



# Preliminary Construction Management Plan Macquarie University Central Courtyard Precinct

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## Report Amendment Register

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### Appendix A Turning Path Assessment Drawings

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## 1.0 Introduction

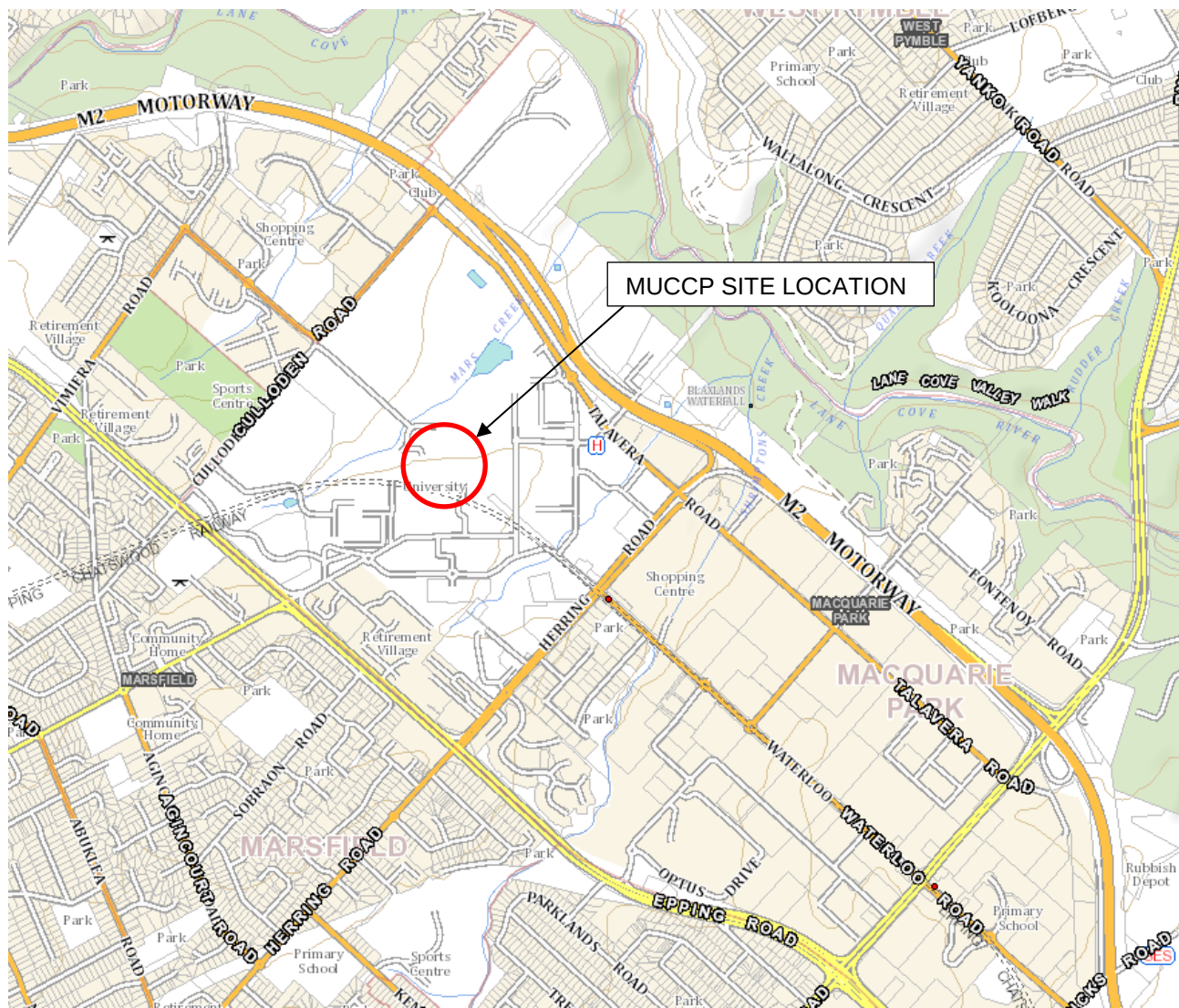
This Preliminary Construction Management Plan (the Plan) has been prepared for the Macquarie University Central Courtyard (MUCC) Precinct project, and accompanies the State Significant Development Application (SSDA). The plan sets out the minimum provisions for compliance by the principal contractor once the construction contract is awarded.

The MUCC precinct site (the Site) is currently occupied by an on grade car park and existing buildings. The location plan of the Site within the Macquarie University (MU) campus in Macquarie Park, NSW is shown in Figure 1.

The project works subject to this SSDA involve the following:

- Site preparation works including minor demolition works and bulk excavation;
- Construction of a new, multi-storey student hub (known as 1 Central Courtyard) in place of existing Building C10A. This building will comprise approximately 15,400m<sup>2</sup> of GFA.  
1 Central Courtyard will provide:
  - formal and informal teaching and learning spaces,
  - a graduation hall with capacity for 800 people, and
  - food and beverage retail outlets, including a new student bar.
- Construction of two student accommodation buildings (Buildings R1 and R2) to provide approximately 340 student beds with integrated academic uses;
- Redevelopment of the landscaped Central Courtyard;
- Construction of a shared basement including plant, loading and waste management facilities, end of trip facilities and car parking;
- Installation of a new substation;
- Installation of utilities and services to accommodate the proposed development;
- Upgrade of the western extent of Science Road to accommodate fire brigade access; and
- Tree and landscaping works.

The anticipated construction commencement is July 2018 for the SSDA works with completion in March 2020.



**Figure 1 – Macquarie University Central Courtyard Precinct Location Plan**

The Plan covers the following areas of management:

- Legislative requirements;
- Hours of operation;
- Public and property protection;
- Noise;
- Dust Management;
- Odour control;
- Storage of dangerous goods;
- Water quality / stormwater runoff;
- Waste management principles;
- Hazardous materials management;
- Traffic and pedestrian management; and
- Services disconnections.

The Works will be undertaken by a suitably licensed principal contractor (the Contractor) holding current and appropriate licenses and insurances.

All statements and proposals documented in this Plan will be reviewed at the time of contract award for the Works to ensure alignment with proposed preferred methodologies and sequencing developments.

## 1.1 Legislative Requirements

The Works will be undertaken in accordance with the following legislative requirements:

- Protection of the Environment Operations Act and Regulations
- Environmentally Hazardous Chemicals Act 1985
- Protection of the Environment Administration Act and Regulations
- Work Health and Safety 2012 and relevant codes of practice and Standards
- Australian Standard 2601-2001: Demolition of Structures
- Code of Practice for the Safe Removal of Asbestos (NOHSC:2002 (1998))
- Guide to the Control of Asbestos Hazards in Buildings and Structures (NOHSC:3002 (1998));
- Resource and Recovery Act 2001
- Environmental Planning and Assessment Act 1979
- Heritage Act 1997
- Local Government Act 1993
- Work Health and Safety Act 2011- NSW
- Soil Conservation Act 1983.

## 1.2 Hours of Operation

In order to reduce disruption to University activities and to campus residents, the following hours of operation are proposed for the Works:

- Monday to Friday – 7.00AM to 7.00PM
- Saturdays – 8.00AM to 4.00PM
- Sundays and Public Holidays – No Work

No work will occur outside of the hours nominated unless approval has been given by Macquarie University at its absolute discretion.

Deliveries of heavy machinery, plant and equipment may be required out of the proposed hours of operation to conform to the overriding requirements of the Roads & Maritime Services (RMS).

## 1.3 Construction Staging

The SSDA works will be undertaken as a single stage of construction. Access arrangements, site storage and the overall site extents will not vary during the construction period.

## 2.0 Public & Property Protection

All Works will be undertaken in accordance with the public protection measures as required in the applicable Australian Standards.

It is proposed to install hoarding or temporary fencing with shade cloth around the construction zone within the Site to prevent public access into the area of the Works and to maintain security to the Site.

A methodology will be developed that provides the least disruption to the Campus during the construction program.

The above public and property protection measures will be reviewed at the time of contract award for the construction of the Works for alignment with proposed preferred methodologies and sequencing developments and to ensure that the safety of the public is maintained at all times during

## **2.1 Environmental**

The Contractor constructing the Works will be required to submit for approval a comprehensive Environmental Management Plan (EMP) to ensure that all elements of the plan meet all statutory requirements as well as MU requirements.

As a minimum, the erosion and sediment controls for the Works shall be designed, installed and maintained in accordance with the requirements of Managing Urban Stormwater: Soils and Construction “The Blue Book” 2004 (4th edition).

The environmental performance of the Contractor will be monitored and reported monthly, throughout the Works.

The following specific environmental management principles will be implemented on site.

## **2.2 Noise and Vibration**

Noise from the Site shall not exceed the limits set out in the Noise Control Act 1975. No machine work will occur outside the normal working hours set unless approval has been given by the consent authority.

Demolition work shall comply with Australian Standard 2436-1981 “Guide to Noise Control on Construction, Maintenance and Demolition Sites”.

The noise and vibration from the use of any plant equipment and/or building services associated with the premises shall not give rise to an offensive noise as defined under the provisions of the Noise Control Act 1975.

Prior to commencement of the demolition/construction works, liaison will take place with staff from MU who occupy the neighbouring buildings on the campus.

## **2.3 Dust**

To control dust generation and where necessary, water will be sprayed at the source of origin, over demolition materials during demolition and loading activities to prevent airborne dust particles migrating into the surrounding environment.

Ground coverings including existing sealed areas of bitumen and concrete will remain as the final item for demolition. This will act as a manageable hardstand for vehicular traffic and will also provide a seal to the underlying material to assist in minimising erosion and sediment run off.

Additional precautions that will be implemented during the Works include the covering of all haulage trucks with tarpaulins and the use of mobile water points during the hammering, processing and loading of concrete.

## **2.4 Odour Control**

In terms of demolition activity for the Site, odour problems will be minimal. All plant and machinery involved in the Works will be regularly serviced and checked for exhaust emissions.

Stormwater gully pits will preferably be cleaned with shovels. Debris collected will be bagged to minimise odour, and disposed of appropriately.

## **2.5 Storage of Dangerous Goods**

It is likely that the Works will involve the use of flammable fuels such as petrol, diesel, Oxyacetylene, oils, etc.

Storage of any such items will be in a lockable compound with sufficient ventilation in accordance with relevant codes of practice and Standards.



Material safety data sheets for all flammable and potentially harmful liquids will be provided by the Contractor undertaking the Works.

## **2.6 Stormwater Run Off**

Drainage of surface run-off will be allowed to flow along existing contours with the existing drainage system on-site of kerbs, gutters, gully pits, pipes and stormwater runoff passing through installed filtration systems prior to being discharged off-site.

The site will be kept clean of rubble to minimise possible sediment flow during rainfall periods.

Stormwater kerbs and drainage lines will have sediment controls in the form of hay bales or sedimentation socks.

Stormwater grate inlets surrounding the demolition areas will be covered with geotextile fabric to allow water to enter into drains whilst retaining sediments.

Should external surface run-off flow into areas of demolition and excavation work, it may need to be diverted (using hay bales) to reduce sediment transportation.

All drainage control devices will be regularly checked particularly during heavy rainfall periods. The water quality in Mars creek will also be monitored to ensure that site runoff is being effectively treated.

## **3.0 Waste Management / Recycling Principles**

The Contractor will be required to achieve compliance with the EPA guidelines.

Prior to demolition activities being undertaken, the Contractor is required to review the geotechnical and land contamination investigation reports. If required, any hazardous materials encountered will be removed and disposed of at a licensed waste facility.

As part of the contractual requirements for the Works, the Contractor will be required to provide all transport and disposal documentation for all waste materials.

In order to maximise recycling opportunities and minimise waste going to landfills waste materials will be classified and segregated during the demolition and construction phases.

Material generated from the Works will be recycled where appropriate apart from selected soft demolition materials and any encountered hazardous materials such as asbestos, SMF and PCB'S.

For detailed assessment of the likely waste generated from the Works, please refer to the Waste Management Plan compiled by ARUP.

## **4.0 Hazardous Material Management**

### **4.1 Identification**

Previous studies of the site have identified that there may be asbestos within the existing buildings and in-ground. If asbestos is identified during the demolition or excavation phase, the management and site removal of these products will be carried out in accordance with Australian Standards.

These reports will be updated and used as the basis for identifying and managing the removal of hazardous materials during the Works. 'Unexpected finds' protocols and secure isolation of the Site from the general public will also reduce the risk of potential harm to people.

## **4.2 Air Monitoring**

As an integral component of the Works and in accordance with all codes and standards, air monitoring will be undertaken by a registered occupational hygienist if asbestos removal works are being undertaken.

The daily monitoring results will be assessed by an Occupational Hygienist and distributed daily to the Contractor and the Client.

## **4.3 Removal**

All asbestos and hazardous material works will be undertaken by WorkCover licensed contractors supervised and monitored by registered occupational hygienists.

The Works will comply with all relevant codes and Standards.

## **4.4 Disposal**

Asbestos and other hazardous materials will be loaded and transported in accordance with all relevant codes and Standards.

All asbestos materials will be bagged and wrapped and placed in plastic lined disposal containers.

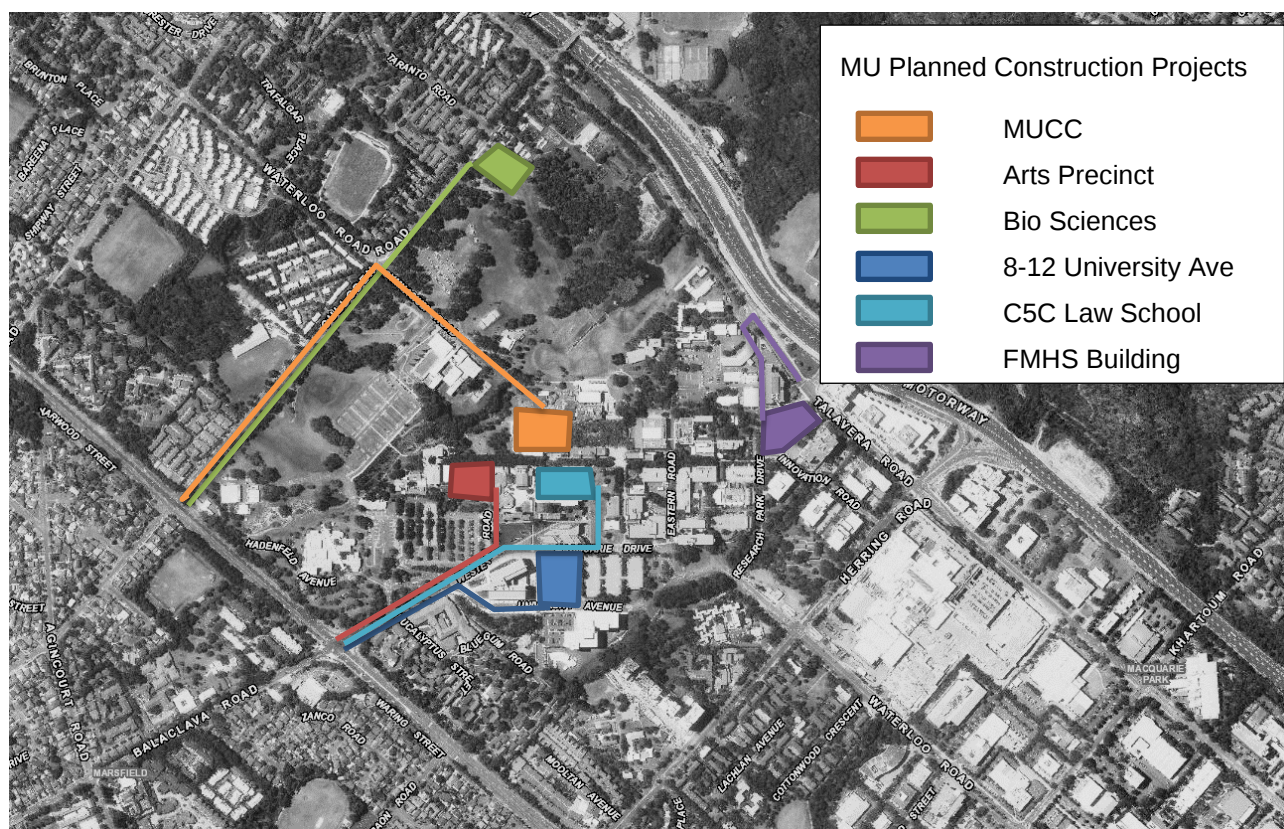
All asbestos and hazardous materials will be disposed of at a registered EPA landfill with full accountability and traceability of transport and disposal monitoring enforced and monitored throughout the construction period.

# **5.0 Traffic Management**

The following sections provide indicative traffic management information and are based on the Draft Construction Traffic Management Plan, within the ARUP Transport Assessment report for the MUCC Precinct. Additional information is to be provided by the Contractor once appointed to undertake the Works.

## **5.1 Other MU Construction Projects**

Simultaneous construction projects can cause a cumulative traffic impact and must be considered and planned holistically. Figure 2 shows the planned future campus works and the anticipated main access routes for each.



**Figure 2 – Planned Future Macquarie University Campus Works**

The current planned construction durations for the above projects are shown below.

| Projects concurrent to MUCC | Construction Works Duration |
|-----------------------------|-----------------------------|
| 8-12 University Ave         | 2018-2020                   |
| Arts Precinct (W6A & W6B)   | Mid 2018 – mid 2020         |
| C5C Law School Refurb       | 2020 - 2022                 |
| Bio Sciences Building       | Oct 17 – Aug 18             |
| FMHS Building               | Mid 2018 – mid 2019         |

At this stage MU anticipates that the construction of the above projects will overlap with the MUCC precinct works. However, since the Arts Precinct, 8-12 University Avenue and Law School works are on a part of the campus that would be accessed from Balaclava Road, the cumulative impacts of the works are likely to be low. The Bio Sciences Project is programmed for completion in August 2018 and will therefore have a very small overlap with the MUCC works.

Other works in the vicinity which would overlap with the MUCC precinct include the Metro works at Macquarie University Train Station. A temporary transport plan will be put in place by Transport for NSW for this period – which will include plans for bus replacement services. The Metro works are remote from the MUCC site and therefore is unlikely to cause any significant impacts.

## 5.2 Construction Vehicle Types

It is anticipated that the construction traffic will consist of

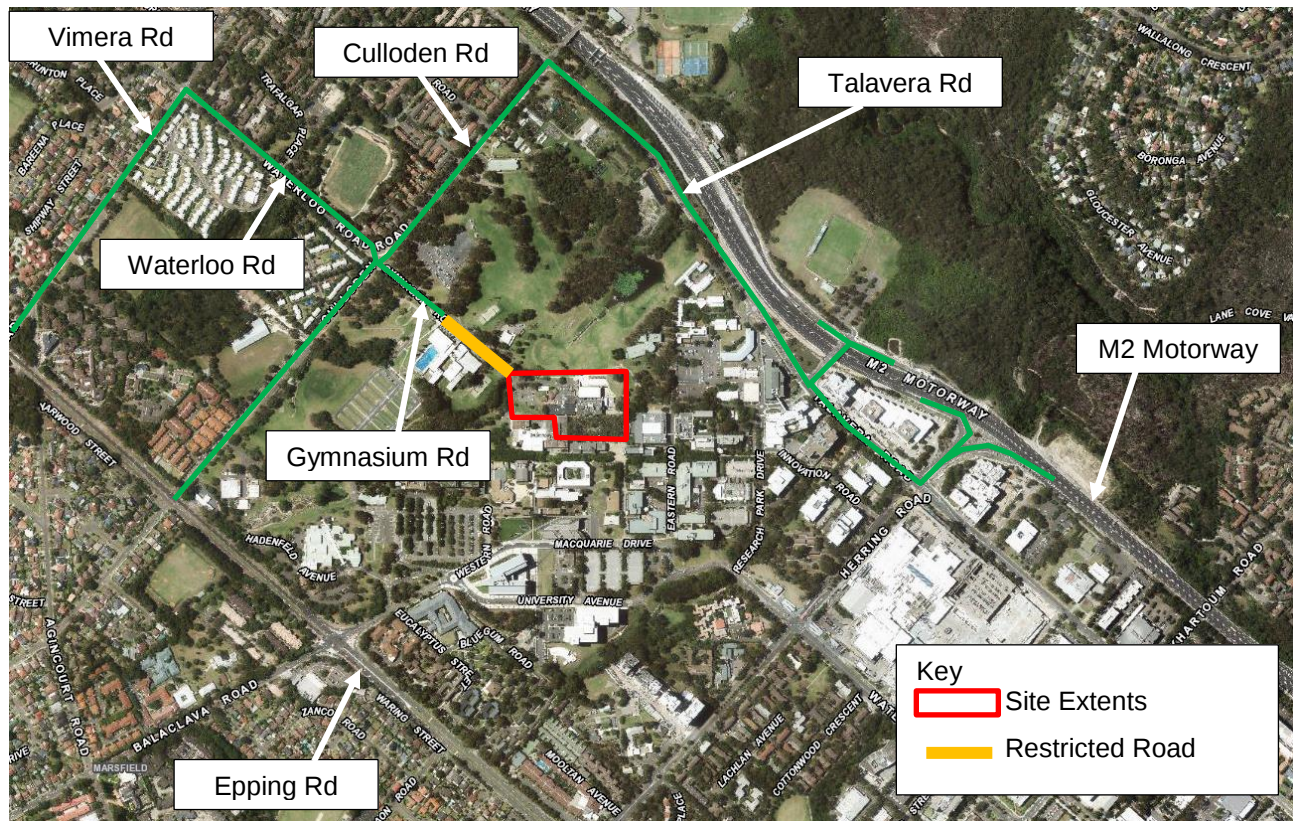
- Removal of excavated material from site – 18m articulated truck and trailer (
- Deliveries of plant and materials (eg structural steel, steel reinforcement, concrete, permanent plant, furnishings) – 19m articulated semi trailers, 12.5m heavy rigid vehicles
- Personnel and small plant / equipment – utes, vans, cars.

- Specialist plant – mobile cranes, concrete pumps

Limited parking for contractor's private cars will be accommodated within the campus. Contractors will be encouraged to utilise public transport where feasible.

### 5.3 Construction Vehicle Access Routes

The MU campus has good road links being situated between the M2 Motorway and Epping Road. Access and egress to the Site will use Gymnasium Road with onward access to the M2 via Culloden Road (NE) and Talavera Road. Access to Epping Road will be via Culloden Road (SW) or Waterloo Road and Vimera Road. The proposed vehicle access routes are shown on Figure 3.



**Figure 3 – MCC Construction Vehicle Access Routes**

It is proposed that part of Gymnasium Road will be kept open to public vehicles to maintain access to the car park and sports centre. A boom-gate will be provided at the point where public access is not required and access thereon will be restricted to construction vehicles and other essential access – including emergency vehicles and authority access to substations for essential maintenance. The restricted length of Gymnasium Road will be used as a short term layover for vehicles waiting to deliver to site. Jersey kerbs and ATF fencing will be provided to prevent unauthorised access.

As part of the ARUP draft Construction Traffic Management Plan, the existing intersections of Gymnasium Road and Waterloo Road with Culloden Road have been tested using tracking software for construction vehicle movements. The tracking diagrams are included in Appendix A.

- The Waterloo Road / Culloden Road roundabout has been constructed so that the roundabout island can be overrun by larger vehicles. As such, this intersection is suitable for use without modification.
- The Gymnasium Road / Culloden Road priority intersection has a right turn filter lane and median islands to separate traffic flows. Track runs demonstrate that construction vehicles (including 19m articulated semi-trailers and 12.5 heavy rigid vehicles) are unable to use this intersection without either crossing lanes, overrunning medians or overrunning kerbs. Temporary works are required to be carried out on this intersection including removal of medians and removal of bollards behind kerbs. It is further required that identified traffic

movements (including right turns out of Gymnasium Road for articulated trucks) are either banned or only performed under supervision by traffic controllers to ensure that they can be undertaken safely. Banning right turns would result in vehicles being directed to Epping Road rather than the M2.

## 6.0 Services Disconnection

The Contractor will be required to notify the MU Facilities Management Department if there is an anticipated services disruption and coordinate its shutdown to suit operational needs. The Contractor is to follow the MU procedure for notification of disruption to services at all times. A minimum of 7-days notice is required.

Such site services include:

- Wastewater
- Water
- Electricity
- Stormwater
- Telecommunications
- Gas.

In general terms the following principles will be adopted by the Contractor when disconnecting services:

- Service authorities will be consulted prior to the Works commencing to ascertain lead times and correct termination locations
- Termination works will be undertaken in accordance with design engineers' specifications and instructions
- Termination works will be undertaken by suitably licensed contractors
- Any termination works that impact on adjoining owners/departments will be notified and will be undertaken out of hours to minimise impact.

# Appendix A

## Turning Path Assessment Drawings



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