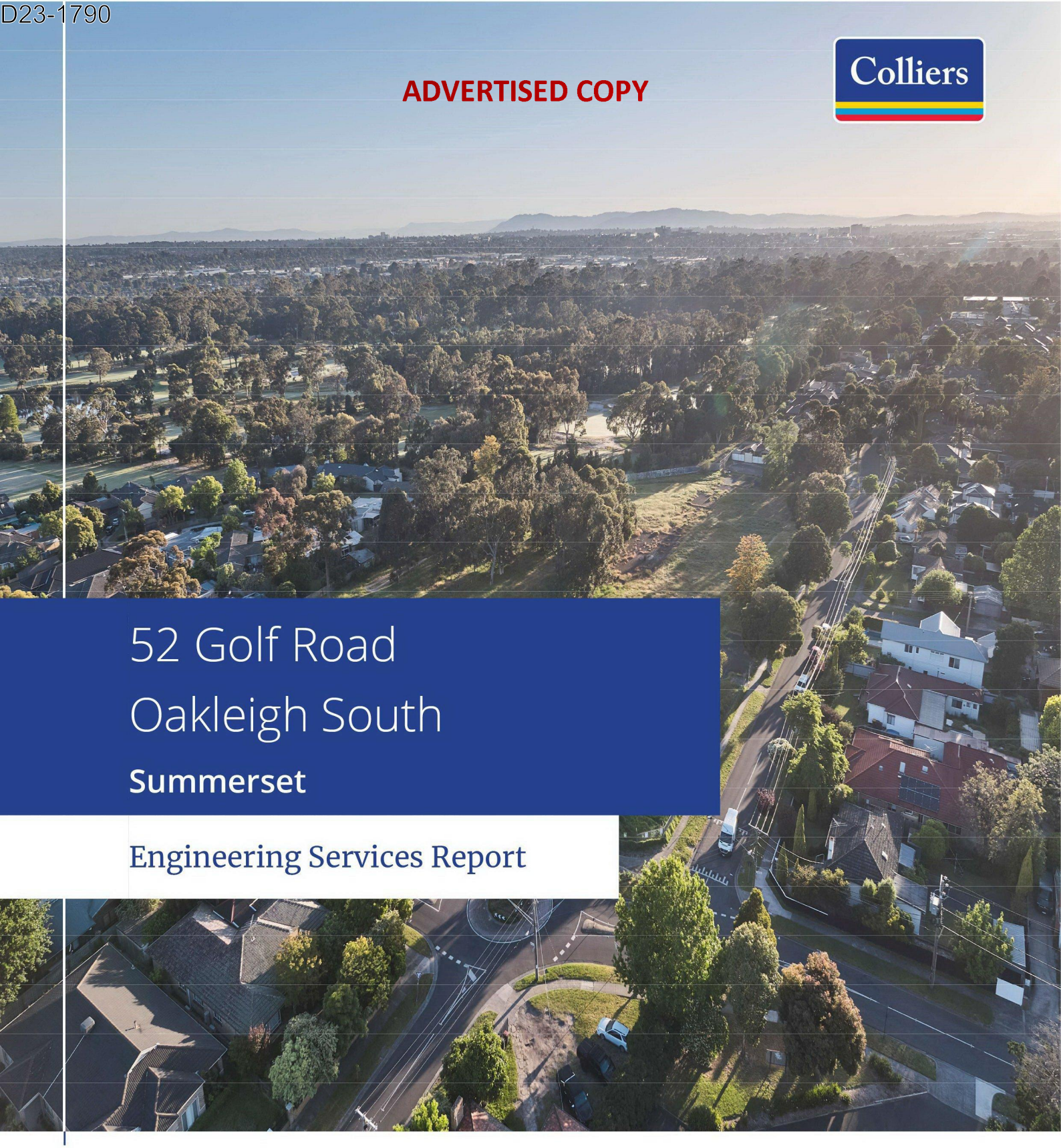

# 52 Golf Road
# Oakleigh South
## Summerset

## Engineering Services Report

22-0331

19/12/22

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## Document Control

### Report Number

| Version | Date | Details | Prepared | Checked | Approved |
|---|---|---|---|---|---|
| A | 27/09/22 | Servicing report | DAW | DNM | DNM |
| B | 16/11/22 | Servicing report | DAW | DNM | DNM |
| C | 19/12/22 | Servicing report | DAW | DNM | DNM |

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# 1. Introduction

Colliers Engineering & Design has been engaged by Summerset to prepare this Civil Engineering Services Report to support the DA submission for a residential subdivision at 52 Golf Rd, Oakleigh South as shown below:

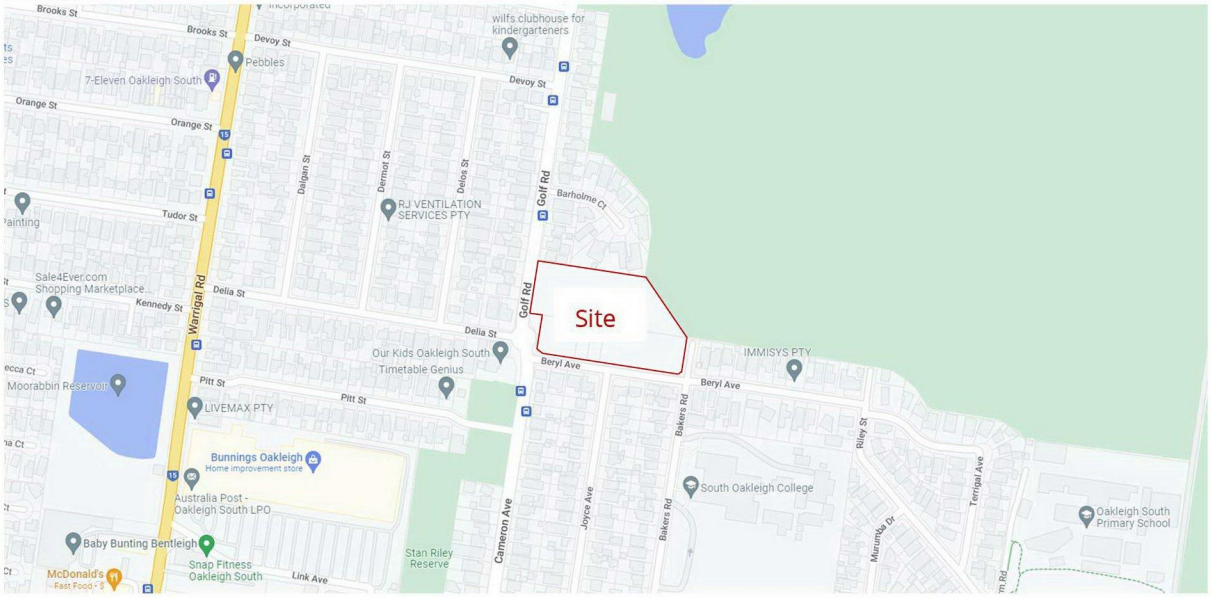


*Figure 1: Site Location*

This report covers the following civil infrastructure:

- Earthworks
- Sediment and Erosion Control
- Roadworks
- Sewerage Reticulation
- Water Supply
- Stormwater Quality and Quantity
- Utilities

This report will confirm that the proposed development can be adequately serviced and comply with the Victorian Streets, Australian Standards and other relevant guidelines where appropriate.

| Service | Authority |
|---|---|
| Roads | Monash Council |
| Drainage | Monash Council & Melbourne Water |
| Sewer | South East Water |
| Water | South East Water |
| Gas | Multinet |
| Electricity | United Energy |
| Telecommunications | NBN Co |

*Table 2: Service Authorities*

# 2. Earthworks

The development will consist of civil earthworks in accordance with AS3798-2007. Topsoil is to be stripped from the development area and used on-site where possible. Any material requiring disposal from site will be disposed of at a certified location in a lawful manner with acceptable haul routes to be determined at the time of construction.

As the site is quite flat, it is anticipated that minimal earthworks will be required. There is approximately 2.3m of fall across the site from ~RL58.3m in the south east corner down to ~RL56.0m in the north west corner. Roads will be graded to best match into existing levels to minimize cut and fill volumes. The proposal of an underground basement car park will create large amounts of cut which will be properly disposed of at a pre-determined fill site.

The bulk earthworks will be formalised through the detailed design phase as necessary.

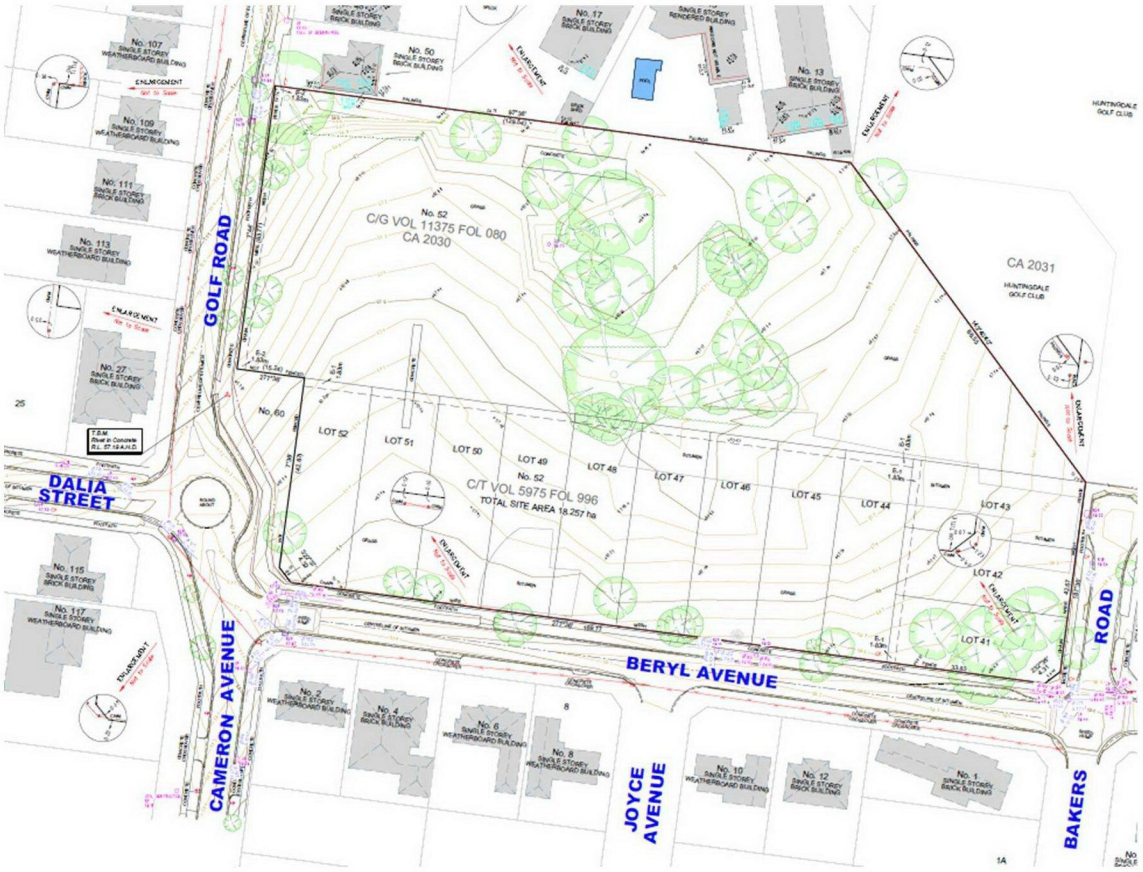


*Figure 2: Existing Conditions & Contours*

# 3. Sediment & Erosion Control

Sediment and erosion control will generally comprise of clean and dirty water diversion drains, temporary sediment basin as appropriate, silt fences, early stabilisation of disturbed areas where possible and other control measures as appropriate and/or required to meet Monash Council requirements.

Detail design of the sediment and erosion control strategy will be submitted at the detailed design phase. The civil works undertaken by the contractor will implement a site management plan to incorporate and achieve compliance with the sediment and erosion control strategy at the time of construction.

# 4. Roadworks

The development is proposed to be accessed via Golf Road. The internal development will be serviced via private inverted roads generally varying from 4.0m to 6.2m in width within a varying roadway width. These will be designed to achieve equitable access to all dwellings and allow sufficient width for turfed verges which will provide service corridors for sewerage, water, electrical and telecommunications.

The inverted roads will include a centrally located Q100 piped drainage system to appropriately convey stormwater flows to a legal point of discharge and adequately protect dwellings from overland flow in the major rainfall event.

Road pavement designs will be prepared and provided to Council where appropriate and based on CBR results taken throughout the course of construction.

# 5. Sewerage Reticulation

The development is proposed to be serviced by a private sewer main running internally through the site, connecting to an existing South East Water sewer externally. Due to existing sewer levels and grades, two separate outfalls will be needed. One connection will be to the existing sewer to the north in Golf Road, catching the lots on the north and east. This will need to be bored through the tree protection zone. The second connection will be to the existing sewer to the west in Delia Street, catching the southern lots and central building.

The existing sewerage network to the north has sufficient capacity to service the number of new connections. Due the number of units in the central building the existing sewerage network to the west does not have sufficient capacity to cater for the site. A small section of existing 150mm dia. sewer will need to be upgraded to 225mm dia. in Delia Street.

The proposed sewerage reticulation network will be formalised through detailed design at the detailed design phase in consultation with South East Water.


*Figure 3: Existing Sewer*

# 6. Water Supply

The development is proposed to be serviced by an internal water reticulation ring main network with a linking main which will extend to Golf Rd out of the northwest corner of the site.

The existing water in Golf Road is a 225mm dia. cast iron cement lined main. It is assumed this is an adequate size to service the development. The building services team at O'Neill Group will provide information on internal sizing of mains.


*Figure 4: Existing Water*

# 7. Stormwater Quality & Quantity

The proposed development will achieve no-worsening of the upstream and downstream waterways through the implementation of a stormwater management plan. Inundation is reduced for downstream properties through the implementation of on-site detention.

The drainage network will be sized for a 1 in 100 year event to reduce the risk of inundation on properties and the main central building with underground car park. Overland flow from Bakers Road court bowl to the southeast of the site, will be picked up by a stormwater pit within the pedestrian link, therefore, linking this court bowl to the development site.

External overland flows and internal flows will be carried through the 1 in 100 year drainage system to the entrance at Golf Road, this location will house the system storage and treatment of run off. The storage unit will be large enough to hold developed flows and only release predeveloped flows back to the existing external drainage network. Sizes and configurations will be determined in the detailed design phase. There may be some minor works required to upgrade existing 225dia. external drains until it reaches the existing 450mm dia pipes. Stormwater quality objectives will be met as required by best practice. There is potential for some flow to be returned to site for internal usage such as landscaping and irrigation.

For further details with respect to Stormwater Management, please refer to the upcoming SWMS report currently being prepared Colliers Engineering & Design.

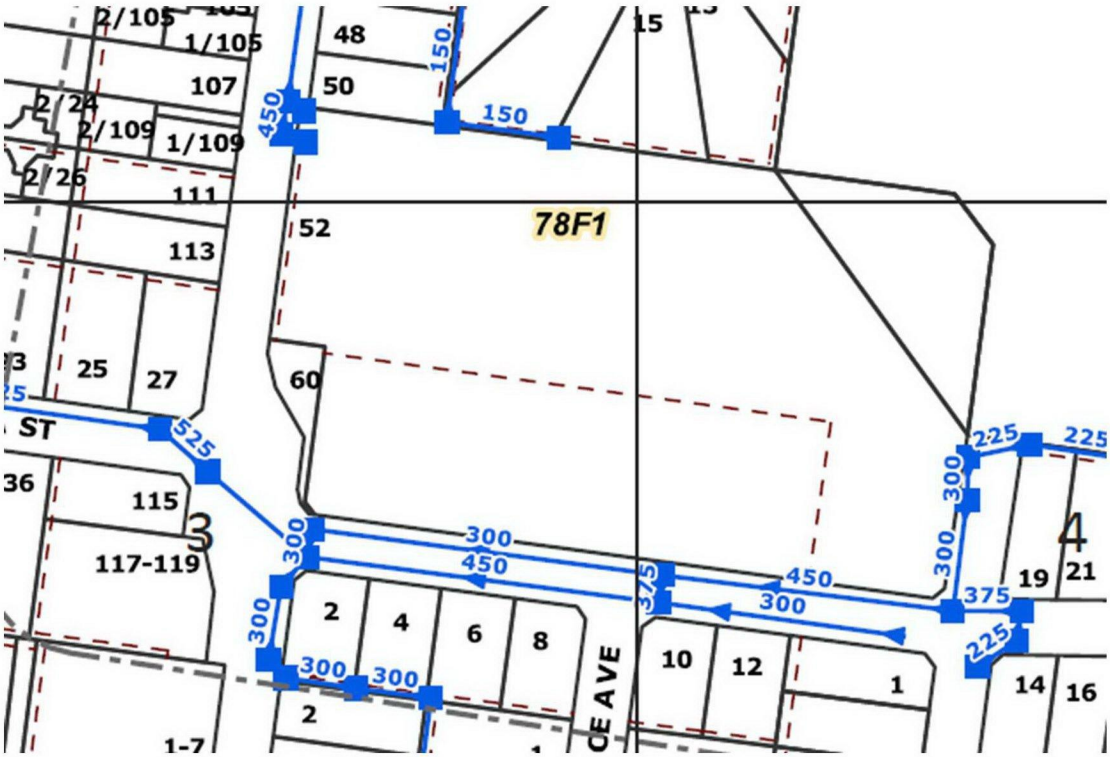


*Figure 5: Existing Drainage*

# 8. Utilities

The site will be serviced with electrical and telecommunication reticulation with agreements entered into by the relevant service providers. Adequate service corridors will be provided to enable service connection with designs being undertaken in accordance with a suitably qualified electrical consultant at the design phase as necessary.

## 8.1. Telecommunications

Existing telecommunications services exist on the western side of Golf Road and the southern side of Beryl Avenue. It is proposed to connect to the opposite side of Golf Road and have a ring loop following the internal road network connecting each unit.

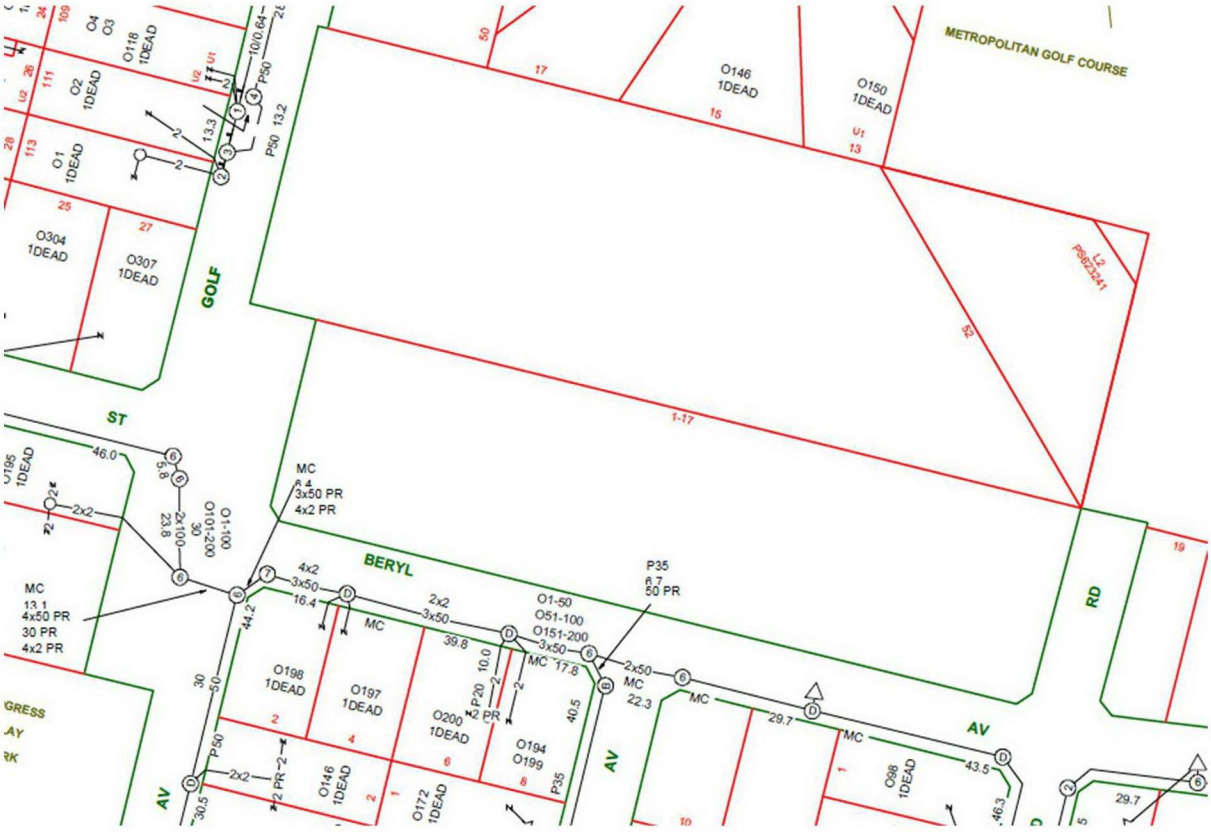


*Figure 6: Existing Telecommunications*

## 8.2. Electricity Supply

There are currently overhead low voltage power lines that run along the southern side of Beryl Avenue and the western side of Golf Road crossing to the development side at the roundabout. There is also high voltage power that traverses Cameron Avenue. Further analysis will be required by an electrical engineer to determine servicing requirements and switchboard/metering cabinet locations. The low voltage line may require upgrading at the Beryl Avenue/Cameron Avenue to high voltage, and then undergrounding to the proposed internal kiosk.

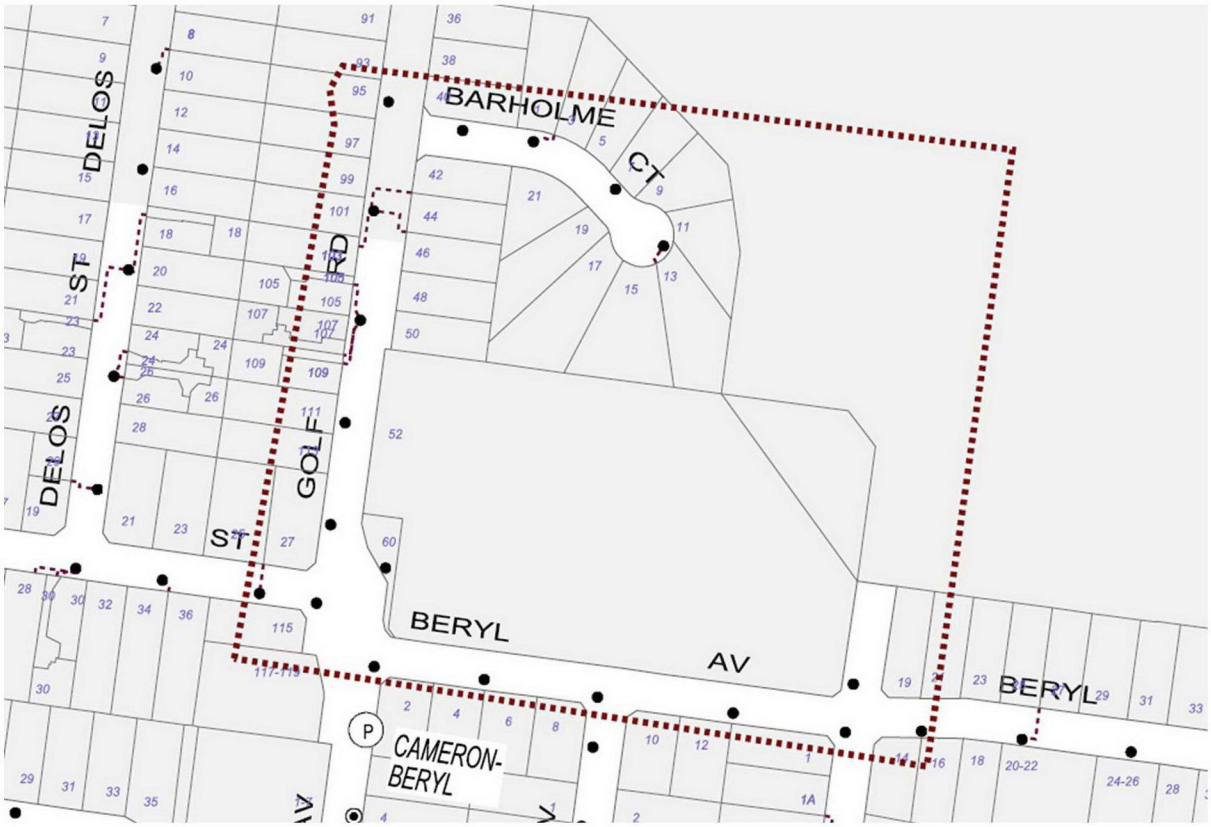


*Figure 7: Existing Electricity*

## 8.3. Gas Supply

Existing gas is located on the eastern side of Golf Road and southern side of Beryl Avenue, in addition, there is high-pressure gas located in Cameron Avenue. It is assumed there is sufficient capacity in the existing network if gas was to be delivered to the development.

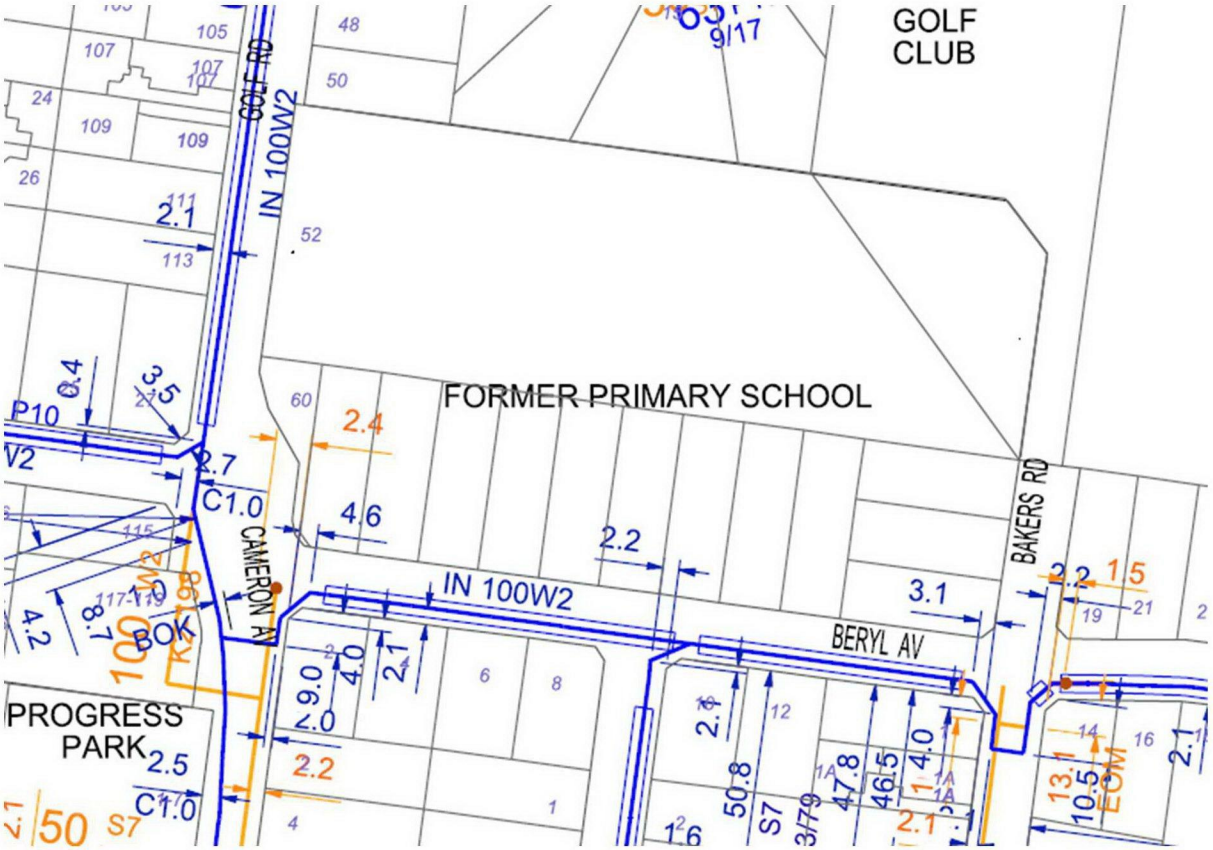


*Figure 8: Existing Gas*

# 9. Conclusion

The development is surrounded by all required existing assets to service the site to council standards. Further analysis will be required at detailed design phase to confirm appropriate connection points.

The site is well placed for development and we consider that development could commence in the short-term subject to agreements with all relevant authorites.