

UTS Broadway Building

Construction Traffic Management Plan
Early Works (Bulk Earthworks) – Version 10

22 September 2010

Prepared for

University of Technology, Sydney

UTS Broadway Building Construction Traffic Management Plan - Early Works

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1 Introduction

Halcrow has been commissioned by the University of Technology Sydney to prepare a Construction Traffic and Pedestrian Management Plan (CTMP).

This CTMP considers the early works element (i.e. the bulk earthworks) of the proposed construction works associated with the approved Broadway Building which is located on Broadway between Jones Street and Wattle Street.

The report has been undertaken by an engineer who holds the RTA Design/Amend Traffic Control Plans (Red Card) and Audit Traffic Control Plans (Orange Card) certification.

The purpose of this CTMP is to provide a description of the proposed construction activities with regard to construction traffic and to identify the management measures necessary to mitigate potential construction traffic implications.

The on-site specific traffic management such as sign and device placement and selection of any traffic control plans would need to be undertaken by the building contractor. As such our report will not include specific traffic control plans.

2 Background and Surrounding Road Network

2.1 *Background*

The proposed 'Broadway Building' is a part of the proposed UTS Concept Plan. The UTS Concept Plan guides planning for the land holdings within the 'Broadway Precinct' of the UTS City Campus. The site location is shown in **Figure 1**.

For information only, a sketch plan of the proposed building is shown in **Appendix A**.

2.2 *Planned Local Traffic Changes*

As part of the planning for the 'Frasers' Broadway site it is planned to relocate the traffic signals at Broadway and Jones Street to Broadway and Balfour Street (east of Jones Street). The traffic signals would form the main access to the 'Frasers' site.

A right turn bay would be provided eastbound in Broadway at Balfour Street. The right turn bay for buses would be relocated from Jones Street to Wattle Street heading west on Broadway.

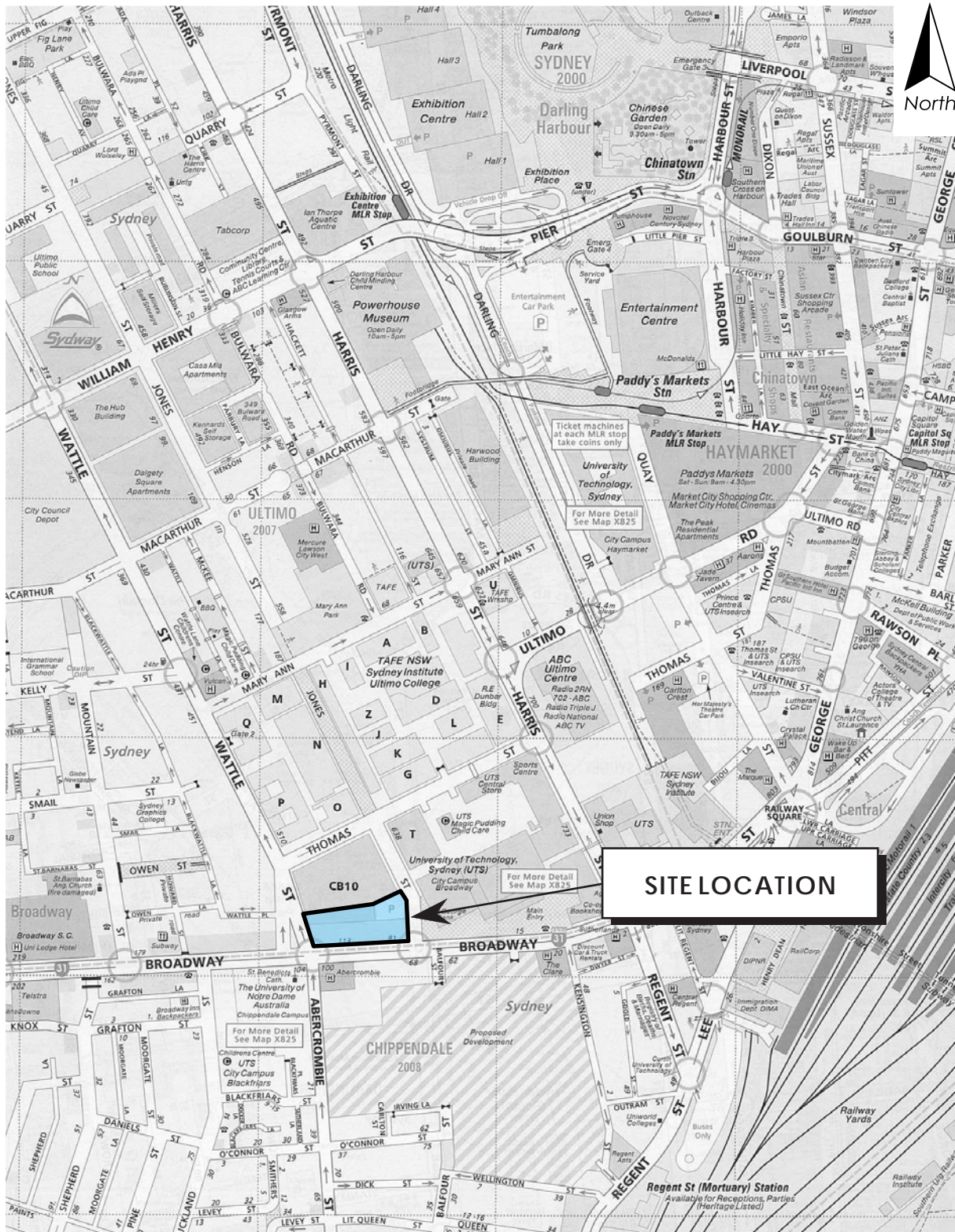
City of Sydney Council has approved the 'temporary road closure' of Jones Street at Broadway. Jones Street would end in a cul de sac at Broadway and traffic would be able to enter / exit Jones Street at Thomas Street. The details of the temporary closure and timeframe for implementation/construction have not yet been finalised.

For some time, City of Sydney Council has also endorsed an in principle long term vision for the full road closure of Jones Street between Broadway and Thomas Street. City of Sydney Council has reported that the full closure of Jones Street between Broadway and Thomas Street would not occur until after the existing driveway to the Broadway Building site has been removed (post construction).

In this respect, access to the site will be available via Jones Street throughout construction of the Broadway Building and prior to the full road closure.

SITE LOCATION

UTS BROADWAY BUILDING CTMP



2.3 *Site Location*

The site is bounded by Broadway, Jones Street and Wattle Street in Ultimo. The subject site is currently occupied by a car park. The surrounding land use is predominately educational facilities.

2.4 *Existing Conditions*

2.4.1 *Road Network*

Roads in the vicinity of the site and their connections are described below.

Broadway is a State road which runs generally east to west. Broadway is an arterial road with four lanes in both directions. Broadway is suitable for heavy vehicle use.

Broadway is speed limited to 50 km/h. There are bus lanes on Broadway in both directions.

Wattle Street / Abercrombie Street is a four lane arterial road. Wattle Street runs one way to the north. Wattle Street has morning and afternoon clearways on its western side with 1 hour restricted parking at other times. The eastern side of Wattle Street has sections of No Parking on weekdays in between sections of No Stopping near intersections. Wattle Street intersects Broadway at a signalised intersection.

Wattle Street is speed limited to 50km/h and is suitable for heavy vehicle use.

Jones Street is a local road running north to south. Jones Street has one travel lane in each direction and parking on both sides. The intersection of Jones Street and Broadway is signalised. A 50 km/h speed limit applies in Jones Street.

2.5 *Pedestrian and Cyclist Facilities*

A footpath is located on each road fronting the site. Paths in the area provide continuous access between the subject site and the nearby transport facilities. Signalised crossings are available at Harris Street and Jones Street as well as Wattle Street.

Jones Street and Broadway are identified bicycle routes through the area.

2.6 *Public Transport*

STA buses operate numerous bus services near the site along George Street, Wentworth Park Road and Harris Street. Bus services connect the site to the CBD, Eastern and Western Suburbs, City Light Rail and Railway Stations.

A bus route and bus stop exists along Jones Street. Buses enter Jones Street by turning right off Broadway. The right turn is otherwise banned to all traffic.

It is considered that the site has a very good level of public transport accessibility and the modal split towards public transport is relatively high.

2.7 *Site Inspection*

An inspection of the site and the surrounding road network was undertaken during both the morning and afternoon peak periods on a typical weekday.

The inspection indicated that:

- traffic flows along Wattle Street and Broadway are heavy;
- the intersection of Broadway and Wattle Street creates heavy platoons (i.e. bunches) of traffic separated by long gaps in traffic flow along Wattle Street;
- the intersection of Wattle Street and Jones Street operates at good levels of service with some coordination along Broadway;
- the intersection of Broadway and Wattle Street operates at good levels of service with some coordination along Broadway;
- there is a reasonable number of pedestrians walking along Broadway and Jones Street to / from local residential and educational facilities;
- the existing on-street parking is typically generated by the surrounding land uses with some spare restricted parking available in the vicinity of the subject site.

3 Overview of Works

This document has been specifically produced to manage the construction traffic from the early works (i.e. the bulk excavation works). A separate CTMP was produced for the demolition works and a separate CTMP will be produced for the main construction works.

The total package of works sees the following:

- Demolition of Building CB11 (Bradshaw Building) and CB12 and CB13;
- Construction of a building comprising twelve floors including café, student theatres, classrooms, student support and retail, office, laboratories and associated student facilities; and four basement levels including student theatres, car parking, laboratories, plant etc.

The construction involves the following stages:

- Stage 1 Demolition – 7 weeks
- Stage 2 Bulk Excavation – 26 weeks
- Stage 3 Main Construction Works – 100 weeks

During the concept plan development, some general principles for traffic management were set out and these are listed below.

- Truck access to the site from Broadway is to be avoided unless no other suitable option is available.
- Emergency pedestrian egress from Building 10 adjacent the site is to be fenced and unobstructed at all times.
- Pedestrian movements along footpaths are to be maintained at all times on major roads surrounding the site including Wattle Street and Broadway.

- Trucks are to enter and leave the site in a forward direction unless accredited traffic controllers are in place to control traffic and pedestrians.
- Building Contractors are to maintain strict traffic management procedures including using traffic controllers to ensure the safety of road users and pedestrians.
- All vehicles carrying materials to or from the site are to have their loads covered with tarpaulins or similar covers.
- Openings in construction fencing at construction access driveways are to be managed and controlled by qualified site personnel.
- Pedestrian warning signs and flashing lights are to be erected adjacent to all construction access driveways.

4 Access, Loading /Unloading and Construction Vehicle Routes

4.1 *Construction Vehicle Routes*

General construction vehicle traffic will have origins / destinations throughout Sydney. The designated inbound and outbound routes for all construction vehicles are shown on **Figure 2**. The proposed routes aim to take the shortest distances to /from the arterial road network.

Most construction vehicles, including trucks would use the State Road Network. Closer to the site, vehicles would use Harris Street, Wattle Street or Broadway to link to Eastern Distributor, Cross City Tunnel, Western Distributor or Harbour Bridge.

4.2 *Access to the Site*

Swept paths indicate that access is not available for vehicles over 12.5 metres to turn left into Jones Street from Broadway. A no right restriction applies into Jones Street from Broadway.

To protect the emergency pedestrian egress from Building 10, and also because the area will be partly excavated, the driveway access in Wattle Street will be closed to traffic.

Therefore truck movements wishing to enter the site would be restricted to access via Thomas Street thence to Jones Street. Trucks may exit the site to Jones Street and thence to Broadway or alternatively Thomas Street.

Thomas Street provides an important link between Wattle and Harris Street with good connections to the arterial road network. It represents the shortest route to the arterial road network to / from the site.

CONSTRUCTION VEHICLE ROUTES

UTS BROADWAY BUILDING CTMP



4.3 *Delivery of Machinery*

Earthmoving equipment and crane/s will require transport at the start and at completion of their use. A flat bed truck would probably be used to transport larger machinery and the crane. Delivery of large machinery would occur at night to minimise disruption to traffic and pedestrians. The delivery route for these vehicles would be one of the routes nominated on **Figure 2**.

4.4 *Excavation*

During the initial 10 weeks of Stage 2 the site will be accessed from Jones Street and trucks will enter and exit the site in a forward direction. This movement of trucks will continue on site until such time that the excavation is too deep for access from street level into the site. The swept paths for a 17m dog and trailer entering and exiting the site during the initial 10 weeks of Stage 2 are shown in **Figure 3**.

In the last 16 weeks of excavation, trucks would load material from a loading platform on the site. To access the loading platform, all trucks will be required to enter the site in a forward direction and exit by reversing into Jones Street and then driving forward into Broadway. This arrangement is required so that the fire exit is maintained (for Building 10) so as to maximise the area for deep excavation.

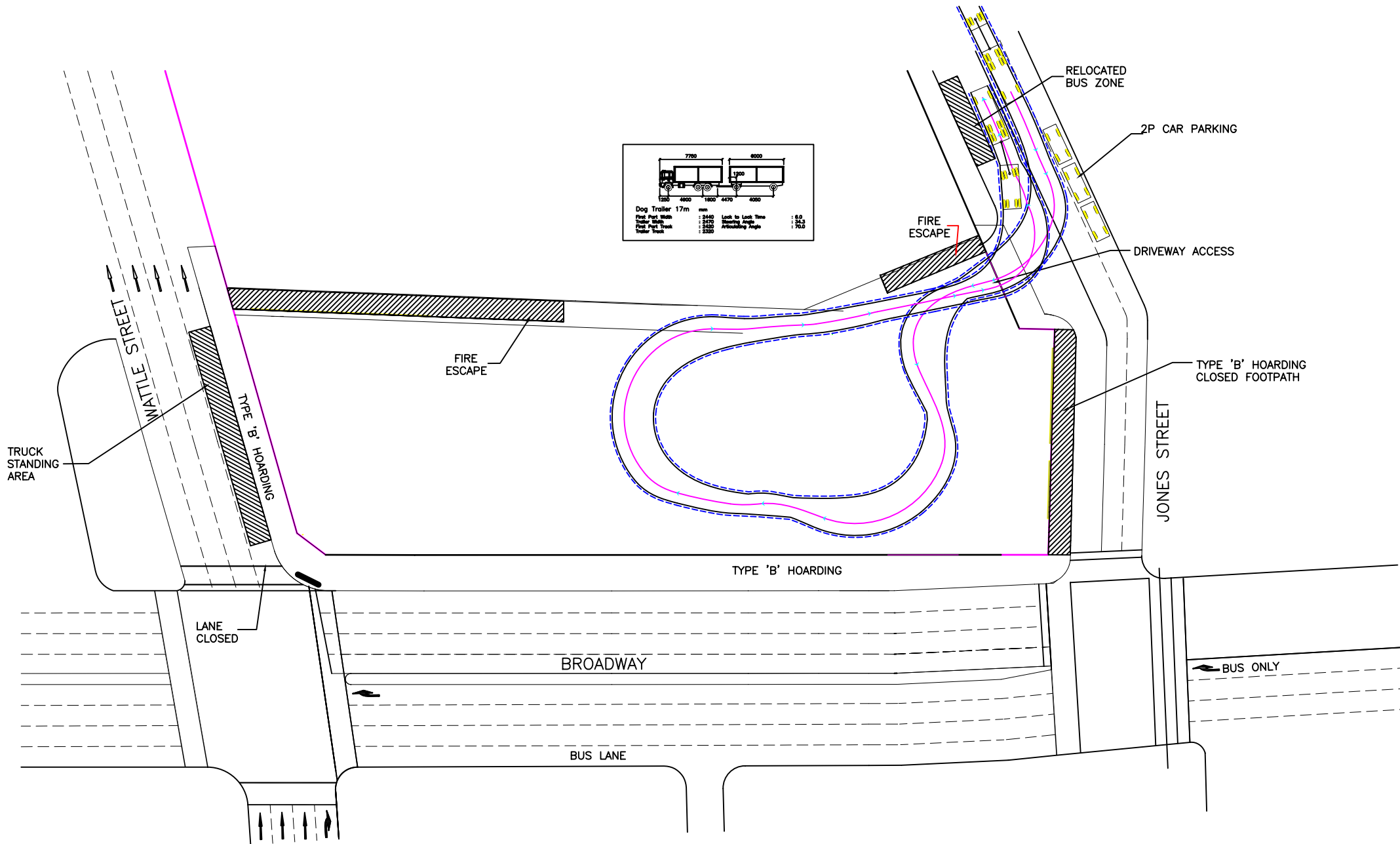
The size of truck that would be able to undertake this movement is a 12.5m rigid truck only. The swept paths showing the access by such trucks during the final 16 weeks of Stage 2 is shown in **Figure 4**.

Traffic controllers will be available on site to allow trucks to safely exit the site. Trucks will begin to turn during a suitable gap in the traffic. Should a vehicle enter Jones Street after the truck has begun to move then the traffic controller would stop vehicles in Jones Street. It is the aim of the traffic controller to ensure that traffic would not queue along Jones Street toward Broadway and that truck movements would occur quickly and safely. There is adequate queuing space for around 5 cars south of the driveway which is considered adequate for queuing during the subsequent reverse movement.

All building contractors shall be notified of the truck routes and required to adhere to the nominated routes.

17m DOG+TRAILER TURN PATHS ONSITE

UTS BROADWAY BUILDING



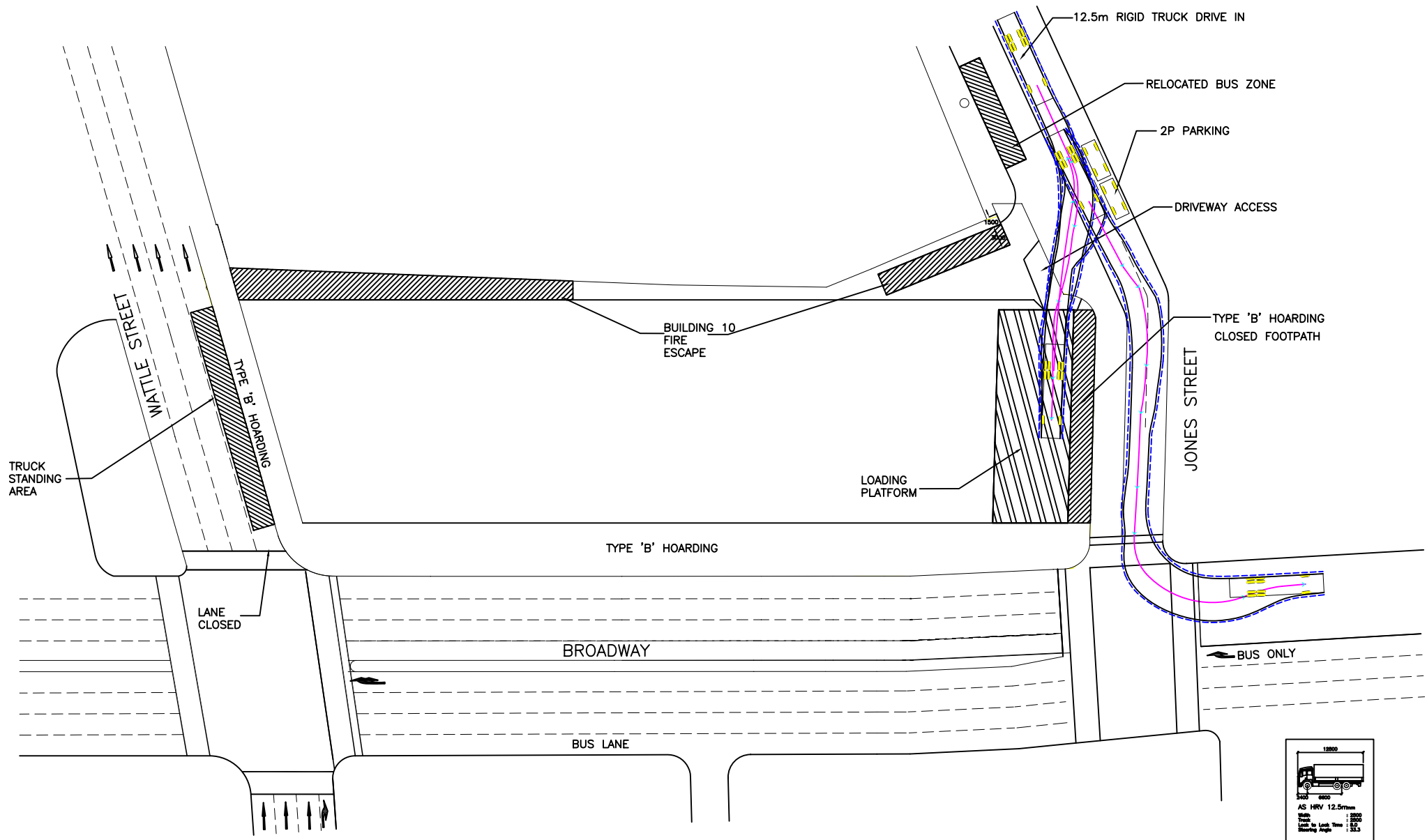
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Figure 3

Date: 09 JULY 2010

12.5m HRV TRUCK TURN PATHS USING LOADING PLATFORM

UTS BROADWAY BUILDING



Scale: 1:500@A3

Figure 4

Date: 09 JULY 2010

4.5 *Lane Closure in Wattle Street*

The management of trucks entering and exiting the site will require careful management. A lane closure in Wattle Street is proposed to assist with the management of trucks given the number of trucks entering and exiting the site. Drivers will be required to radio ahead their position prior to using the standing area in Wattle Street or entering the site.

Wattle Street is the extension of Abercrombie Street and both streets have four lanes heading north. At the intersection of Wattle Street, Abercrombie Street and Broadway, there are three approach lanes in Abercrombie Street. A fourth lane kerbside is marked as an exclusive right turn bay the extension of this lane in Wattle Street is the eastern most kerbside lane in Wattle Street. This arrangement is shown in **Figure 3, 4 and 5**.

The eastern most kerbside lane heading north in Wattle Street would be closed to traffic. The closure of the fourth kerbside lane in Wattle Street is anticipated to create minimal impact to the traffic efficiency at the intersection as there are three departure lanes on the far side of the intersection in Abercrombie Street and three approach lanes.

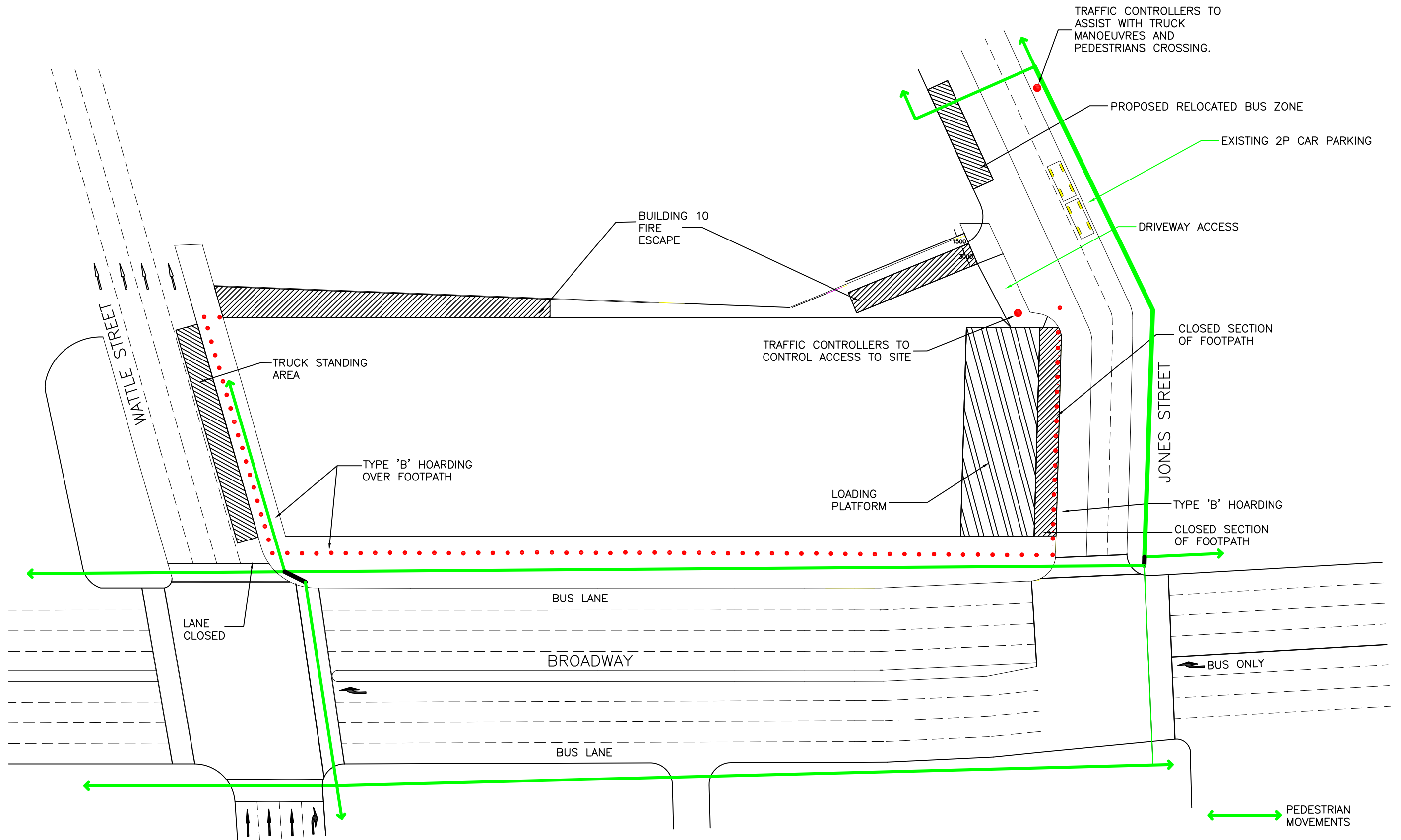
The kerbside lane will be closed to traffic using signs and devices. Use of the signs and devices would be undertaken in accordance with AS 1742.3 Manual of uniform traffic control devices - Traffic control devices for works on roads and the RTA's Traffic Control at Worksites. The lane closure would be operated in accordance with RTA approval.

4.6 *Impact of Road Closure of Jones Street*

As discussed in **Section 2.2** a temporary road closure is planned at Jones Street and Broadway. It is envisaged that prior to the temporary road closure that some construction vehicles less than 12.5 metres would be able to access the Broadway Building site via Jones Street by turning left from Broadway.

PEDESTRIAN DETAILS

UTS BROADWAY BUILDING



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Figure 5

Should the temporary closure be in place prior to the completion of the excavation then trucks would continue to exit Jones Street to Broadway. A stop sign would be erected so that trucks would need to give way to vehicles in Broadway. Traffic controllers would be available to assist pedestrians and trucks as necessary. Vehicles in Broadway would not be stopped by traffic controllers at any time. Trucks would need to enter Broadway at a suitable gap in the traffic. Gaps are easily afforded by the lights at Wattle Street and Broadway.

5 Construction Impacts

5.1 *Construction Traffic Generation and Impacts*

During the excavation phase, traffic generation would primarily be associated with the following construction activities;

- Removal of spoil during excavation by 'dog and trailer' and heavy rigid trucks;
- Delivery of machinery and cranes by flat bed trucks;
- Delivery of materials for fencing and hoardings by flat bed trucks or heavy rigid trucks.

5.2 *Bulk Excavation*

Spoil would be excavated from the site using a truck and dog trailer. It is proposed to load trucks within the site for the majority of excavation works.

The nominated truck routes include RTA controlled arterial roads and are suitable for use by excavation trucks. The entry and exit to Jones Street represents the shortest available routes to the site from arterial roads.

It is estimated that 58,900 cubic metres of material will need to be removed and based upon a 17m truck and dog trailer working for 10 weeks and a 12.5m truck working for 16 weeks, this equates to around 3-4 trucks arriving /departing every hour on average (i.e. around 6-8 truck movements).

As discussed in an earlier section, a lane closure in Wattle Street will assist in facilitating the management of trucks arriving at the site ensuring that there is not a build up of trucks in Jones Street.

The number and frequency of trucks estimated is therefore relatively low and would not adversely impact the traffic efficiency on the proposed routes.

5.3 Pedestrian Access

Pedestrian crossing facilities are provided across Wattle Street, Jones Street and Broadway. These signalised pedestrian facilities would not be affected by the internal construction activities.

The footpath in Jones Street along the site frontage would be closed to pedestrians throughout the works. Type 'B' hoardings would be used to close the footpath.

Traffic controllers would be used to assist with pedestrian diversions near Building 10 and the Alumni Green. The driveway access would also be controlled by qualified personnel.

Signage and traffic devices for any pedestrian diversions would be undertaken in accordance with AS 1742.3 Manual of uniform traffic control devices - Traffic control devices for works on roads and the RTA's Traffic Control at Worksites. Truck drivers will be instructed to keep their speeds below 10km/h along Jones Street.

A type 'B' hoarding will be installed along Wattle Street and Broadway to protect pedestrians from any overhead risk. Pedestrian access along these footpaths would be maintained throughout the works.

A plan showing the pedestrian diversions is shown on **Figure 5**.

With these controls in place, the impact on pedestrians would be low, safe and acceptable.

5.4 Parking

The kerbside lane closure in Wattle Street occurs in a section of road with a No Stopping restriction. As such there would be no disruption to residential or customer parking or loading.

The hoarding and entry / exit movements have been planned to retain on street parking.

The majority of construction staff would arrive by public transport. Applicable short-term parking and loading zone restrictions on nearby streets would avoid impacts on parking in the surrounding area.

5.5 *Public Transport*

Public transport services would not be detoured during construction works.

It would be necessary to temporarily relocate the bus stop on Jones Street which is currently located some 20m from the Broadway intersection to a location further north. The relocation of the bus stop would displace a section of 2 hour period parking. The bus stop needs to be relocated as the footpath will be closed to pedestrians at the current position of the bus stop.

5.6 *Emergency Vehicle and Pedestrian Access*

Access to the subject site and neighbouring sites by emergency vehicles would not be affected by the works as their road and footpath frontage would be unaffected.

The pedestrian fire exits from Building 10 enter the subject site at its boundary with Building 10. The fire exits and egresses across the site are fenced and would be kept unobstructed at all times.

The site's frontage would be restricted throughout the works. Emergency protocols on the site would include a requirement for traffic controllers to assist with emergency access from the street.

Consequently, any potential impacts on emergency access would be effectively managed throughout the works.

6 Work and Driver Protocols

The following construction traffic management measures would be applied to all construction stages:

- Hours of Operation
 - Work to be undertaken during concept plan approved construction hours which are 0700-1900 Monday -Friday, 0700-1700 Saturday with no work on Sunday and public holidays; and
 - Any work outside of the approved hours shall only occur in accordance with the Conditions of Approval which permit work outside hours given certain conditions which are:
 - A delivery needs to be undertaken outside of the proposed hours as required by the authority for safety reasons
 - Where it is required in an emergency to avoid loss of lives, property and / or prevent environmental harm
 - Where approval is granted by the Director, Strategic Assessment of the Department of Planning.
- Vehicle Access
 - Drivers are to radio the site office on approach to the site to ensure access to the site is available.
 - Drivers must not double park or park in Jones Street at any time.
 - Vehicles using Jones Street must do so at low speed (no greater than 10km/hr).
 - Drivers must obey the instructions of qualified personnel at driveway accesses.
 - Use of the kerbside lane in Wattle Street or Jones Street must occur within the terms of the RTA road occupancy approval.
 - Drivers are to be mindful of pedestrians and bicycles when entering and exiting the site.

- Truck Routes
 - Drivers must adhere to the nominated truck routes as shown on **Figure 2**.
 - Drivers must be mindful of pedestrian safety.
 - All vehicles involved in excavation and departing the site with materials, spoil or loose matter will have their loads fully covered before entering the public roadway.
 - Drivers should be aware that Jones Street & Broadway are signposted as 50km/h.
- Vehicle Cleansing
 - Prior to commencement of work, suitable measures will be implemented to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site.
- Loading and Unloading
 - The primary loading and unloading location is the loading platform located at the east end of the site adjacent to Jones Street.
 - Trucks must adhere to the access arrangements shown in **Figures 4 and 5**.
 - Trucks may use Wattle Street as an alternative location for loading and unloading of deliveries, machines and equipment other than spoil
- Pedestrian Access
 - Building 10 fire egress routes for pedestrians will be kept clear at all times.
 - Drivers must be mindful of the Building 10 fire egress routes, gates and fencing for pedestrians.
 - Pedestrian access along Wattle Street and Broadway is to be maintained.
 - Traffic controllers or traffic wardens to be used to assist with pedestrians and bicycles as required.
 - A permanent crossing supervisor will be provided between Building 10 and Alumni Green

- Traffic Control
 - Advisory road signage in accordance with AS 1742.3 Manual of uniform traffic control devices - Traffic control devices for works on roads and the RTA's Traffic Control at Worksites - must be installed and maintained throughout the construction stages.

7 Conclusion

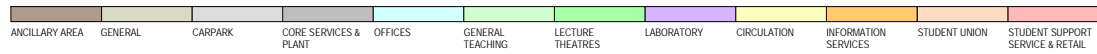
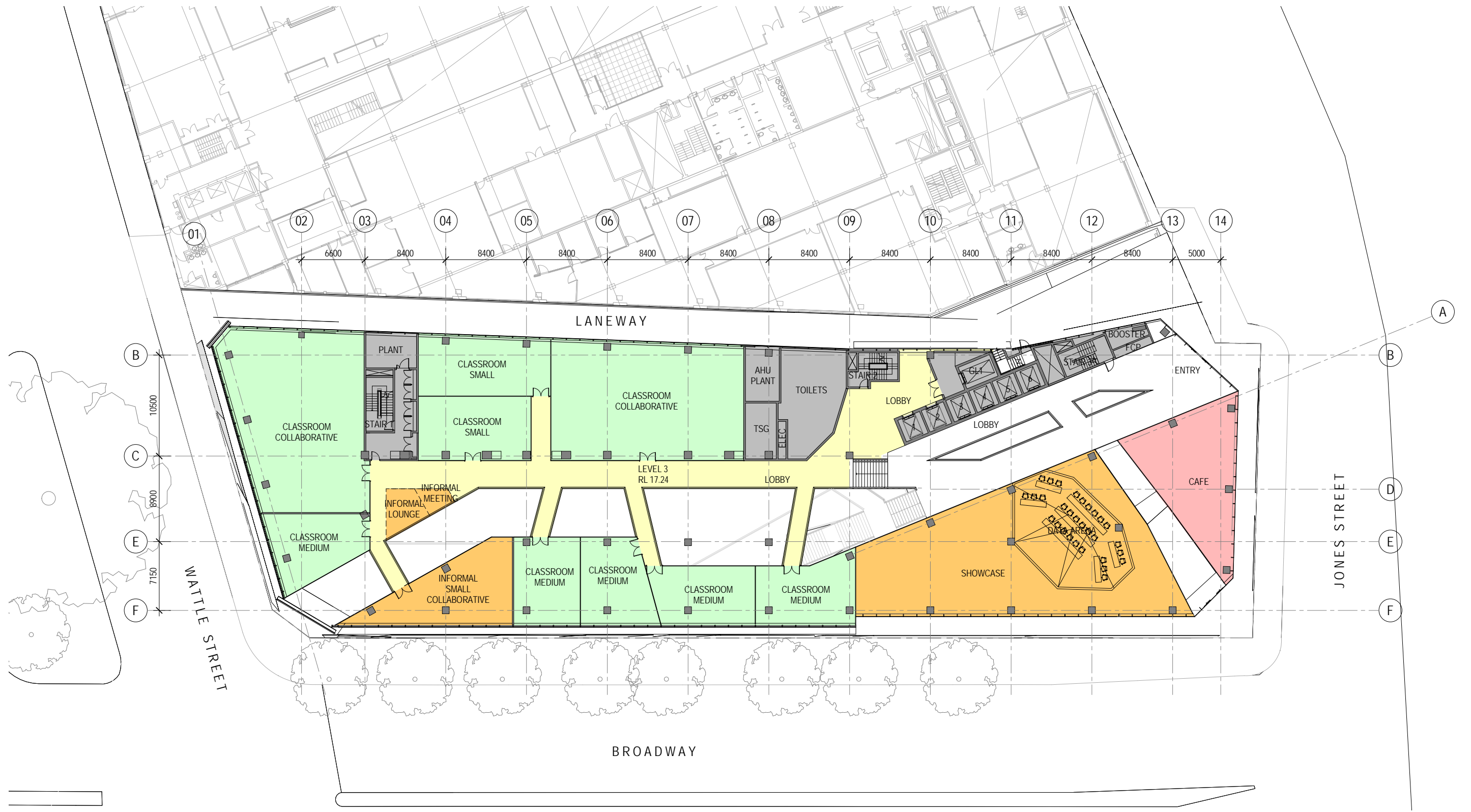
This CTMP has been prepared to document the proposed early works activities (i.e. bulk excavation) and the associated construction traffic management measures necessary to facilitate the proposed construction works at the Broadway Building.

Based on the finding of this CTMP, it is concluded that:

- Construction vehicle movements to and from the site can be satisfactorily accommodated by the surrounding road network.
- Traffic controllers would be used to assist pedestrians during the works.
- A number of driver protocols would be established for drivers to ensure the safety for motorists, pedestrians and cyclists and amenity of residents.

In summary it is concluded that the proposed CTMP measures would adequately address potential implications associated with the proposed construction activities.

Appendix A Sketch Plan of Proposal



1:200 @ A1
1:400 @ A3



Denton Corker Marshall
architecture and urban design



PRELIMINARY

UTS BROADWAY BUILDING
SYDNEY

LEVEL 02/03 FLOOR PLAN

7352 SK103

06 MAY 2010