

Innovation Hub, Oakhill College 423-513 Old Northern Road, Castle Hill

Reference: 20.132r02v02 Date: June 2020



Suite 2.08, 50 Ho<mark>lt</mark> S Surry Hills, NSW 2010

t: (02) 8324 8700 w: www.traffix.com.au



# DOCUMENT VERIFICATION

Job Number	20.132			
Project	423-513 Old Northern Road, Castle Hill			
Client	Mostyn Copper Group			
Revision	Date	Prepared By	Checked By	Signed
v02	24/06/2020	Kenneth Yuen	Ben Liddell	Partiotalle



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## 1. INTRODUCTION

TRAFFIX has been commissioned by Mostyn Copper Group to undertake a traffic impact assessment (TIA) in support of a development application (DA) relating to a secondary educational establishment at 423-513 Old Northern Road, Castle Hill, specifically the multistorey Innovation Hub development. The development is located within the Hornsby Council Local Government Area and has been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The development is a minor development and does not require referral to the Roads and Maritime Services under the provisions of the State Environment Planning Policy (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions



## 2. LOCATION AND SITE

The subject site is located at 423-513 Old Northern Road, Castle Hill and is commonly known as Oakhill College Castel Hill. It is located approximately 1.5 kilometres northeast of the Castle Hill Town Centre and approximately 24 kilometres northwest of the Sydney Central Business District (CBD).

The site has an irregular configuration and a total site area of approximately 18 hectares. It has a western frontage of approximately 750 metres to Old Northern Road and borders neighbouring residential areas to the northeast and southeast.

The college provides two (2) vehicle access driveways to Old Northern Road, a single access driveway to Foley Place and a single access driveway to Armidale Crescent.

A Location Plan is presented in Figure 1, with a Site Plan presented in Figure 2.



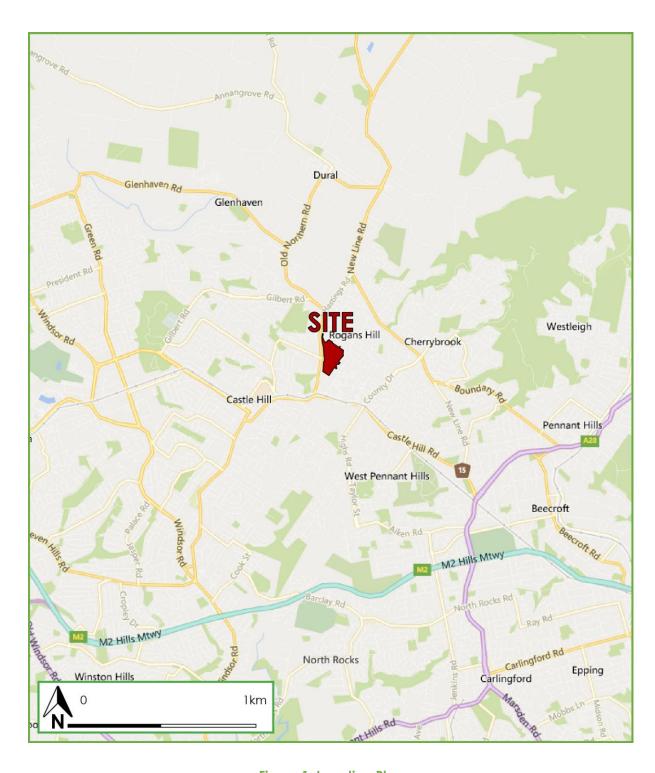


Figure 1: Location Plan



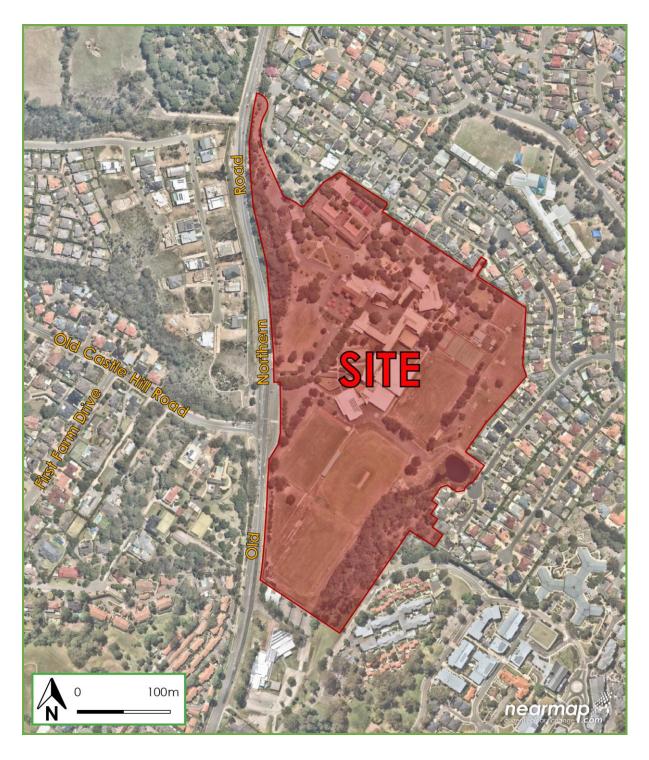


Figure 2: Site Plan



## 3. EXISTING TRAFFIC CONDITIONS

#### 3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

Old Northern Road:

an RMS Main Road (MR 160) that generally runs in a north-south direction between Wisemans Ferry in the north and Terminus Street in the south. In the vicinity of the site, it is subject to a 60km/h speed zoning and provides a single traffic lane in each direction within an undivided carriageway. Kerbside parking is generally not permitted along Old Northern Road within the vicinity of the site.

Castle Hill Road:

an RMS Main Road (MR 156) that generally runs in an east-west direction between Pennant Hills Road in the east and Old Northern Road in the west. In the vicinity of the site, it is subject to a 60km/h speed zoning and provides two (2) traffic lanes in each direction. Clearway restrictions operate in the AM and PM peak periods.

Old Castle Hill Road:

a local road that runs in a western direction from its intersection with Old Northern Road. In the vicinity of the site, it is subject to a 50km/h speed zoning and provides a single traffic lane in each direction. Kerbside parking is generally permitted along both side of the road.

Foley Place:

a local road that generally runs in a north-south direction between Westminster Drive in the north and Ollie Place in the south. In the vicinity of the site, it is subject to 50km/h speed zoning, provides a single traffic lane in each direction within an undivided carriageway and permits unrestricted kerbside parking along Foley Place.



Armidale Crescent:

a local road that starts/finishes off Brosnan Place and traverses around five (5) existing residential properties. It is subject to 50km/h speed zoning and provides a single lane of traffic in each direction within an undivided carriageway. Armidale Crescent permits unrestricted kerbside parking and provides access to the college for emergency, funeral and special events vehicles, inclusively.

The site is conveniently located with respect to the local and arterial road systems serving the region, with connections to the north and west via Old Northern Road and connections to the east via Castle Hill Road.

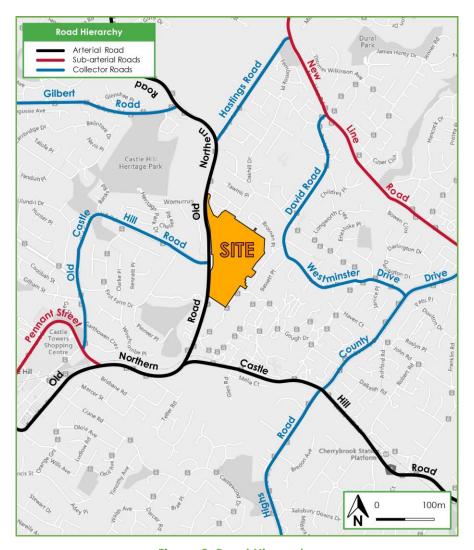


Figure 3: Road Hierarchy



#### 3.2 Public Transport

The subject site is located within 400 metres of six (6) bus stops. These bus services are presented in **Figure 4** and are summarised in **Table 1** as follows:

Table 1: Bus Routes

Bus No.	Route
603	Rouse Hill Station to Parramatta
604	Dural to Parramatta via Castle Hill
637	Glenorie to Castle Hill via Galston and Round Corner
638	Berowra Waters and Berrilee to Pennant Hills
639	Maraylya to Castle Hill

In addition to the above bus services, the Castle Hill Metro Station is located approximately 1.5 kilometres southwest of Oakhill College. While the Metro Station is outside the optimal walking distance (800 metres), the above bus services provide convenient connections between the Metro Station and the College for staff and students.

It is evident the subject site has good connections to public transport services, providing alternative and sustainable transport options for both students and staff, thereby reducing reliance on private vehicle trips. Information concerning service frequencies for all services throughout the week may be obtained by visiting Sydney Buses via the Transport Info website at: http://www.transportnsw.info.



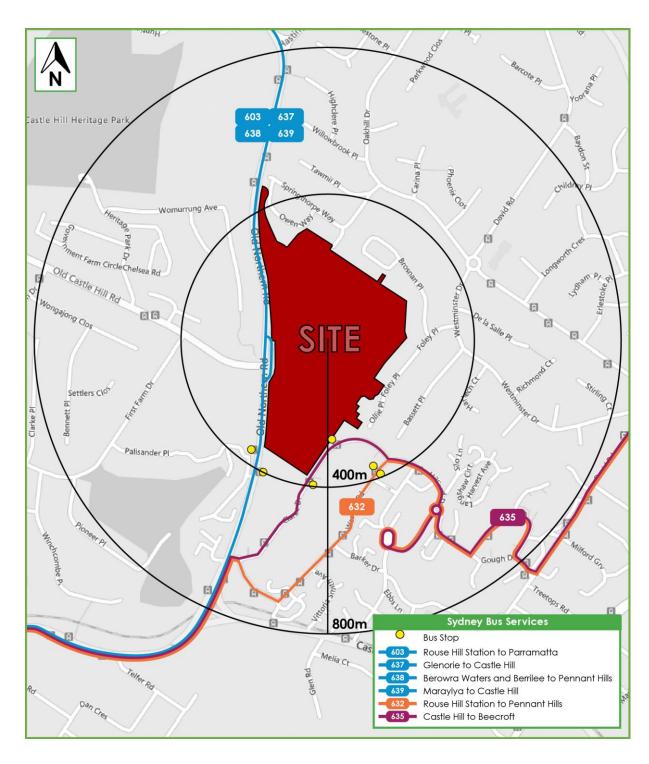


Figure 4: Public Transport



## 4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought comprises the following components:

- Demolition of the Wagan Building;
- Construction of a multi-storey Innovation Hub development comprising:
  - Laboratory teaching rooms;
  - Workshops teaching rooms;
  - General learning areas;
  - Staff facilities; and
  - Loading/servicing area with access from Armidale Crescent.
- No increase in student/staff numbers; and
- Removal of 63 car parking spaces.

The proposed Innovation Hub will provide students and staff an upgraded facility to conduct day to day teachings/operations. It is emphasised that the DA does not seek to increase student and staff numbers above current levels.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix A**.



## 5. PARKING REQUIREMENTS

#### 5.1 Car Parking

The Hornsby Council Development Control Plan (DCP) 2013, Part 1 - General, requires educational establishments to provide 1 parking space per full time teacher and 1 parking space per 2 students of driving age. It is emphasised that the development proposes no increase in either staff or student numbers, thus is not required to provide any additional car parking spaces. It is noted that the proposed Innovation Hub will result in the loss of 63 parking spaces, thus an assessment of historical parking demand data will be utilised to determine if the removal of 63 parking spaces is to be supportable from traffic engineering perspective and whether additional demand management initiatives are required. The utilisation of historic parking data is considered appropriate in this circumstance due to the following:

- The student and staff population has remained largely unchanged since the surveys were undertaken. The My School website states that the 2014 student and staff population was 1,668 and 137 respectively, whilst the 2019 population was 1,667 and 127 respectively;
- There have been no major projects within the school grounds;
- Overall car parking numbers have remained unchanged; and
- Improved public transport within the locality.

Considering the above, the subject site currently accommodates a total of 319 informal and formal car parking spaces. 295 or 92% of these spaces are provided within seven (7) at-grade parking areas, labelled A to G as shown in **Figure 5** below.





Figure 5: Existing Parking Areas

On-site parking surveys were conducted in 2014 between 10am and 10pm to determine the existing parking demands at the school at that time. The results of these surveys are presented in **Chart 1** below:

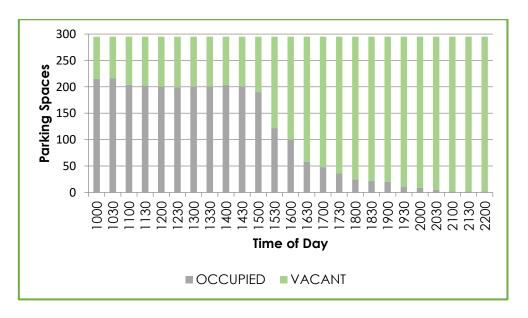


Chart 1: Parking Survey Results (All Areas)



As can be seen from Chart 1, the survey demonstrated that on-site parking peaked at 10:30am with 216 parking spaces (73.2%) occupied and 79 parking spaces (26.8%) vacant. A steady demand of about 200 vehicles (68% occupancy) occurred until 3:00pm when staff began leaving the school grounds. By 5:00pm only 48 parking spaces were occupied.

The removal of 63 staff parking spaces is also considered supportable from a traffic planning perspective given that upwards of 95 car parking spaces are vacant throughout the day.

#### 5.2 Accessible Parking

The Hornsby Development Control Plan 2013, Part 1-General requires educational establishments to provide accessible car parking at a rate of 2-3% of that total number of spaces. The Building Code of Australia (BCA) requires Class 9b buildings (primary or secondary schools) to provide one (1) accessible parking space for every 100 car parking spaces or part thereof. Application of the BCA rate to the proposed 232 parking spaces (295 existing minus 63) requires the development to provide three (3) accessible spaces. The school provides a total of four (4) accessible spaces post Innovation Hub construction, thus meeting the requirements of the BCA.

#### 5.3 Bicycle Parking

The development proposes no increase in either student or staff numbers, hence there is no increase in expected bicycle parking demand and no requirement for additional bicycle parking.

## 5.4 Motorcycle Parking

The development proposes no increase in either student or staff numbers, hence there is no increase in expected motorcycle parking demand and no requirement for additional bicycle parking.

#### 5.5 Refuse Collection and Servicing

The application proposes a loading/servicing bay on the southeast side of the proposed Innovation Hub building. Servicing will generally be undertaken by up to 7.2m long rigid



vehicles and vans/utes etc. Access will be provided via the existing driveway to Armidale Crescent. It should be emphasised that the service bay will be used infrequently (approximately 1-2 times per semester) to deliver goods for the laboratories. All deliveries can be undertaken outside of peak periods, thus minimising impacts to residents. All other servicing arrangements associated with the College will remain unchanged.

#### 5.6 Ambulance Access

The proposed pedestrian walkway located on the south-west side of the Innovation Hub will be utilised as an alternative ambulance access, providing an east-west connection through the site. The walkway has been designed to provide a 3.6m wide vehicle path, allowing a standard ambulance to traverse the walkway with sufficient clearance on either side of the vehicle. It should be noted that ambulance access will infrequent and that a staff member will be present to guide the ambulance through the walkway during any emergency.

Emergency access for the remainder of the school will not change and will continue to operate satisfactorily.

#### 5.7 Hearse Access

The proposed pedestrian walkway located on the south-west side of the Innovation Hub will also be utilised by hearse vehicles during ceremonies. As mentioned above, the walkway has been designed to provide a 3.6m wide vehicle path, allowing a hearse to traverse the walkway with sufficient clearance on either side of the vehicle. As with emergency vehicles, hearse access with be infrequent, will only be allowed permitted during ceremonies and a staff member will be present to guide the hearse through the walkway.



## 6. TRAFFIC AND TRANSPORT IMPACTS

The proposed Innovation Hub will provide students and staff an upgraded facility to conduct day to day teachings/operations. It is emphasised that the DA does not seek to increase student and staff numbers above current levels. Therefore, the proposed development will not result in any increase in traffic generation during the weekday peak periods. As such, no external road network improvements are required to facilitate the proposed development.



## 7. ACCESS AND INTERNAL DESIGN ASPECTS

#### 7.1 Vehicular Access

The Armidale Crescent access driveway will accommodate 7.2m long rigid vehicle (including ambulances which are of a similar size). Swept path analysis of a 7.2m long rigid vehicle accessing the site via Armidale Crescent is presented in **Appendix B**. As mentioned above, the Armidale Crescent access gate will be available for emergency, funeral and special events vehicles only as required under Council's Control Order (Ref: SR 56659 KR).

#### 7.2 Internal Design

The internal design complies with the requirements of AS2890.2 (2018) with the following characteristics noteworthy:

#### 7.2.1 Loading/Unloading

- Roadway grades should not exceed 1:6.5 (15.4%).
- The maximum rate of change of grade should not exceed 1:12 (8.3%) in 4.0m of travel.
- The maximum gradient for any part of the service area shall not exceed 1:8 (12.5%) measured in any direction at any one point when reverse manoeuvres will occur.
- Head height clearance of 3.5m should be provided along the vehicle travel path and service area.
- Swept path analysis demonstrating satisfactorily access to and from the service area is provided in Appendix B.

#### 7.2.2 Ambulance/Hearse Access Path

- Roadway grades should not exceed 1:6.5 (15.4%).
- The maximum rate of change of grade should not exceed 1:12 (8.3%) in 4.0m of travel.
- Head height clearance of 2.8m should be provided along the direction of vehicle travel.
- Swept path analysis demonstrating satisfactorily access along the ceremonial path is provided in Appendix B.



In summary, the internal configuration of the loading area and emergency/hearse vehicle access path has been designed in accordance with AS2890.2 (2018). It is however envisaged that a standard condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of any Construction Certificate.



## 8. CONCLUSIONS

The following is noteworthy:

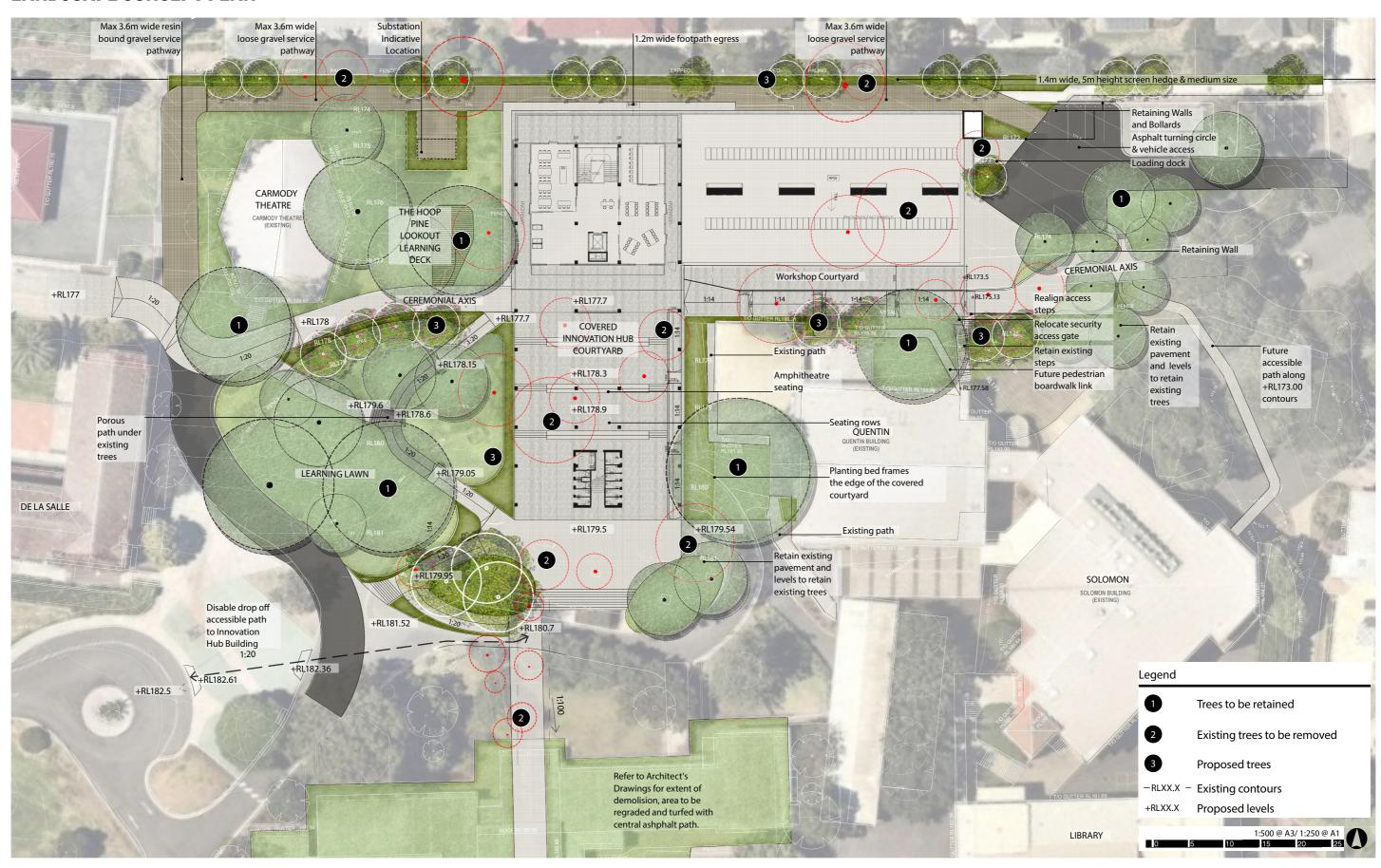
- The proposal seeks approval to construct an Innovation Hub at the Oakhill College located at 423-513 Old Northern Road in Castle Hill. The proposed Innovation Hub comprises laboratory and workshop teaching rooms, general learning areas, staff facilities and a loading/serving area. It is emphasised that the proposal does not seek to increase student or staff numbers. The rest of the campus remains relatively unchanged.
- The subject site is well connected to the public transport network with reliable access to regular bus and metro services. As the Innovation Hub essentially provides students and staff an upgraded facility to conduct day to day teachings, students and staff will continue to utilise the existing public transport services in the locality.
- The proposed development proposes to remove 63 of the 295 formalised car parking spaces. This is considered acceptable noting that historical parking surveys demonstrate that the development has spare capacity for upwards of 95 car parking spaces throughout the day.
- The proposal does not seek to increase student or staff numbers, therefore there is no change in traffic generation. As such, no external improvements are required to facilitate the proposed development.
- Ambulance and hearse access are provided along the internal walkway south-west of the Innovation Hub. This is considered acceptable noting the provision of a 3.6m wide walkway, the low frequency of vehicles utilising the path and the fact that all vehicle movements will be supervised by staff.
- An unloading/loading area is provided on the south-east of the Innovation Hub. This area will be utilised up to two (2) times per semester and will accommodate truck up to a 7.2m long rigid vehicle. Access to the unloading/loading area will be provided via the existing driveway to Armidale Crescent.

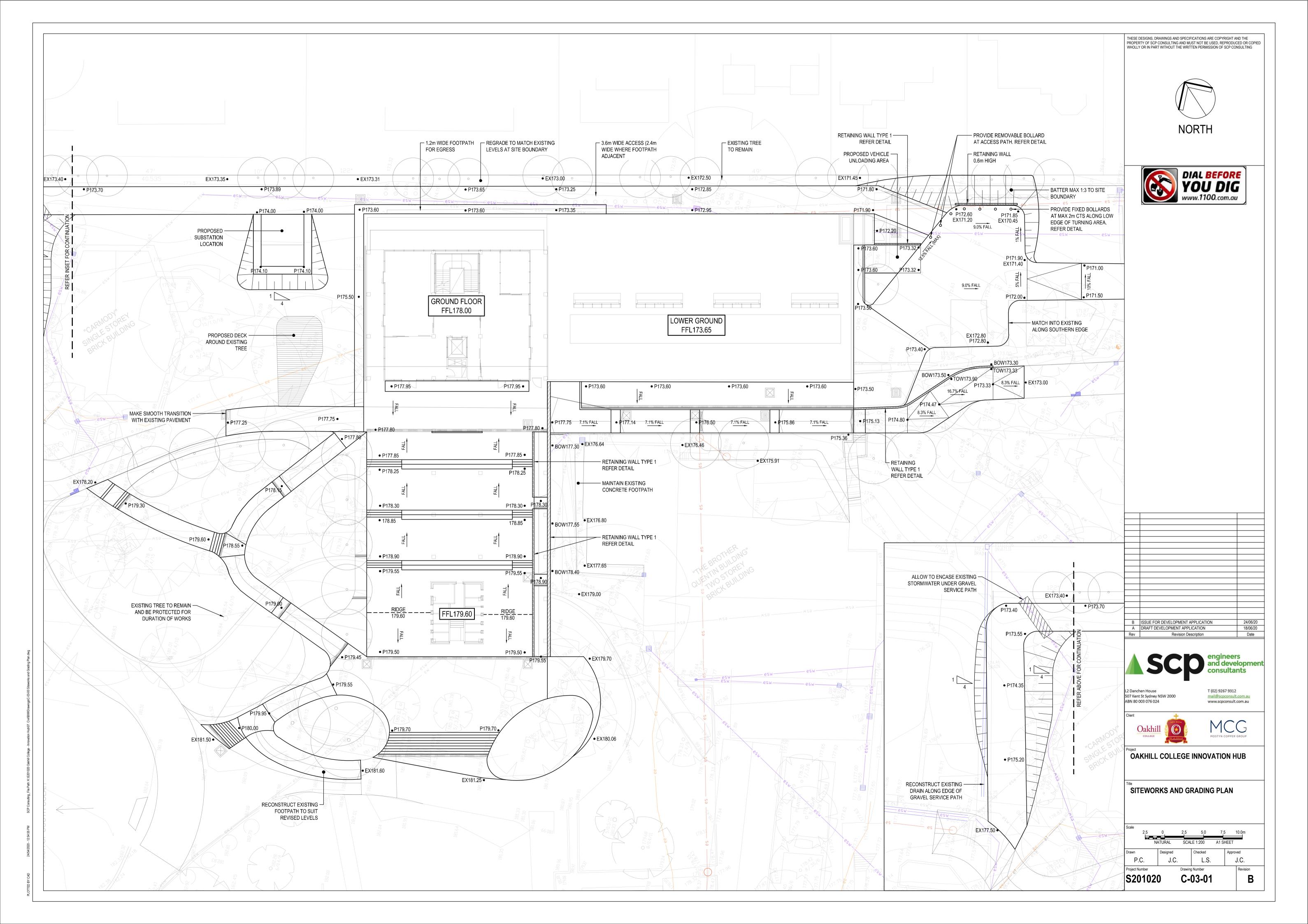
This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

# APPENDIX A

Reduced Plans

## **LANDSCAPE CONCEPT PLAN**





# APPENDIX B

Swept Path Analysis

