

Construction Management Plan

One Carrington Street

23 April 2014



Prepared by

Brookfield Multiplex Constructions Pty Limited

One Carrington Street

On behalf of

Sovereign Wynyard Centre Pty Limited

Construction Management Plan

Contents

Document Control	1
Revision	1
Revision Notes	1
Introduction	2
Overview	2
Works Description.....	4
One Carrington Street Vision	4
Project Objectives	4
Site Description	6
Existing Development	7
Projects Phasing and Public Access	8
Site Management – Organisations and Responsibilities	10
Physical Constraints of the Site	10
Transport Constraints	11
Heritage Constraints	15
Adjoining and Neighbouring Properties	17
Major Work Items	18
Demolition and Excavation	19
Structure	20
Façade	21
Fit-out Building Services	21
External & Public Domain Works	21
Site Layout, Logistics and Materials Handling	22
Material Deliveries	22
Hoardings and Overhead Protection	23
Crane, Hoists and Loading Platforms	24
Accommodation	25
Site Induction	25
Site Security	25
Protection of Heritage Items and Surrounding Developments	27
Dilapidation Survey	27
Adjoining and Adjacent Neighbours	27
Adjoining Owners Management	28
Public Amenity, Safety and Pedestrian Management	30
Hours of Work	30
Noise & Vibration Management	30
Public Safety	32
Pedestrian Management	32
Traffic Management.....	33
Traffic	33
Pedestrian Management	34
Street & Footpath Closures	34
TfNSW	35
Environmental Management.....	36

Occupational Health & Safety	36
Hazardous & Contaminated Materials	36
Site Discharge.....	37
Dust Control.....	38
Waste Management.....	38
Recycling	39

Attachment 1

Public Access and Project Phasing

Attachment 2

Phase Works and Impacts Diagrams

Attachment 3

Site Establishment Diagrams

Attachment 4

Materials Handling and Construction Deliveries Matrix

Attachment 5

Arup – Public Access and Fire Egress during Construction review.

Robert Bird Group – Construction Methodology Review

Document Control

Revision

Rev	Date	Revision Details	Author	Approved
02	23.04.2013	Updated with comments from DoPI	MC	
01	10.03.2014	Issue for Project Application	MC	

Revision Notes¹

- Inclusion of Attachments in contents page
- Update of references to client
- Update of Attachment 3 for consistency with the CTMP

¹ Note that the revision notes identify primary changes in the document and are not intended to identify all changes between revisions

Introduction

This preliminary Construction Management Plan (CMP) has been prepared by Brookfield Multiplex Constructions Pty Ltd on behalf of Sovereign Wynyard Centre Pty Limited and its nominee referred to herein as Brookfield. The report is intended to accompany the EIS for detailed Project Application (Stage 2 DA) submission for the redevelopment of the One Carrington Street precinct.

This CMP addresses works issues sufficiently for the Department of Planning and Infrastructure Project Application assessment and addresses items noted in the Concept Plan Approval Consent (including the Statement of Commitments) and the Director Generals Requirements. This CMP also considers the scope of works including those associated with 285 George Street, subject to a parallel Section 75W modification. The intention of this document is to communicate that this development has been well considered, and will be undertaken in a manner that seeks to minimise disturbance and impact on the surrounding environment. Items contained in this CMP include:

- Outline of major works
- Heritage items
- Public amenity, safety, and pedestrian management
- Materials handling
- Traffic management including public transport interfaces
- Environmental management
- Impact on adjoining and surrounding properties.

Brookfield is working closely with Brookfield Multiplex and are committed to engaging with the Transport for NSW, local community, the City of Sydney, Government Agencies and stakeholders as we plan and deliver the One Carrington Street project.

A key consideration for the One Carrington Street project is the potential to cause disruption to surrounding areas, during the construction phase. Brookfield and Brookfield Multiplex shall work closely with Transport for NSW, City of Sydney, neighbours, existing tenants, occupants, stakeholders and transport authorities to create plans that will ensure minimal impact and disruption to the surrounding area. Consultation will continue to be a key priority throughout the construction process to ensure the community and stakeholders receive regular updates and have the opportunity to provide feedback.

The final version of this Plan will ensure all construction is properly facilitated, integrated and coordinated thus guaranteeing the Project's objectives are met.

It is intended that this CMP and associated works plans shall be further detailed for each phase of the project, as outlined in this plan and relevant approvals secured prior to construction commencement.

Overview

This CMP has been prepared to accompany the EIS for detailed Project Application (Stage 2 DA) and addresses items noted in the Concept Plan Approval Consent (including the Statement of Commitments) and the Director Generals Requirements. This preliminary plan has been formulated from the developed design competition scheme and shall be adjusted to meet key stakeholder requirements, as detailed design progresses.

The scope of this report provides a holistic approach that:

- Advises how the project management team will comply with the requirements of the contract relating to construction.
- Defines the project objectives and targets of particular relevance to the construction phase.
- Describes constraints specific to the construction phase and the project in general.

-
- Describes the process for the identification and control of risks specific to the construction phase.
 - Details the proposed strategy for the construction phase, with particular regard to establishment resourcing, site organisation and construction controls.

Works Description

One Carrington Street Vision

Brookfield is proposing a major new PCA Premium Grade commercial and retail development over and including the eastern access ways to the Wynyard Station concourse from George Street through to Carrington Street inclusive of the heritage listed Shell House building on the corner of Margaret Street, Carrington Street and Wynyard Lane.

The development will deliver a landmark commercial office tower and high quality retail experience. The development is uniquely positioned to contribute to and integrate with the re-development of one of Sydney CBD's major transport hubs and deliver significant public benefit through the upgrade of Wynyard Station's eastern concourses and pedestrian access ways.

The development will revitalise the greater Wynyard precinct by contributing, in conjunction with government agencies, to a world class subway station and transport interchange.

Project Objectives

The overarching design objective is to achieve a landmark PCA Premium-Grade² quality commercial office building set above a new world class retail / transport interchange.

The development will establish a new commercial address in the Sydney CBD and a clear identity for Wynyard Station whilst delivering significant public benefit through modernising the eastern concourses to the station in an integrated and holistic way.

The development will represent "Best in Class" when benchmarked against competitive product and should be a reflection of commitment to design excellence with;

- clearly defined and legible architectural forms appropriate to the commercial office building function;
- simplicity, elegance and clarity of architectural expression;
- a sophisticated design aesthetic with a 'timeless' commercial quality;
- generously scaled lobbies and gracious entry sequence;
- the creation of vital, active public space that anchors the development within its urban context and creates a strong sense of 'Place'; and
- a clear commitment to sustainable design.

More specifically, the design objectives are to:

- maximise the height, Floor Space Area (FSA) and Net Lettable Area (NLA) within the Concept Approval envelope;
- demolish the existing improvements on the site (with the exception of the Shell House façade and clock tower);
- deliver PCA Premium-Grade office space to the new commercial tower and PCA A-Grade office space to Shell House
- provide a separate 'address' for updated Shell House whilst meaningfully integrating it into the overall project/precinct/development.
- create high exposure flagship retail stores to the George Street frontage that will achieve substantial brand recognition / awareness for the tenant;

² Property Council of Australia – A Guide to Office Building Quality – 2nd Edition, 2012

-
- revitalise 285 George Street (Beneficial House) and meaningfully integrate with the development
 - maximise and fully integrate high quality, multi-level retail floor space with new pedestrian concourses linking George Street, Carrington Street and the Hunter Connection to Wynyard Station;
 - achieve the performance specifications for Wynyard Station unpaid concourse east of Carrington Street to meet increased passenger capacity to 2060 demand levels;
 - provide improved connectivity to Carrington Street from George Street and reinforce the East-West pedestrian linkages through Wynyard Station to Wynyard Walk;
 - provide parking for cars, trucks/service vehicles, motor bikes and bicycles in accordance with the Concept Approval;
 - achieve a high standard of environmental sustainability, with environmental innovation, including a minimum 5 Star NABERS Energy Rating and 5 Star Green Star As-Built v3 Rating;
 - deliver a design that is sympathetic to its surroundings (including Shell House, Beneficial House, Wynyard Park and the other heritage items in close proximity) that achieves design excellence and improvement to the public domain;
 - provide a podium form with a street frontage height consistent with the existing parapet height of Shell House and with a minimum 6m tower setback above this level;and
 - ensure all specified services and fittings/finishes are to be of high quality, achieve reduced operating costs and efficiency in operation, management and maintenance and consider WHS factors.

Site Description

The Concept Plan site is generally referred to as the land between George and York Streets including 301 George Street (formerly known as Thakral House), the Menzies Hotel, Shell House, and Wynyard Park, stratum above and below Wynyard Lane and stratum underneath Carrington Street, York Street and Wynyard Park, Sydney. 'Stage 1' of the development, the subject of the Architectural Design Competition Brief, relates to all of the Concept Plan site located to the east of the eastern boundary of Carrington Street as shown in **Figure 1**³.

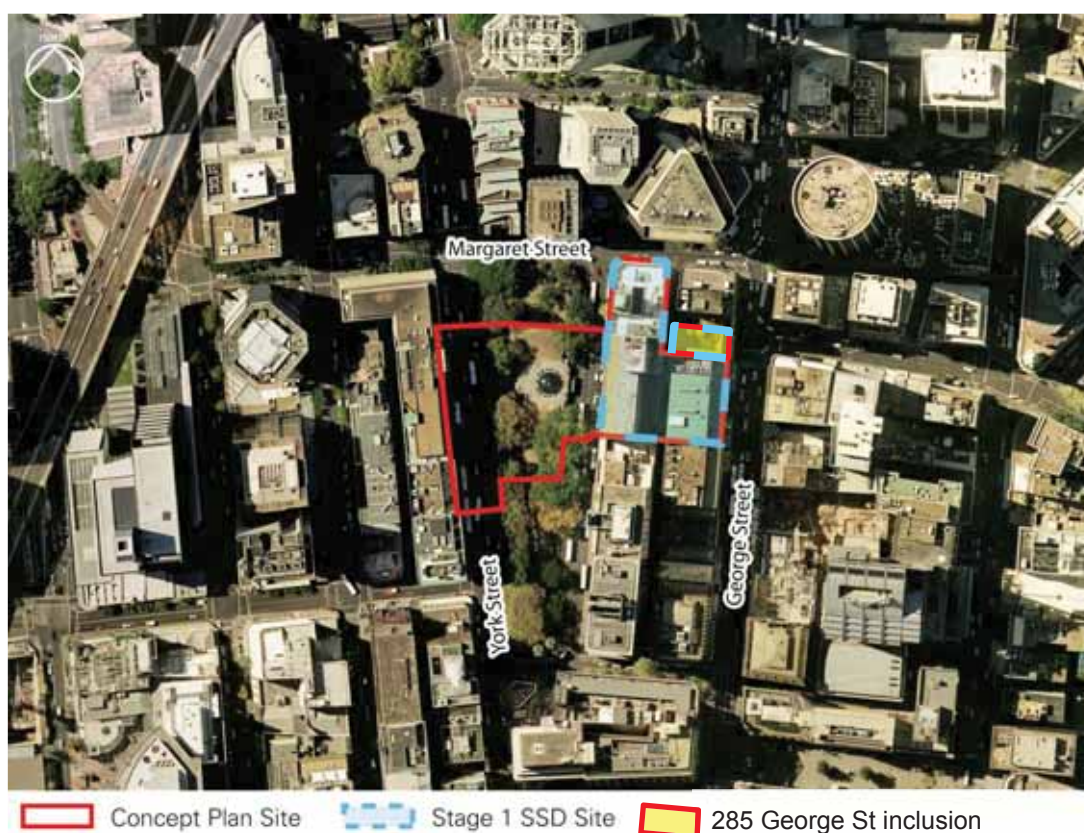


Figure 1 – Aerial photograph of the site

³ Note 285 George St not identified in original image – shown as appended to the site.

Existing Development

The site comprises a number of existing elements. These elements are shown in **Figure 2** and are summarised as follows:

- Former Shell House: An 11 storey commercial office building built in 1938. In 1979 the building was converted to hotel rooms as an extension of the Menzies Hotel. Shell House is listed as a local heritage item.
- The Menzies Hotel: A 14 storey hotel, completed in 1963. It provides no direct public access to Wynyard Station or to the retail levels that pass beneath it.
- 301 George Street (formerly known as Thakral House): A 13 storey commercial office building completed in 1962, with retail space on the ground and first basement levels.
- 285 George Street (Beneficial House): A 7 storey retail building, built in 1923 and home to Peapes Department Store, later converted to retail and commercial office uses. The building is listed as a local heritage item.
- Wynyard Lane (stratum lots above and below road level): Stratum lots that run above and below Wynyard Lane between 301 George Street and the Menzies Hotel.

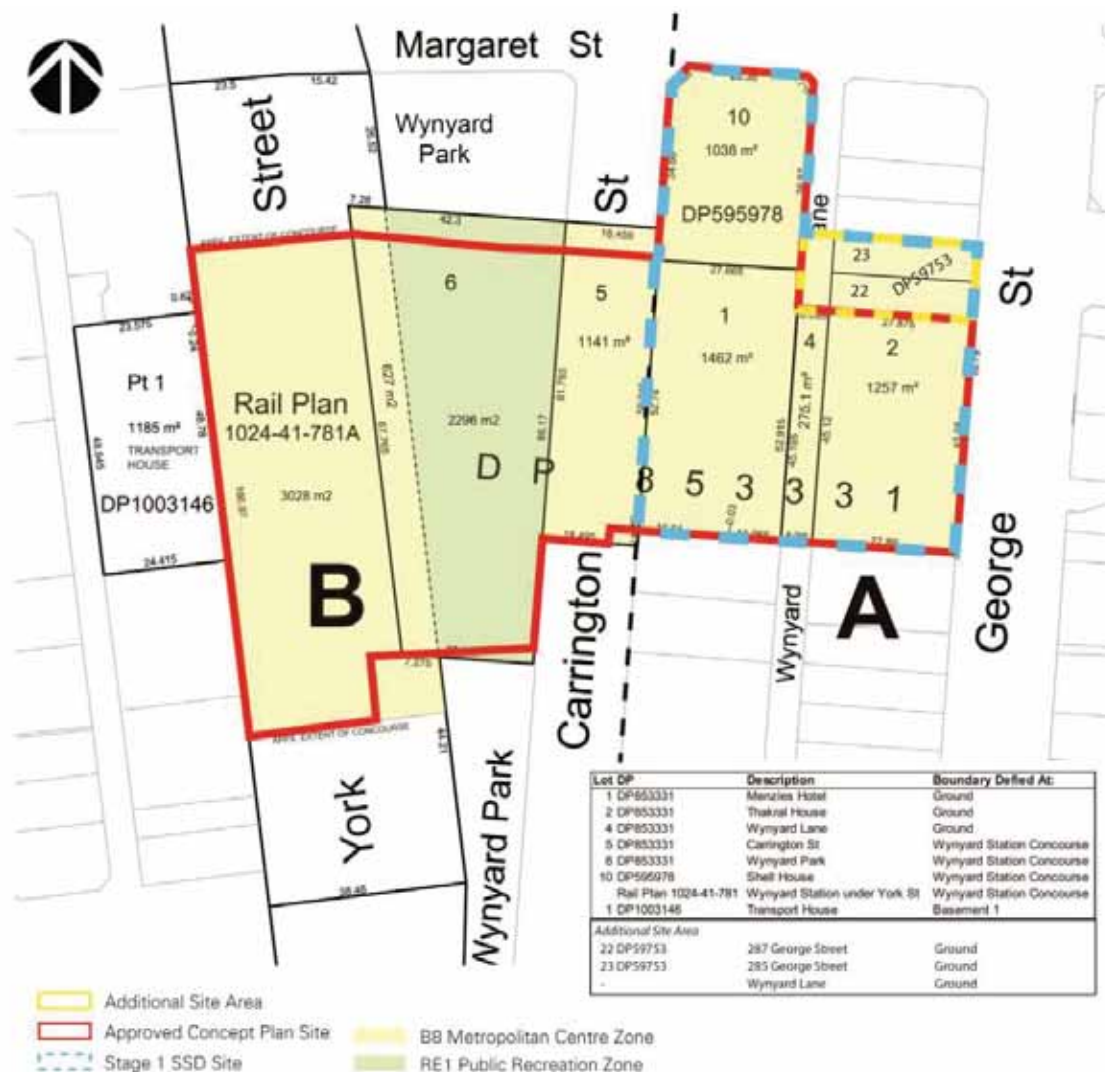


Figure 2 – Development Site

Projects Phasing and Public Access

One Carrington Street has a large number of authority approvals, design, construction planning and commercial issues to be resolved before construction can commence. The anticipated start date for construction works is Quarter 3 2015.

Key to the delivery of One Carrington Street is project phasing which enables construction to progress whilst maintaining the pedestrian and fire egress requirements which the current site provides.

This CMP provides a summary of the project phasing, public access and construction methodology which has been developed in considering the constraints of the site and provides for logical and intuitive pedestrian paths whilst allowing the construction activities to progress with reasonable efficiency. The phasing herein also incorporates the stakeholder feedback received through presentations to TfNSW.

Brookfield Multiplex produced a number of concepts and tabled these with TfNSW prior to identifying this as the preferred method for the Project Application. The provision of through site access to George Street, in lieu of the closure and diversion of pedestrian movements, was advised by TfNSW to be a key objective of the project phasing. As such it is represented herein.

One Carrington Street is proposed to be constructed in four separate phases. The project phasing including major activities associated with the construction shown diagrammatically in **Figure 03** below and further identified in the following table.

These phases are listed below in order of construction but may overlap in duration, or may be re-ordered or amended through development with stakeholders and the design. Through further refinement and analysis of the design and existing conditions and constraints this project phasing may be updated to provide a more suitable outcome in terms of pedestrian access, safety and construction efficiencies.

More detailed information on project phasing, public access and construction methodology is provided in Attachment 01.



Figure 3 – Public Access and Project Phasing Diagram (extract)

Phase 1	▪ Vacant Possession for all areas obtained prior to Phase 1 ▪ Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above ▪ Full use of George Street Ramps
	▪ Hunter Connection closed for preparation works ▪ Retail closed – services decommissioned ▪ All Basement Areas including retail Stores & Railcorp Areas removed or relocated as appropriate ▪ Establish Hoardings at shopfronts
Phase 2	▪ Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above ▪ Close South Ramp to George Street ▪ Open reconfigured path at Hunter Connection
	▪ Undertake structural modifications to enable access path for Phase 3 to establish ▪ Retain Structures as modified for South Ramp to George St Hunter Connection for pedestrian access. ▪ Use of North Ramp to George St and interim Hunter Connection path for pedestrian access
Phase 3	▪ Redirect pedestrian access to modified South Ramp to George St and modified Hunter Connection ▪ Demolish remaining structure of 301 George St and Menzies Hotel to basement
	▪ Construct new structure straddling the retained southern podium structures ▪ Undertake preliminary fitout of new transit hall areas sufficient to enable patron use. ▪ Supplementary fire egress width provided with Wynyard Walk opening.
Phase 4	▪ Redirect all pedestrian access onto the Northern components of the new structure Concourse Walk to George St and Hunter Connection ▪ Demolish podium structure of 301 George St and Menzies Hotel used for pedestrian access in previous phase
	▪ Undertake iterative finishes and fitout of new Transit Hall Areas ▪ Construct new structure where southern podium structures previously retained ▪ Open through-site link connection between George & Carrington Streets
Final	▪ Open all remaining connections including
	– Concourse Walk to George St – Hunter Connection South

Table 1 – Project Phasing Outline

Site Management – Organisations and Responsibilities

Brookfield have been working collaboratively with Brookfield Multiplex Constructions as the intended Principal Contractor for the construction management of the One Carrington Street project works.

An indicative organisational chart is shown below.

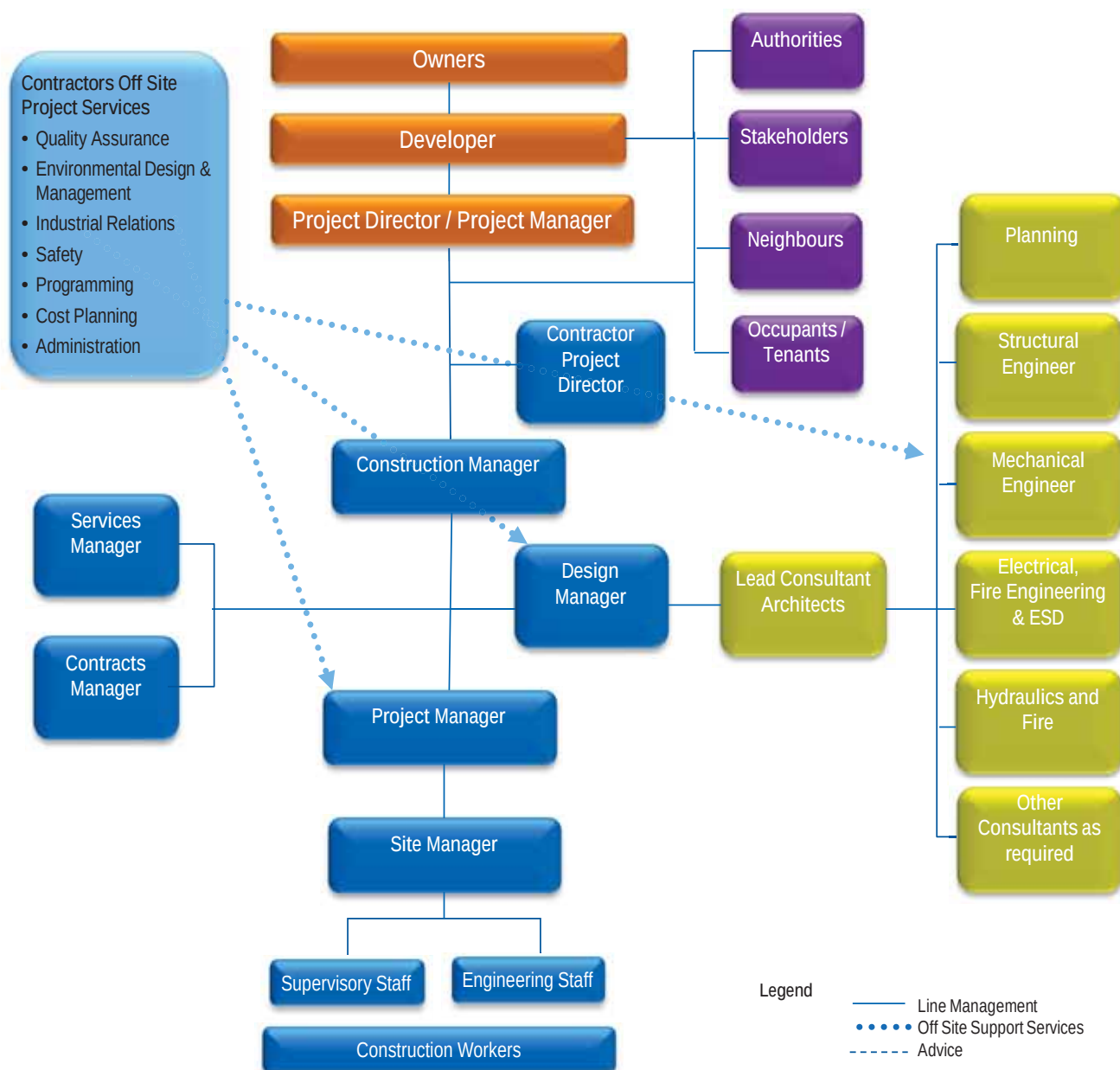


Figure 4 – Public Access and Project Phasing Diagram

Constraints and Considerations

An understanding has been developed of the physical constraints and operational considerations that impact on the One Carrington Street project. A summary of these is provided in the following sections.

Transport

One Carrington Street is located at a key node for several public transport services.

The project is located over (and shall incorporate) the key eastern access to Wynyard (Rail) Station, via George Street and the Hunter Connection.

Wynyard bus interchange is also located immediately to the west of the site, on Carrington Street and surrounding Wynyard Park.

The pedestrianisation of George Street, shall also bring Light Rail interfaces during construction and in the overall design.

A taxi rank is also presently located on Carrington Street outside of the Menzies Hotel.

Rail

Brookfield and Brookfield Multiplex have had an ongoing dialogue with TfNSW in relation to the rail impacts associated with One Carrington Street. Maintaining appropriate conditions and access for the rail patrons and rail infrastructure, whilst undertaking the works for One Carrington Street, is a fundamental consideration in the project planning.

Station Pedestrian Access & Egress

The preservation of suitable pedestrian access and (fire) egress requirements is the foremost consideration for the site.

Brookfield Multiplex have coordinated closely with Arup Pedestrian Planning and Fire Engineering to develop construction phasing and methodology, ensuring appropriate provisions are made for pedestrian access and fire egress purposes during the construction duration. Brookfield Multiplex shall continue to work closely with these consultants, TfNSW and the stakeholders through all of the phases.

Brookfield Multiplex have assumed that the opening of Wynyard Walk in late 2015 shall reduce the fire egress demand through the site and the methodologies and phasing are reflective of this.

Details on the project phasing and associated impacts are identified in further detail in Attachment 01.

Station Pedestrian Impacts

In combination with the provision of suitable access for pedestrian movement and fire egress purposes the general environment for pedestrian movement through the station should be appropriately considered. Particular consideration shall be given through the works to the following:

- Noise
- Vibration
- Dust
- Hazmat Exposure
- Visual clarity/wayfinding
- Security

These considerations and

Station Physical Works Impacts

At the interface between One Carrington Street and Wynyard Station there is a requirement to undertake works to facilitate the new design. This is principally around modifications to the existing retail units and the existing ramp sections (from George St) which extend towards the station concourse, per Figure 5 below.

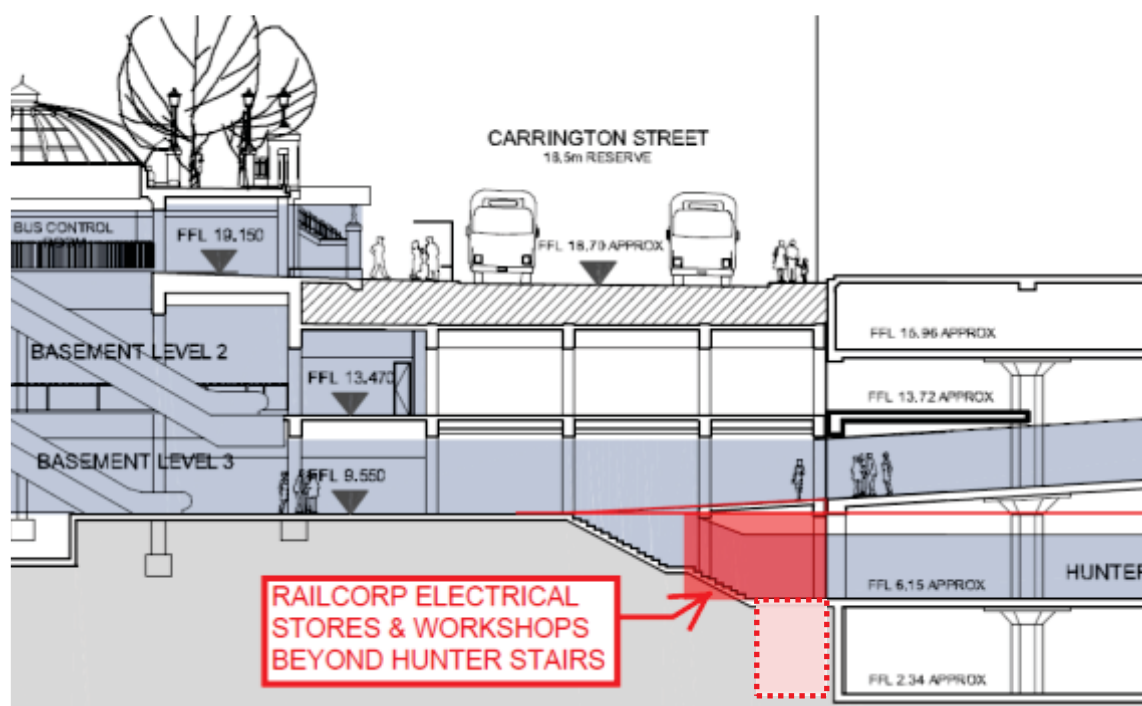


Figure 5 – Station Interface – Physical Works Impacts

Brookfield Multiplex has developed the overall phasing and construction methodology to incorporate these interface works and shall develop these in consultation with TfNSW and the appropriate stakeholders.

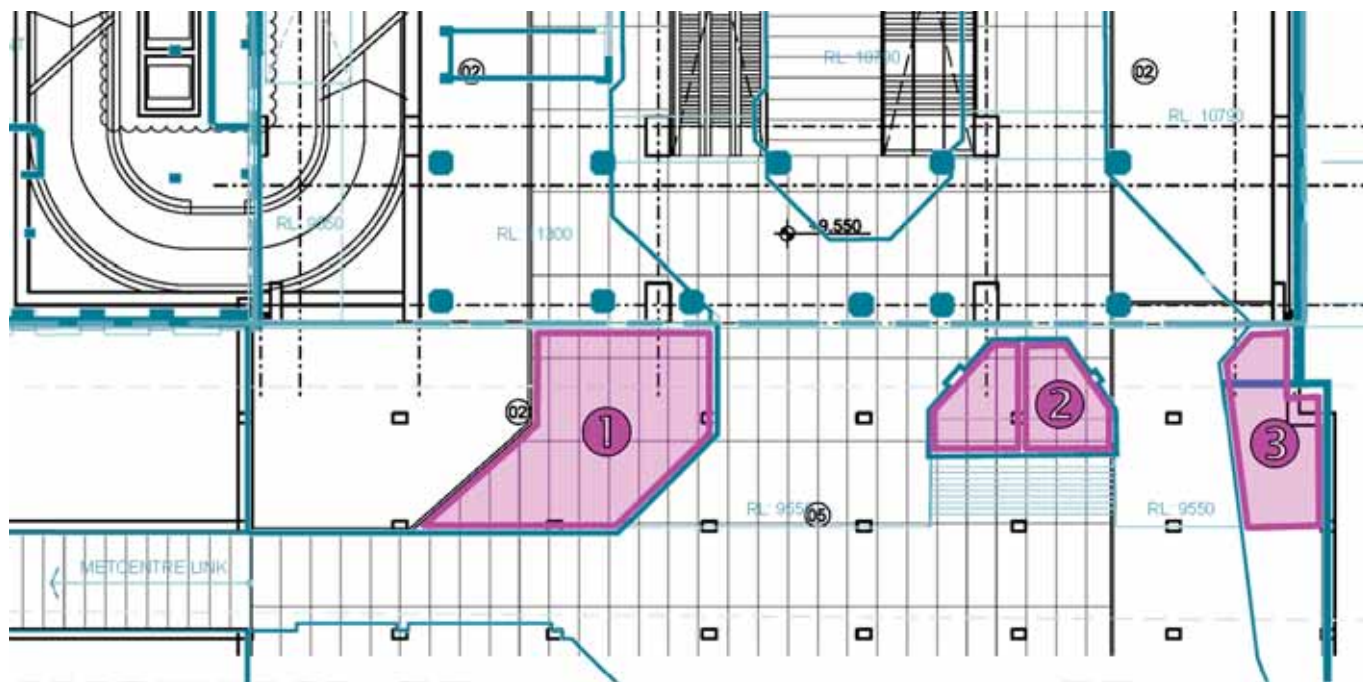
Other considerations for the physical constraints of the station are addressed in further sections through this document and include:

- Noise
- Vibration
- Dust
- S170 Heritage Listing
- Electrolysis/Stray Currents
- Service Access
- Retail impacts.

With the above interface works, the pedestrian access arrangements proposed and the configuration of the final design for One Carrington Street, a number of Wynyard Station Retail areas shall be impacted.

1. Café Tenancy on interface alignment to the North of the Site:

- To close during Phase 2 to allow for demolition and reconstruction works to the base of the ramp from George Street (occurring in Phase 3) and
 - allow for improved pedestrian access paths for final configuration and interim pedestrian paths during Phase 4.
- 2. Juice Bar and Indian Take Away to the East of the stair leading to the Hunter Connection:
 - To close during Phase 2 to allow for sufficient access for Phase 3
- 3. Potential for the Southern Tenancies adjacent to interface alignment



Works in these areas shall be coordinated closely with key stakeholders for the Station and undertaken concurrently with adjoining works on One Carrington Street to ensure impacts are minimised.

Corridor Protection

The Sydney Metro Corridor alignment is located adjacent to the site. The Corridor to be protected is identified in the Infrastructure SEPP and is extracted per Figure 7 below, with the site identified.

Impacts associated with the corridor have been considered and are understood to be negligible. Discussions with TfNSW did not identify any specific concerns with the development or considerations to be made.⁴

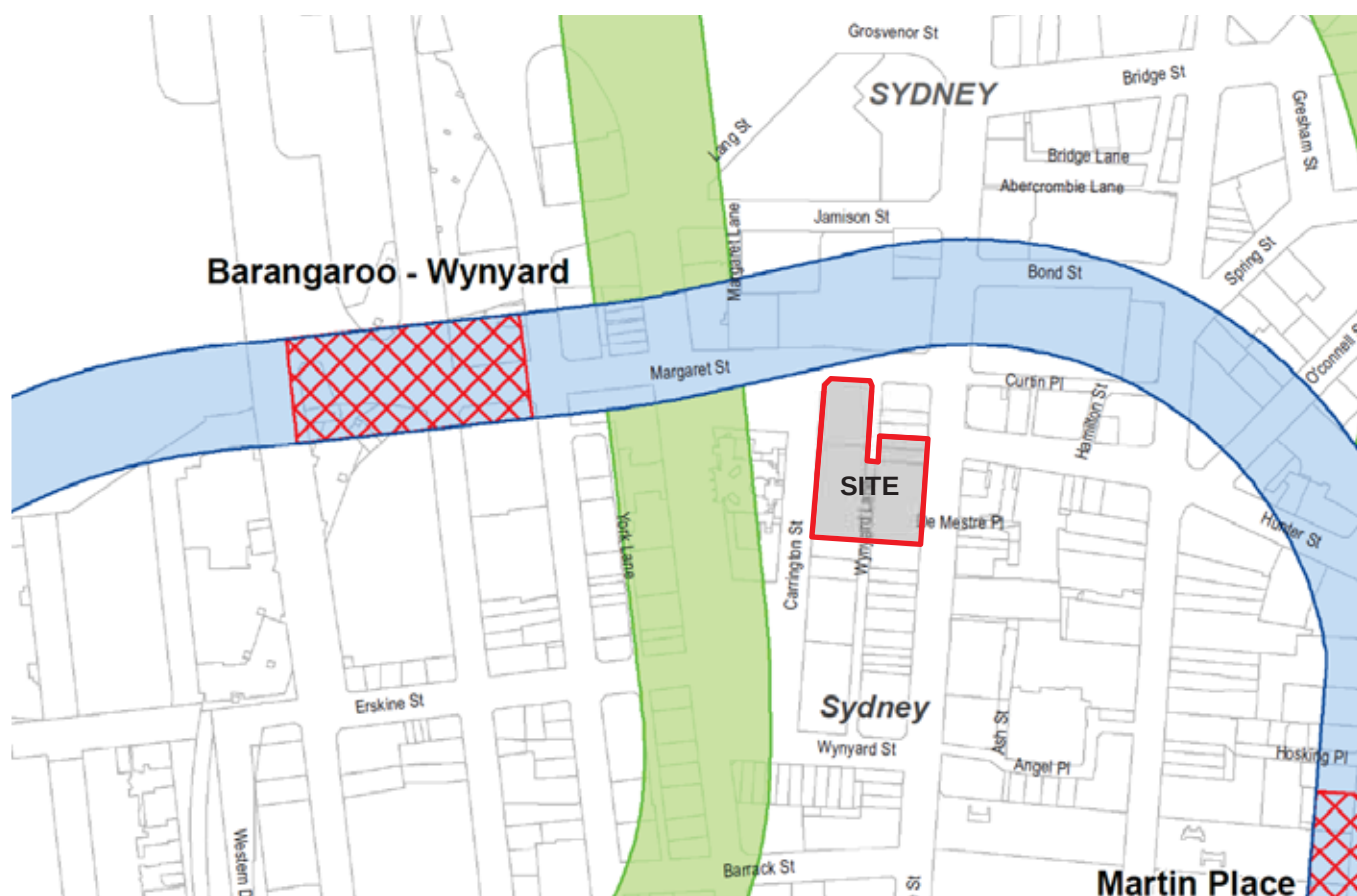


Figure 7 – Sydney Metro Corridor Protection (Infrastructure SEPP)

Bus

The Wynyard Bus Interchange area which is located immediately west of the site is the focal point for the majority of bus services from the Northern Beaches, North Shore and Northern Suburb Areas. It experiences significant usage during the morning and evening peaks with continued operation throughout the day.

The buses are principally arranged in an anti-clockwise loop around Wynyard Park, with a number of stands located on Carrington Street.

Pedestrians access to the buses (from the east) is predominantly via Regimental Square and Wynyard Street, where dedicated pedestrian crossings are not provided.

Bus services also presently operate along George Street. With the George St pedestrianisation and the associated light rail construction works it is understood that the bus network is to be re-planned.

⁴ Meeting/Presentation 10 Feb 2014 – including Ben Hendriks (Corridor Protection – TfNSW)

The associated traffic implications from bus services to Wynyard Park area is the primary identifiable consideration in carrying out the works for One Carrington Street. As such Brookfield Multiplex shall work in accordance with the Construction Traffic Management Plan, developed for the project and in consultation with key stakeholders.

Light Rail

Light Rail services are to be introduced to George St during the construction duration for One Carrington Street in two main phases, being the services diversion and relocation phase and the following construction phase. These works are also associated with the pedestrianisation of George St and major public domain works.

Project works have strategically been planned to minimise works interfaces on George Street. Interface with and strategic planning of works in coordination with the CSELR⁵ shall be adopted to minimise cumulative affects on the pedestrian access along George St resultant from both works.

Taxis

A taxi-rank is in place on Carrington Street (Eastern kerb) with the majority of patrons being hotel guests at the Menzies Hotel.

The closure of the Menzies Hotel to undertake the One Carrington Street shall significantly reduce the demand for the taxi rank. It is intended that the (present) taxi zone is utilised as a Works/Construction Zone for the duration of the works, with appropriate hours of operation.

The existing taxi zone may be relocated to the south during the day period (when the construction zone is in use) and can be operated in the original location, outside of the works-zone hours.

Brookfield Multiplex have met with the NSW Taxi Council⁶ and discussed the project and the associated impacts. The dialogue was positive in looking at the options and opportunities, and the Taxi Council expressed strong desire to see the taxi zone re-established in the original position following the construction period, particularly with the pedestrianisation of George St.

Heritage

Shell House

Built in 1939, "Shell House" is significant because of its former association with a prominent corporate identity, the Shell Company, and reflects the growing importance of Sydney as a location for corporate headquarters. The building serves as an important historic record of that company's presence in all Australia's capitals by the late 1930s. Generally, it reflects an important period of development in the city during the 1920s-1930s. Its later conversion for use as a hotel reflects the growing importance of tourism and the hospitality industry. Its aesthetic and formal qualities are of a high standard. Situated on a prominent corner site, it makes a distinguished contribution to the townscape character around Wynyard Park and represents a scale of city streetscape prior to the "skyscraper era". It is a representative and late example of Inter-War Commercial Palazzo and it provides a now relatively rare illustration of the use of glazed tiles as an external facing material. It is unique in that it is the only major Inter-war Palazzo style building remaining that is clad in terracotta.

All proposed works to Shell House will be completed in accordance with the Draft Conservation Management Plan as prepared by HBO+EMTB (2005) and advice from the Heritage Consultant.

Work methods shall be responsive to the architectural terracotta cladding which is on the building in dealing with vibrational and movement effects.

⁵ CSELR – CBD and South East Light Rail Project

⁶ Meeting with NSW Taxi Council – Jill Lewis (Deputy CEO) – 20 February 2014 – on site.

Beneficial House

Built in 1923, Beneficial House is noteworthy for its former lengthy association with "Peapes Menswear" (1923-1970), a particularly well-known Sydney retail store, and its contribution to creating an image for the store. It reflects the importance of George Street as a principal retailing thoroughfare and, generally, an important period of development during the 1920s. The building is of aesthetic significance as one of very few surviving commercial examples of Inter-war Georgian Revival style architecture and the work of Hardy Wilson. It is strikingly similar to British Airways House also attributed to Wilson, Neave & Berry, and has parallels with Lisgar House. It is a good example of the style and contributes significantly to the streetscape of George Street. The combination of Georgian Revival style in the brick facade, windows and section of tiled roof with a Commercial Palazzo style sandstone base adds to the architectural interest of the building.⁶

All proposed works to Beneficial House will be completed in accordance with the Conservation Management Plan prepared by Graham Brooks & Associates (2004) and the advice from the Heritage Consultant.

Surrounding Heritage

Wynyard Station

Wynyard Station, completed in 1932 is significant as one of a group of underground stations built as part of the city rail network during the 1920s and 1930s and as an essential linking station for both the City Circle and North Shore lines. It is associated with the works of JJC Bradfield, chief engineer for the city railway and Sydney Harbour Bridge construction and features prominent elements of both the practical and style designs of his original concept.⁷

All proposed works adjacent to and adjoining Wynyard Station are to be undertaken in consultation with the key stakeholders, applicable Conservation Management Plan/s and the advice of the Heritage Consultant.

Lisgar House

Lisgar House, built in 1927, is a well proportioned eight storey office building with a restrained brick facade overlooking Wynyard Park. It was designed in the Inter-war Georgian Revival style as offices for an investment company, with commercial tenancies on the ground floor. The symmetrical facade is a plain wall surface of fine face brick, consistent with the style, with regular fenestration of small multi-pane timber frame windows and doors. The third floor external doors are decorated with fanlights. The top floor of the facade features the fine detailing of a massive glazed terracotta entablature of almost one storey high with a statue of St Joseph as a carpenter centrally located. The ground floor has been extensively altered from the original design. The rear wall was demolished to accommodate extensions in the 1980s. The ground floor retail shops have glazed aluminium shopfronts with tiled walls. Upper level office space comprises plasterboard stud walls with glazed aluminium partitions. The original plaster ceilings appear intact behind suspended acoustic ceilings.⁶

All proposed works adjacent to Lisgar House will be completed with consideration to the heritage fabric and adopting measures which limit the opportunity for negative impacts. These shall include protective measures for the building, vibrational controls and the like.

Wynyard Park

Wynyard Park is an important space within the public domain and fabric of central Sydney. The Park is of historical significance due to its Victorian layout and history of use as a military parade ground from 1792 to 1848, and official dedication as a park for public recreation in 1887. Lang Park possesses historical significance from its history as the site of St. Phillips Church (demolished) and dedication as one of the early urban parks in 1866. The street edges facing the parks within this Special Area are of aesthetic significance as there is a strong sense of urban enclosure created by the uniformity of buildings lining the streets, resulting in the effect of an "urban room." Since that time, the area has become a major townscape element by virtue of the exceptional quality and the uniformity of the buildings that define the surrounding streets. The majority of these buildings are of a consistent height and street alignment and exhibit similar architectural themes. The surrounding predominant development is

⁷ Description provided from NSW Environment & Heritage

characterised by facades of strong visual depth, a high degree of architectural modelling and articulation, and changes in architectural treatment with height and level.⁶

Works are not anticipated to impact upon the Park. Consideration to the trees in the park shall be given during any major crane operations in Carrington Street.

Adjoining and Neighbouring Properties

Refer Figure 8 overleaf outlining the relationship of adjoining and neighbouring properties to the One Carrington Street site.

The adjoining properties indicated include:

- 283 George St (Crazy Johns) – 9 storey masonry and glass building
- 309-315 George St – 13 storey and 2 basement concrete and glass commercial building
- Lisgar House – 32 Carrington St – 8 Storey (including 1 basement) brick building
- Wynyard Station – through underground connections (to the West)
- Hunter Connection – through underground connections (to the East)
- Met Centre – through underground connections (adjacent Shell House)

Neighbouring properties to the site include:

- 275 George Street
- Properties South of the site on Wynyard Lane
- 50 Margaret Street
- Scots Church & Portico Apartments – Corner of York & Margaret Streets (nearest residential receiver)
- Wynyard Walk Project

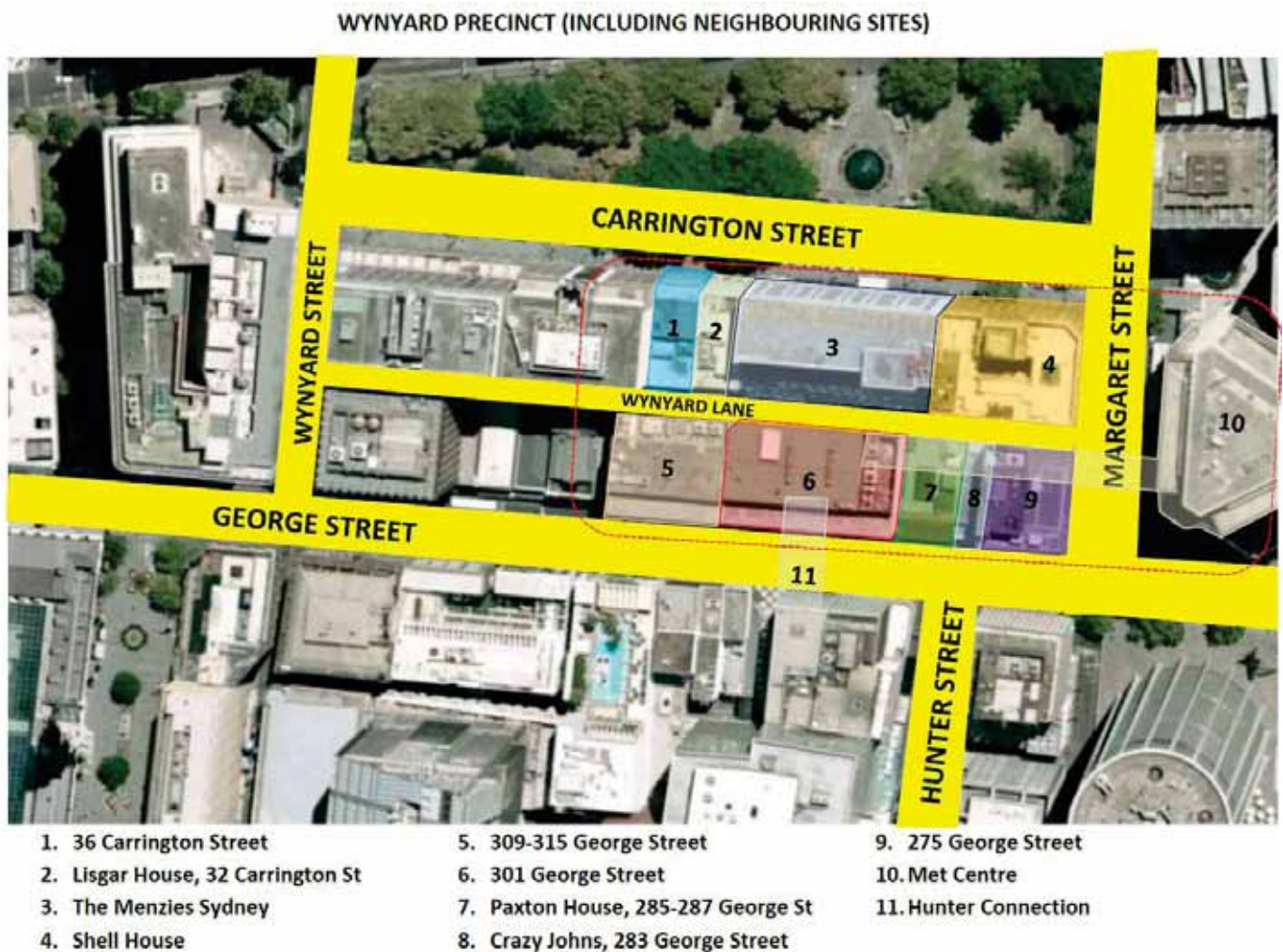


Figure 8 – Neighbouring Properties

Major Work Items

Demolition and Excavation

Demolition

Demolition on the site will be completed in a manner appropriate for its central, high traffic location. Noise, dust and vibration levels will be controlled in accordance with the appropriate codes, good practice for CBD construction and City of Sydney guidelines to minimise impacts to adjacent tenants and general public.

Demolition will be carried out in the project phases as described in the Projects Phasing and Public Access section of this document as well as isolated smaller demolition activities such as strip out of tenancies and isolated localised demolition to heritage buildings and the public domain. Buildings will generally be vacated prior to demolition works commencing.

Detailed work methods are yet to be determined, however it is envisaged that the Contractor will utilise appropriately sized excavators to demolish upper floor slabs, and pneumatic hammers on excavators for lower levels. It is also envisaged that isolation between structural elements to be retained and those to be demolished shall be provided to minimise noise and vibrational impacts on pedestrians using retained structure areas.

Structural certifications need to be obtained for working machinery on the existing concrete slabs to be demolished.

During both demolition and excavation, the Contractor will pay specific attention to items of heritage significance to ensure no damage occurs and shall monitor these buildings.

To facilitate the work, construction hoardings will be erected on all street frontages. Due to the proximity of a number of buildings to the site boundaries, a heavy duty scaffold will be erected around the external walls and return walls of the existing structures being demolished. External scaffold with chain wire mesh and shade cloth will be erected on all exposed work faces to act as fall protection and protective screen plus provide visual amenity to the surrounding area. The heavy duty scaffold will be encapsulated by chain wire and shade cloth. The scaffold will be progressively stripped down as the external walls are demolished.

Hazardous materials surveys have been undertaken to identify the location and type of hazardous materials on the site. These shall be supplemented by any further detailed investigations and removal of hazardous materials shall be undertaken in accordance with the codes of practice, with hygienist providing clearance certificates for the further demolition.

A summary of the demolition methodology includes:

- Class 'A' and 'B' hoardings to separate adjoining areas from the proposed demolition zone
- Undertake services terminations and relocations
- Install any necessary retention, stabilisation and protective measures
- Hazmat removal and soft strip out
- Commencing from top down with demolition of structural elements. Demolition lines will progressively be saw-cut in order to provide isolation between the remaining buildings and the demolition zone.
- Metal, rubbish, concrete and masonry will be progressively loaded onto trucks for transport off site to the recycling depot.

Factors that will need to be further considered in the future development of the demolition plan include:

- Minimisation of noise and dust
- Effective loading out of materials in order to achieve maximum productivity
- Identification and removal of hazardous materials prior to demolition commencement
- Crane requirements to assist demolition works particularly with demolition to Phases II and III.
- Traffic management plan

The demolition methodology will be planned to deliver the maximum productivity for a CBD site such as this in order to minimise disruptions over an extended period.

Shell House Demolition

Limited demolition is anticipated in Shell House. The design has strategically responded to maximise the retention of the internal structure, in particular the clock tower. Demolition works include the southern area of the building where the new access ramp to the tenant car park is to be located. The façade and perimeter structure in this location shall be braced with temporary structure whilst the demolition (and excavation) works occur.

The removal of the 1978 installed windows (from the hotel conversion) is also to be undertaken generally through Shell House, with retention remnant of steel-framed windows.

The clock mechanism which is housed in the tower is anticipated to be decommissioned (currently not operational) and taken off-site for refurbishment. Brookfield Multiplex arranged for inspection of the clock by the (original) manufacturers, Gillett & Johnston (UK). It is anticipated that the clock is returned to London for refurbishment during the construction period and as such protected from construction impacts.

All works shall be planned and communicated to ensure that items of heritage significance are duly identified and protected during the works and that works are undertaken in accordance with the Conservation Management Plan (Draft 2005) and the directions of the heritage consultant.

Excavation

There is a limited amount of bulk excavation to be undertaken on the site, associated with the new (tenant) car park access ramp with further bulk excavation for plant and End Of Trip (EOT) facilities. This will be carried out in Phase 3 following the demolition. Detailed work methods shall be developed with the (future) appointed subcontractor, however it is envisaged that the contractor will use a combination of excavators with rock saw/s, bulldozer to rip the rock, and supplementary excavators with buckets in combination with large bins and the crane to remove material off site.

There exists potential for boundary walls to require temporary ground anchors and/or rock bolts as a method for retention. This shall be developed with further investigations of the existing conditions and review of adjoining building plans. Where required, Brookfield along with the Brookfield Multiplex shall seek the necessary approvals associated with temporarily anchoring under adjacent neighbouring private or public properties (including local authorities). These agreements shall be sought prior to construction commencement to ensure there is not delay to the construction programme as the initial ground anchors/rock bolts would be installed at the commencement of demolition.

Structure

The new structures will be built in the various phases previously described. New structures will be constructed within all phases of the project with the majority of new structure being constructed in Phase 3 and 4 of the works. The main tower structures are foreseen to consist of conventional reinforced concrete elements, post tensioned concrete elements and conventionally reinforced vertical concrete columns and cores. Consideration is being given to the (limited) use of steel composite elements to reduce member sizes through the transit hall spaces and potentially provide the opportunity for advancing works.

System formwork will be used for some vertical elements such as lift and stair cores.

The typical floor structure will most likely be erected behind the perimeter formwork screens and will be progressed on a floor by floor basis. Perimeter screens would be used as the edge protection for the new tower.

The tower construction will use similar construction techniques as described in the basement works. The use of structural steel as the main structural frame for the tower is also under consideration. As the amount of new structure is still under consideration, detailing and work methods have yet to be finalised.

Shell House

Shell House shall have a new reinforced concrete core structure introduced in the southern area to be re-built with the ramp structure under. New reinforced concrete slabs shall connect from the new core and vertical structure in the south to the retained floor slabs. Further lateral bracing elements are also anticipated to be installed for upgrading of structural code requirements (principally earthquake loading).

New structures to the roof are anticipated to be structural steel and concrete solutions to minimise additional weight to the existing structure. The construction of these new areas are intended to be undertaken behind scaffold or screens.

Façade

New elements of the building will predominantly be clad with aluminium framed curtain wall subject to further design development. More solid cladding, including stone or similar is expected to be introduced along street frontages at footpath level. Façade will be installed on a floor by floor basis to create the building envelope.

The existing façade on Shell House shall have remedial works to the faience façade elements in consultation with the recommendations of the heritage consultant and consistent with the Conservation Management Plan. The aluminium framed windows which were introduced with the conversion to a hotel in 1978 are to be removed and replaced with new high performance windows and in consultation with the heritage consultant.

285 George Street is intended to have remedial works undertaken to the façade, subject to further investigation and development.

Fit-out Building Services

New Tower office areas will be built to meet modern Premium grade office standards, with Shell House refurbished to meet 'A' Grade office standards. It is anticipated that subject further to development, 285 George Street shall provide a unique solution for boutique style commercial space/suites, situated above the retail lower levels.

The majority of new building services will be selected to ensure environmental performances meet the market leading targets (Greenstar/NABERS).

Major plant rooms will exist predominantly on the roof tops in addition to a low rise plant rooms, with installation commencing as soon as these areas are available.

External & Public Domain Works

The One Carrington Street project is located at a key node linking various forms of public transport, including trains, buses and light rail services. It is also located centrally in the main financial district of the city's CBD, particularly with a shift of this centre west with developments on the western fringe, including Barangaroo.

The project provides the opportunity to improve the pedestrian environment and create active, vibrant retail environments. Pedestrian permeability through the precinct will be catered for with additional and improved connectivity and through site links. Public domain infrastructure will be delivered to meet the City of Sydney's guidelines.

The works shall be undertaken to the public domain progressively in sections, to ensure the extent of public footpath impacts are manageable, whilst allowing the works to progress.

Site Layout, Logistics and Materials Handling

Material Deliveries

Brookfield Multiplex have identified a number of factors which affect site access and materials deliveries (and loading out of demolition and excavation materials). These include:

- Interface with bus network on Carrington Street.
- CBD Light Rail works to George Street
- Cumulative impact of development in the area, predominantly from Barangaroo
- Traffic on York St associated with approach via Harbour Bridge to the north.

From this we have developed a materials deliveries strategy in consultation with GTA Traffic Engineers which is also reflected in the Construction Traffic Management Plan.

The strategy includes the following key points in considering the factors from above:

- Diversify the access points to minimise disruption
- Look to access site from the East (via Hunter & Margaret) where practicable
- Maximise use of Wynyard Lane for available loading
- Maximise use of Wynyard Lane Car Park Entry at Cumberland Street for smaller deliveries and deliveries to Wynyard Station retail.

The above principles have been discussed in preliminary briefing with the City of Sydney Council.⁸

A number of factors need consideration in developing the most suitable means of receiving deliveries and handling truck movements for the project and this should be continued to be developed with input from the appropriate stakeholders.

A matrix of anticipated deliveries and vehicular movements has been developed to assist in the project planning and the preparation of the Construction Traffic Management Plan. This is provided as Attachment 4.

Construction Zones

The predominant means of delivering materials to the site will be via construction zones. The extent of the work zones will be varied throughout the project to suit project needs for each phase of construction. This is further reflected in the Site Establishment plan (see Attachment 3).

It is foreseen that the following construction zones will be required throughout the various phases of the works:

- **Carrington Street construction zone:** This zone shall act as the primary construction zone for One Carrington Street and shall typically cater for larger trucks and those requiring craneage to unload.
- **Margaret Street construction zone:** This zone shall act as a supplement to the Carrington Street construction and shall typically cater for smaller trucks, deliveries associated with Shell House works and as a small holding area for loading into Wynyard Lane or the Carrington Street Works Zone.
- **Wynyard Lane:** Whilst not formally being sought as a Works Zone, it is intended that Wynyard Lane be closed to through traffic from the intersection with Margaret Street to the southern boundary. Wynyard Lane is anticipated to be used for removal of demolition product from 301 George Street tower and the podium and basement areas of 301 George St and the Menzies/Station. It shall also be used for concrete pumping as well as providing access (when available) to the new loading dock structure for the precinct.

The use of Wynyard Lane assists in relieving traffic pressures on the Carrington Street works zone and assists in diversifying the access and traffic impacts with view to reducing these.

⁸ Meeting with City of Sydney – Barry Keogh (Construction Liaison) – 20 February 2014

The construction only use of Wynyard Lane will alter loading arrangements for properties to the south of the site, which is discussed in further detail in the Traffic and Pedestrian Management section of this document and the Construction Traffic Management Plan.

- **Cumberland Street – Wynyard Lane Car Park Access:** It is anticipated that either a loading or works zone is established at the current exit of the Wynyard Lane Car Park in Cumberland Street. This shall allow for commercial deliveries via the tunnel or deliveries to be unloaded directly into the tunnel via forklift and taken to the site.

Establishment of crossovers and work zones will be required and full pedestrian and traffic management will be implemented upon the establishment of the construction work zones. To ensure that there is sufficient public protection between the construction site and public roads, hoardings and barriers will be utilised.

Vehicles entering and exiting the construction zones will do so in a controlled and planned manner with minimal disruption to local vehicular and pedestrian traffic. To sustain this focus the Contractor will manage construction, pedestrian and vehicular interactions on all public roads with traffic and pedestrian control. At all times the Contractor will be mindful of any work being undertaken by local authorities adjacent to and/or surrounding our site.

Hoardings and Overhead Protection

Hoardings will be installed to establish a secure barrier between the construction site and the general public.

Prior to the installation of hoardings onsite, the following will take place:

- Services, particularly essential services and life safety systems will be protected or relocated where necessary
- Routine maintenance will be completed and access provision made for emergency or maintenance access
- Locations will be coordinated with City of Sydney Council, other relevant stakeholders, tenants and consultants
- Final locations and wall types will be detailed on revised plans and approved
- A briefing package of information shall be provided to key stakeholders for comment/information as appropriate.

The different types of protection to be provided are as follows:

External Hoardings

During the site establishment and mobilisation period of each project phase, external hoardings will be erected on all external street frontages; George Street, Carrington Street, Margaret Street and Wynyard Lane.

An “A” class hoarding, of standard plywood type construction, complying with the requirements of the City of Sydney Council hoarding policy, will be installed to establish a secure barrier between the construction site and external frontages.

Prior to the installation of tower cranes or major demolition works a ‘B’ class hoarding of structural steel construction, complying with all requirements of the City of Sydney hoarding policy, and the project specific requirements, will be installed to facilitate the protection of the general public. The extent of hoarding will mirror the extent of construction zone required.

Please refer to the site setup plan drawing at Attachment 03: Site Establishment Plan.

Load Bearing / 10kPa Overhead Protection Structures

Specialised overhead protection structures will be provided for either temporary structural support or for rated overhead protection of the public, tenants and work force.

The load bearing/overhead protective structures will be:

- Designed and constructed using specialised modular scaffold type components
- Installed where appropriate to allow for aesthetic cladding if required
- Treated to accommodate acoustic requirements for the operational spaces

-
- Used on council property to protect pedestrians using the footpaths.

Internal Site Hoardings

Internal hoardings will be installed taking into consideration;

- Aesthetic suitability
- Acoustic, vibration and dust nuisance
- Operational requirements
- Construction access for out of hours work
- Customer and tenant access pathways
- Existing structural capacities
- Effect on surveillance
- Compliance with BCA and fire engineering requirements
- Temporary waterproofing from external and internal conditions.

Internal hoardings of various types will typically be used in:

- Basement Areas
- Public street frontages
- Street level Construction Zones
- Separation between trades on specific levels where required
- Protection of Heritage fabric.

Scaffold and Screens

The form of edge protection, utilised for the structures above the ground floor, will be a combination of perimeter screen system and scaffold. The screens will provide perimeter protection coverage for approximately 4 levels and will progress upward with the structure. Where structure is constructed over the heritage buildings this will be completed behind a heavy duty protection scaffold.

The scaffold will be supported over the heritage buildings by needling off structural steel beams fixed to the structures that are being demolished/rebuilt.

Crane, Hoists and Loading Platforms

Tower cranes are proposed, arranged in an efficient configuration for the site, with mobile cranes introduced to supplement craneage as required. The exact types and locations of the tower cranes are yet to be determined; however indicative layouts are shown on the preliminary Site Establishment Plan in **Attachment 03**. Crane types will be selected due to their lifting capacity and speed. The tower cranes will be installed and removed via a mobile crane on Carrington Street and will require appropriate authority approval at the time. Throughout the construction period tower and mobile cranes may have the capability to swing over adjacent properties however no loads will ever be swung over adjoining properties.

The tower crane installation will provide safe:

- Removal of structural demolition elements and existing plant
- Erection of new structure
- Loading in of new structure and finishing materials required within the existing structure
- Trade waste removal via rubbish skips
- New plant installation.

When utilising the tower crane during the demolition process, materials will be lifted directly from the existing floor and into awaiting trucks in the construction zones. Lifting of demolition materials will be carried out where possible using crane liftable rubbish skips.

Personnel and materials hoists will be required to service all levels of the existing and new buildings. The exact sizes and locations of the hoists are yet to be determined. Use of existing lifts as personnel hoists will also be investigated particularly at the early stages of site establishment. The use of the permanent lifts for personnel and goods should also be adopted for the latter stages of construction.

Loading platforms will progressively be erected on each floor for the loading of materials, plant and equipment. These will be removed as façade works progress up the building.

Cranes shall be subject to approvals from Sydney Airport Corporation Limited (SACL), and the appropriate agencies they refer to in such cases. Applications shall be made to SACL for the cranes and the conditions of approval communicated and complied with during construction.

Accommodation

In order to complete the construction works it is necessary to provide site amenities for the workforce that include lunch, change, ablution, first aid and wash down facilities.

The preferred solution for the accommodation is located in the initial areas of the Wynyard Lane Car Park, which shall be closed for the construction duration. This provides for undercover access to the site and alleviates the need to occupy hoarding space or (other) basement areas.

Site Induction

The Contractor will prepare and operate a specific site induction for all employees working on the project, and ensure that every individual on the project attends a site-specific induction before they are allowed to start work. This induction will be a requirement under the Work Health & Safety Plan to be formulated for the project. The site induction sessions will be held on a regular basis and where possible subcontractors will be requested to attend the week prior to the date they are due to start.

The site induction will include specific commentary on the interfaces with the following:

- Interfaces with the station and associated protocols
- Pedestrian (Public) access areas through the site
- Traffic and loading arrangements/protocols
- Identification and notification of Heritage items on the site and adjacent

All employees will be educated on the behavioural and security requirements for the project. Any employee found to be repeatedly disregarding these requirements will be removed from site.

Site Security

A licensed security provider will be engaged to provide security services on the project. Preliminary details of the proposed site security methodology for One Carrington Street project are detailed below:

- **Static Guarding** – A fully compliant and professional static security officer will be located at all entry and exit points during construction working hours.
- **Compliance Management** – The security contractor will provide a compliance operator to operate the electronic compliance system that will be commissioned onsite.
- **Access Control** – Security guards stationed at the entry points to the site provide access control to the site. Each individual entering the site will have their ID card scanned by the electronic compliance system. This

system provides a record of every employee onsite and ensures that all subcontractors onsite have current and acceptable insurances, are bona-fide companies, and have all appropriate WH&S documentation in place.

- **Work Health & Safety** – The security guards at the entry gate control the entry of subcontractors and check that those entering site are wearing the appropriate PPE for working on a construction site.
- **Regular Patrols** - The security guards will also complete regular patrols of the site and will contact the Site Manager should any issues of concern be identified. Given the nature of the site, 24 hour presence is anticipated for security.

The security personnel shall also interface as appropriate with the adjacent/connected buildings such as Wynyard Station (Sydney Trains), The Met Centre and The Hunter Connection.

Protection of Heritage Items and Surrounding Developments

Heavy construction works and general access will be directed away from areas of heritage significance as much as possible. Wherever required, heritage components will be protected with appropriate panelling, barriers and fencing. In general heritage items that are to remain and/or be refurbished will be identified and protected. Details of the refurbishment will be developed in conjunction with trade experts, the Heritage Consultant and in accordance with the appropriate the Conservation Management Plans.

Site inductions and tool box talks will be held by the Contractor to inform site personnel and visitors of the location of heritage items and the requirements for their protection. Work method statements will be developed specifically for works in close proximity to heritage items.

There are areas on the site where demolition and excavation will occur adjacent to the heritage buildings that are to remain. These require temporary protection and stabilisation measures to be implemented.

Works shall also occur in areas where neighbouring premises are heritage items, namely Lisgar House on Carrington Street and Wynyard Station. Identification and appropriate monitoring of these shall be undertaken throughout construction.

Dilapidation Survey

Prior to commencing work onsite, a full Pre-Construction Dilapidation Report will be completed by a Dilapidation Survey Consultant for adjoining buildings as listed below. This detailed survey will encompass current structural, architectural, services and heritage conditions of the existing adjacent neighbouring properties, onsite heritage buildings being Shell House and Beneficial House, construction zones, infrastructure and roads. The dilapidation report will cover all areas where construction works are occurring and to which the construction certificate applies. These surveys will be issued to all adjoining neighbours and a post completion survey will also be compiled for comparison.

Dilapidation surveys for the heritage items may also be conducted in combination with the Heritage Consultant. Archival recording of heritage premises shall also be undertaken in accordance with the requirements of the development consent.

Adjoining and Adjacent Neighbours

Careful site management, which will minimise disruption and inconvenience to neighbouring buildings and their occupants, is of the highest importance. The Contractor will provide a Community Liaison Officer to work with neighbours, understand their needs and requirements, and, where possible, adjust construction works methodologies accordingly. The adjoining properties and neighbours specifically identified for consultation are identified below.

The adjoining and neighbouring properties include:

- 283 George St – 9 storey masonry and glass building (to the North)
- 309-315 George St – 13 storey and 2 basement concrete and glass commercial building (to the South)
- Lisgar House – 32 Carrington St – 8 Storey (including 1 basement) brick building (to the South)
- Wynyard Station – through underground connections (to the West)
- Hunter Connection – through underground connections (to the East)
- Met Centre – through underground connections (adjacent Shell House)
- 275 George Street
- Properties South of the site on Wynyard Lane
- 50 Margaret Street

-
- Scots Church & Portico Apartments – Corner of York & Margaret Streets (nearest residential receiver)
 - Wynyard Walk Project

As construction progresses, protection of neighbouring building roofs may be required to the buildings directly adjacent to and within the development. The method of protection will vary and will be resolved with direct communication with each neighbour.

Adjoining Owners Management

Communication

Prior to commencement of works, Brookfield Multiplex will undertake a communication meeting with the stakeholders and surrounding tenants. This briefing will involve an outline of the construction sequence, together with an overview of the staging and timing of the works. This initial meeting will provide an opportunity for input from the stakeholders and tenant before finalising methodology.

From this initial meeting Brookfield Multiplex shall seek to formalise an agreement with the appropriate neighbours which outlines the works as well as communication protocols between parties, and agreement to undertake works over their boundary which serve to facilitate our construction whilst providing protection to their premises.

The agreement would seek to define:

- Define lines of communication and appoint a single point of contact for neighbours
- Provision of information on the buildings to assist in ascertaining impacts, critical items etc.
- Times for site inspections within the leased premises
- Specific dates for regular communication meetings
- Clarify the escalation process
- Develop a notifications protocol for unique work situations
- Access for monitoring etc.
- Provision of anchors/shoring/underpinning
- Provision for overhead protection
- Interface requirements for finished building (flashings/cappings etc.)

It is essential that the stakeholders are aware of current and future activities within the premises and how these could impact on tenants and customers.

Points of contact between the Brookfield Multiplex project team and stakeholders will be agreed for various scenarios, with stakeholders provided with 24 hour contact numbers.

Weekly and/or daily inspections of areas that interface with the tenant and customers will be organised so potential issues can be identified early and addressed.

Key personnel from the Brookfield Multiplex project team will be available to attend stakeholder internal briefings if required to communicate details of the proposed works to their respective team members.

Services Interruptions and Impairment

Prior to any services being impaired or work being carried out within an active operational environment notifications and briefings to affected parties will be made. This process will be implemented on the project to provide advance agreement for specific or unique work activities to be carried out. Such notifications and/or briefings could be made a number of weeks in advance of proposed work and in line with any agreed project notification protocols established. Depending on the risk profile of the proposed work, the agreed notification durations may be required months in advance.

This process will be of particular value on the project in relation to the following elements:

-
- Works within a tenant area
 - Works that may affect the services to a tenant area
 - Activities in the general public realm
 - Works that may affect local traffic flow
 - Works within the basement carpark area
 - Works that may exceed the agreed noise and vibration criteria
 - Major services changeovers or shutdowns.

The benefits to all parties of the process include:

- Proposed works are planned in detail
- Stakeholders are briefed on the proposal
- Stakeholders are empowered and become active participants in the project
- Early dissemination of this information effectively to relevant team members
- Works are undertaken in a more controlled and diligent manner.

Complaints Response Process

The complaints response process for the One Carrington Street project will be outlined in a Communication Plan to be developed. This Plan will describe the Brookfield Multiplex's approach and procedures for communication with internal and external stakeholders, authorities, and the public.

Emergency Contact

The initial point of contact for the Project for complaints will be the Project Manager and the Site Manager.

Project Manager: TBC

Site Manager: TBC

As other key personnel commence onsite, further names and contact numbers will be issued and displayed prominently on sign boards.

Public Amenity, Safety and Pedestrian Management

Hours of Work

General demolition and construction works will be undertaken within the hours permitted under the development approval. In some cases after-hours permits will be sought from the relevant authorities where special requirements exist, for example oversized deliveries.

Working hours are foreseen as being generally in line with the City of Sydney standard hours as follows:

- Between 7am and 7pm Monday to Friday
- Between 7am and 5pm Saturday
- No working Sundays or public holidays
 - (excepting specific events such as crane erection/dismantle, hoardings and other works out of hours)

Noise & Vibration Management

Particular care will need to be taken during the construction of each phase of the project to control noise and vibration. Work methodologies and plant selection for demolition and excavation will be reviewed to determine the most practical and programme-effective solutions for these works. This active approach will mitigate the potential for human discomfort and noise and vibration disruptions to surrounding key stakeholders.

Noise and vibration transfer from the construction process could potentially have an impact upon adjacent building tenants, the public and surrounding premises. Vibration could also potentially affect the heritage fabric of Shell House, Beneficial House and Lisgar House.

Prior to the commencement of any works onsite a noise and vibration management plan will be developed by Brookfield Multiplex in consultation with acoustic and vibration consultant and key stakeholders to develop strategies for the mitigation of noise and vibration generated by the works.

In order to help meet the noise and vibration requirements of the site, baseline testing will be carried out and existing operational levels identified. Early identification of baseline levels will enable subcontractor methodologies to be specifically tailored to ensure the benchmarks are not exceeded.

Vibration and noise generating activities will be coordinated and undertaken in consultation with the appropriate parties and carried out during the subsequent agreed periods.

Vibration and noise will be minimised during the detailed excavation process by the use of saw-cutting of footings, which will reduce the amount of “hammering” required. Particular care will also be taken during the demolition and connection to the surrounding structures.

Work methodologies and plant selection will be reviewed to mitigate the potential for noise and vibration from the new works being loaded onto the surrounding structure.

Work practices that minimise noise and vibration will be used wherever possible. These include but are not limited to the following:

- Flexible working hours avoiding noisy work during peak business operation times
- Plant and equipment selection to reduce noise where possible
- Plant and equipment fitted with silencers where possible
- Acoustic testing of proposed methodologies prior to commencing work
- Erection of temporary screens to encapsulate dust and noise
- Methodology development aimed at finding alternatives capable of reducing noise and vibration where possible
- Location of major plant such as cranes away from noise and vibration sensitive areas where possible.

- Provide acoustically improved hoardings for public access paths which are maintained through the site.

The following items outline some of Brookfield Multiplex's key control measures which will be applied during the demolition and construction phase to assist with noise reduction:

- Plant known to emit noise strongly in one direction would, where possible, be orientated so that noise is directed away from noise sensitive areas.
- Machines fitted with engine covers would be kept closed when operating.
- The height materials are placed either into or out of trucks, would be limited where possible.
- Stationary and mobile equipment including offsite vehicles would be maintained regularly.
- Operation would be limited to occur within the approved hours.
- Continuous training through inductions and ongoing meetings would be provided for operators, labourers, subcontractors and supervisors, to keep minimal noise impacts on local residents and businesses top of mind.
- Notifications of particularly noisy works would be undertaken prior to any planned works commencing. This would include either personal or community meetings with adjoining properties owners and/or tenants, this process will be undertaken in particular prior to Demolition and Excavation phase of the project.
- Regular servicing of equipment, or when an individual plant item are identified as being particularly noisy, would be conducted.
- A construction noise monitoring plan for the construction period prior to commencing works would be designed and implemented.
- All complaints in relation to noise would be monitored and recorded.
- An onsite person would be identified as the contact point in the event of noise complaints with contact details provided within the Construction Management Plan.

Monitoring

The Contractor will engage an independent acoustic / vibration consultant to install and monitor noise and vibration logging equipment at suitable locations. These monitors will be calibrated and programmed to an agreed level with an alarm being triggered in the event of vibration or noise exceeding the acceptable range. This alarm will automatically notify the nominated Brookfield Multiplex liaison officer. In the event of such an incident works will cease in the specific area and be reviewed and if appropriate, alternate methods will be adopted.

Noise monitoring

Noise monitoring will be undertaken to monitor and help minimise construction noise in order to avoid discomfort to the building occupants and their cliental, the public, and occupants of surrounding premises.

The specific noise monitoring methods that will be used shall be outlined in the Construction Noise Plan and are anticipated to encompass the following:

- Unmanned Noise Monitors
 - These monitors are programmed to notify 'back to base' and alarm locally whenever noise exceeds the required level. They are also linked back to software programs that are used for monthly noise reports and specific incident reporting.
 - Locations for the monitors are selected strategically based on assessment of the nearest affected receivers.
 - Should they be installed in an unsecure location, typically the noise monitoring equipment would be housed in a steel cage to prevent damage, theft or vandalism.
- Manned Noise Monitors
 - Manned noise monitoring will be undertaken to assess specific and new work methodologies when required. Construction methods will be reviewed and changed if required.
- Noise Reports will be prepared on an as required basis i.e. monthly.
- Community Liaison will be carried out if required to address any community concerns regarding noise.

Vibration Monitoring

Vibration monitoring during the demolition and structural new build phases will be undertaken in order to monitor potential human discomfort and potential structural / heritage damage in and around the existing buildings.

The specific vibration monitoring methods that will be used shall be identified within the Construction Vibration Plan and are anticipated to encompass the following.

- Upon establishment of the required vibration monitoring equipment, monitoring will be carried out on a regular basis to ensure work is being undertaken within the agreed vibration levels. Working hours, work methods and site practices will be reviewed accordingly.
- Vibration monitoring reports will be prepared on an as required basis i.e. monthly or incident reporting.

Monitoring will be carried out on a regular basis throughout the project. The four main activities of work that are expected to provide vibration and noise that will require monitoring are:

- Soft Strip out
- Demolition
- Structural new build works
- Fit-out / finishes
- Heritage restoration works.

Public Safety

Works will be undertaken with maintaining public safety as being paramount. Class A and B type hoardings will generally be erected around the site perimeter and where construction is occurring over or adjacent to public thoroughfares.

Formwork screens will be utilised to secure leading edges during construction of structural elements.

General safety measures will be undertaken as standard practice such as scaffolding around demolition works, adequate lighting, safety signage, provision of site security, flashing lights at vehicle cross overs, physical barriers between construction works areas, and public access areas.

The phased nature of the construction shall incorporate differing arrangements throughout the project. These shall be duly adjusted in keeping with the public access phasing and are further described in the Projects Phasing and Public Access section of this report and Attachments 1 and 2.

Key elements of protection access provided to comply with the City of Sydney Hoarding Policy guidelines are:

- Erection of an "A" class hoarding of standard plywood type construction
- Installation of a "B" class hoarding where tower-crane-lifting is proposed to take place.

Pedestrian Management

To allow for continuous public access, materials handling and management of pedestrian safety, some major diversions from existing pedestrian routes will be required for large periods of the work. The installation of way finding signage and lighting will be appropriately managed to ensure clear pedestrian understanding and preservation of safety and amenity.

Traffic and Pedestrian Management

Traffic Management

Brookfield Multiplex have worked collaboratively with GTA (traffic engineers) to prepare a Construction Traffic Management Plan to accompany the Project Application. Traffic is anticipated to be managed in the following ways:

- Diversified loading areas to minimise impacts on Carrington Street Construction Zone. This includes:
 - Maximising the reasonable use of Wynyard Lane
 - Utilise the former tram tunnels (given Wynyard Lane Car Park closure) for smaller deliveries via vans/utes etc. noting head clearance of circa 2m.
- Designated transport routes will be communicated to all personal, and enforced with preference for maximising traffic movements via an eastern approach (via Hunter/George/Margaret)
- Designated peak hour and non-peak hour delivery vehicle waiting areas
- Strict scheduling of vehicle movement will occur to minimise off site waiting times
- On-site parking will not be provided, and site workers will utilise public transport and car sharing wherever possible
- Vehicle movements will be compliant with conditions of Consent and broader road-use regulations, particularly with regard to hours of work, materials loading and unloading, and over size deliveries and installation
- Stakeholder feedback.

The Construction Traffic Management Plan will address each phase of One Carrington Street project works to ensure vehicle movements to, around and from the site do not adversely impact traffic arterials within the vicinity of the project or pedestrian movements around it.

The contractor will manage traffic associated with the site to minimise the impact on the local area. The Traffic Management Plan will be incorporated in subcontractor agreements and the key points communicated to the workforce through the site induction procedures.

A matrix identifying the construction traffic generation for various work activities is provided in Attachment 4.

Traffic Managed Solutions

Wynyard Lane South

The proposed closure of Wynyard Lane access from the Margaret Street intersection shall require the introduction of a two-way traffic managed solution to operate throughout the construction period. Key to this strategy shall be:

- Engagement with premises with access to Wynyard Lane to discuss impacts and arrangements.
- Provision of traffic controllers and associated measures for the southern end of Wynyard Lane and the corner of Wynyard Lane with Wynyard Street.

The managed solution shall also be developed with GTA to ensure appropriate measures and controls are in place and impacts are managed.

Wynyard Lane Car Park – Access via Cumberland St

Wynyard Lane Car Park is to be closed during the construction duration. During construction, the entry to the car park from Wynyard Lane will not be available. The intention to use the car park for small deliveries, Station Retail deliveries and loading would now be reliant on the access to the Car Park being via the Cumberland Street (current) Exit. A traffic managed solution shall be developed with GTA to provide for the single-lane access to be managed for two-way flows.

Pedestrian Management

Pedestrian Management shall consider two separated scenarios, being:

- Pedestrian Access through the site to/from George Street/Hunter Connection to Wynyard Station
- Pedestrian Access around the site on the footpath network.

Station Pedestrian Access

The pedestrian access (and fire egress) to the station has been reviewed through consultation with Arup Pedestrian Planning and Fire Engineering. The parameters outlined through this process and review have been implemented in the Public Access and Project Phasing Diagrams and the overall construction methodology presented herein and provided in Attachment 1.

Footpath Pedestrian Access

Brookfield Multiplex shall interface with the CBD Light Rail works to understand the relative impacts of these works, when further information on timing and staging of the Light Rail Works becomes available. This will be important to ensure that the street conditions (particularly) on George St are aligned with the pedestrian access from the station.

The impacts upon the footpaths surrounding the site shall include the impacts of hoarding column locations and barriers, as well as any site vehicular entry points. Brookfield Multiplex shall develop the hoardings and site access areas to best minimise the impacts on the use of the footpaths surrounding the site.

Site Access

Access to the Site will be available at various times via the existing street frontage access ways and construction zone to be created.

For access reasons, and to minimise traffic disruptions to the surrounding road network, deliveries will be carefully controlled. Materials will predominantly be delivered via the construction zones.

Heavy and wide loads will be coordinated with the relevant authorities and stakeholders for approval, so as to minimise traffic impact during work hours.

Onsite traffic management will be finalised with each stage of the works, as appropriate. Ongoing liaison with the relevant authorities will occur throughout.

Street & Footpath Closures

Short Duration Closures

For works to be completed safely, some temporary street closures may be required. These closures will be well planned in advance, with approvals sought from relevant authorities.

Activities that may require a street closure include tower crane erection and dismantling, and installation of major plant and structure. Wherever possible these closures will be scheduled for non-peak times. A specific management plan will be established to ensure the best possible outcome.

The installation and dismantling of Class B hoardings are also anticipated to require localised closures to the footpath areas. These works shall again be scheduled for non-peak periods where possible.

Longer Duration Closures:

Wynyard Lane is proposed to be closed to maximise use for construction loading and as the suspended portion over the station concourse below shall sever through access. The implications and management measures relating to this are discussed further in the Construction Traffic Management Plan.

The execution of public domain works shall also require localised closures of the footpaths. Pedestrian management measures shall be implemented following liaison with key stakeholders, notably City of Sydney.

TfNSW

Brookfield and Brookfield Multiplex shall continue to liaise with TfNSW and other relevant government agencies to ensure that the Construction Traffic Management Plan is maintained to minimise disruption to commuters and to maximise efficiencies for all parties.

Environmental Management

Work Health & Safety

Brookfield Multiplex will be the nominated “Principal Contractor” as required under the WHS Act. This role will require the careful and controlled management of worker and public safety. Detailed methodologies are yet to be developed, however typical approaches include job training, toolbox talks, and implementation of emergency management plans, safe work method statements, weekly WHS meetings and audits to confirm compliance.

The Contractor will be required to report on WHS on a regular basis.

Hazardous & Contaminated Materials

Hazardous and contaminated materials surveys have been undertaken to identify the location and type of these materials on the site. These shall be supplemented by any further detailed investigations and removal of hazardous materials shall be undertaken in accordance with the codes of practice with hygienist providing clearance certificates for the further demolition or excavation.

In the event that hazardous materials significantly beyond those identified in the investigations thus far are uncovered once site works have commenced, the following procedures and principles will be followed; this would be consistent for expected and unexpected hazardous materials:

- Notification to client and project stakeholders
- The contractor to amend the remediation management plan
- Advise the client of the most cost and time efficient solutions whilst adhering to industry best practice standards
- Agree strategy and commence implementation.

With asbestos for example, all employees need to be trained in the recognition of asbestos and synthetic mineral fibre (SMF) as part of their employers Safe Work Method Statements (SWMS). Employees would cease work on discovering any Hazmat not identified in the report and then inform their supervisor who would arrange for the appropriate action to be taken.

General procedures for hazardous materials removal (including asbestos) will usually be carried-out as follows, but often specific details and procedures will be developed upon material identification. Detailed work method statements will be produced identifying processors such as:

- The area to be decontaminated to be bunted off at a minimum 10 metre radius
- Asbestos warning signage to be erected to inform people of the nature of the work being carried out
- ‘No unauthorised access’ signage to be erected
- Water points to be established
- Personal Protective Equipment (PPE) including but not limited to Hard Hat, Safety Boots, Disposable Coveralls, Gloves, Masks and Glasses to be worn at all times when in the Hazmat removal zone
- All personnel involved in the removal of asbestos to have attended and completed the approved Work cover courses and to be the holders of valid, Work Cover approved asbestos removal licenses
- Tools and equipment appropriate to the type of asbestos containing material to be used for its removal in order to minimise the disturbance of the material thus preventing the release of fibres
- Where appropriate, water to be used to keep the material slightly damp thus minimising the chances of dust and fibres being released
- All asbestos waste to be wrapped in 200µm plastic and tightly secured
- All asbestos waste to be removed from site and disposed at a licensed EPA asbestos disposal facility
- Asbestos waste to be removed at the end of each shift. Stockpiling of asbestos will not be permitted

-
- Clearance certificates to be provided on completion of Hazmat Removal.

Site Discharge

Any discharges from the site will be strictly controlled to ensure hazardous materials and contaminants are contained to authority requirements and do not pollute the council storm water system. Brookfield Multiplex and its subcontractors will have within its standard procedures, the requirement of spill kits for hazardous materials also including environmental audits that review the usage and storage of hazardous materials onsite.

Dewatering

Brookfield and Brookfield Multiplex are committed to the management of water discharge from the site throughout the duration of the project. To ensure effective management, a 'Water Quality Management Plan' as a sub-plan to the Environmental Management Plan will be implemented.

Key management strategies include:

- Objective – Avoid the release of contaminants to waterways / drainage systems
- Target – All water discharged complies with the Healthy Waters State Planning Policy
- Measure – Water Quality records confirming compliance with pre-discharge limits.

These and other water quality aspects at One Carrington Street will be controlled by:

- Weekly environmental inspections
- Water quality recording
- Training for responsible staff
- Tool Box talks for trade staff
- Subcontractor Environmental Work Method Statements.

Truck Wash Facilities

As the project consists of redevelopment of the existing premises, with trucks being confined within the construction zones rather than a new build work which requires vehicle movements within the site boundaries, a truck wash facility will be required onsite at truck access/egress points. Construction zones will be kept clean at all times to ensure tyres of trucks and vehicles exit in the same condition that they have entered.

Silt Protection Maintenance of Adjoining and Access Roads

A stormwater and sediment control plan will be developed prior to demolition and construction phases to ensure that stormwater from the project does not enter adjoining properties, access roads, etc. and that no water entering the council stormwater system contains silt or other contaminants.

The stormwater and sediment control plan includes but is not limited to providing further detail to the below key control measures:

- Extent/location of silt protection to be installed
- Extent/location of sediment basin to be installed
- Regular weekly checks of silt fences, banks and the like
- Specific checks after any significant storm event to ensure integrity and performance of silt protection
- Sediment fences to be repaired as required and excessive sediment deposits should be removed
- Water quality samples must be taken and analysed prior to the release of any water from the sediment pond/catchment
- All water quality data including dates of rainfall, testing and water releases must be maintained in an onsite register
- Maintenance and cleaning of adjoining/surrounding access roads.

Dust Control

Dust control will be implemented in areas of all active demolition and construction. Dust control will also be implemented within the construction zone as determined by Brookfield Multiplex, and as required for the health and safety of employees and the public.

All works will be undertaken in accordance with a 'Construction Air Quality' sub-plan as part of the Environmental Management Plan. Dust control measures will be implemented as required, and in accordance with Protection of the New South Wales Environment Operations Act. Dust management will be most critical during the demolition and excavation phases of the project. All subcontractors involved with these works will be required to provide Environmental Work Method Statements that specifically address dust management.

Methods of reducing dust that will be implemented are:

- Reduce quantum of demolition "breaker" work by cutting structural demolition elements into larger sections for removal by tower crane
- Encapsulating work zones through the construction of engineer designed full height dust proof structures / hoardings
- Reviewing tool and plant selection in an attempt to select plant with superior acoustic performance
- Utilising concrete saw cutting techniques to reduce dust generation
- Continuous cleaning throughout dust generating work activities
- Ensuring demolition debris skips are covered at all times.
- Site perimeter – Solid panel hoarding will be provided on the boundary during the overall construction phase and perimeter scaffolds clad in shade cloth will be provided during demolition to minimise the escape of dust
- Demolition and excavation – Working surfaces will be watered down as required with stock piling of material minimised
- Plant movement within the basement will be minimised with all loads covered before exiting the site and a stabilised driveway maintained
- Construction – A high level of housekeeping to minimise the likelihood of windblown dust and the banning any dry grinding will be maintained.

Waste Management

A key philosophy of Brookfield Multiplex is that a tidy site is a safe site, and this principle will be maintained throughout the construction duration. Rubbish bins / skips will be provided at strategic positions around the site, where all subcontractors will be required to clear their rubbish as it accumulates. These bins will be brought down the building in the construction hoists / builders lifts and loaded via forklift into the large skips for removal from site.

A specific Waste Minimisation Plan will be developed in accordance with the Brookfield Multiplex's Environmental Management System to ensure optimum waste management initiatives are implemented.

Brookfield Multiplex will develop a Waste Minimisation Plan that is included as a sub plan of the Environmental Management Plan for One Carrington Street. The aim of this plan is to work at best practice in minimising the amount of waste produced during the development and manage that waste in order to reduce the amount going to landfill.

The Waste Minimisation Plan (WMP) will exceed regulatory requirements and meet compliance with potential Green Star benchmarks set for the One Carrington Street.

In setting such high standards and to achieve waste re-use and recycling onsite, the site-specific Waste Minimisation Plan will be implemented. Brookfield Multiplex's project team will be trained in the WMP and the subcontractors informed on variations to the required changes from the industry 'business-as-usual' approach.

Subcontract trade packages will be prepared and tendered to ensure optimum recycling through Waste Management achieves the required Green Star targets.

All rubbish will be removed from site on a daily basis via wheelie bins and deposited in bins/skips which will be provided at strategic positions onsite. Where space permits, Brookfield Multiplex will also provide specifically labeled recycling bins for materials such as, cardboard and plasterboard to maximise the amount of material able to be recycled.

In addition, all subcontractors are responsible for removing their own packaging and other re-usable items such as pallets from site. Adopting this policy:

- Promotes recycling by subcontractors and suppliers
- Removes unnecessary packaging at the source rather than at site
- Reduces the amount of rubbish being sent to land fill.

Monthly reports detailing the overall percentage of rubbish being recycled will be provided by the waste disposal contractor. This information will enable the effectiveness of the implemented waste management strategies to be monitored and appropriate steps to be taken if necessary to improve.

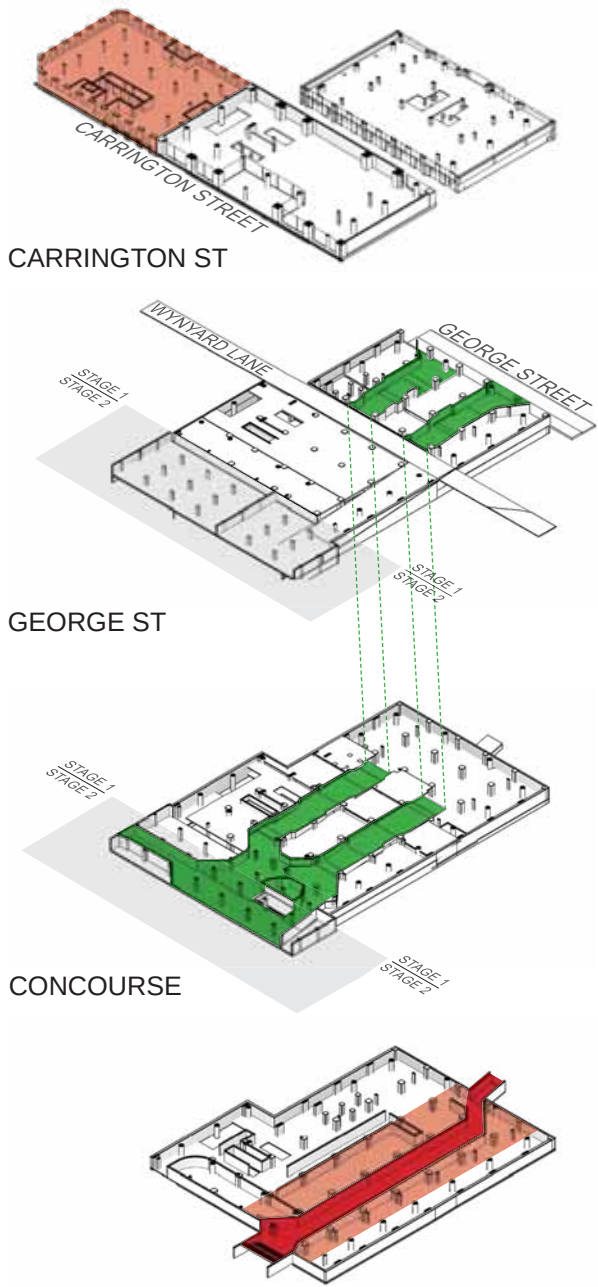
Recycling

Further to the section on Waste Management, detailed recycling programs will be developed for both demolition and construction phases of the works. The site subcontractors will be required to report on extent of recycling achieved and be subject to Environmental Audits.

Attachment 1

Public Access and Project Phasing

PHASE 1
MONTHS 0-4

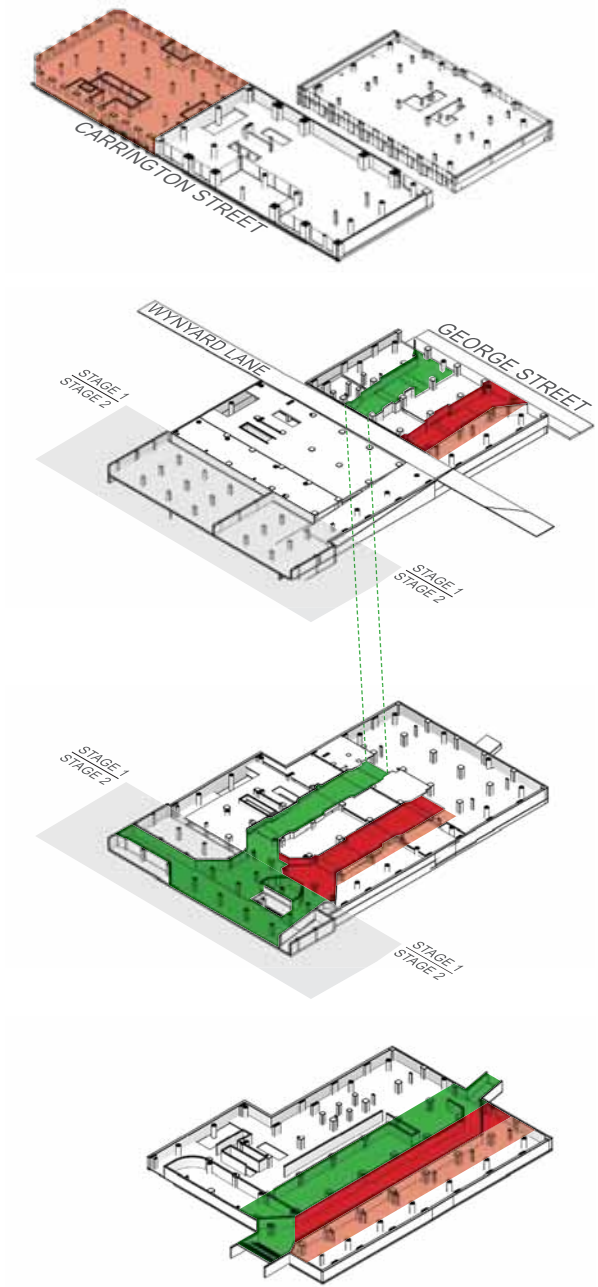


Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>7m + >7m	>7m + >7m
Hunter Connection	Closed	Closed

- Notes:
- Vacant possession for all areas obtained prior to Phase 1
 - Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above
 - Full use of George Street Ramps
 - Hunter Connection closed for preparation works
 - Retail closed – services decommissioned
 - All Basement Areas including retail storage & Railcorp Areas removed or relocated as appropriate
 - Establish Hoardings at shopfronts

PHASE 2
MONTHS 5-8

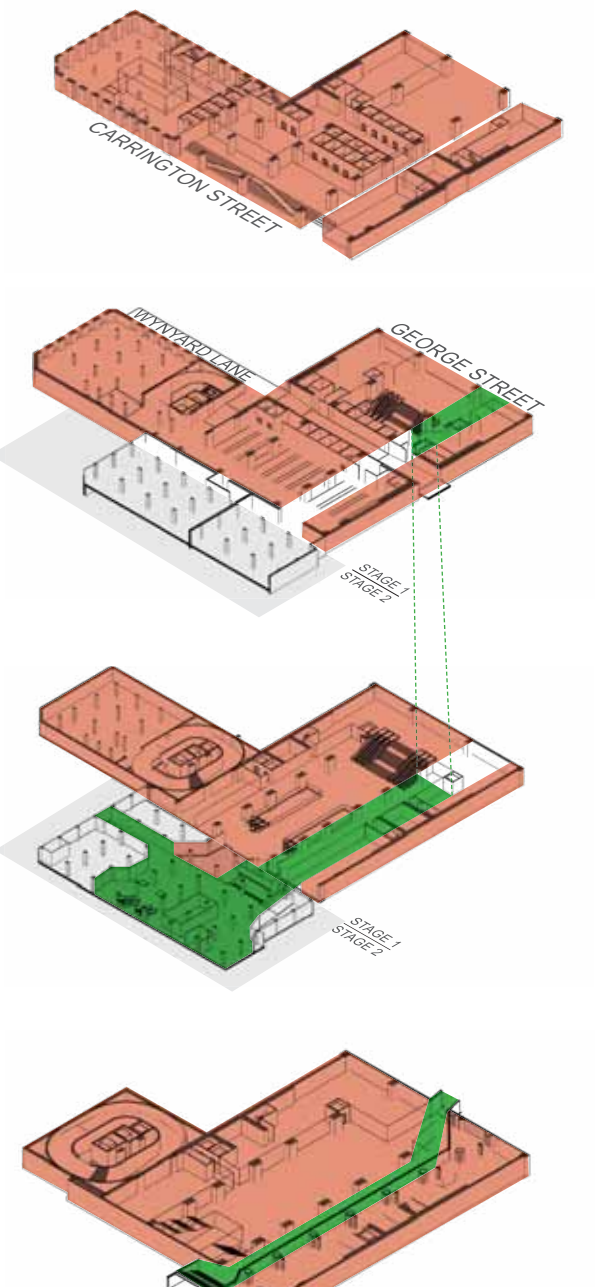


Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>7m	>7m
Hunter Connection	>4m	>4m

- Notes:
- Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above
 - Close South Ramp to George Street
 - Open reconfigured path at Hunter Connection Undertake structural modifications to enable access path for Phase 3 to establish
 - Retain Structures as modified for South Ramp to George St Hunter Connection for pedestrian access.
 - Use of North Ramp to George St and interim Hunter Connection path for pedestrian access

PHASE 3
MONTHS 9-21

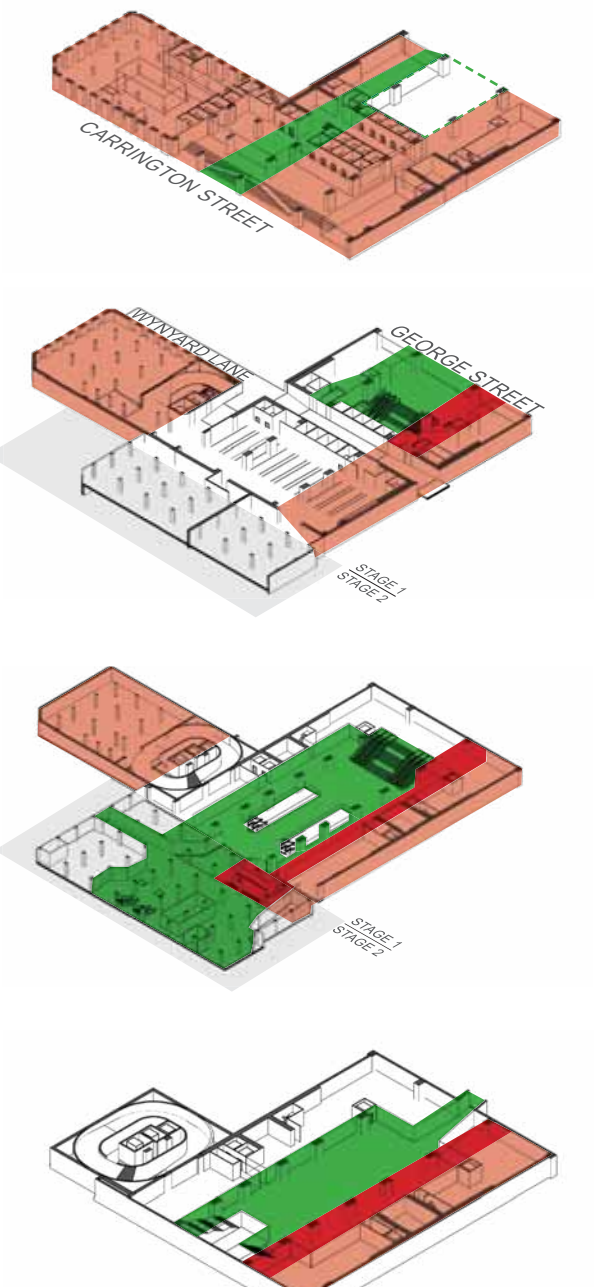


Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>5.5m	>5.5m*
Hunter Connection	>4m	>4m

- Notes:
- Redirect pedestrian access to modified South Ramp to George St and modified Hunter Connection
 - Demolish remaining structure of 301 George St and Menzies Hotel to basement
 - Construct new structure straddling the retained southern podium structures
 - Undertake preliminary fitout of new transit hall areas sufficient to enable patron use.
 - Supplementary fire egress width provided with Wynard walk opening

PHASE 4
MONTHS 22 -30

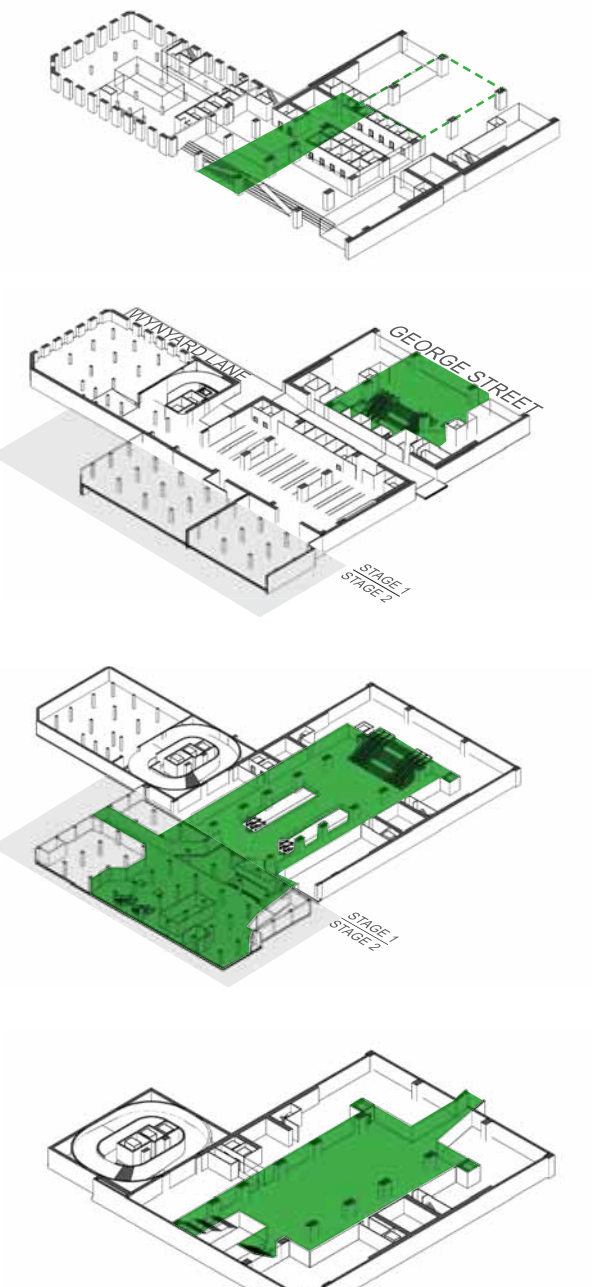


Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>5.5m	>5.5m*
Hunter Connection	>4m	>4m

- Notes:
- Redirect all pedestrian access onto the Northern components of the new structure Concourse Walk to George St and Hunter Connection
 - Demolish podium structure of 301 George St and Menzies Hotel used for pedestrian access in previous phase
 - Undertake iterative finishes and fitout of new Transit Hall Areas
 - Construct new structure where southern podium structures previously retained
 - Open through-site link connection between George & Carrington Streets

FINAL
MONTHS 39+



Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	Final	Final
Hunter Connection	Final	Final

- Notes:
- Open all remaining connections including
 - Concourse Walk to George St
 - Hunter Connection South

LEGEND

ACCESS AREAS

CLOSED ACCESS PATHS

WORKS AREAS

ONE CARRINGTON STREET, WYNYARD

Drawing Title

PROJECT PHASING & PUBLIC ACCESS DIAGRAM

Drawing No.

BMC-CMP-001 [Rev3]

Brookfield MULTIPLEX

BM

Brookfield MULTIPLEX Constructions Pty Ltd

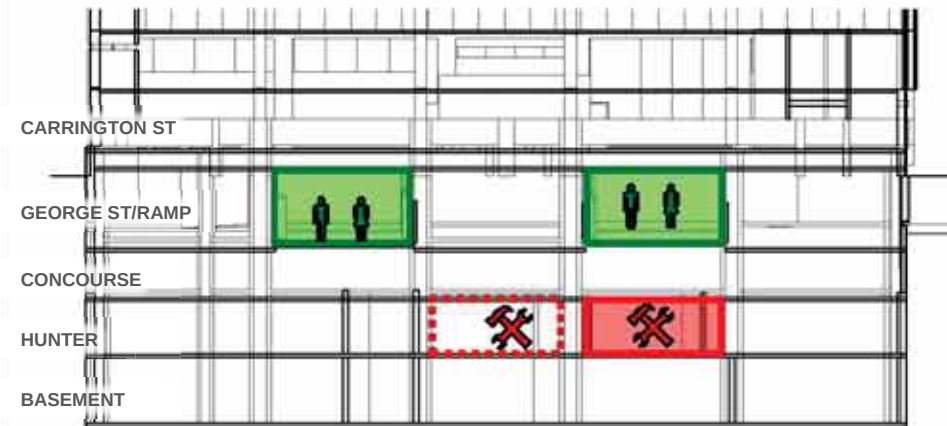
Level 22, 135 King Street Sydney NSW 2000

p: +61 2 9322 2200 f: +61 9322 2001

brookfieldmultiplex.com

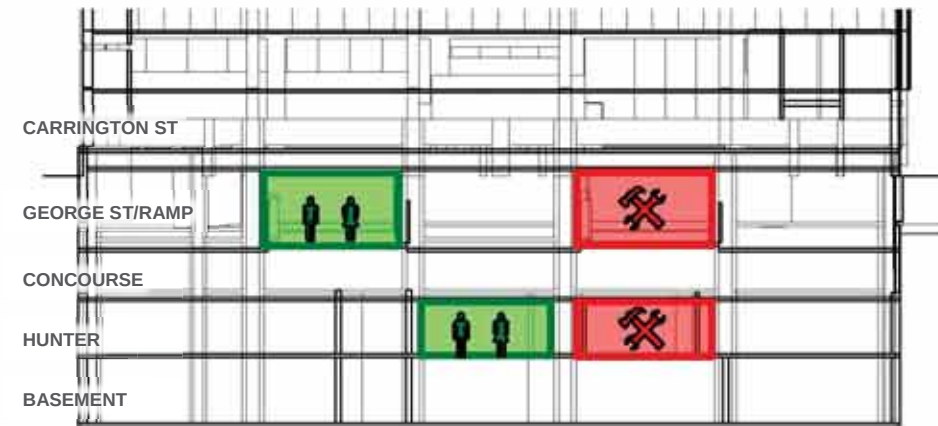
PHASE 1: MONTHS 0-4

Preliminary works to redirect Hunter Connection Route



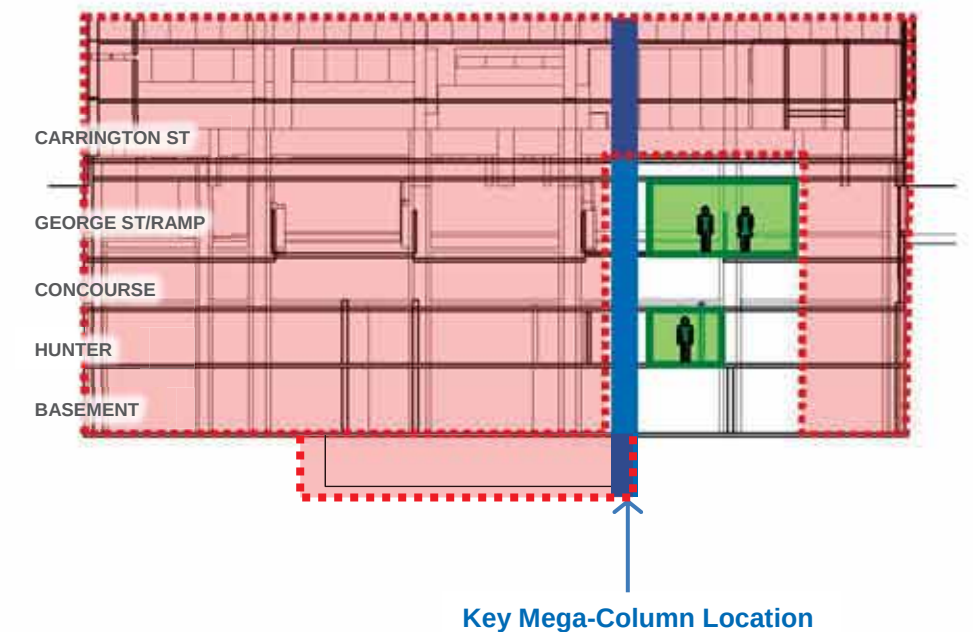
PHASE 2: MONTHS 5-8

Construction works to reconfigure Southern Access Routes



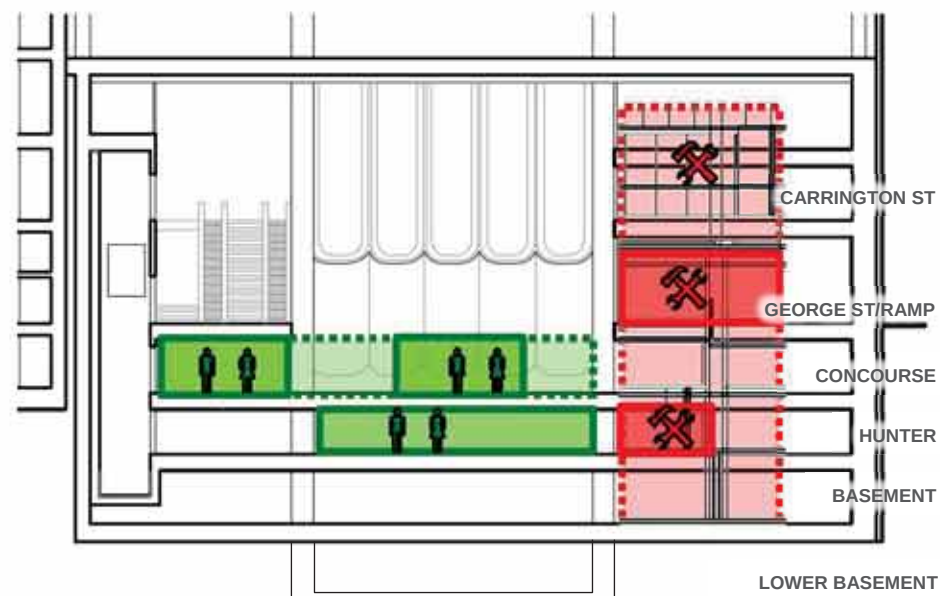
PHASE 3: MONTHS 9-21

Southern Access Routes Active – Undertake remaining demolition and construction activities



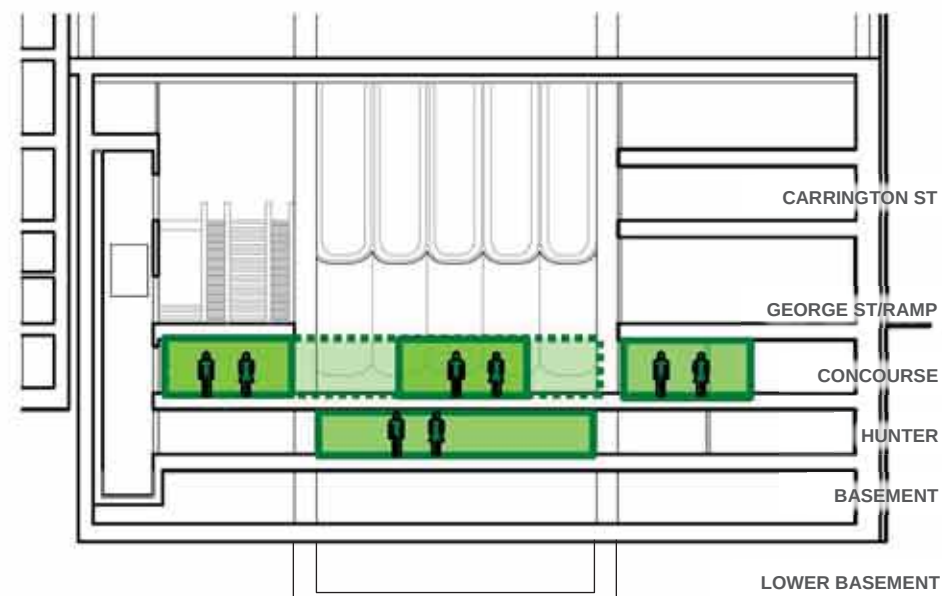
PHASE 4: MONTHS 22-30

Handover of new structure areas – demolish & rebuild retained



FINAL CONFIGURATION: MONTHS 39+

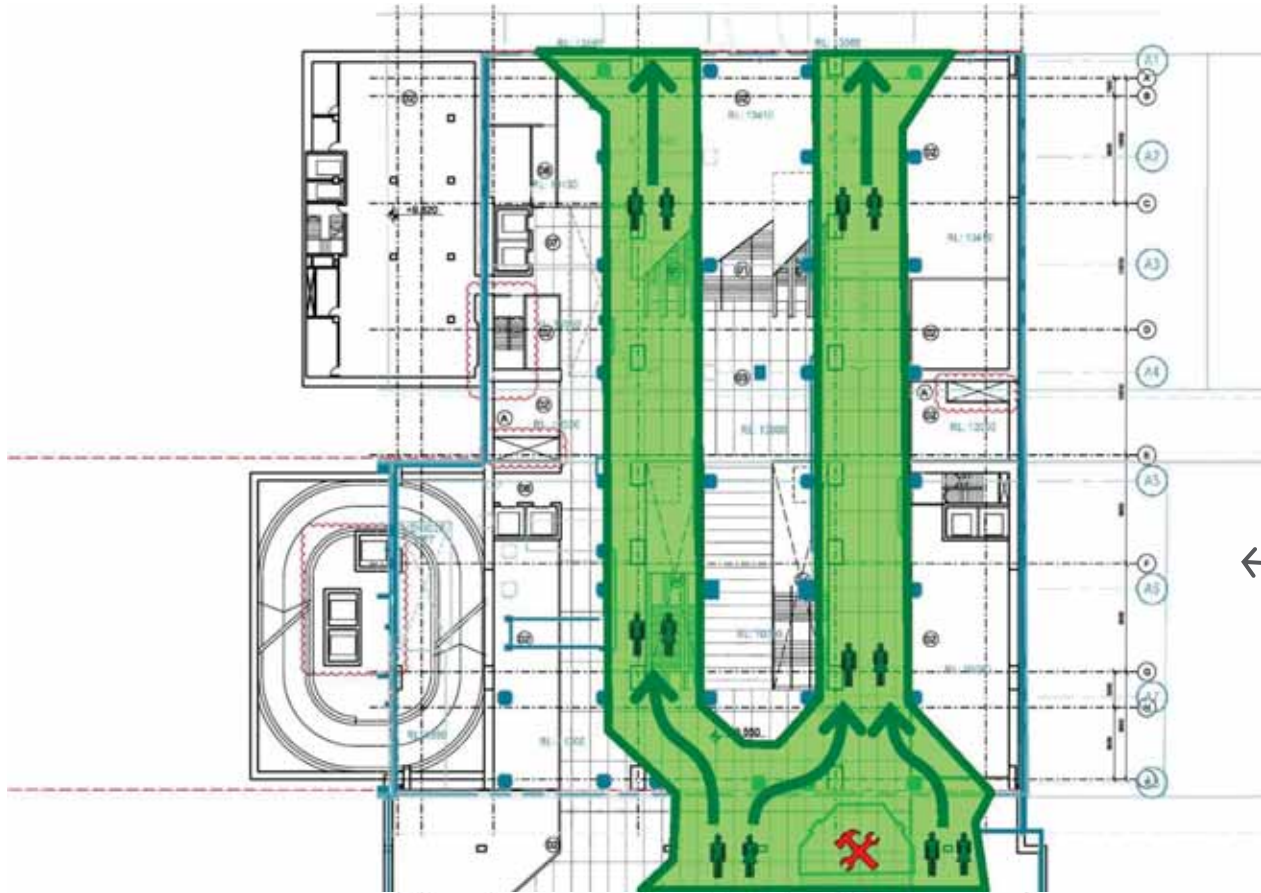
Handover of all areas with completed finishes & services



One Carrington Street
Construction Phasing Plan
03 March 2014

PHASE 1

MONTHS 0-4

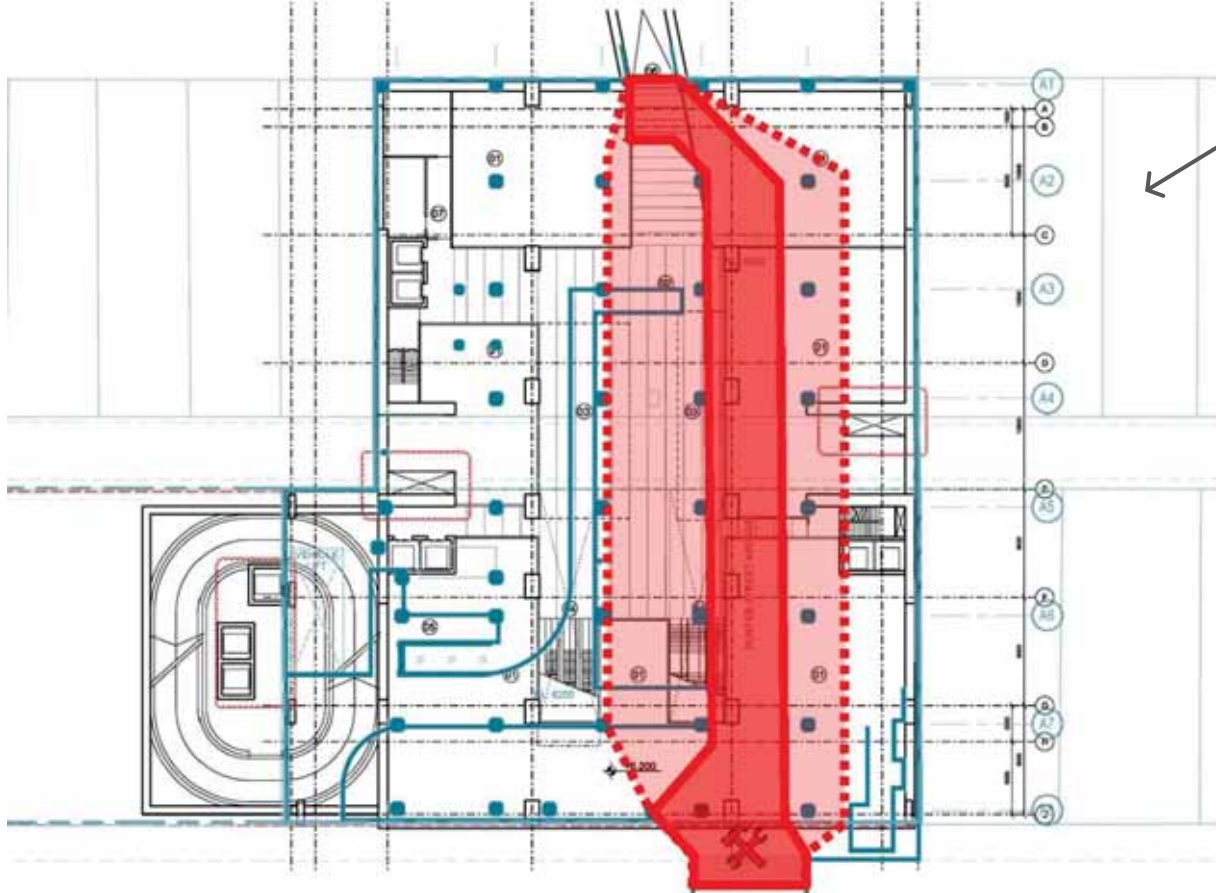


● **CONCOURSE**

- North and South ramps utilised whilst Hunter closed for works underneath

● **HUNTER LEVEL**

- Preliminary works to establish pedestrian path through central area currently used for retailers (core)

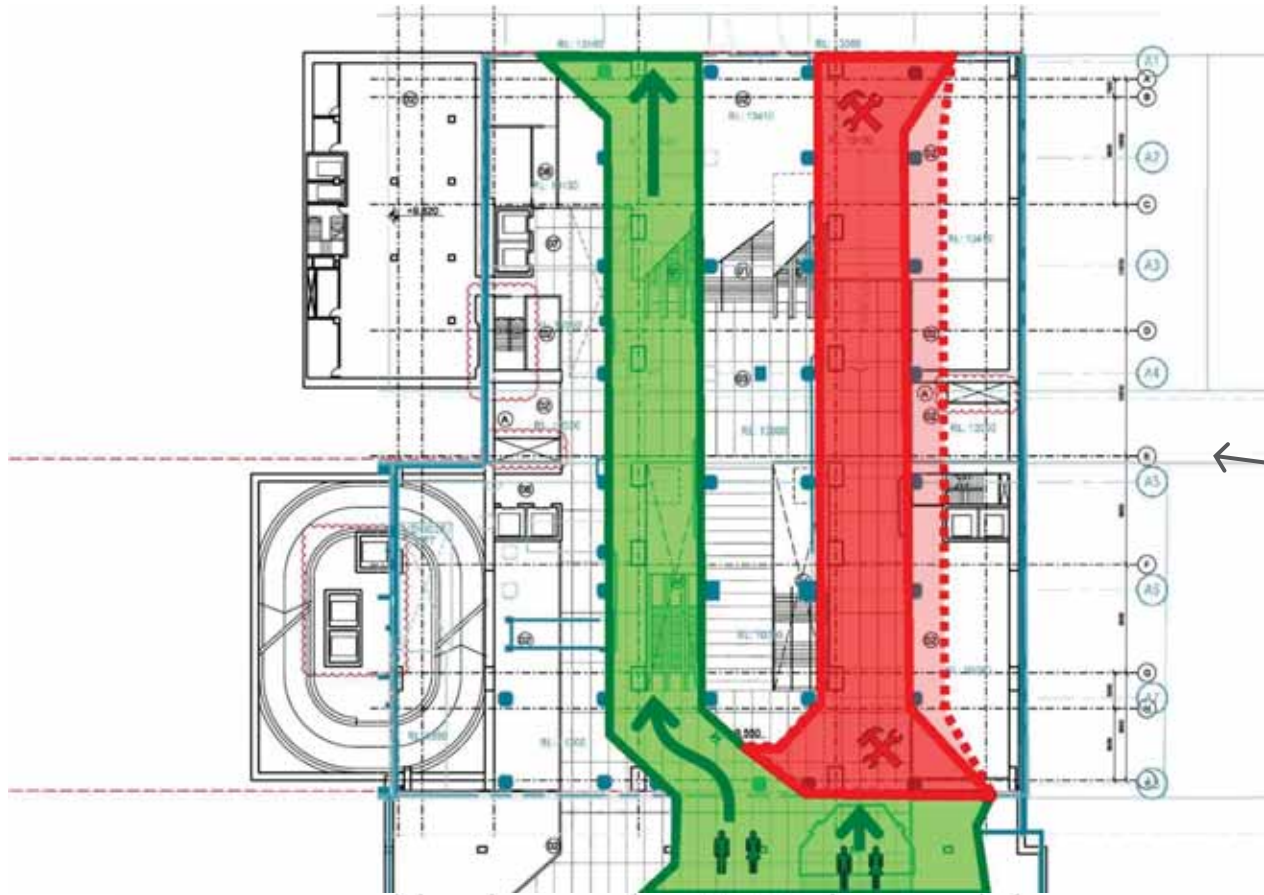


Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>7m + >7m	>7m + >7m
Hunter Connection	Closed	Closed

PHASE 2

MONTHS 5-8

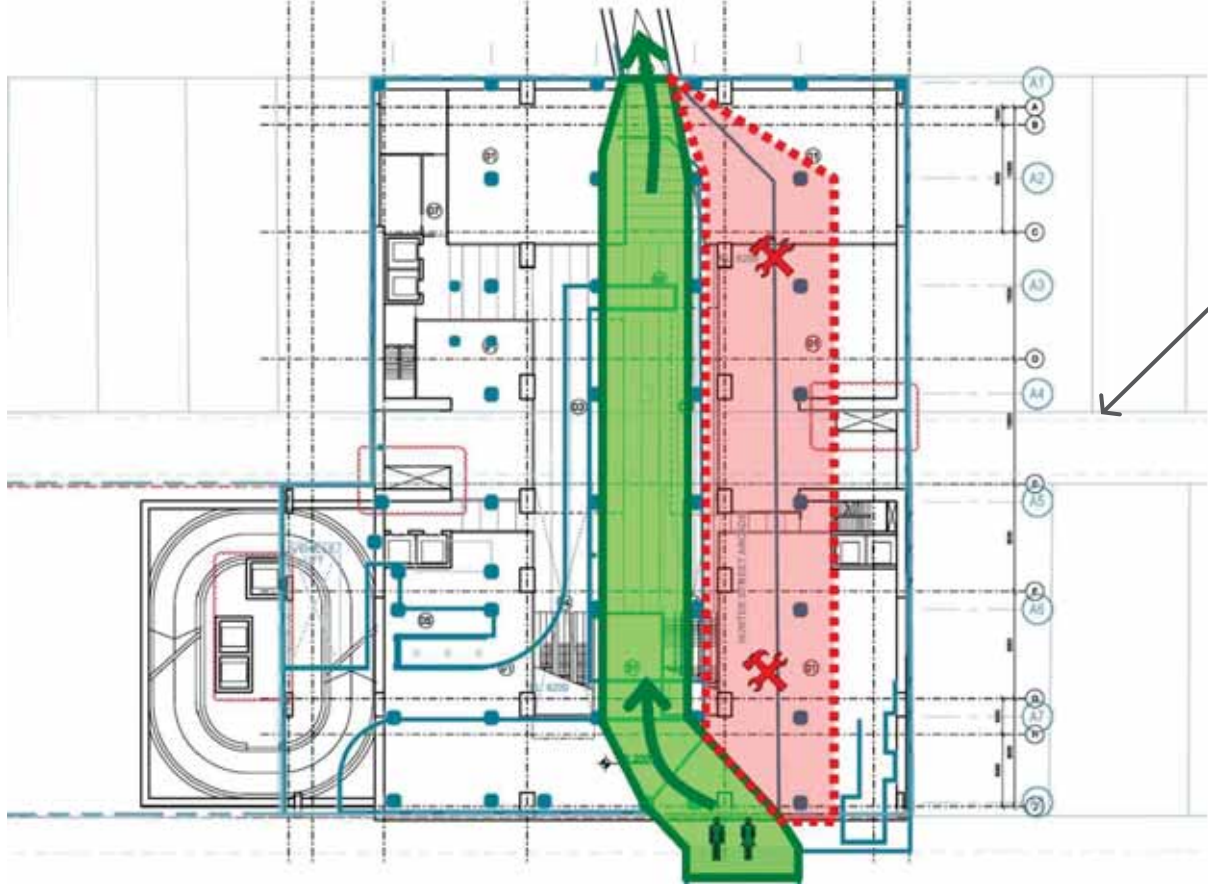


CONCOURSE

- Structural works to amend the southern ramp to allow for installation of mega-columns and pedestrian access for Phase 3
- Modification of southern retail strip to provide appropriate access

HUNTER LEVEL

- Temporary Access path through former retail whilst structural works occur in adjacent zone in preparation for Phase 3



Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>7m	>7m
Hunter Connection	>4m	>4m



PHASE 3

MONTHS 9-21



● CONCOURSE

- Reconfigured South Ramp to George Street provides access and allows for the superstructure and southern boundary structure.

● HUNTER LEVEL

- Adjusted pedestrian access path provided near to the original position, avoiding new mega-column positions and further south than previously.
- Demolition and Construction occurs outside of protected area

Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>5.5m	>5.5m*
Hunter Connection	>4m	>4m

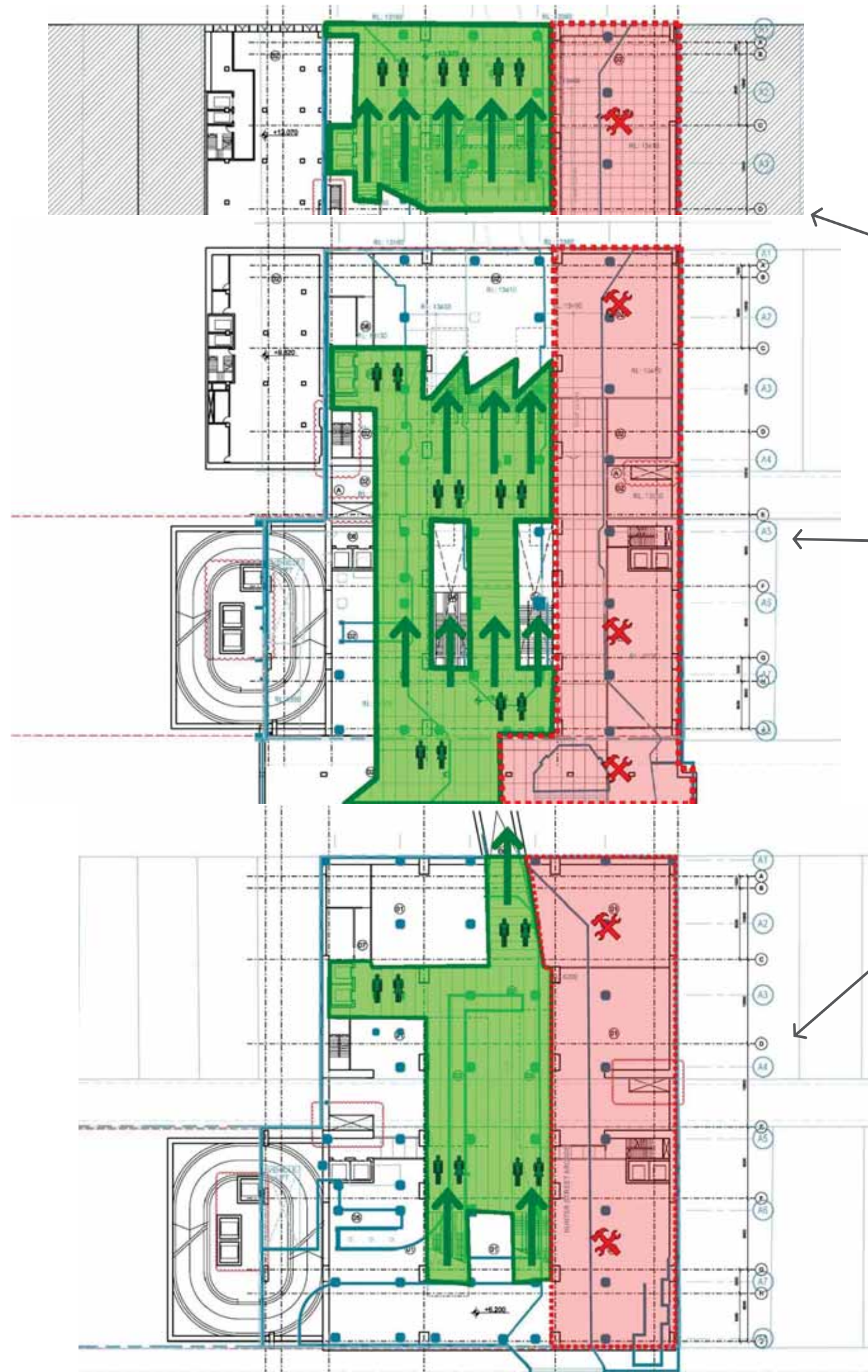
*supplementary width provided with opening of Wynyard Walk



One Carrington Street
Construction Phasing Plans
03 March 2014

PHASE 4

MONTHS 22-30



● GEORGE STREET

- New structure and services completed to sufficient level to provide access via new pathways, including new VT components
- Finishes and non-essential services undertaken through coordinated sub-staging. Overhead protection provided to allow for staged ceiling and claddings in George St portal.

● CONCOURSE

- New structure and services completed to sufficient level to provide access via new pathways, including new VT components
- Finishes and non-essential services undertaken through coordinated sub-staging.

● HUNTER LEVEL

- New structure and services completed to sufficient level to provide access via new pathways.
- Finishes and non-essential services undertaken through coordinated sub-staging.

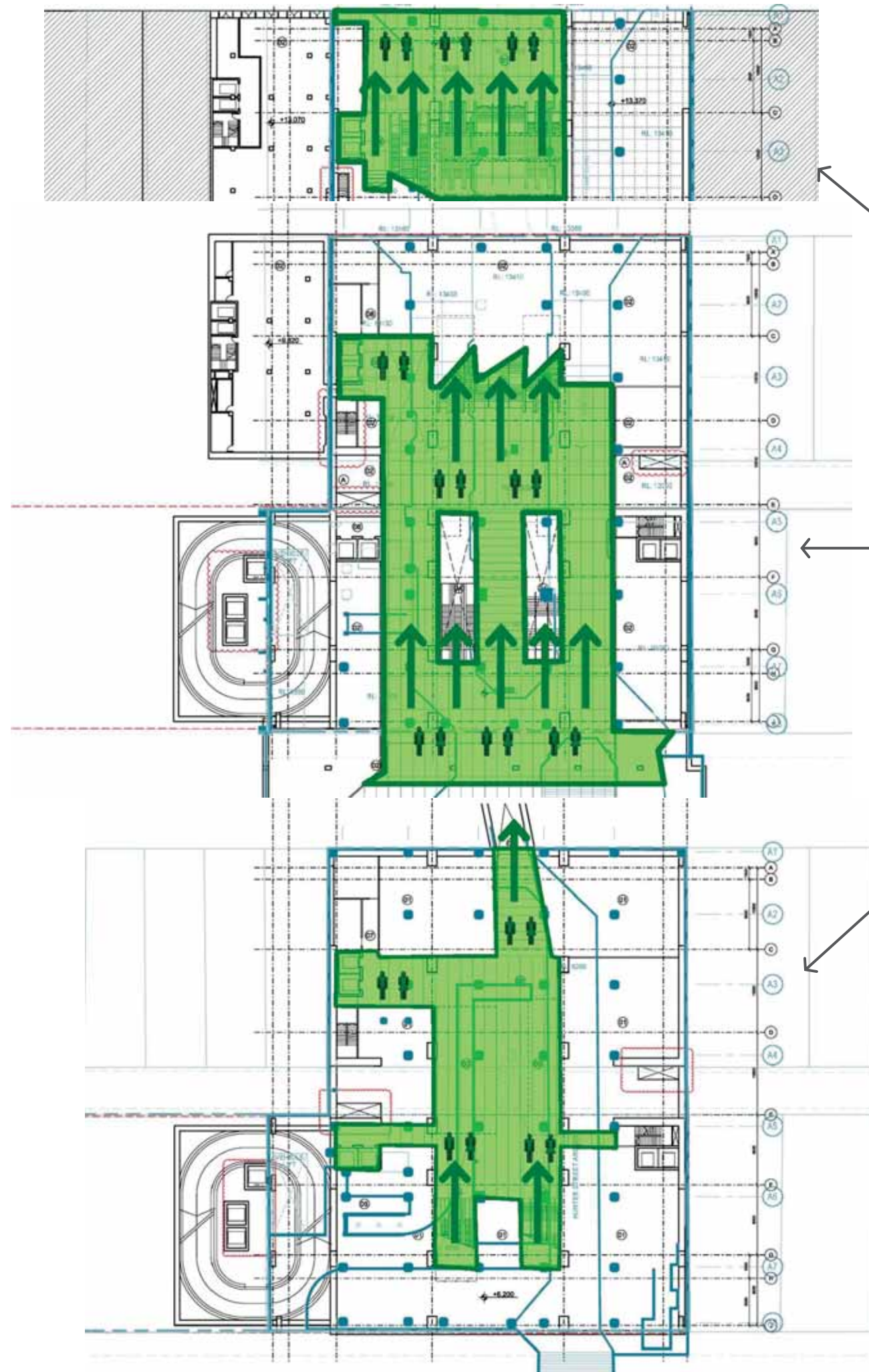
Pedestrian Access & Fire Egress Summary

	Pedestrian	Fire
Concourse/George	>5..5m	>5..5m*
Hunter Connection	>4m	>4m

*supplementary width provided with opening of Wynyard Walk

PHASE 5

MONTHS 39+



● GEORGE STREET

- Full provision of completed areas

● CONCOURSE

- Full provision of completed areas

● HUNTER LEVEL

- Full provision of completed areas

Pedestrian Access & Fire Egress Summary

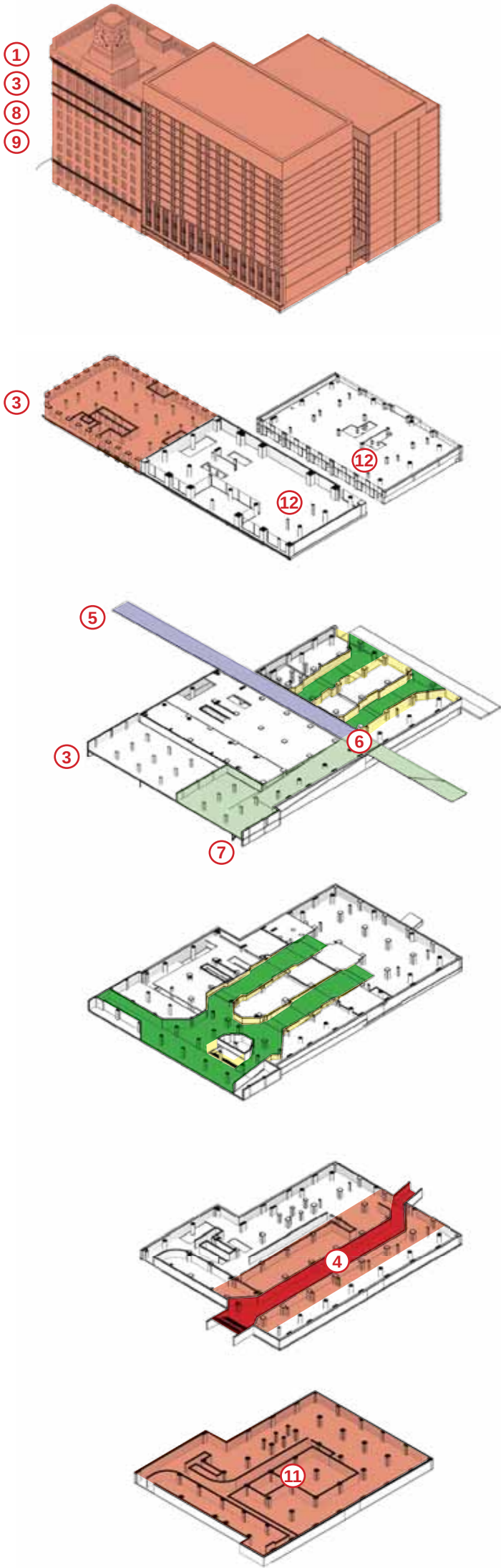
	Pedestrian	Fire
Concourse/George	Final	Final
Hunter Connection	Final	Final

Note: The widths of the final paths shall be delivered in accordance with the Pedestrian and Fire Engineering requirements for the development

Attachment 2

Phase Works and Impacts Diagrams

PHASE 1
MONTHS 0-4



KEY ITEMS:

- Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above
- Full use of George Street Ramps
- Hunter Connection closed for preparation works
- Retail closed – services decommissioned
- All Basement Areas including retail Stores & Railcorp Areas removed or relocated as appropriate
- Establish Hoardings at shopfronts

REQUIREMENTS PRIOR TO THIS PHASE:

1. All tenants and occupants in Retail, 301 George St, Menzies Hotel and all of Shell House have fully decanted.

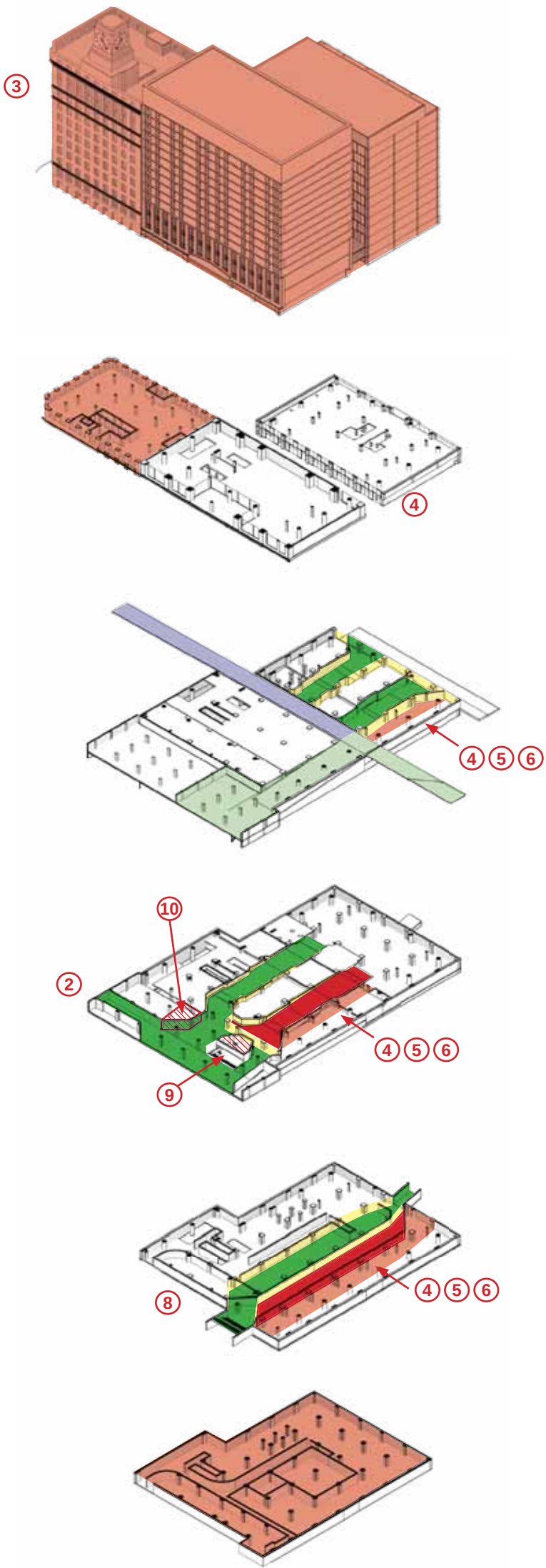
ACTIVITIES DURING THIS PHASE:

2. Site Establishment
3. Erect hoardings & scaffold to George St, Carrington St, Margaret St and Wynyard Lane
4. Undertake Soft Strip & HAZMAT of Hunter Connection to establish interim Hunter Connection Pedestrian Access Route
5. Close Wynyard Lane to vehicular traffic north of the site and establish traffic controlled two-way Wynyard Lane to the south of the site.
6. Close Wynyard Lane Car Park access and adjacent areas
7. Install Construction Accommodation and amenities in the Wynyard Lane Car Park Area.
8. Undertake HAZMAT detailed investigations and treatments in decanted areas
9. Demolish the tower levels of 301 George St, Menzies Hotel and partial Shell House
10. Installation of façade retention systems to part of Shell House
11. Retail and Railcorp Storage relocated from basement areas to the Wynyard Lane Car Park
12. Waterproofing treatments established on top of structures to be retained in next phase

ACTIVITIES AT THE END OF THIS PHASE:

13. Establish hoardings for Phase 2 pedestrian paths
14. Modify door connection to Met Centre to permit use for fire egress (non-sliding door)

PHASE 2
MONTHS 4-8



KEY ITEMS:

- Demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House occurring above
- Close South Ramp to George Street
- Open reconfigured path at Hunter Connection
- Undertake structural modifications to enable access path for Phase 3 to establish
- Retain Structures as modified for South Ramp to George St Hunter Connection for pedestrian access.
- Use of North Ramp to George St and interim Hunter Connection path for pedestrian access

REQUIREMENTS PRIOR TO THIS PHASE:

1. Establish hoardings for Phase 2 pedestrian paths
2. Modify door connection to Met Centre to permit use for fire egress (non-sliding door)

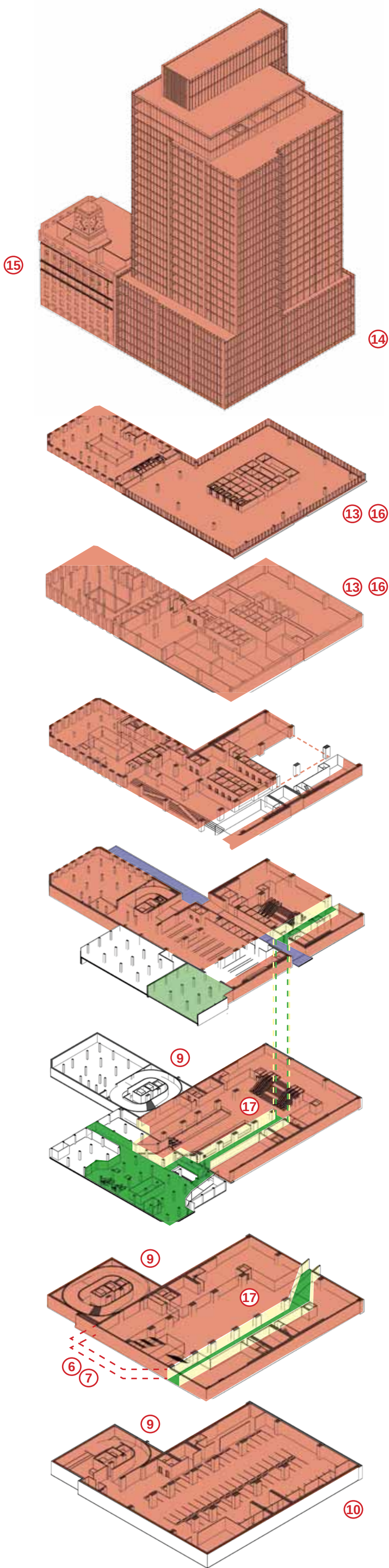
ACTIVITIES DURING THIS PHASE:

3. Continue demolition to tower levels of 301 George St, Menzies Hotel and partial Shell House
4. HAZMAT removal and soft strip to continue to podium and basement areas.
5. Modify existing structures, including temporary structural elements to provide suitable pedestrian path for Phase 3 Works
6. Amend/Install services to the areas to be used as pedestrian path for Phase 3

ACTIVITIES AT THE END OF THIS PHASE:

7. Reconfigure hoardings for Phase 3 pedestrian paths and works zones
8. Decant Railcorp areas at interface with station
9. 2 Retail Tenancies in Stage 2 behind stairs to Hunter Connection to cease trading and decant
10. Undertake modifications to Retail Tenancy (Café) shopfront in Stage 2 area at base of Ramp (North) to allow for Phase 3 demolition and reconfiguration

PHASE 3
MONTHS 8-21



KEY ITEMS:

- Redirect pedestrian access to modified South Ramp to George St and modified Hunter Connection
- Demolish remaining (podium & basement) structure of 301 George St and Menzies Hotel to basement
- Construct new structure straddling the retained southern podium structures
- Undertake preliminary fitout of new transit hall areas sufficient to enable patron use

REQUIREMENTS PRIOR TO THIS PHASE:

1. Reconfigure hoardings for Phase 3 pedestrian paths and works zones
2. Decant Railcorp areas at interface with station
3. 2 Retail Tenancies in Stage 2 behind stairs to Hunter Connection to cease trading and decant
4. Undertake modifications to Retail Tenancy (Café) shopfront in Stage 2 area at base of Ramp (North) to allow for Phase 3 demolition and reconfiguration

ACTIVITIES DURING THIS PHASE:

5. Demolish remaining structures outside of retained podium areas. (Podium areas retained incorporate modified South Ramp to George St and Hunter Connection
6. Strip/HAZMAT and demolish Railcorp Stores and Office Areas at Hunter (and basement) levels at the interface with the station.
7. Reconstruct the 'lid' over the former Railcorp Stores and Office Areas at Hunter (north half).
8. Install shoring and underpinning as appropriate.
9. Excavate new ramp under southern end of Shell House
10. Remove slab on ground elements in basement areas and construct foundations, tower core base and in-ground services
11. Construct superstructure for podium areas around the retained structures
12. Construct new Mezzanine and Level 1 transfer structures to full site footprint (over retained podium structures) to provide further overhead protection for tower works
13. Construct new tower including structure, façade, services and fitout progressively
14. Shell House construction, façade and fitout and new structural works undertaken
15. Establish waterproof measures at/around Mezzanine/Level 1 to protect future walkways
16. Undertake preliminary fitout to new Concourse Areas and Hunter Connection including

ACTIVITIES AT THE END OF THIS PHASE:

17. Establish hoardings for Phase 4 pedestrian paths
18. Provide 'handover' of new northern portion of the Eastern Concourse areas.
19. Provide hoardings and control measures in new loading dock area to facilitate shared access during Phase 4 works

ONE CARRINGTON STREET, WYNYARD

Drawing Title

PHASE 3 WORKS & IMPACTS DIAGRAM

Project No.

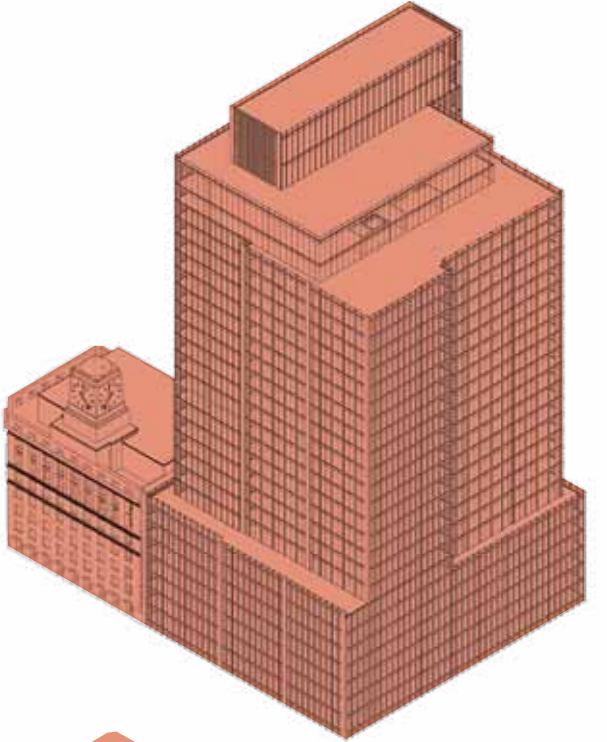
TBA

Drawing No.

BMC-CMP-013 [Rev2]



Brookfield MULTIPLEX Constructions Pty Ltd
Level 22, 135 King Street Sydney NSW 2000
p: +61 2 9322 2200 f: + 61 9322 2001
brookfieldmultiplex.com



PHASE 4
MONTHS 21-30

KEY ITEMS:

- Redirect all pedestrian access to Northern components of the Concourse Walk to George St and Hunter Connection
- Demolish podium structure of 301 George St and Menzies Hotel used for pedestrian access in previous phase
- Undertake iterative finishes and fitout of new Transit Hall Areas
- Construct new structure where podium structures previously retained
- Open through-site link connection between George & Carrington Streets

REQUIREMENTS PRIOR TO THIS PHASE:

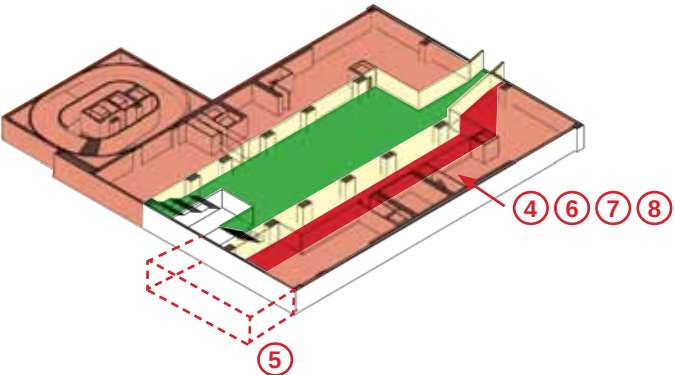
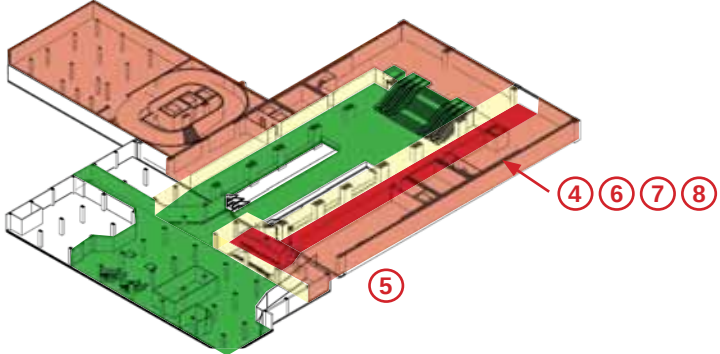
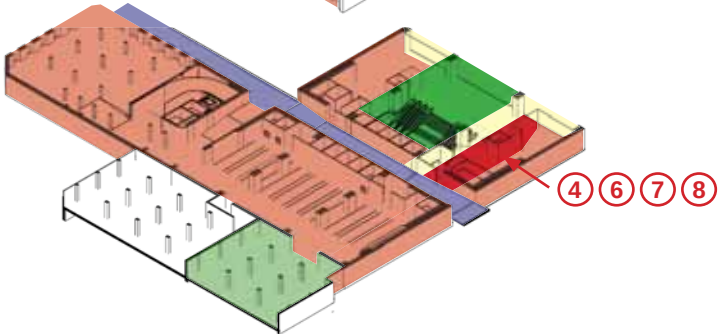
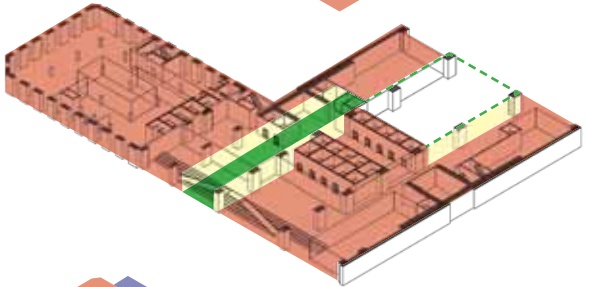
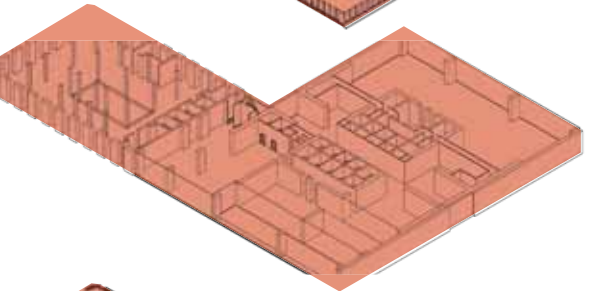
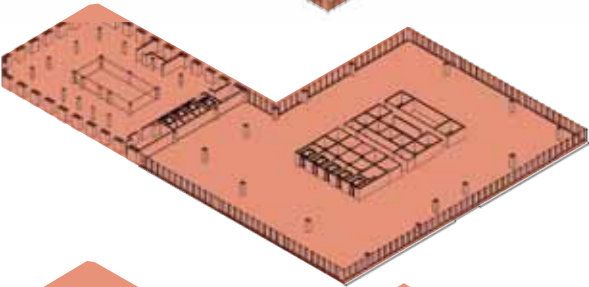
1. Establish hoardings for Phase 4 pedestrian paths
2. Provide 'handover' of new northern portion of the Eastern Concourse areas.
3. Provide hoardings and control measures in new loading dock area to facilitate shared access during Phase 4 works

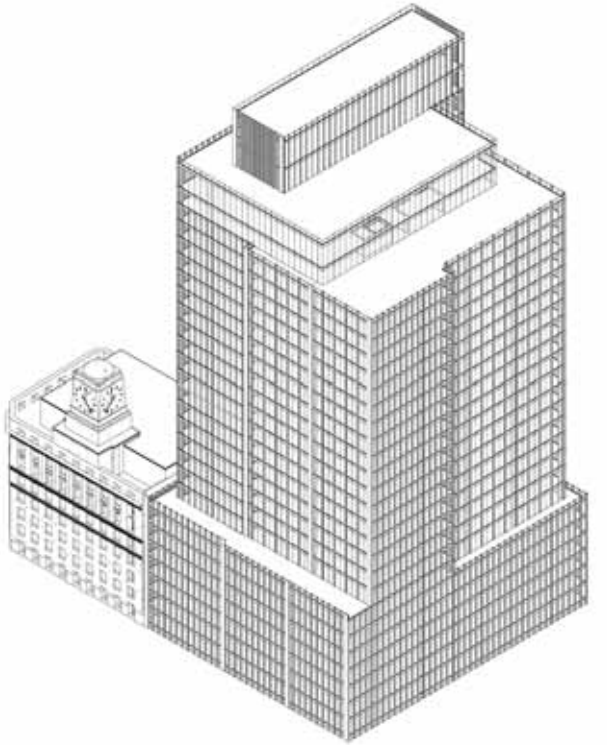
ACTIVITIES DURING THIS PHASE:

4. Demolish retained structures in podium areas. (Podium areas retained incorporate Southern Ramp to George St and Hunter Connection)
5. Reconstruct the 'lid' over the former Railcorp Stores and Office Areas at Hunter (south half), including infilling the (disused former) Hunter Connection stair
6. Construct remaining new building area (where former structure previously retained) from Hunter Connection level to underside of new tower overhead including structure, façade, services and fitout.
7. Fitout remaining podium areas including access requirements to George St.
8. Commission all services for remaining areas to be handed over.

ACTIVITIES AT THE END OF THIS PHASE:

9. Remove hoardings established for Phase 4 pedestrian paths
10. Provide 'handover' of balance of Eastern Concourse and Hunter Connection areas.





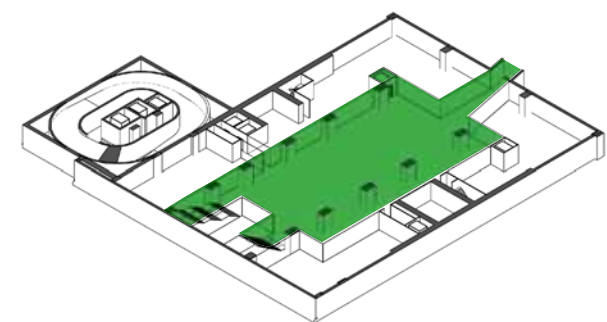
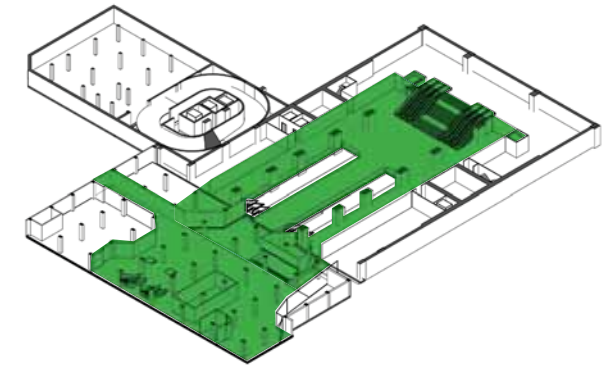
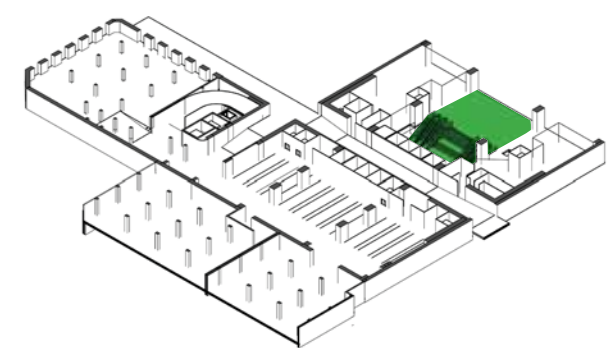
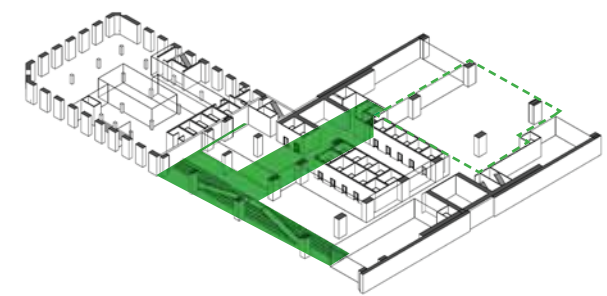
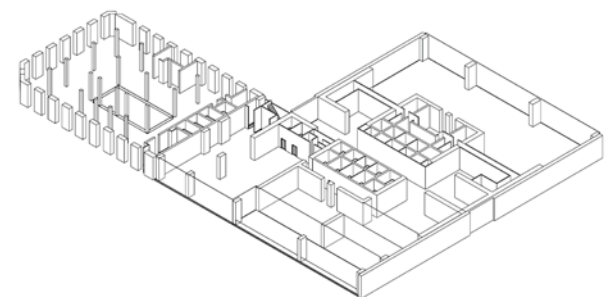
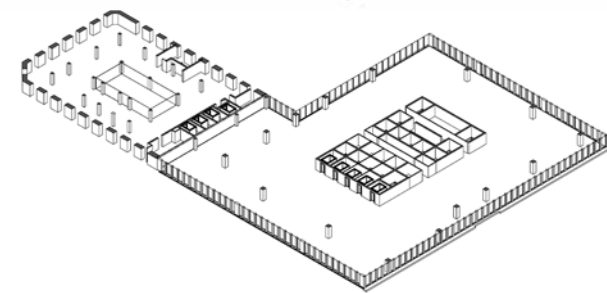
FINAL
MONTHS 39+

KEY ITEMS:

- Open all remaining connections including
 - » Concourse Walk to George St
 - » Hunter Connection South
- Tower and Shell House fully operational

REQUIREMENTS PRIOR TO THIS PHASE:

1. Remove hoardings established for Phase 4 pedestrian paths
2. Provide 'handover' of balance of Eastern Concourse and Hunter Connection areas.



ONE CARRINGTON STREET, WYNYARD

Drawing Title
FINAL PHASE WORKS & IMPACTS DIAGRAM

Project No.
TBA
Drawing No.
BMC-CMP-015 [Rev2]

Brookfield
MULTIPLEX
Built to outperform.

BM

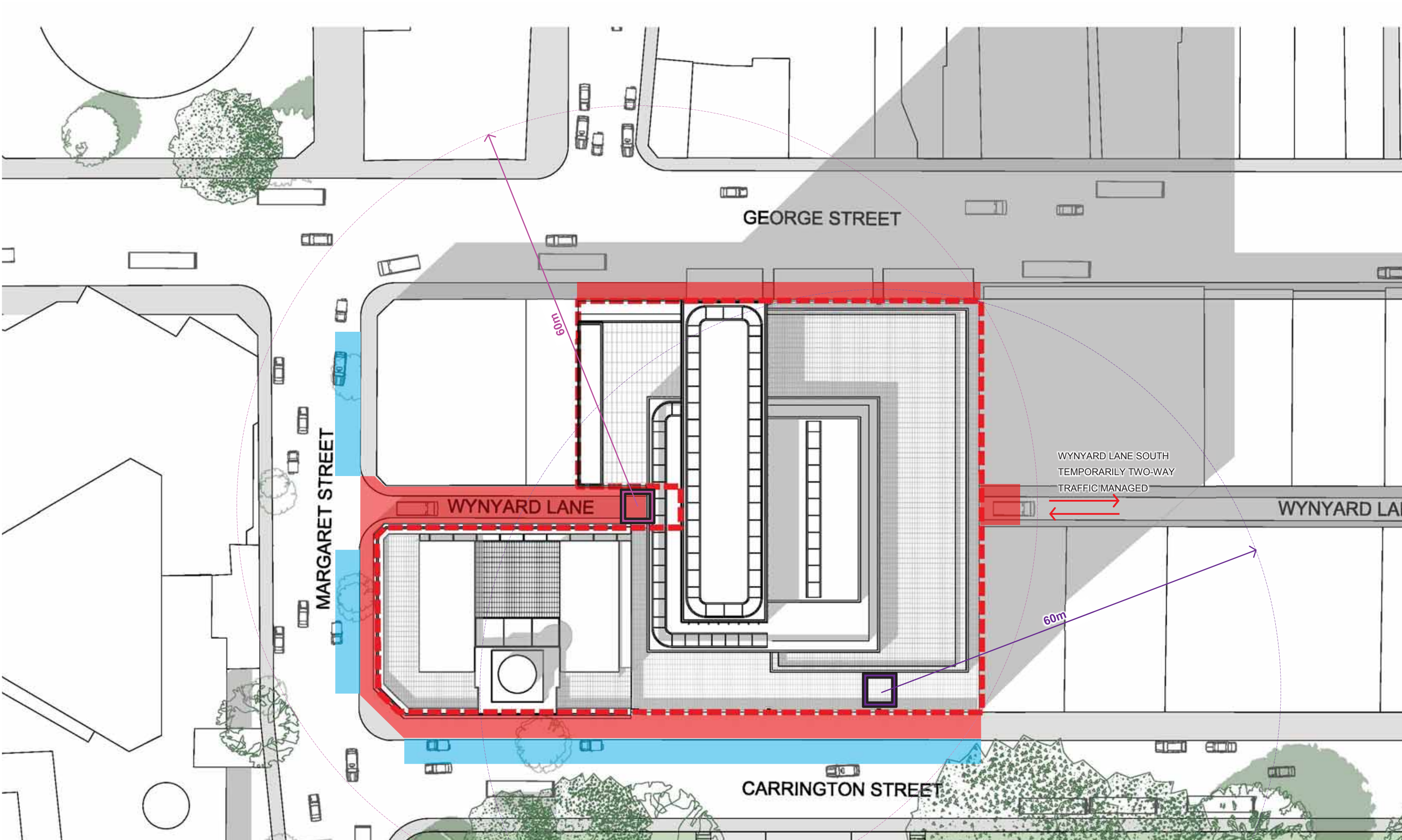
50

YEARS

Brookfield MULTIPLEX Constructions Pty Ltd
Level 22, 135 King Street Sydney NSW 2000
p: +61 2 9322 2200 f: + 61 9322 2001
brookfieldmultiplex.com

Attachment 3

Site Establishment Diagrams



LEGEND

- Crane 1 Radius
- Crane 2 Radius
- 'B' Class Hoarding
- Construction Zone

One Carrington Street

Drawing Title
Site Establishment Plan

Project No.
TBA

Drawing No.
BMC-CMP-100 [Rev 3]



Brookfield Multiplex Constructions Pty Limited
Level 22, 135 King Street
Sydney NSW 2000
T.+61 2 9322 2000 F.+61 2 9322 2001
www.brookfieldmultiplex.com

Attachment 4

Materials Handling and Construction Deliveries Matrix

One Carrington Street – Construction Traffic Management Planning

Works	Activities	Access Arrangement	Vehicles Used	Vehicle Quantity Anticipated
General (throughout)	Activities throughout project duration	Closure of Wynyard Lane to general traffic (north portion)	Traffic Control Vehicles/Minor works trucks	
		Miscellaneous/small deliveries via Cumberland St	Small Trucks, Vans (2m max height in tunnels) Larger coordinated deliveries via forklift if required	
Initial Establishment Works Months 0-3	Site Establishment (site accommodation etc)	Wynyard Lane Car Park – Enter Via Existing Ramp – Exit Via Existing Ramp	Medium Flat Bed Truck – materials delivery	Up to 6 trucks per day
	Erect Hoardings	On-street access to George St, Carrington St & Margaret St (subject to permits)	- HRV/AV - Mobile Crane	- Approx 3 trucks per night - Mobile Crane
	Tower Crane Erection (2 of)	Via Road Closures – Carrington & Margaret St	- AVs (Oversized) 200T+ Mobile Crane	- Up to 10 trucks per day typically over 2days 1 + Franna
	Scaffolding in preparation for demolition	- Carrington St Loading Zone - Wynyard Lane – Enter via Margaret – Exit via Wynyard Street	HRV/AV	Up to 5 trucks per day
Tower Demolition Works Months 1-7	Demolition (301 George St Tower)	Wynyard Lane – Enter via Margaret – Exit via Wynyard Street	- Single & Double Bogey - Waste Bin Trucks	- Up to 12 trucks per day 1-2 bins per day
	Demolition (Menzies Tower)	Carrington Street	- Single & Double Bogey - Waste Bin Trucks	- Up to 12 trucks per day 1-2 bins per day
	Scaffold removal with demolition progress	Via above paths.	HRV/AV	2-3 trucks per day
Podium & Basement Demolition & Excavation Works Months 7-12	Demolition / Excavation	- Wynyard Lane (severed) – enter & exit via Margaret - Carrington Street – using works zone	- Single & Double Bogey - Waste Bin Trucks	- Up to 12 trucks per day 1-2 bins per day
	Scaffold removal with demolition progress	As above	HRV/AV	1-2 trucks per day
Podium & Basement Construction Works Months 12-16	Pour Footings	- Wynyard Lane (severed) – enter & exit via Margaret - Carrington Street – using works zone	- Reinforcing Trucks - HRV - Concrete Trucks (7.2m³) - Concrete Pump	1-2 per day 2-3 per day 1 per day
	Perimeter Walls, Columns and Slabs up to Mezzanine Floor	As above	- Concrete Trucks (7.2m³) - HRV/AV reinforcing trucks - HRV/AV formwork trucks - Concrete Pump	- Up to 100 trucks per pour day (3-4 days/wk) 2-3 trucks per day (approx. 12t/truck) 2 trucks/day 1-2 per day (fixed position)
	Façade Installation (Curtain wall & Shopfront Type)	- Wynyard Lane (re-built for construction access only) – enter via Margaret – exit via Wynyard Street - Carrington Street – using works zone	- AV's (Curtain Wall) - Limited HRV – shopfronts/stone	1-2 per day 1-2 per day
Tower Construction Works Months 16-30	Tower Structure (Walls, Columns & Slabs)	- Wynyard Lane (re-built for construction access only) – enter via Margaret – exit via Wynyard Street - Carrington Street – using works zone	- Concrete Trucks (7.2m³) - HRV/AV reinforcing/PT trucks - HRV/AV formwork trucks - Concrete Pump	- Up to 100 trucks per pour day (3-4 days/wk) 2-3 trucks per day (approx. 12t/truck) 2 trucks/day 1-2 per day (fixed position)
	Tower Curtain Wall Façade	Carrington Street – using works zone	AV's (Curtain Wall)	1-2 per day

One Carrington Street – Construction Traffic Management Planning

Works	Activities	Access Arrangement	Vehicles Used	Vehicle Quantity Anticipated
Fitout & Internal Works Months 16-39	Tower Services and Fitout	- Carrington Street - Wynyard Lane – including new loading dock area	HRV/MRV	Up to 25 trucks per day
	Plantroom installation	Carrington Street – via works zone	AVs	Up to 12 trucks per day
Phasing Works Months 25-35	Phasing works including demolition, new structure, services & finishes	- Carrington St Works Zone - Wynyard Lane	- Single Bogey – demolition - Concrete Trucks - Other deliveries MRV/HV	3-5 trucks per day – demolition - Approx. 30 trucks on pour days (1-2 days/wk) 6-10 trucks for formwork, reinforcing, services etc.
Public Domain Works Months 27-36	Footpath Paving & Associated works	Local closures and works zones to George/Margaret/Carrington & Wynyard Lane	- Excavators for works - Concrete Trucks - Other deliveries MRV/HV	3-4 trucks per day
Shell House Works Months 1-28	Scaffolding in preparation for Façade Inspection/Demolition	Carrington/Margaret Works Zones	HRV/AV	Up to 5 trucks per day
	Demolition	- Carrington St Works Zone - Wynyard Lane	- Single & Double Bogey - Waste Bin Trucks	- Up to 4 trucks per day 1 bin per day
	Scaffold removal with demolition progress	- Carrington St/Margaret St Works Zones - Wynyard Lane	HRV/AV	1-2 trucks per day
285 George Street Works Months 1-28	Scaffolding in preparation for Façade Inspection	- Carrington/Margaret Works Zones - Wynyard Lane	HRV/AV	2-3 trucks per day
	Scaffold removal with demolition progress	- Carrington St/Margaret St Works Zones - Wynyard Lane	HRV/AV	1-2 trucks per day
	Internal structural, services and fitout	- Carrington Street - Wynyard Lane – including new loading dock area	- HRV/MRV - Concrete Trucks	- Included within above - Included within above

Attachment 5

Arup – Public Access and Fire Egress during Construction review.

Robert Bird Group – Construction Methodology Review

Mark Ciano
Design Manager
Construction + Development
Brookfield Multiplex Australasia
Postal Address | GPO Box 172, Sydney NSW 2001

Level 17
1 Nicholson Street
Melbourne VIC 3000
Australia

t +61 3 9668 5500
d +61 3 9668 5598
f +61 3 9663 1546

paul.stanley@arup.com
www.arup.com

11 March 2014

Dear Mark

One Carrington Street
Pedestrian (normal) and Fire egress during Construction

Construction drawings and methodology documentation have been reviewed with respect to normal pedestrian movement and fire egress capacity. This letter provides Arup's response to the proposed methodology.

The following documents have been reviewed by Arup:

- Construction Management Plan, One Carrington Street, prepared by Brookfield Multiplex Constructions on behalf of Sovereign Wynyard Centre, dated 5 March 2014

Normal Pedestrian Movement:

Arup has also reviewed each of the Phases and confirms that the methodology is expected to meet an average Fruin Level of Service C during the peak periods (15 minutes) based on expected flow. Comments for each Phase are given below.

In Phase 1, the Hunter Connection is temporarily closed (4 months). Pedestrians using the Hunter connection can be accommodated within the two existing 7m ramps provided to George Street, and are estimated to have minimal impact to pedestrian movement during the two peak periods for station access/egress.

Phase 2 requires a minimum clear width of 5.5m of walkway width which is provided via the existing northern 7m ramp. This accommodates the maximum throughput from the station (via the existing eastern gates) during the peak 15 minutes at Level of Service C – which adheres to recognised guidelines during construction. The actual demand to the east at 2015 is estimated to be lower than this requirement (See Table 1).. Retail activity is removed within the northern ramp to maximise utility of pedestrian walkway width.

Phase 3 provides >5.5m of clear width (taking into consideration columns) which provides LoS C even if the gateline throughput is maximised. The width of the Hunter Connection walkway is 4m which is suitable given the corridor constraint underneath George Street.

Phase 4 provides pedestrian paths on the newly-built structure undertaken in previous phases. The same minimum widths are required and provided during this phase. To facilitate suitable use of these paths through the project requires modifications to the retail (presently café tenancy) at the base of the existing ramp near the access path to the Met Centre. Two escalators UP and one DOWN in the AM peak will be sufficient for AM peak hour flow. The additional stairs provide additional capacity and redundancy. Further fitout works should maintain appropriate paths during this phase.

Overall, the pedestrian performance during the AM is estimated to meet requirements such the construction methodology is feasible from a pedestrian movement perspective. Estimated demand through the site, for the AM (hourly) and peak minute flows is given in the tables below.

AM Demand to (peak direction only)

Location / Year	2015
Hunter	4886
George Ramp N	2529
George Ramp S	4682
Met Centre	5767

Normal Movement Capacity Requirements (peak direction only)

Capacity Per minute	2015
Hunter	100
George Ramp N	55
George Ramp S	100
Met Centre	120

Based on Peak Flows through station

Normal Movement Capacity Requirements based on gates (no WEX)

Capacity Per minute	2015
Hunter	189
George Ramp N	98
George Ramp S	181
Met Centre	223

Table 1: AM Peak Hour Demand and Flow rate requirements at 2015.

Note, DDA movements are similar to existing conditions

Fire Egress Capacity

Arup Fire has reviewed the Construction Management Plan and confirms that the plan accurately reflects the egress provisions that have been determined by Arup as being required to maintain adequate egress from the Wynyard Station concourse during normal operations. We note that the Construction Management Plan requires modifications to the connection through to the Met Centre prior to Phase 2, in order to allow egress through to the Met Centre during construction. Also, the Construction Management Plan relies on Wynyard Walk being available for emergency egress from Phase 3 onwards.

A handwritten signature in black ink, appearing to read 'Paul Stanley', is centered on the page. The signature is fluid and cursive, with a large initial 'P' and a long, sweeping tail.

Paul Stanley
Senior Associate

cc Marianne Foley, Rob Fleury, Cameron Dymond



RobertBirdGroup

Reference: SW: DA LTR/S 13037

10th March 2014

Brookfield Office Properties
Australia Commercial Operations
Level 22, 135 King Street
SYDNEY NSW 2000

Attention: Mr Stuart Harman

Dear Sir,

**RE: ONE CARRINGTON STREET, SYDNEY - DEVELOPMENT APPLICATION
STRUCTURAL ENGINEERING ASSESSMENT OF PROPOSED ARCHITECTURAL PLANS &
CONSTRUCTION MANAGEMENT PLAN**

We have reviewed the structural engineering merit of the proposed Development Application (DA) plans prepared by Make+Architectus for One Carrington Street, Sydney and confirm that the proposed development will comply with the current version of the following Codes of Practice:

- AS1170.0/2002 Structural Design Actions;
- AS1170.1/2002 Permanent Imposed & Other Actions
- AS1170.2/2002 Wind Actions
- AS1170.4/2007 Earthquake Loads
- AS3600/2001 Concrete Structures
- AS 4100/1998 Steel Structures
- AS3700/2001 Masonry Structures
- AS4678/2002 Earth Retaining Structures

We have also reviewed the Construction Management Plan (CMP) prepared by Brookfield Multiplex for the proposed Development and confirm the Construction and Demolition activities proposed are structurally feasible and aim to mitigate any potential impact to the heritage aspects of 285 George Street and Shell House as well as mitigate the impact to the adjacent Met Centre and Rail Infrastructure.

Yours faithfully
ROBERT BIRD GROUP PTY LTD

SCOTT WHEELER
Managing Director

Robert Bird Group Pty Ltd
ABN: 67 010 580 248
ACN: 010 580 248

Brisbane Office

Level 5
333 Ann Street
Brisbane QLD 4000
PO Box 7035 Riverside Centre
Brisbane QLD 4001 Australia

P: +61 (0) 7 3319 2777
F: +61 (0) 7 3319 2799
www.robertbird.com