SMEC

Local People. Global Experience.

Services Infrastructure Report

CWG Development Pty Ltd

78090.01.RE01-Services
20 January 2017

www.smec.com

DOCUMENT/REPORT CONTROL FORM

File Location Name:	78090.01.RE01-Services
Project Name:	46-66 & 46A O'Connell Street, Caddens
Project Number:	300178090.00
Revision Number:	03

Revision History

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
00	10-11-2016	Craig Hood	Greg Moore	Greg Moore
01	23-11-2016	Greg Moore	Paul D'Orazio	Greg Moore
02	8-12-16	Greg Moore	Craig Hood	Greg Moore
03	20-01-2017	Craig Hood	Craig Hood	Graeme Flemming

TABLE OF CONTENTS

TABLE OF FIGURES

1. INTRODUCTION

This report prepared by SMEC Australia undertakes a review of the availability of existing utility services for the proposed residential subdivision at 46-66 & 46A O'Connell Street, Caddens. This report also reviews the proposed utility services required for this residential subdivision on its current layout (Refer to Figure 1).

The Subject Site is the proposed subdivision of Lot 3 DP 1103503 and Lot 6 DP 593628, also known as 46-66 & 46A O'Connell Street, Caddens. The total land area is approximately 11.6Ha and it is proposed to be subdivided into approximately 257 residential lots with 2 apartment sites.

The Subject Site is bounded by Western Sydney University (WSU) to the south and east, Nepean College (TAFE) to the north and O'Connell Street adjacent to the western boundary.

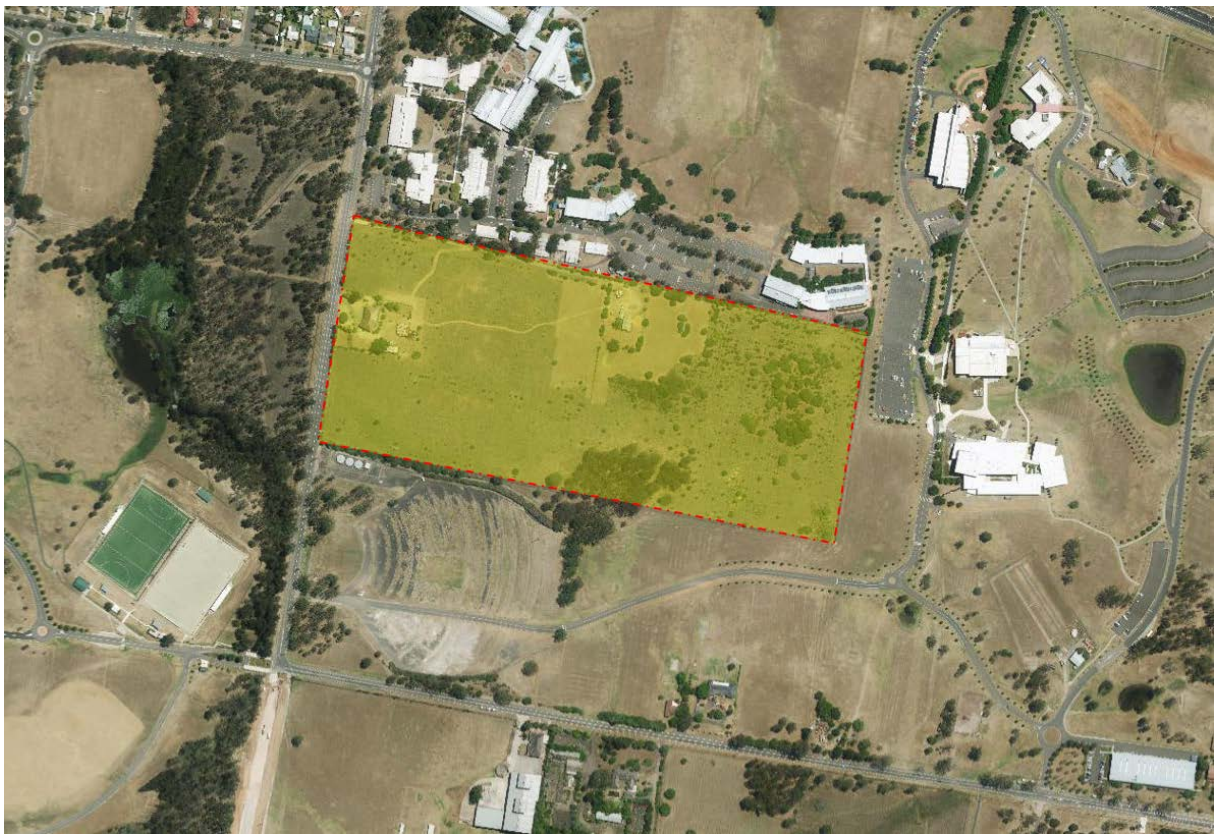

Figure 1 Subject Site (Six Maps)

The Subject Site is currently in the masterplan layout phase of development and is subject to further detailed design upon approval of the Development Application by Penrith City Council. Refer to Appendix A for the current masterplan layout by Hills Thalis that this report has been based off.

Additional investigation and survey work has identified that existing services associated with WSU seem to encroach over the property boundary (Refer Figure 1a). It is suggested that these services are further investigated and pot-holed to determine exact location and depths. Once located, WSU and the relevant authority will need to be consulted to clarify a plan of action on acceptance and/or relocation of the impacted services.

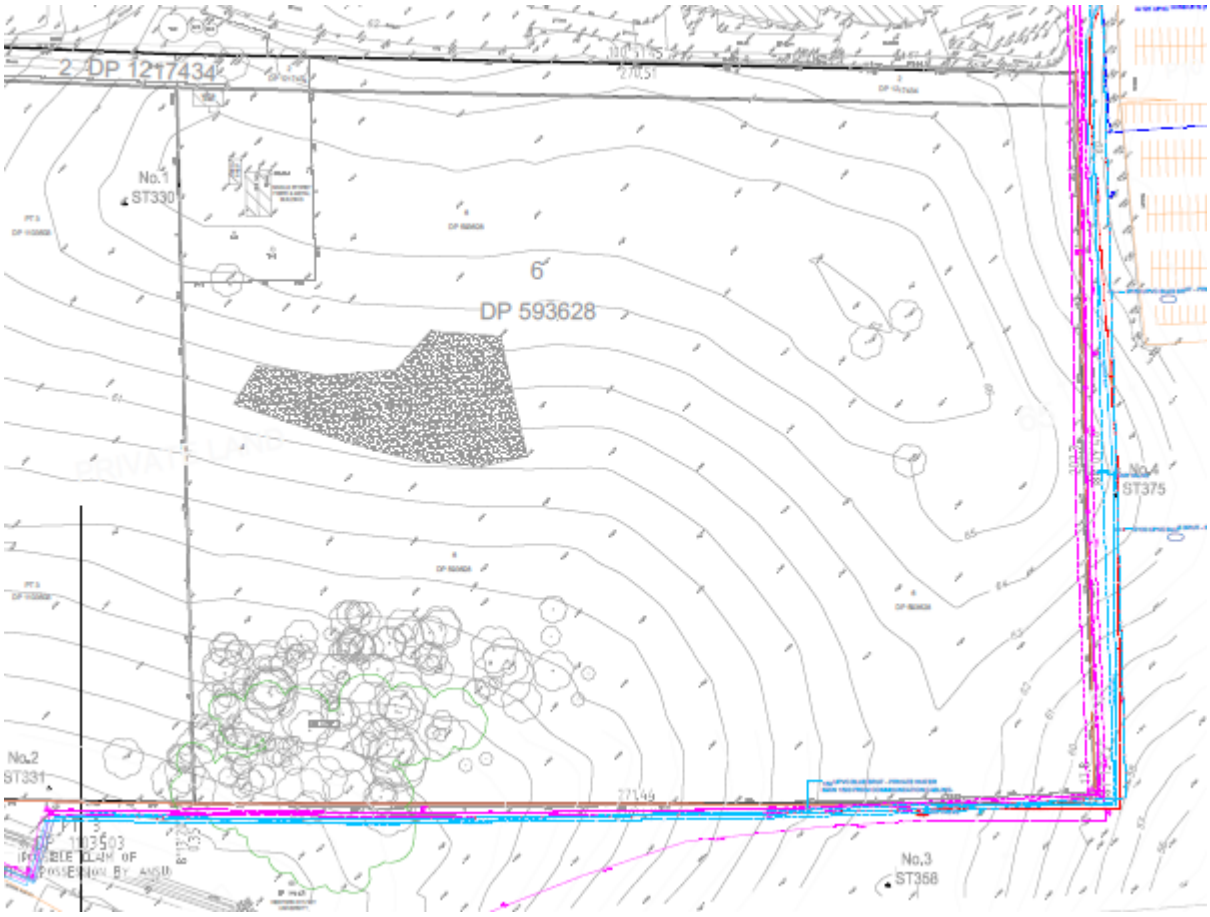

Figure 1a Existing WSU Services within CWG Development Pty LtdProperty

2. SERVICE UTILITY INVESTIGATION

2.1 Sewer

An existing 450mm diameter Poly Pipe (PP) sewerage service is available in the south-western corner of the Subject Site (Refer to Figure 2). The size of this main is large enough to take the capacity of the proposed residential subdivision. However, due to the topography of the site, further investigation and detailed design would be required to conclude if the whole Subject Site could ultimately drain to this point. It is noted that an existing 300mm (VC) sewerage service is available approximately 350m east of the site.

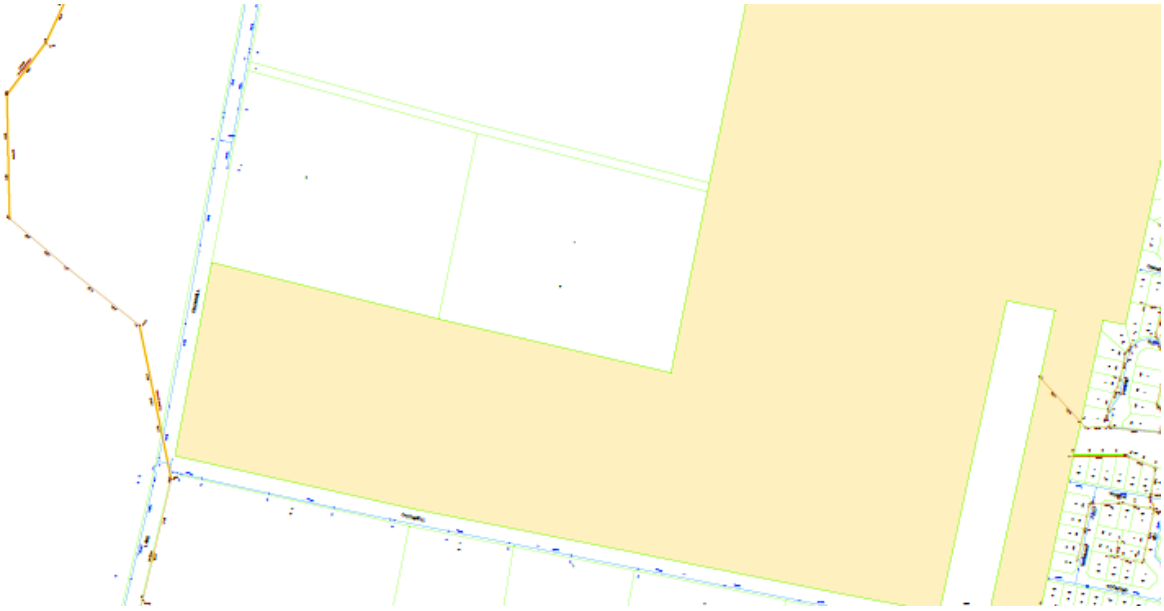

Figure 2 Sewerage Services (Sydney Water – DBYD 09/11/2016)

Both connection points lie within Western Sydney Universities land and would require permission to enter rights for the lead-in works. The lead-in works would be subject to reimbursement by Sydney Water through their procurement process.

The closest point of connection to the south-west would require underboring the lead-in sewer beneath the existing creek line and O'Connell Street. As identified in Figure 1, this area is heavily vegetated and is classified as a riparian corridor containing a natural watercourse as defined by the Office of Water (OOW).

An application to Sydney Water for the sewer reticulation design is required following the approval of the Development Application. Sydney Water will provide their Notice of Requirements (NOR) which would determine the specific requirements to provide sewerage services to the Subject Site.

2.2 Potable Water

Existing Potable Water services are available adjacent to the western frontage of the Subject Site in O'Connell Street (Refer to Figure 3). A 100mm diameter CICL watermain runs along the eastern verge of O'Connell Street from the north and terminates at a hydrant two thirds of the way along the frontage. A 250mm diameter CICL watermain runs along the western verge of O'Connell Street for the full length of the Subject Site, providing a connection point for the proposed potable water reticulation.

A 250mm watermain should have sufficient capacity to service the proposed residential subdivision, however is subject to Sydney Water's Notice of Requirements to determine conclusively that this is the case.

Two connection points will most likely be required to ensure a continual supply throughout the site. This may involve an extension of the 250mm watermain to the south and/or a connection to the 100mm watermain on the western side of O'Connell Street. However, this cannot be determined until Sydney Water assess and provide their Notice of Requirements.

The watermains to be constructed in the proposed road reserves throughout the site will be chlorinated and tested to ensure all works are satisfactory prior to handover and acceptance by Sydney Water. Any testing required within the properties themselves will be subject to separate DA's and designs, which is part of the built form scope.

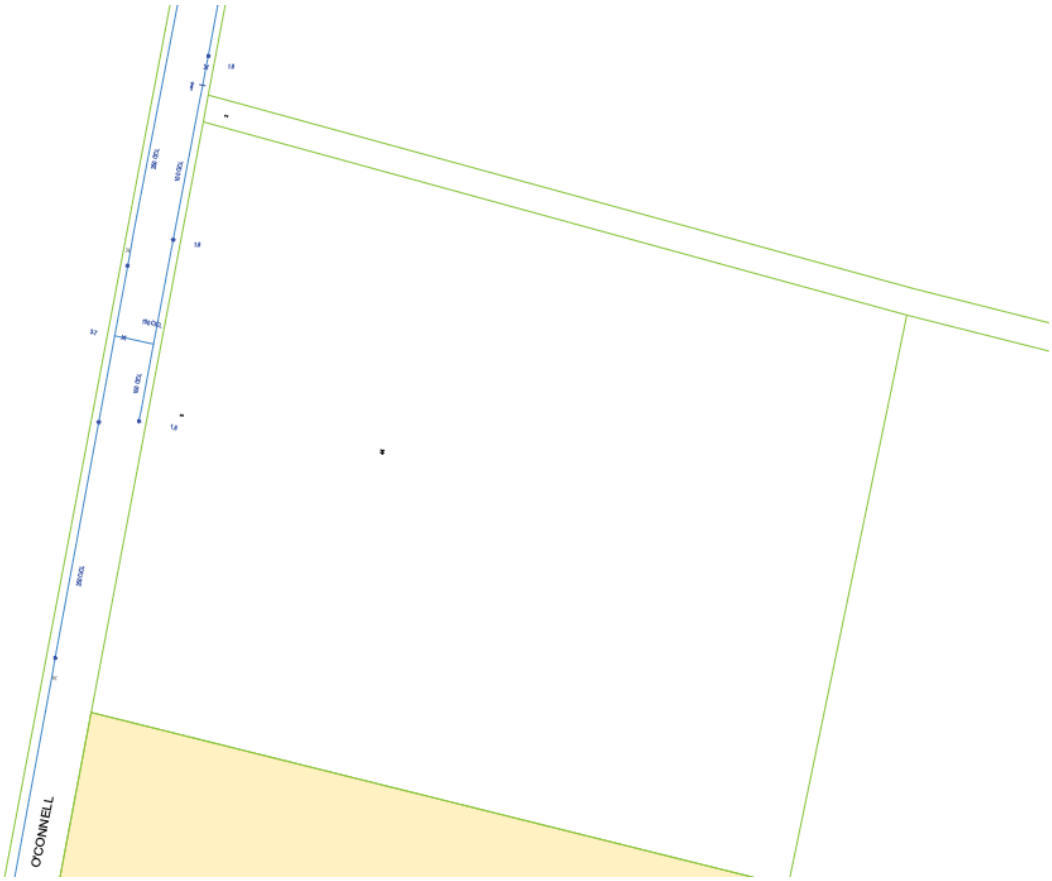

Figure 3 Potable Water Services (Sydney Water – DBYD 09/11/2016)

2.3 Electricity

The nearest electricity zone substation is at Claremont Meadows (Refer to Figure 4) and was planned and designed to cater for the bulk electrical supply for future development within the Caddens region.

Figure 4 Proximity of Zone Substation to Subject Site (Six Maps)

There is existing overhead electrical transmission along the eastern verge of O'Connell Street adjacent to the western frontage of the Subject Site. The existing electrical assets include overhead 33kV, 11kV and 415kV lines (Refer to Figure 5). It is a reasonable assumption that Endeavour Energy will require the 11kV and 415kV lines undergrounded which will be at a relatively low cost to Chiwayland. It is noted that the 33kV line can remain overhead. Should any undergrounding of this line be considered, there would be an approximate length of 500m to be undergrounded at an extremely large cost to CWG Development Pty Ltdthat would not be reimbursable.

There are also three 11kV existing feeders in O'Connell Street, with the possibility of utilising one of these feeders for the load generated from the proposed residential subdivision. This would then avoid any proposed lead-in works to service the Subject Site but would need approval by Endeavour Energy.

Internally, on the current masterplan layout and the amount of dwellings proposed, approximately 5 substations would be required within the subdivision. It is assumed that a further two substations would be required for the apartment sites dependent on the final yield. It is best practice to avoid placing substations within allotments with the preference to strategically place the pad mounts within open space where possible. It is also noted that adequate verge widths are required to ensure all electrical assets are contained wholly within the verge, avoiding the requirement of easements for Endeavour Energy.

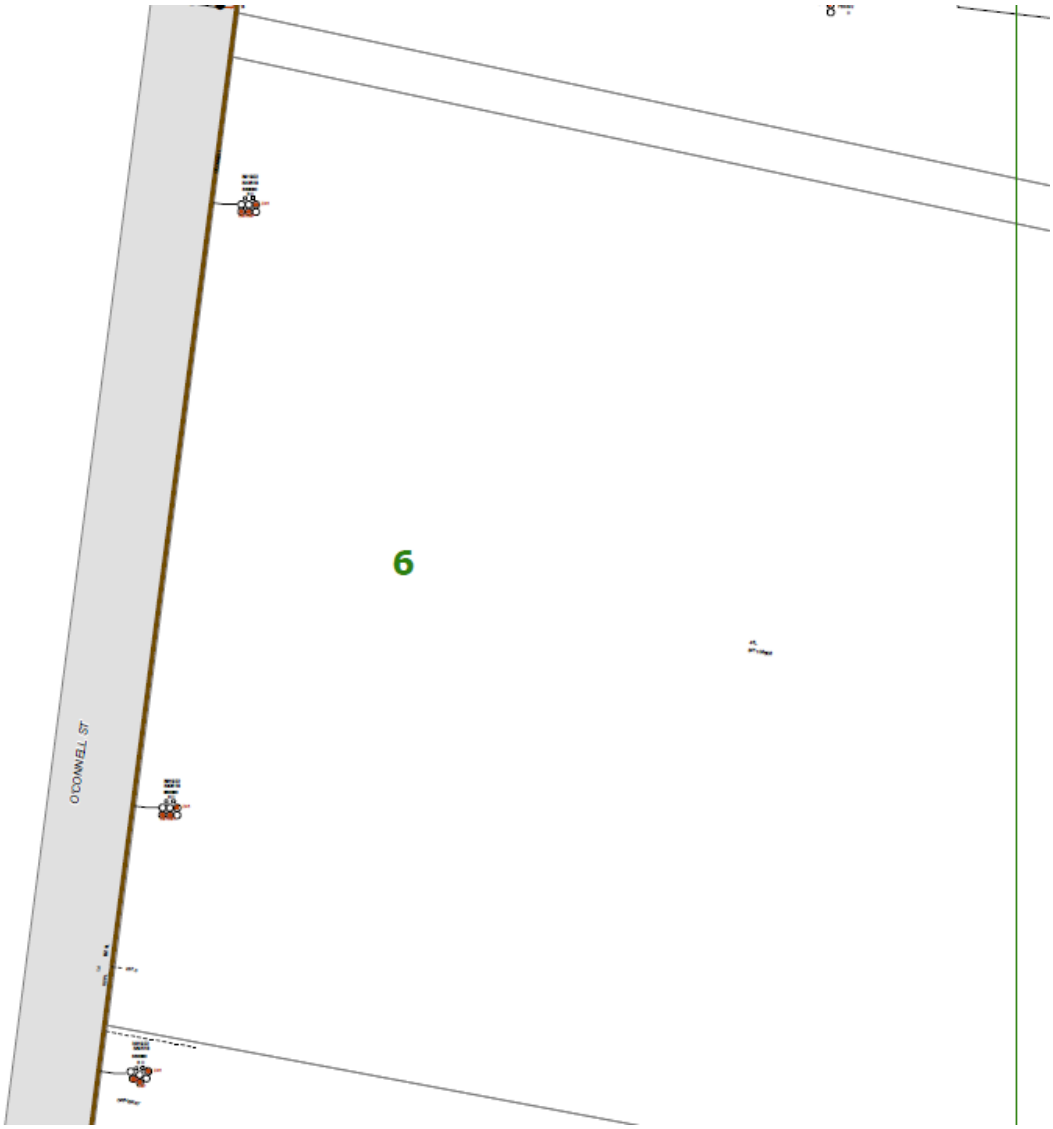

Figure 5 Electrical Services (Endeavour Energy – DBYD 09/11/2016)

2.4 Telecommunications

There are a number of existing telecommunication utilities available within the vicinity of the Subject Site including Telstra, NBN Co, Nextgen and AARNet. A summary of the existing services are outlined below:

- Telstra main: A P100 conduit and pits extends from Second Avenue along the western verge of O'Connell Street to a 6 pit BF. A Telstra 12F cable is shown in this conduit.
- Telstra Distribution: A P35 conduit is also within the western verge of O'Connell Street. A 70pr cable feeds the Western Sydney University and some rural properties south along O'Connell Street.
- Nextgen: A DBYD search indicates that an existing Nextgen asset is present along the western verge of O'Connell Street.
- AARNet: A DBYD search indicates that an existing AARNet asset is also present along the western verge of O'Connell Street.

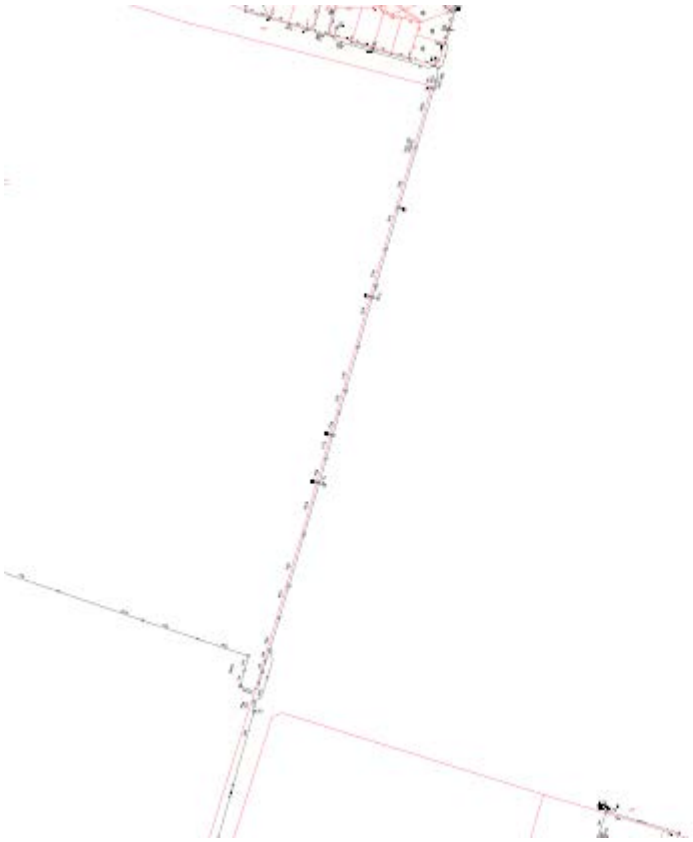

Figure 6 Telstra Distribution Network (Telstra – DBYD 09/11/2016)

Figure 7 Telstra Mains Network (Telstra – DBYD 09/11/2016)

Refer to Figure 8 for the NBN Co Rollout Map. NBN is available from the north and south of the Subject Site. Given that there are existing NBN Co serviced estates along Caddens Road, our assumption is that NBN Co would backhaul from one of these existing sites to service the Subject Site. Should the backhaul be within 1km of an internal point of connection, NBN Co would not charge the developer. NBN Co will advise if backhaul charges are required during the Development Application/Assessment stage.

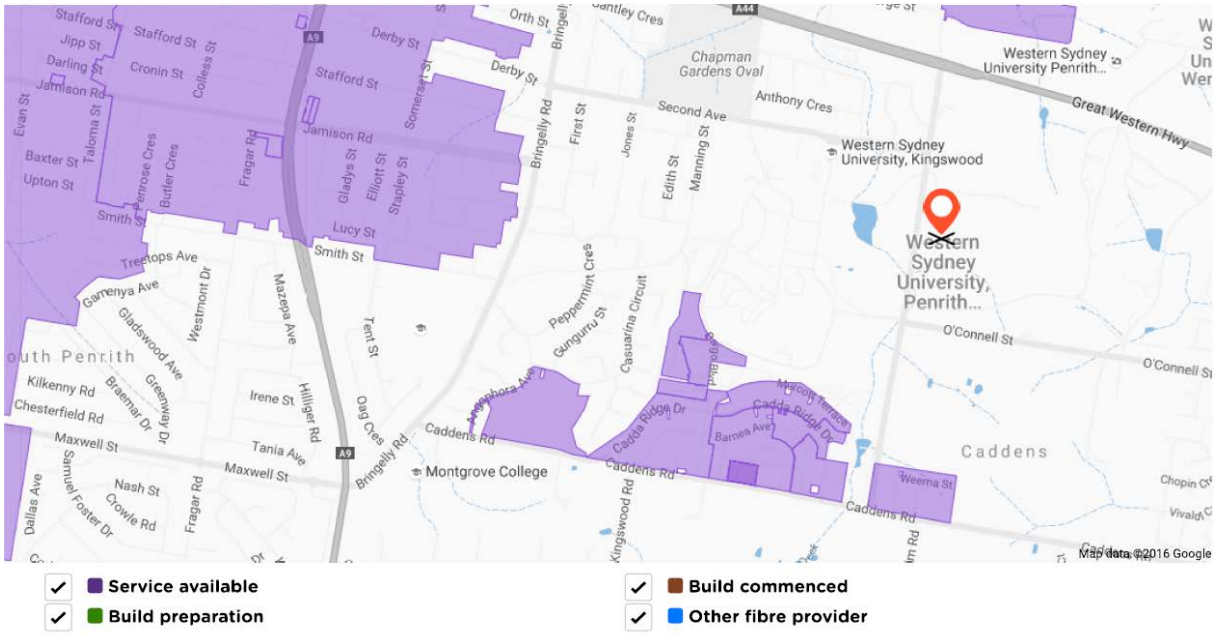

Figure 8 NBN Co Network Rollout Map (NBN Co)

It is noted that NBN Co would be able to utilise the existing Telstra P100 conduit for the lead-in works if fed from the north. Should NBN Co feed in from the south (Caddens Road), the existing P35 Telstra conduit would not be able to be used and NBN Co would require upgrading this section of network.

With regards to the requirements for the proposed residential subdivision, it is assumed that NBN Co will require two Fibre Distribution Hubs (FDH) Cabinets based on the current masterplan layout and proposed dwelling yield. The FDH Cabinets require a 1x1m concrete base within the footpath verge. NBN Co current arrangement is that the developer is to fund the installation of the internal pit and pipe infrastructure as well as provide a $600 per allotment contribution for the supply and installation of the fibre optic cable.

2.5 Gas

An existing 200mm secondary main (maximum allowable operating pressure of 1,050 kPa) runs underground adjacent to the Subject Site along the western verge of O'Connell Street (Refer to Figure 9). The nearest 110mm gas reticulation main is approximately 400m to the south of the Subject Site (Caddens Road development site).

The Subject Site would be able to utilise the existing 200mm main, but would likely require a pressure reducing station subject to further advice from Jemena. Gas reticulation is generally provided by Jemena to the residential subdivision at no cost to the developer.

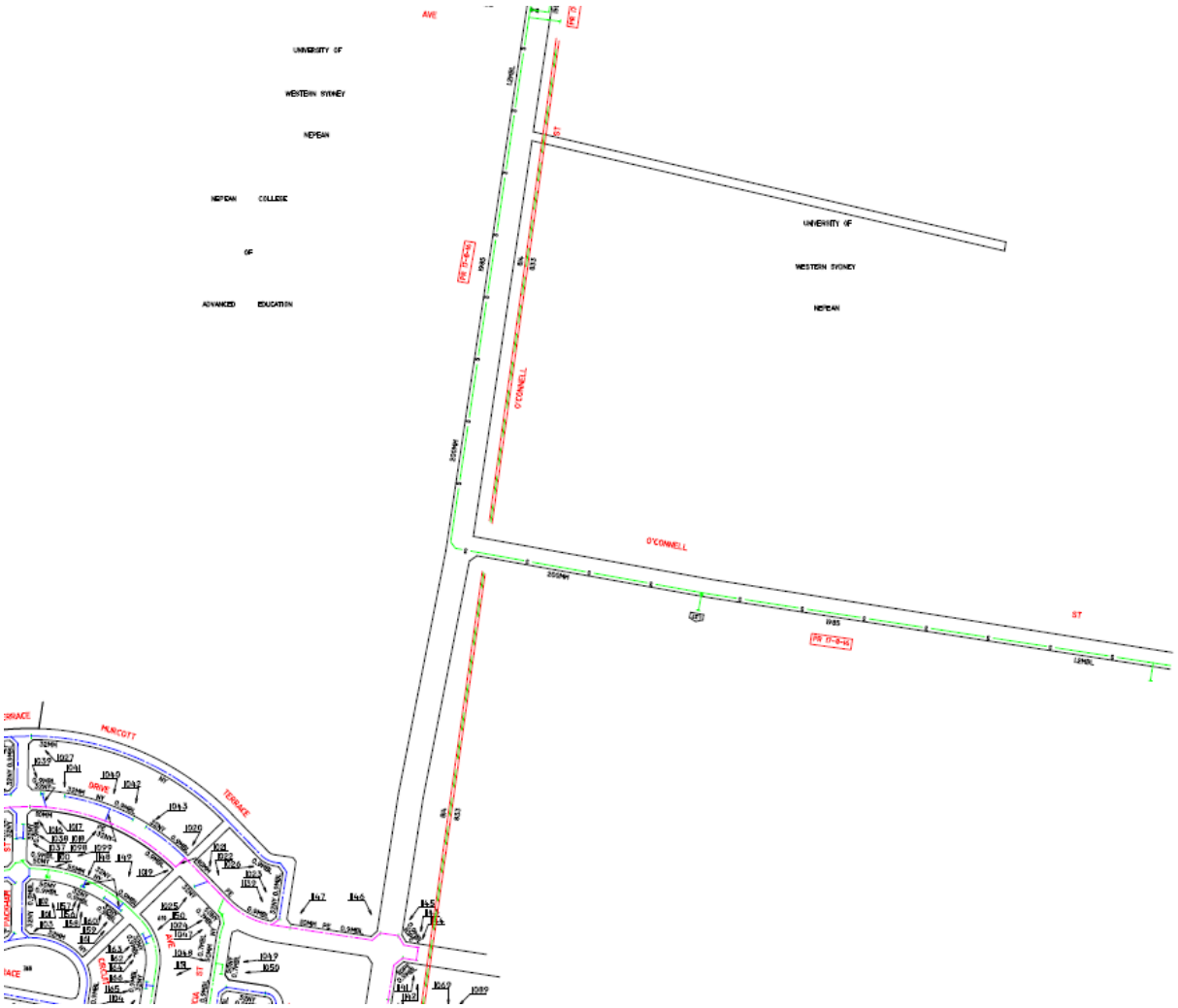

Figure 9 Gas Services (Jemena – DBYD 09/11/2016)

APPENDIX A MASTERPLAN LAYOUT