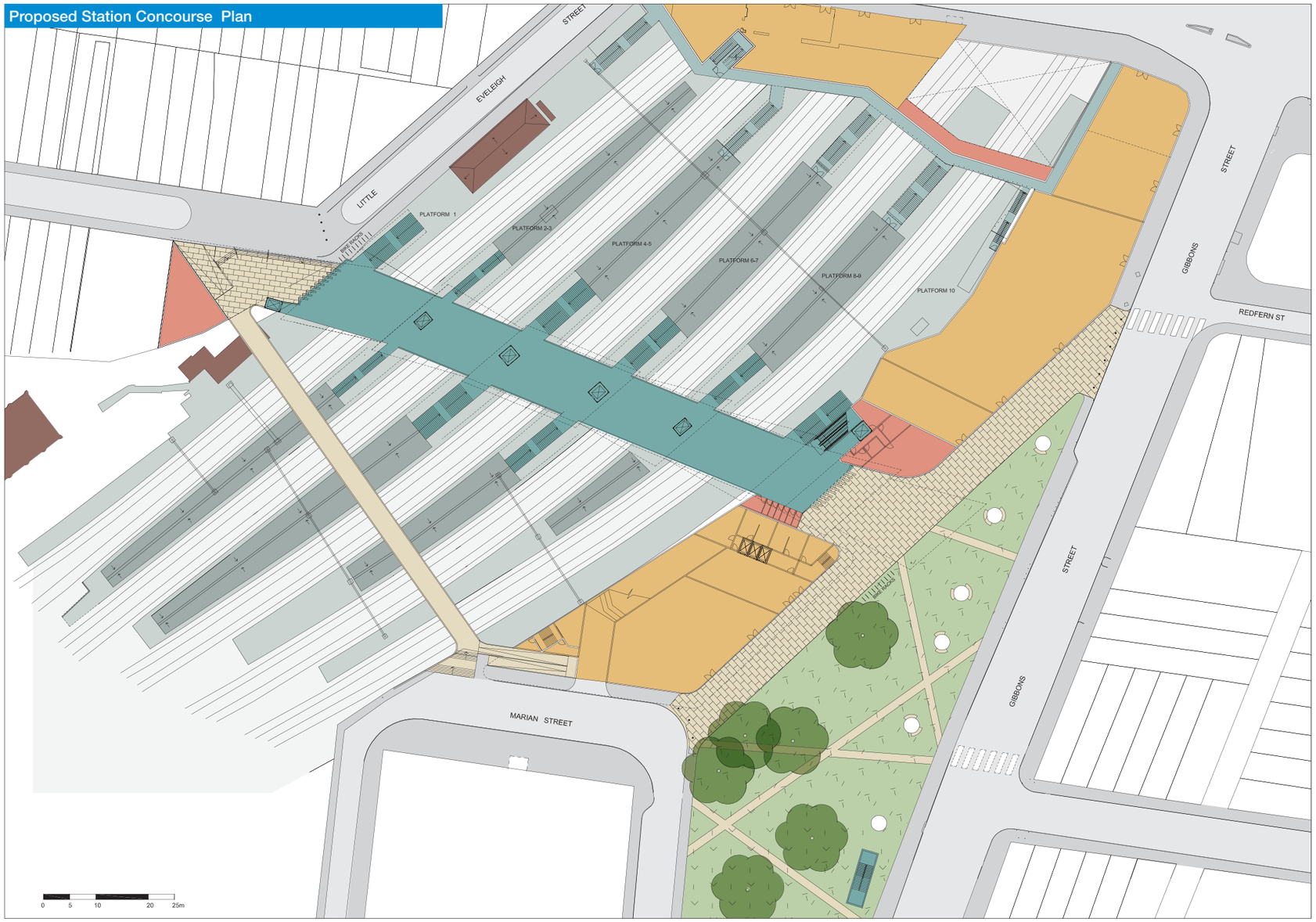
08 Proposed Revised Concept Design

08.1 Overall station vision to 2061

As one of the busiest stations in the Sydney region, the proposed long term vision for redevelopment of Redfern Station is for:

- A high quality, efficient, well organised and contemporary, example of public transport infrastructure
- a building that is easy and enjoyable to use, that will encourage growth is in public transport usage and cater to anticipated patronage up to 2061 and beyond
- generation of a fresh perception of Redfern Station
- a building that is responsive to and expressive of its physical, historical, environmental and social context
- station entrances that are clearly legible in the urban context
- a development that enhances the public domain around it, including the provision of new pedestrian connections
- a catalyst to encourage transport oriented development in the surrounding precincts and urban renewal in the broader context.
- a project that represents a sound long term investment and value for money for the people of NSW

Proposed Station Concourse Plan



08.2.2 Urban Design

08.2.2.1 Address

Customer experience and customer convenience are factors that have influenced the overall station design and in particular the proposed location of station entrances.

Studies by Arup have determined the existing and projected customer destinations points around the station. Dominant destinations include the ATP precinct to the south-east and University/North Eveleigh precinct to the west of the station. Demand levels to the east and north of the station are currently, and will continue to be, less significant.

08.2.2.2 Lawson Street

The existing Lawson Street Station entrance is very constrained due to the narrowness of the road and footpath. The immediate streetscape is inactive and has limited opportunity to improve due to heritage constraints, traffic requirements, and the requirement for safety barriers at the kerb line. (Refer Diagram 1)

08.2.2.3 Propoesed Entrances

The revised concept incorporates **two entrances** to the station. One on the south-eastern side addressing Gibbons Street and one the north western side addressing Little Eveleigh Street. These provide **direct access** to the dominant destination points without constraint on access to the broader area. They also provide the opportunity to improve amenity and re-define perceptions regarding the character of the station. (Refer Diagram 2)

08.2.2.4 Gibbons Street

The Gibbons Street address is linked to the proposed northern extension of the existing parkland, providing the opportunity to create a more formal “Civic” address. Being relatively sheltered from the heavy winds that effect the Lawson Street ridgeline, this public space will provide increased public amenity and benefit from the activity generated by the station. The intent is that the Station entrance is distinct and strongly expressed in the Gibbons Street streetscape. A pedestrian connection to Redfern Street is provided along the edge of the park. (Refer Diagram 3)

08.2.2.5 Little Eveleigh Street

The Little Eveleigh Street address provides direct connection through to both Wilson Street to the south-west and Lawson Street to the north-west, thereby serving both existing and future customer patronage. Little Eveleigh Street would become as a minimum a “traffic calmed shareway”, and could potentially be fully pedestrianised. It has the potential to develop as a vibrant street and increased pedestrian movement will improve passive surveillance and safety in the area. (Refer Diagram 3)

At this stage it is assumed that both entrances would incorporate ticket vending machines and ticket counters.

Diagram 1. Lawson Street: NARROW FOOTPATH

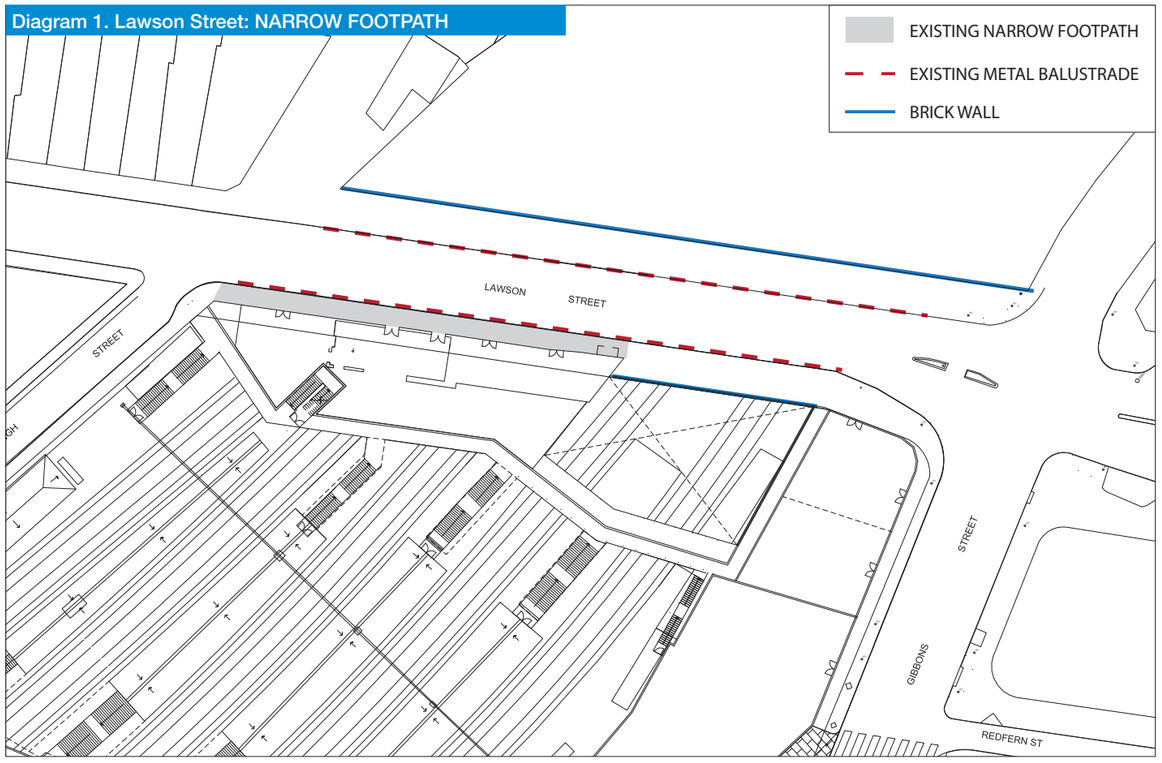


Diagram 2. VISIBILITY AND STATION ENTRANCES

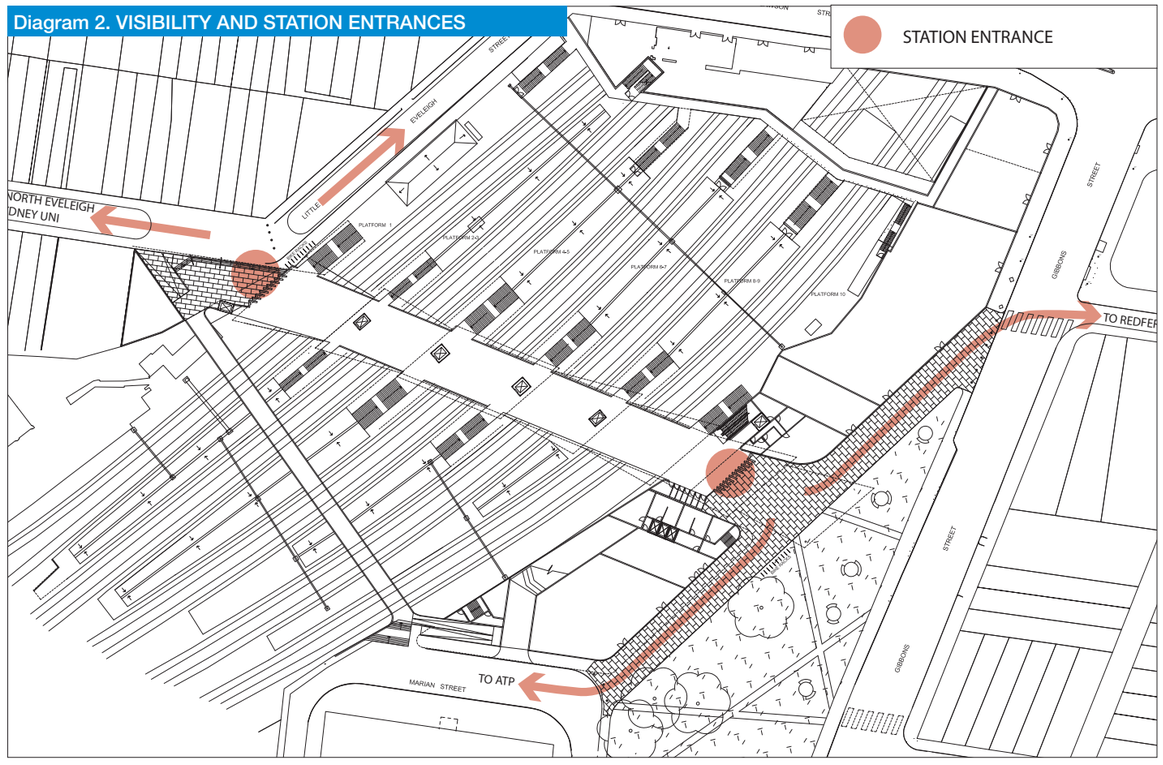
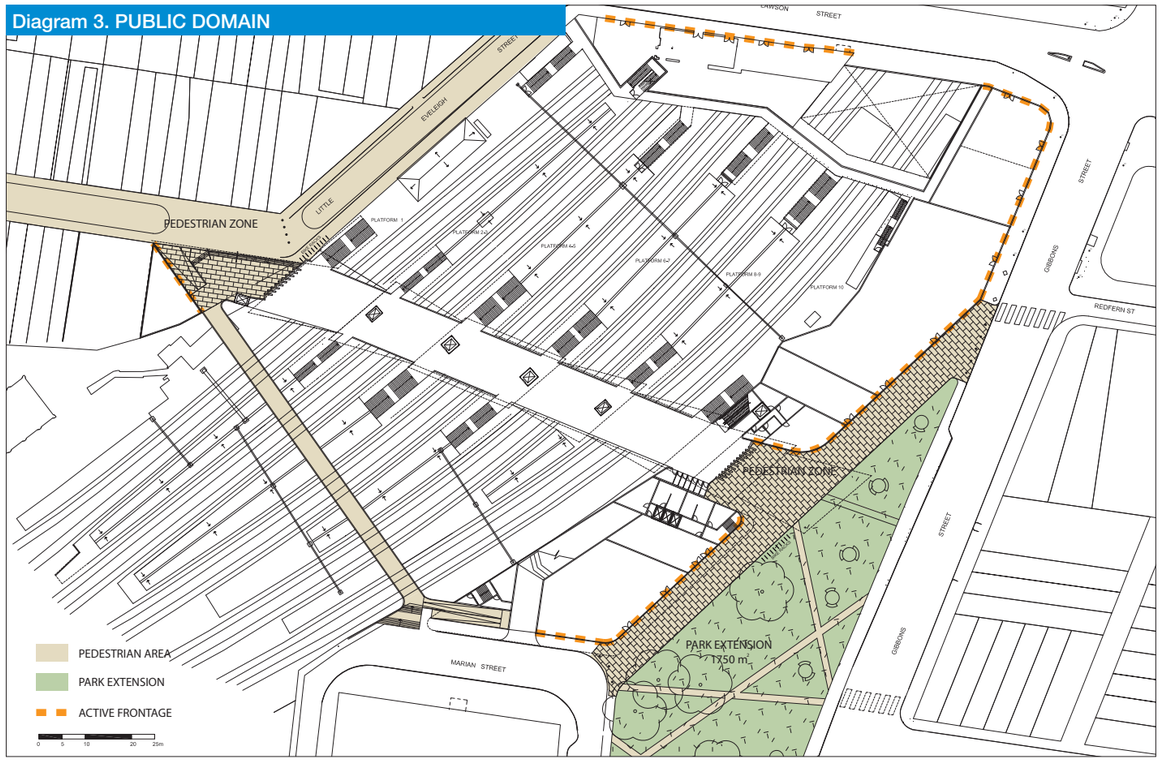


Diagram 3. PUBLIC DOMAIN



08.2.3 New Paid Concourse

08.2.3.1 Alignment

The proposed new paid concourse provides more centralised access to all platforms thereby increasing the efficiency of passenger movements and station operations.

The new proposed alignment of the concourse has been optimised within existing constraints resulting in a slightly reduced built area and permitting an improved address outcome on Gibbons Street. (Refer Diagram 4)

08.2.3.2 OHW

The alignment also reduces the impact on existing Overhead Wiring & Signalling (OWS) with assumed advantages in buildability and construction cost. (Refer Diagram 6)

08.2.3.3 Platform 1-10 Access

Due to the constrained existing platform widths, access down to platforms 1-10 is via stair and lift. Stair widths vary based on achieving a minimum 2700mm clearance to platform edge.

08.2.3.4 Lift Access

Lift shafts on platforms 2+3 and platforms 8+9 are the most constrained but preliminary lift supplier advice is that a DDA compliant lift could be provided within a total overall external width of 2100mm. These more compact lifts are therefore assumed to have a 13 person capacity in comparison to the more standard 24 person lifts proposed on other platforms. Rectangular fully glazed lifts are assumed consistent with recent major station developments at Chatswood and Parramatta. (Refer Diagram 5)

08.2.3.5 Platform 11+12 Access

Access down to Illawarra relief platforms 11+12 is via escalators and lifts down to the existing Mezzanine Concourse and platform 10 level, and then dropping down more central on the platform than the existing arrangement.

The Mezzanine Concourse level could potentially be extended underneath Gibbons Street to a future retail development of the eastern side. This would be a “paid” link requiring a separate station entrance and gateline on the other side of the road.

08.2.3.6 Concourse Building Form

The main concourse is proposed as a sheltered naturally ventilated space using overlapping roof forms to create clear-storey spaces to take advantage of fresh air and daylight. The roof forms open away from the centre of the concourse toward the entrances at each end. Fixed glazed screens on the concourse edge allow views down to platform level.

08.2.3.7 Concourse Width

Subject to more detailed crowd modelling studies in future stages, Arup have advised a concourse width of 12metres will accommodate projected capacities with appropriate run off clearances for stairs and lifts. (refer to section 08.3.1). (Refer Diagram 7)

Finishes are proposed to be high quality durable that provide long term value for money. Internal wall and ceiling finishes include insulated metal panelling with the potential for acoustic insulation.

The concourse is close to existing ground levels requiring only minor 1:20 ramps at each end.

Diagram 4. PAID CONCOURSE ALIGNMENT

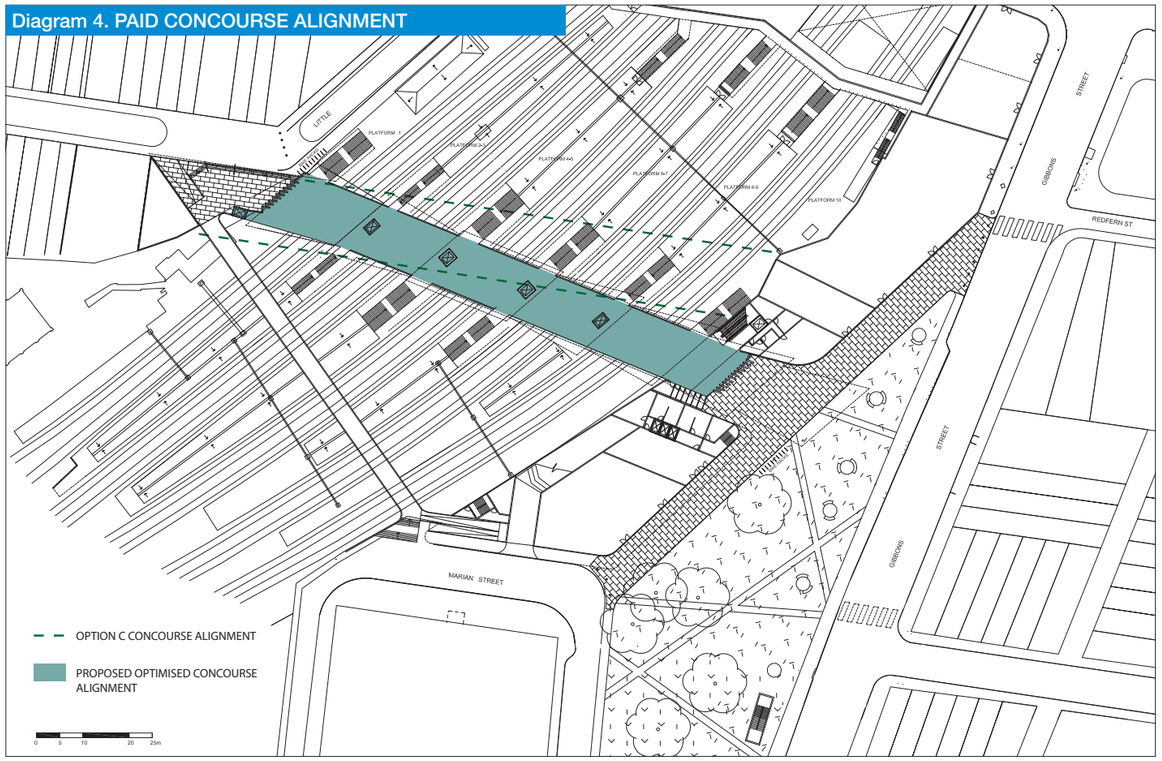
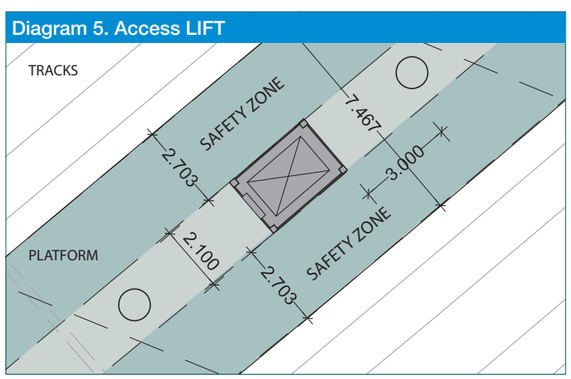
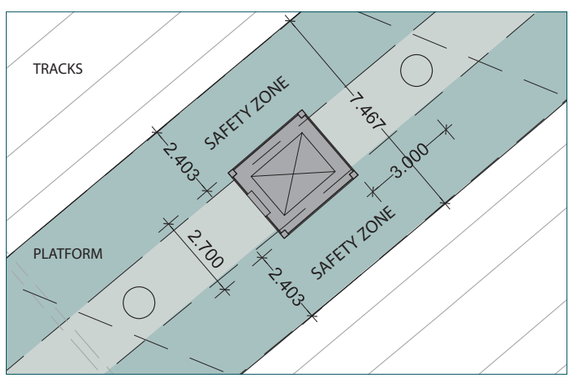


Diagram 5. Access LIFT



NARROW LIFT OPTION 2.7m SAFETY ZONE CLEARANCE



STANDARD LIFT OPTION 2.4m SAFETY ZONE CLEARANCE

Diagram 6. OHW

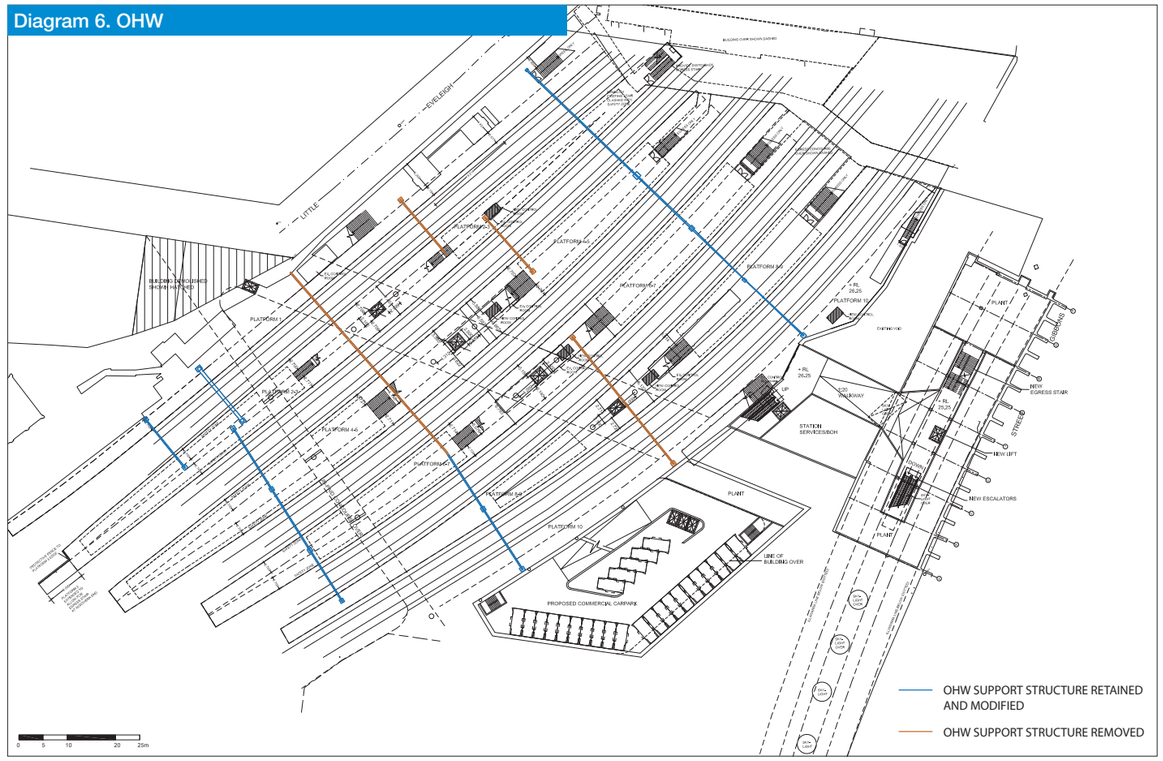
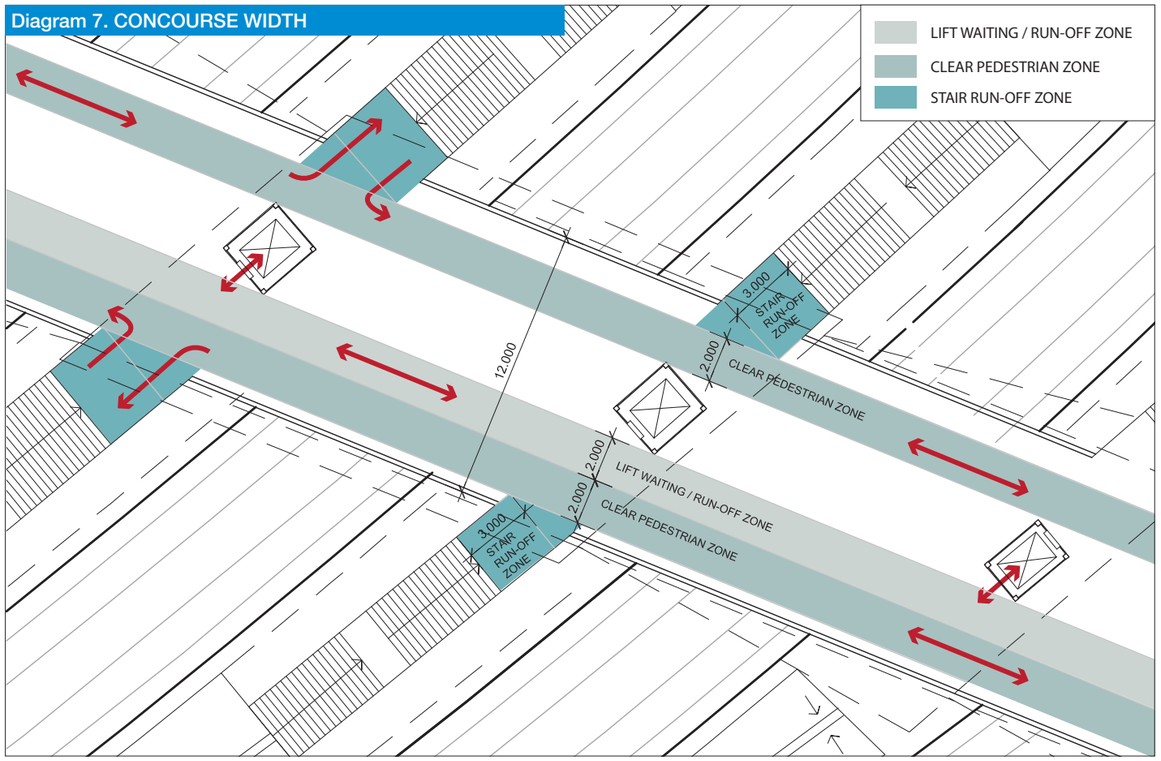


Diagram 7. CONCOURSE WIDTH



08.2.4 Platforms 1 - 10

Due to stair requirements and platform width constraints the existing local heritage listed buildings on platforms 4 to 10 are proposed to be removed. All state heritage listed buildings on Platform 1 and Lawson Street are retained. (Refer Diagram 8)

08.2.4.2 Canopies

Platform canopies are assumed to be replaced across the extent of platforms 2+3, 4+5, 6+7 and 8+9. This will ensure a consistent contemporary expression, allowing centralised structural support outside of clearance zones and incorporate new platform indicator displays and lighting. (Refer Diagram 9 + 10)

Due to heritage constraints on platform 1 only limited canopies at stairways are assumed. Canopies are not required on Platform 10 as trains do not stop.

Diagram 9. CANOPY SECTION

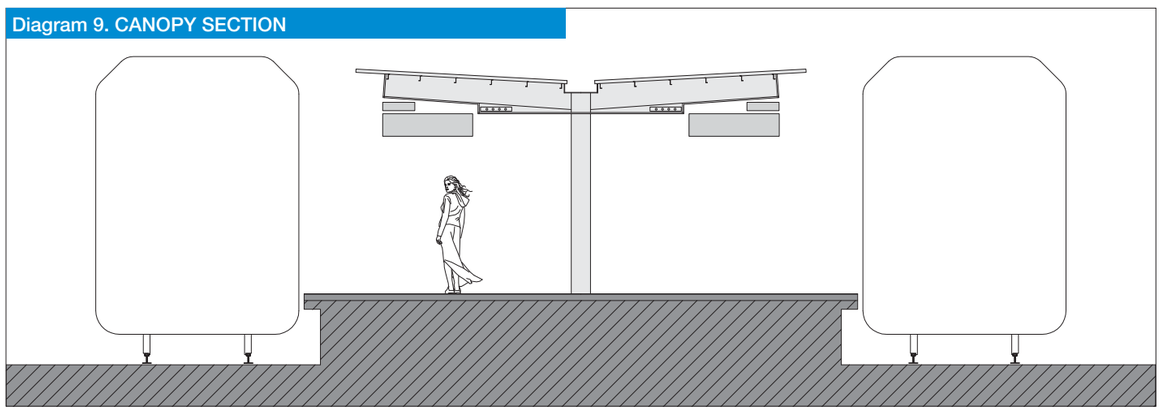


Diagram 8. HERITAGE

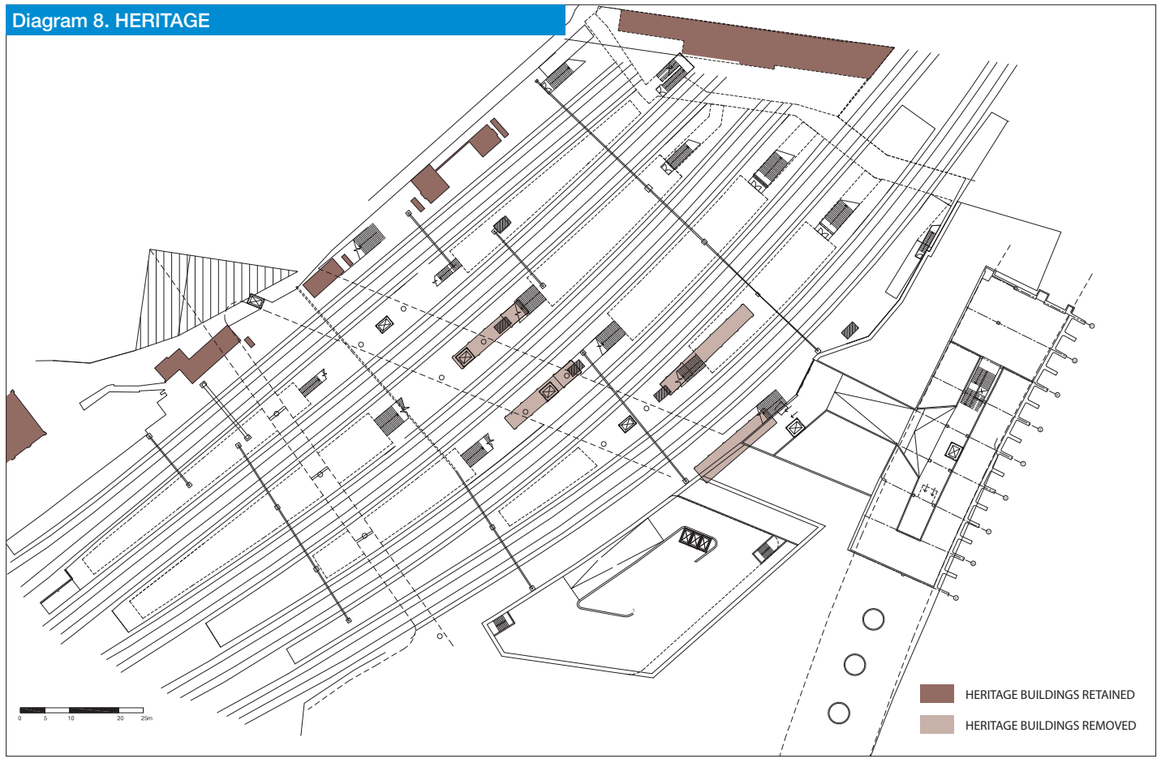
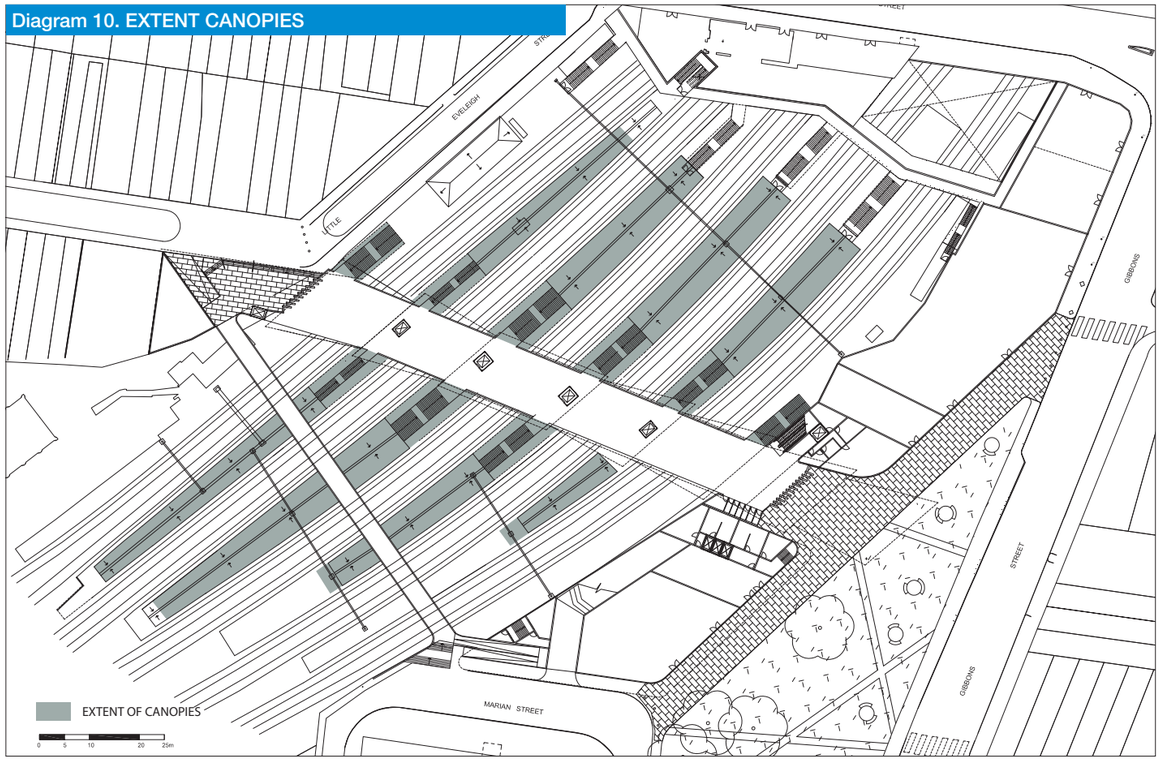


Diagram 10. EXTENT CANOPIES



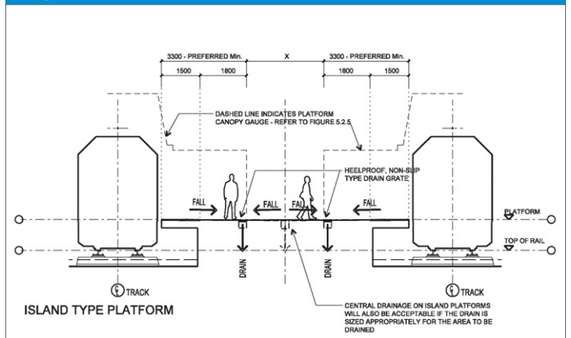
08.2.4.3 Control Rooms

New Control Rooms consistent with Railcorp Design Guidelines have been located as close as possible to existing services to minimise re-cabling works. (Refer Diagram 12)

08.2.4.4 Platform Profile

The existing gradient from platform centre to edge would be adjusted to reduce the risk of strollers etc rolling onto the tracks. Similar to recent work at North Sydney Station, the central half of the platform would remain unaffected and the edge "quarters" adjusted to slope away from the edge, creating a W cross section. (Refer Diagram 11)

Diagram 11. PLATFORM CROSS SECTION



ISLAND TYPE PLATFORM

Diagram 12. CONTROL ROOMS

08.2.5 Platform 11 and 12

08.2.5.1 Access

A new escalator is proposed in the general location of the existing stairway close to the centre of the platforms. This stair is moved north to the location of the existing escalator. Both open stair and escalator, together with a new lift connect up to the existing mezzanine concourse and then main concourse above that. (Refer Diagrams 13, 14 + 15)

08.2.5.2 Egress

A second new egress stair is proposed toward the southern end of the platforms that would rise up in the park above at the edge of the Gibbons Street footpath.

Diagram 13. PLATFORM 11 ACCESS Concourse level

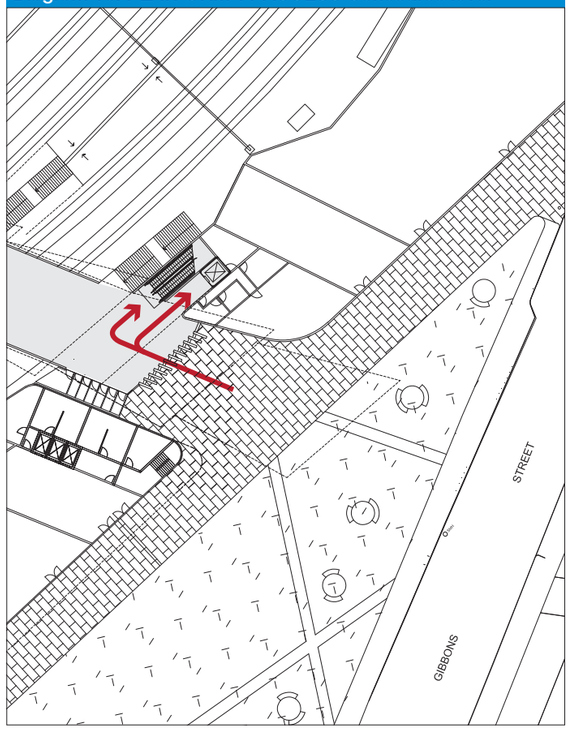


Diagram 14. PLATFORM 11 ACCESS Main Platform level

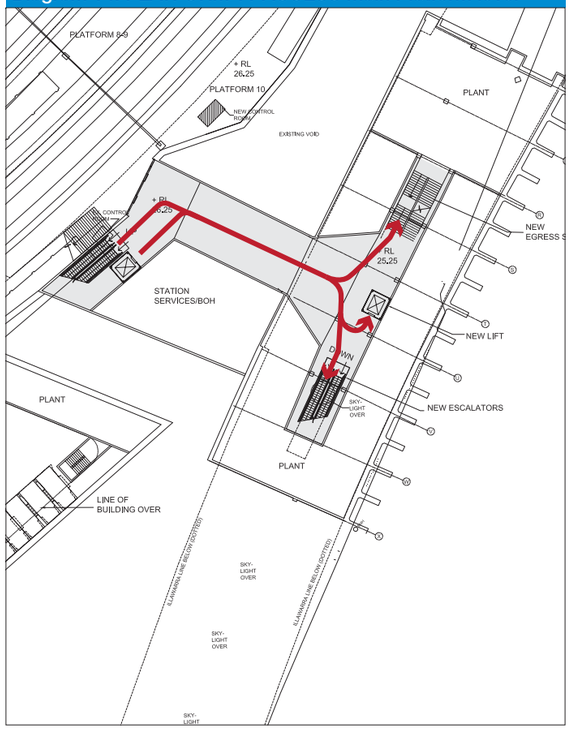
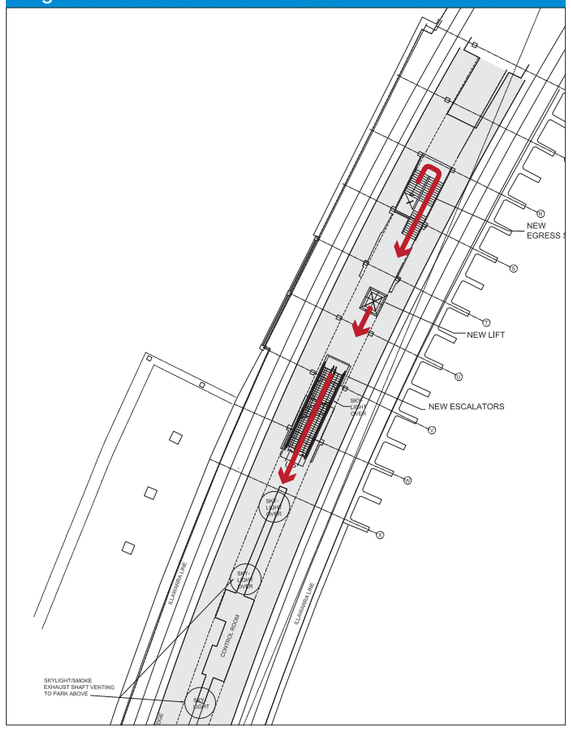


Diagram 15. PLATFORM 11 ACCESS Platform 11 & 12 level



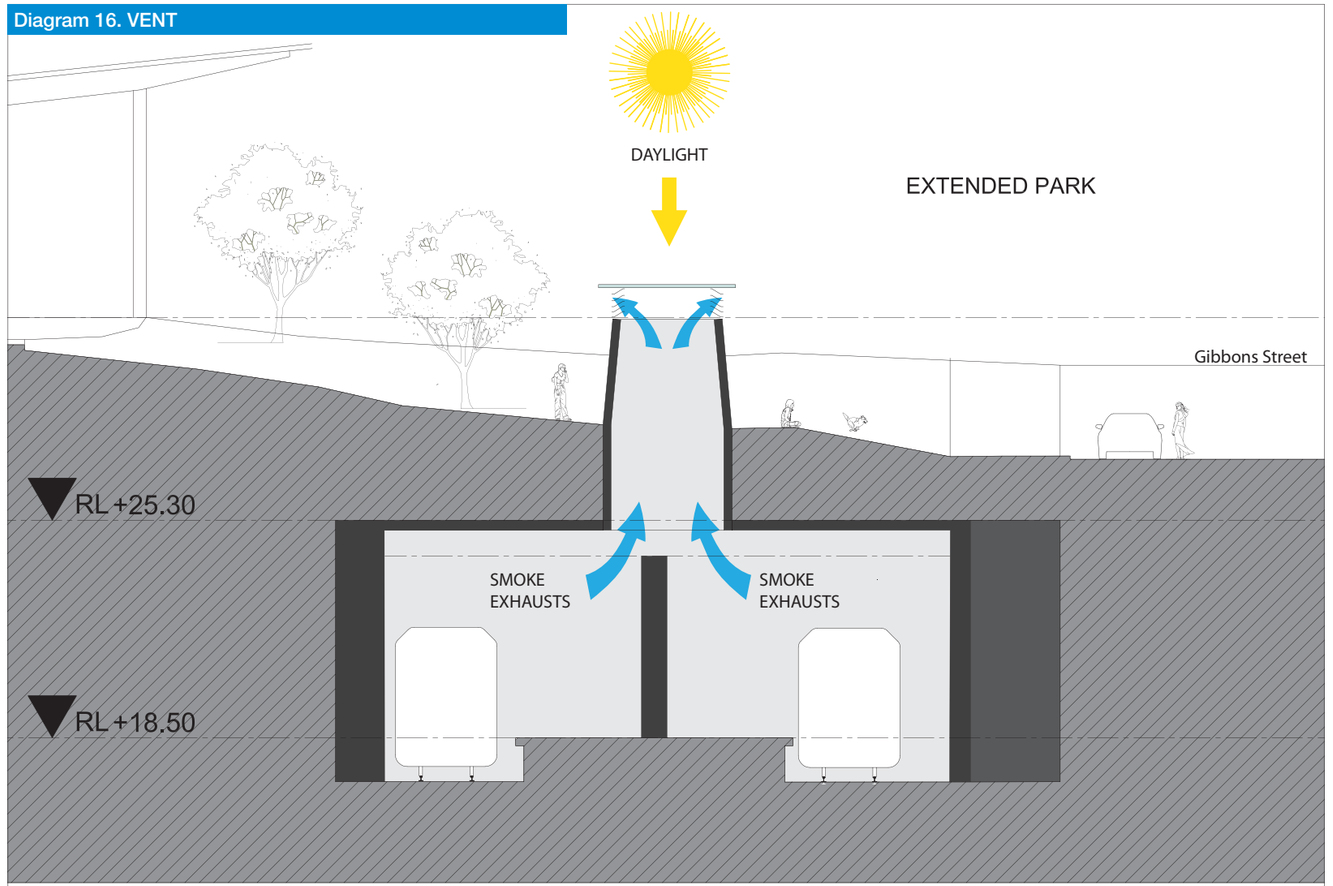
08.2.5.3 Daylight & Natural Ventillation

A series of combined skylight/ventilation shafts are proposed to improve amenity at platform level while improving smoke exhaust in fire mode. (Refer Diagram 16)

08.2.5.4 Platform Profile

The existing gradient from platform centre to edge would be adjusted to reduce the risk of strollers etc rolling onto the tracks. Similar to recent work at North Sydney Station, the central half of the platform would remain unaffected and the edge “quarters” adjusted to slope away from the edge, creating a W cross section.

Diagram 16. VENT



08.2.5 Unpaid link

Three options are proposed for an unpaid link across the tracks.

08.2.5.1 Preferred Option

Option 1 comprises a separate bridge structure running perpendicular to the tracks and meeting the concourse at the north-west end. This bridge would be at the same height as the main concourse and could support OWS. A ramp and stair transition is required at the south eastern end of the bridge. Columns would generally support the bridge at the centre of platforms below. A larger span across platform 8+9 would be required due to the narrowness of the platform.

This option provides a simple and direct link convenient to pedestrians and cyclists. Construction could only take place in stages consistent with track possessions. Users on the bridge would be visible from the platforms and concourse providing a degree of passive surveillance and safety. (Refer Diagram 17)

08.2.5.2 Option 2

Option 2 comprises a grade separated bridge above the main paid concourse. It is assumed that the bridge would be approximately 3 metres above concourse level. Stairs and lifts are provided at each end integrated with the station entrances.

The advantage of this option is that it can potentially be constructed independent of track possessions, once the main concourse structure below it is in place. This option is possibly less attractive to cyclists due to the requirement to use lifts up to bridge level. Bridge users would be highly visible to rail patrons on the main concourse providing a degree of passive surveillance and safety. (Refer Diagram 18)

Diagram 17. OPTION 1 ADJACENT UNPAID LINK AT CONCOURSE LEVEL

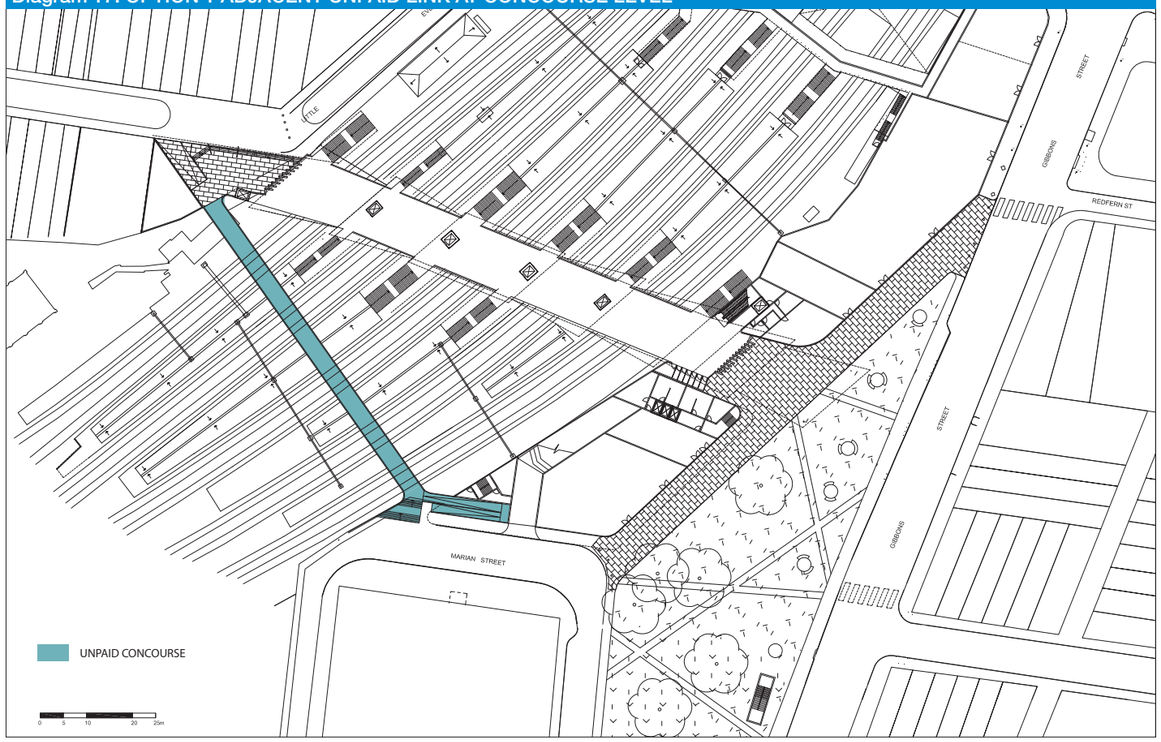
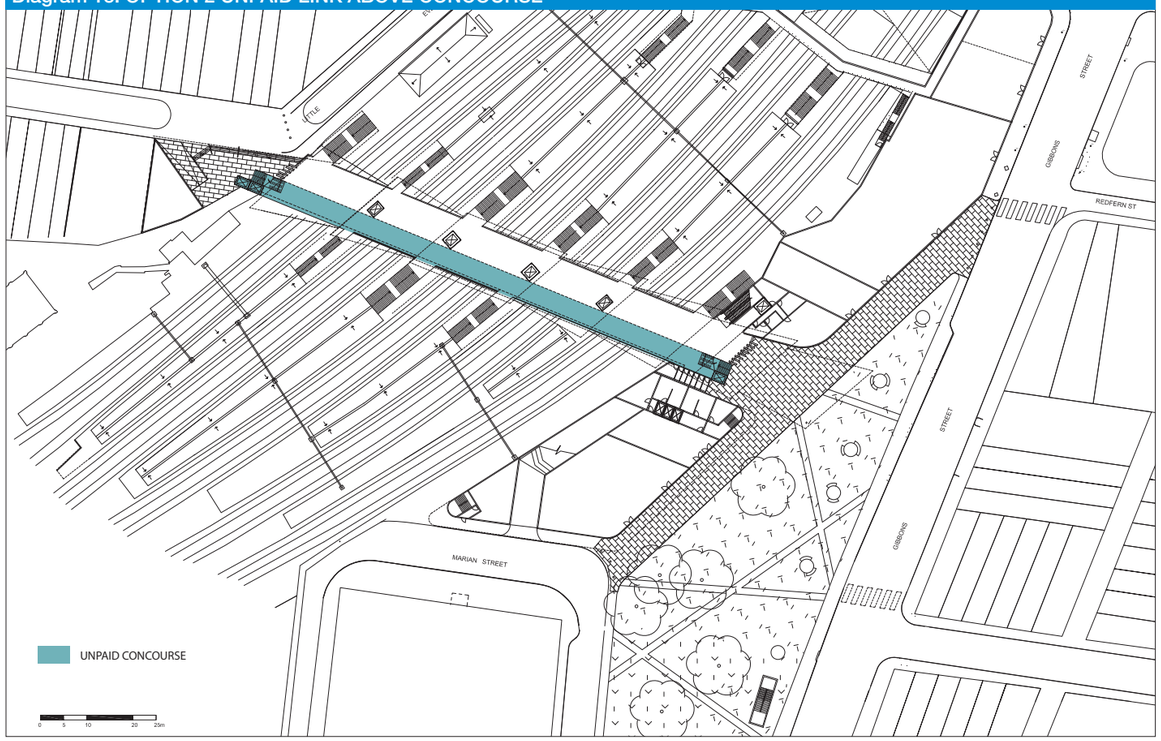


Diagram 18. OPTION 2 UNPAID LINK ABOVE CONCOURSE

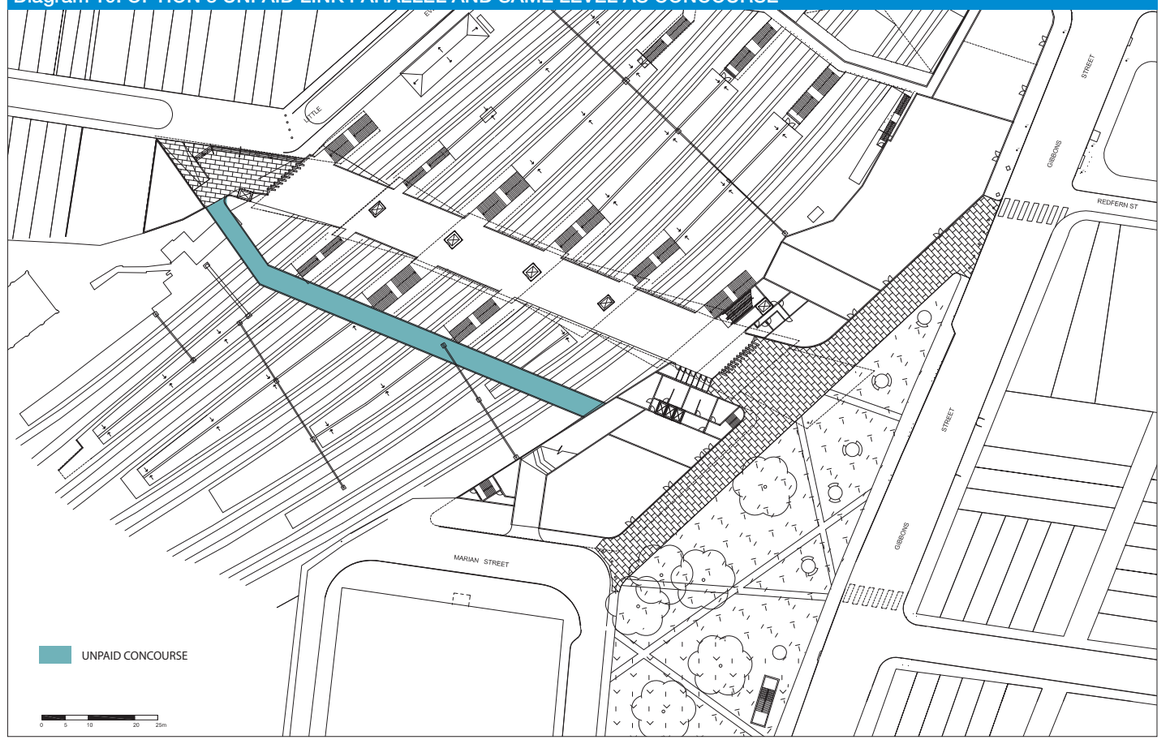


08.2.5.3 Option 3

A hybrid of Option 1 which provides a separate bridge structure parallel to the paid concourse. This follows a similar alignment to the Jackson Teece design and has been deemed unsatisfactory for the following reasons:

- Limits ground plan for tower redevelopment
- Increase bridge length and cost
- Diminishes ability to create strong urban link to ATP
- Complicates structural interfaces into platform canopies and stairs
- Impacts more OHW
- Column supports at platform would block pedestrian flows to stairs (Refer Diagram 19)

Diagram 19. OPTION 3 UNPAID LINK PARALLEL AND SAME LEVEL AS CONCOURSE



08.2.6 Lawson Street Concourse

08.2.6.1 Platform Transfers

An option that retained the Lawson Street concourse for use in platform transfers was explored and rejected for the following reasons:

- Requirement of an additional 6 passenger lifts to meet DPA intent - potential need to extend platform lengths for lift provision
- Concourse not requried for adequate transfer times
- Increased station area for management and surveillance
- Security risks increased
- Crowd modelling by Arup has determined that, with the exception of platform 2+3, transfer times of less than 90 seconds could be expected using only the new central concourse up to the year 2061. For platform 2+3 transfer times would be less than 90 seconds up to year 2053.

08.2.6.2 Platform Egress

An option of retaining the Lawson Street concourse for use in fire egress has also been explored. This would require:

- Re-building the stair on platforms 2+3 further toward the end of the platform and extension of the platform at the southern end to achieve minimum platform edge clearances or remove exisitng stairs and provide narrow width stairs to preserve platform edge safety compliance. This would not comply with BCA + FCS.
- Adjustment to the width of stairs to platforms 4+5 and 6+7 to achieve minimum platform edge clearances.
- Reconfiguration at Lawson street level to provide egress points.

While this improves egress times from the platforms in fire mode it increases the operational area of the station requiring observation and control.

08.2.7 Heritage

Due to stair requirements and platform width constraints the existing local heritage listed buildings on platforms 4 to 10 are proposed to be removed. The state heritage listed buildings on Platform 1 and Lawson Street are retained - (Refer Diagram 8).

Platform canopies are proposed to be minimised on platform 1 to maximise visibility of the heritage structures on this platform.

08.2.7.2 Platform 1

The new concourse sits above one heritage building on platform 1. This building has a parapet expression with roofing concealed from view and it is suggested that the concourse will not substantially impact on the visibility and integrity of the building.

08.2.7.3 Lawson Street

It is recommended that Railcorp consider new uses for the heritage buildings on Lawson Street that are no longer required for rail functions. These could potentially be adapted to a number of uses including cafes, art gallery, community and retail spaces that will activate this important streetscape. A review by a Heritage Consultant and opportunities for Heritage Interpretation should be explored in future stages.

08.2.8 Potential Development

Commercial development around the station has the potential to activate the public domain, provide amenity to rail patrons, and provide a commercial return that helps fund the project.

The proposal permits staged delivery of retail and office space, potentially separate to the delivery of the station. This recognises that:

- Market cycles and the commitment of retail and office tenants may not coincide with the desired station timeline;
- Commercial demand in Redfern can be expected to increase only once the existing station is redeveloped;
- While the site has the advantage of proximity to the station, there are easier sites nearby that are likely to be developed first.

Rather than focussing on maximising the quantity of commercial development, the design attempts to maximise quality.

08.2.8.1 Retail

Retail spaces are proposed at ground level only with highly visible frontages addressing the public domain. This improves attractiveness to potential tenants and avoids secondary spaces. It also ensures that the station entrance is clearly legible. (Refer Diagram 20)

Retail areas are proposed in the following areas:

- beneath the office building
- on the Gibbons Street frontage north of the station entrance;
- within the existing station buildings and parts of the existing concourse on Lawson Street.

Approximately 2600m^2 of retail space is incorporated, potentially accommodating cafes, a small supermarket and other smaller retail uses convenient to rail users and the public.

08.2.8.2 Retail Opportunity

A further 580m^2 of retail space could be added by the infill of the void space above the tracks at the eastern end of Lawson Street. This would replace the existing blank full height brick wall on the bridge with active streetscape and thereby improve passive surveillance in the area.

08.2.8.3 Retail Loading

Loading access is assumed to be after hours from the footpath between the station and the extended Gibbons Street Park. Bollards would restrict this area to pedestrian movement only at other times.

08.2.8.4 Commercial

The typical office floorplate as shown in Option 1 is more rectangular than previous designs with excellent access to daylight and outlook from the whole plate. The office foyer addresses Gibbons Street and the park. At this time is assumed that the previous 14 level height would apply. Assuming the ground level is retail and included in the previous retail areas, this delivers 15,600m^2 GFA or approximately 13,260m^2 NLA of office space. The urban design implications of a taller tower could potentially be explored. A preferred total area would be 20,000m^2 (20 storeys) which could accommodate a reasonable size occupant with additional smaller occupants to spread risks of single occupancy.

The four options provided show options with a variety of advantages and disadvantages. Option 1 permits the simplest staging but all proposed development options can be built without impacting the rail. Option 4 would require structural transfers to avoid impact on the Illawarra line below ground.

A three level basement carpark is assumed underneath the office tower accommodating approximately 78 cars in total with 25 carspaces assumed for Railcorp and related uses.

Diagram 20. ACTIVE STREET FRONTAGES

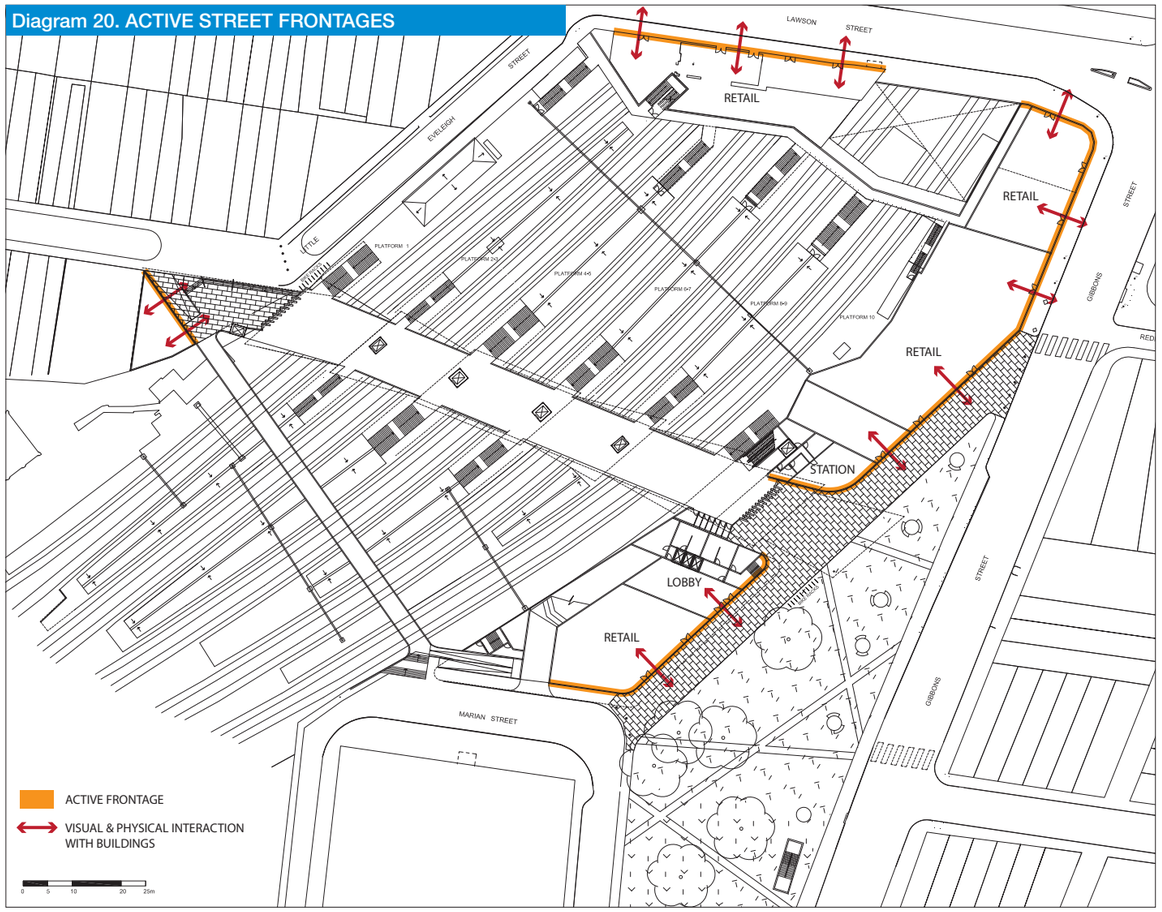


Diagram 21. OPTION 1

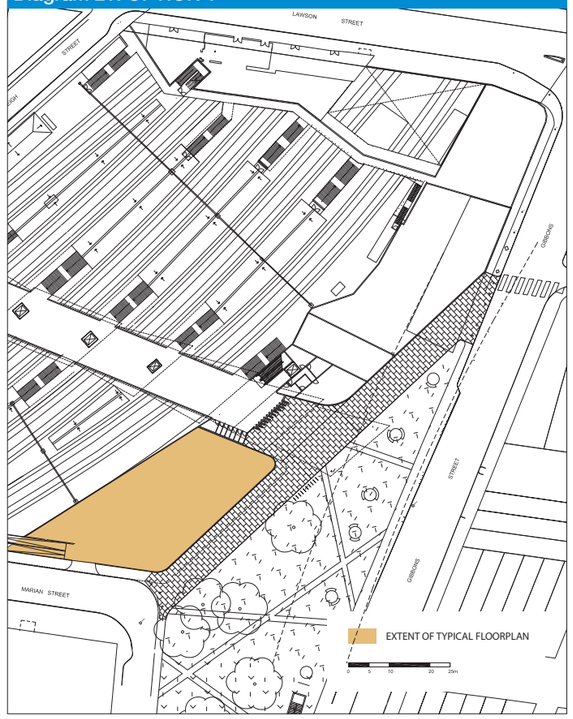


Diagram 22. OPTION 2

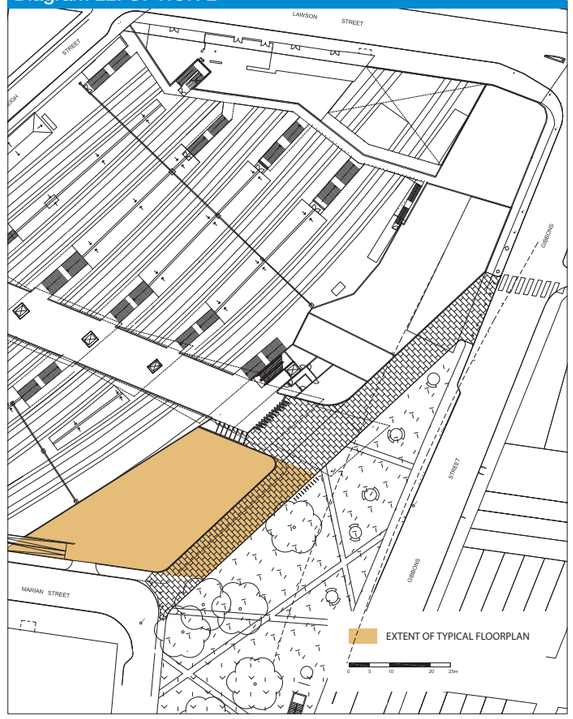


Diagram 23. OPTION 3

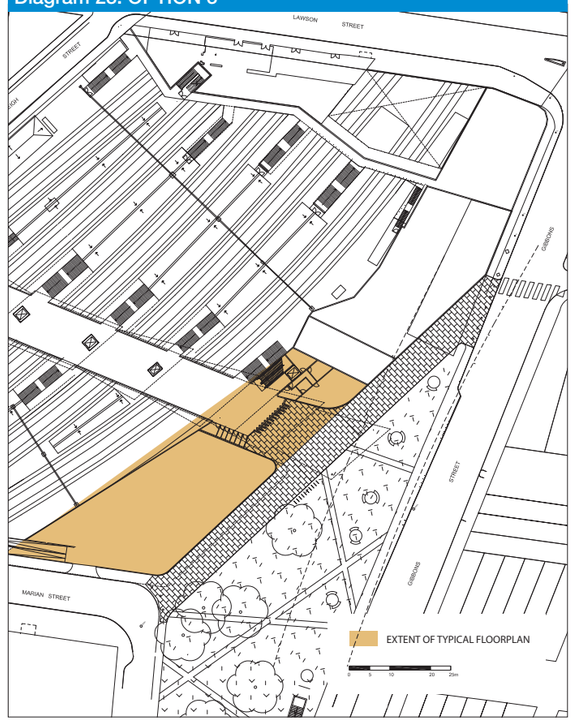


Diagram 24. OPTION 4