

INFRASTRUCTURE REPORT

Cranebrook West Development at Sardam Ave, Cranebrook

Electrical, Water and Sewer Servicing for a proposed 7 lot subdivision



Prepared for:
Penrith Lakes Development Corporation

13th November 2013

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- DOCUMENT CONTROL SHEET -

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- CONTENTS -

1	INTRODUCTION	1
2	DEVELOPMENT APPROVALS	1
2.1	SUBDIVISION OF LAND	1
2.2	ELECTRICAL DESIGN AND NOTICE OF REQUIREMENTS	2
2.3	WATER DESIGN AND SECTION 73 CERTIFICATE	2
3	PROVISION OF SERVICES	3
3.1	ELECTRICAL SUPPLY	3
3.2	WATER SUPPLY	3
3.3	SEWER SERVICE	4
4	SUMMARY	4
4.1	ELECTRICAL	4
4.2	WATER	5
4.3	SEWER	5

- LIST OF APPENDICIES -

Appendix A – Site Plans

Appendix B – Electrical Plans

Appendix C – Water and Sewer Plans

Appendix D – Site Photos

1 INTRODUCTION

Penrith Lakes Development Corporation invited J. Wyndham Prince to provide an infrastructure report confirming whether or not the proposed 7 lot subdivision of the Cranebrook West Development at Sardam Ave, Cranebrook can be serviced by electricity, water and sewer to support a Development Application to be lodged at Penrith City Council.

It is noted Penrith Lakes Development Corporation has lodged a Plan of Acquisition with the NSW Government and Lot 1 of DP1181667 in Appendix A will be further subdivided into 7 lots.

A desktop assessment has been undertaken on the proposed subdivision and current information available from Sydney Water and Endeavour Energy to assess the serviceability of the site.

RMA Infrastructure located at Penrith who are a Sydney Water recognised Water Service Coordinator, and Power Line Design at Mittagong who are an Endeavour Energy recognised Level 3 Accredited Service Provider were invited to review the proposed subdivision layout and provide information on the serviceability of the site.

A brief outline of the development and service design approval process is provided to inform the landowner/developer of the necessary steps to receive an approval from the service Authorities to construct the infrastructure and service the site

The following advice is based on the current:

- information available from service Authorities,
- existing infrastructure servicing Cranebrook, and
- the current Authority development and design policies.

This report can be used to support a Development Application for the proposed subdivision.

2 DEVELOPMENT APPROVALS

2.1 Subdivision of land

The proposed subdivision will require approval from Penrith City Council in the form of a Development Consent. Council's development consent will condition the land owner/developer to issue a certificate from the service Authorities confirming adequate provisions have been arranged to service the site.

A Section 73 Certificate from Sydney Water is required to confirm satisfactory arrangements are in place for the provision of water and sewer services to the proposed development.

A Notice of Requirements from the electrical Authority, in this case Endeavour Energy, is required to confirm satisfactory arrangements are in place for the provision of electrical services to the proposed development.

A copy of each certificate will need to be issued to Council to complete the subdivision certification allowing the land owner/developer to finalise the subdivision process.

The proposed subdivision will yield 7 lots in total, Lots 1 to 7 are suitable for residential development.

2.2 Electrical Design and Notice of Requirements

To obtain a Notice of Requirements to satisfy Councils Development Consent, the following process needs to be followed.

- Engage a Level 3 accredited service provider (L3 ASP) to undertake an electrical design and submit a design to Endeavour Energy for approval.
- The design process involves:
 - L3 ASP to submit application for Method of Supply
 - Endeavour Energy issues a Design Brief outlining the design requirements to adequately service the proposed subdivision
 - Developer enters into an agreement with Endeavour Energy by signing the Design Brief
 - Preparation of electrical reticulation design in accordance with the Design Brief
 - Prepare street light design if required, street light certification and signoff by Council
 - Submission of design to Endeavour Energy for certification
 - Endeavour issue design /monopoly fees
 - Client pays Endeavour fees
 - Endeavour Energy issues Letter of Intent along with certified designs
- Construct the electrical works
- Submit a subdivision plan and an 88b instrument to Endeavour Energy along with an application for a Notice of Requirements
- Endeavour Energy will sign-off the electrical works, sign the 88b instrument and issue a Notice of Requirements.

2.3 Water Design and Section 73 Certificate

To obtain a Section 73 Certificate to satisfy the development consent issued by Council, the following process needs to be followed.

- Engage a Water Service Coordinator (WSC) to undertake the water design and submit the design to Sydney Water for approval.
- The design process involves:
 - WSC to submit a Section 73 Certificate application to Sydney Water
 - Sydney Water will issue a Notice of Requirements outlining the design requirements to adequately service the proposed subdivision
 - Developer enters into a Works Deed with Sydney Water
 - WSC prepares a design and submits the design to Sydney Water for approval
 - Sydney Water certifies the design
 - WSC prepares a constructors package and submits to Sydney Water
 - WSC issues the authority to undertake the works
- Construction of the water works
- WSC submits a completion package to Sydney Water
- Sydney Water issues a Section 73 Certificate

The detailed design process outlined above must be completed to in order to satisfactorily service the site.

3 PROVISION OF SERVICES

Information from Sydney Waters Hydra database and Endeavour Energy's Network Plans have been reviewed along with site inspections to identify what infrastructure existed around the site.

An overview of the supply zones was also undertaken.

This information along with the knowledge of the site supports the following opinions in determining the serviceability of the proposed development.

3.1 Electrical Supply

The Cranebrook area is serviced by the Endeavour Energy's Cranebrook Zoned Substation located on Andrews Road, Cranebrook. It is understood this substation has sufficient capacity to service the proposed subdivision.

According to Endeavour Energy's current records there is a 3 phase High Voltage and 3 phase Low Voltage service available at the boundary to the site. The proposed subdivision would require an extension of Endeavour Energy's assets in accordance with their requirements and the requirements of Penrith Council.

A site inspection confirmed the electrical reticulation is underground.

It is likely the proposed subdivision can be serviced by the existing infrastructure without the need of a pad mounted substation.

The surrounding streets have street lights. It is envisaged Council would require a new street light in the proposed cul-de-sac.

Lots 6 and 7 can be service via the existing Farrells Lane electrical reticulation.

There will need to be a network extension to service lots 1 to 5. A low voltage supply would be extended from the end of Sardam Ave. Lots 1 to 5 will be services via two or three turrets positions at the font common boundaries.

Attached are Endeavour Energy network plans detailing the existing electrical reticulation surrounding the site.

3.2 Water Supply

The Cranebrook area is serviced by Sydney Water's Cranebrook reservoirs located on The Northern Road at Cambridge Park.

Lots 6 and 7 can be serviced via the existing 100mm diameter watermain in Farrells Lane. A standard main to meter service can be used to connect these lots to the water supply.

A 100mm diameter watermain extension is necessary from the end of the existing watermain in Sardam Avenue to service Lots 1 to 5 in the proposed cul-de-sac. A standard main to meter service can be used to connect these lots to the water supply.

Refer to Appendix C for Sydney Water's Hydra information detailing the existing water service surrounding the site

3.3 Sewer Service

The Cranebrook area is serviced by Penrith Sewer Treatment Works.

The Sardam Avenue sewer catchment drains to the west along Farrells Lane to a sewer pumping station on the western side of Castlereagh Road. From here, effluent is pumped to the Cranebrook trunk carrier crossing Boundary Road (approximately 300m to the east of Cranebrook Road). The Cranebrook carrier transfers effluent to Penrith Sewer Treatment Plan via Andrews Road sewer pumping station.

Lots 6 and 7 can connect to the existing 225mm diameter sewer in Farrells Lane. Two new junction need to be cut into the main for the connections.

A sewer extension is necessary to services Lots 1 to 5 within the cul-de-sac. The extension can connect to either the 150mm diameter sewer crossing the end of Sardam Avenue or the Farrells lane 225mmdia sewer main.

Connection to the Sardam Avenue sewer will require the permission from the adjacent land owners to access their properties for the connections.

If Lots 1 to 5 connect to the Farrells Lanes sewer, the sewer extension will run through the rear of the lots. This may restrict the building envelopes of these lots.

A detailed analysis of the existing sewer mains needs to be undertaken to which existing sewer main should service lots 1 to 5. Both the Farrells Lane and Sardam Ave sewer have been constructed at minimal grades. It would be prudent to check the capacity of each of these main during the design phase.

The simplest method to service the lots with sewer is to construct the sewermain in the rear of the lots connected to Farrells Lane. See Option 1 in Appendix C. The disadvantage of this option is the sewer location may affect building envelopes.

Alternatively, the lots can be connected to the existing Sardam Ave sewer. See Option 2 in Appendix C. The length of sewer is considerably less however four new manholes need to be constructed, four live sewer connection are necessary instead of one, and the adjacent land owner's permission is required to access private property to construct the connections.

Refer to Appendix C for Sydney Water's Hydra information detailing the existing sewer service surrounding the site

4 SUMMARY

The proposed 7 lot subdivision can be services by electricity, water and sewer.

4.1 Electrical

The site can be serviced by power:

- A low voltage extension is required and installation of turrets

4.2 Water

The site can be serviced by water:

- A 100mm diameter water main extension is required
- Standard main to meter connections for each lot

4.3 Sewer

The site can be serviced by sewer:

- New sewer reticulation is required to service each lot
- A detailed sewer design is required to confirm a suitable sewer layout

Limitations

This report outlines the possible ways to service the proposed subdivision with electricity, water and sewer. The derived outcomes are based on the current and available information from the service Authorities and our knowledge of the area.

The servicing of the site should be verified with the service Authorities by submitting the relevant applications and completing the design processes outlined in this report.

Should Penrith Lakes Development Corporation require any further clarification or have any queries regarding the information enclosed please contact J. Wyndham Prince on 4720 3322.

Yours faithfully

J. WYNDHAM PRINCE

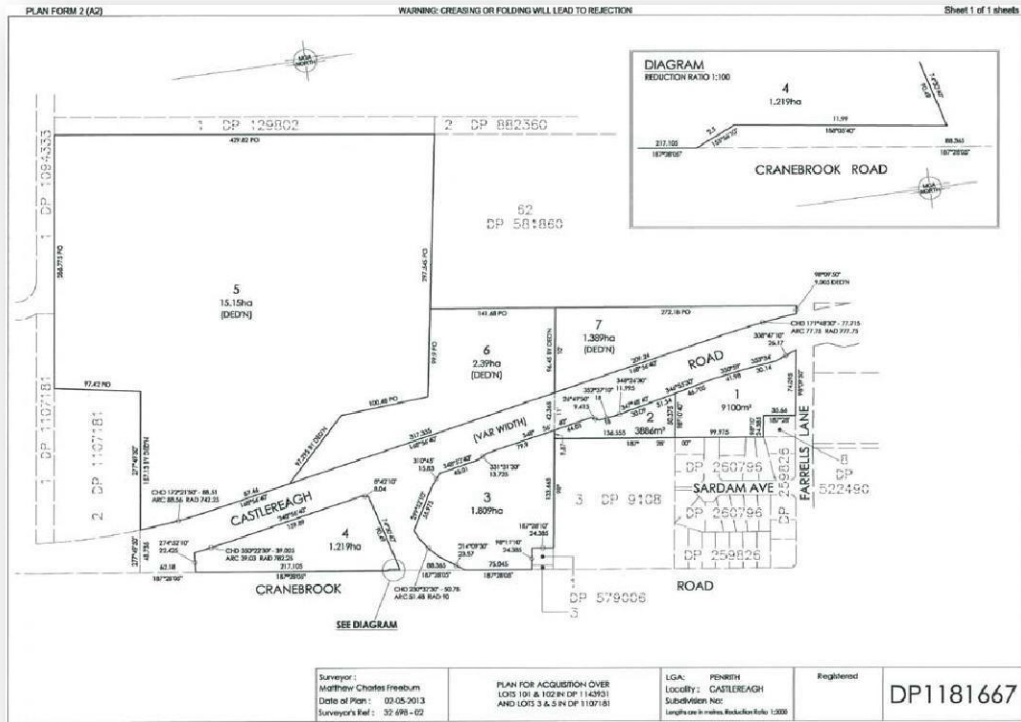


ANDREW TAYLOR

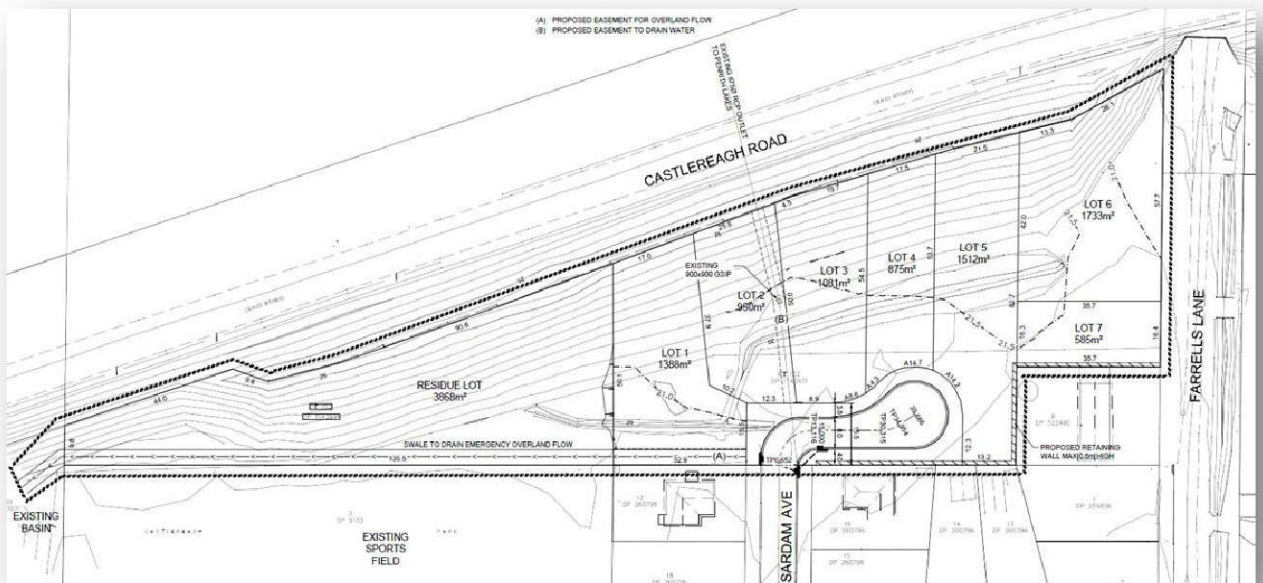
Project Manager

Appendix A

Site Plans



Registered DP1181667

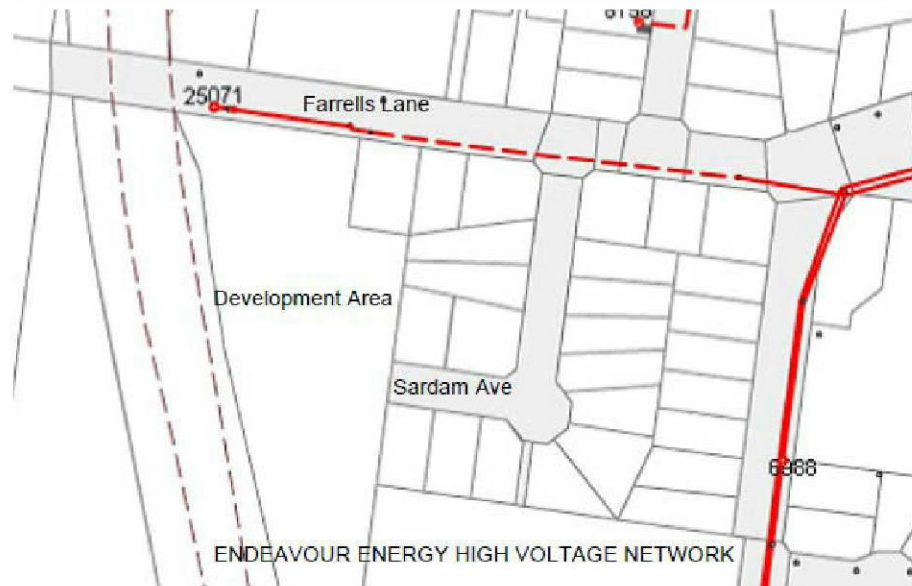
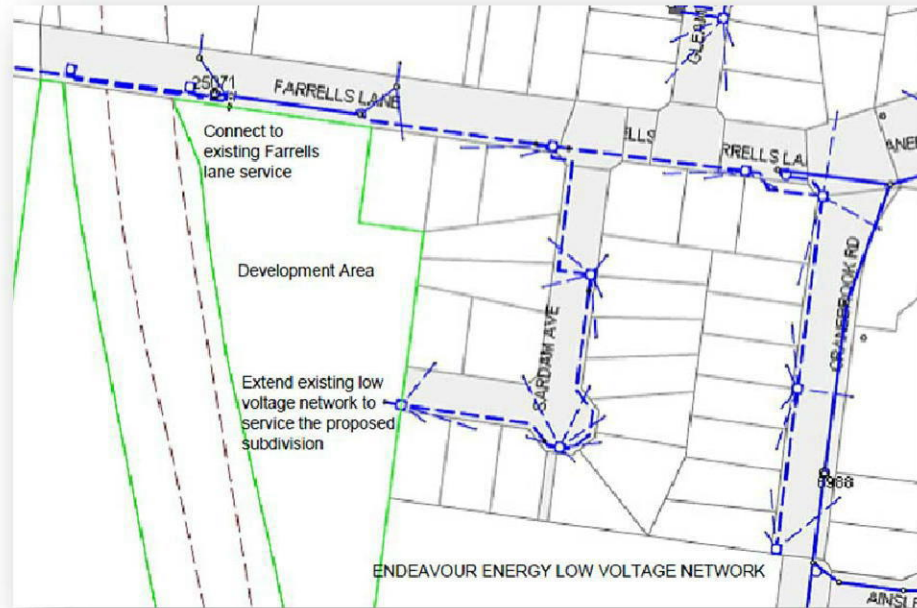


Proposed Subdivision Plan

Appendix B

Electrical Plans

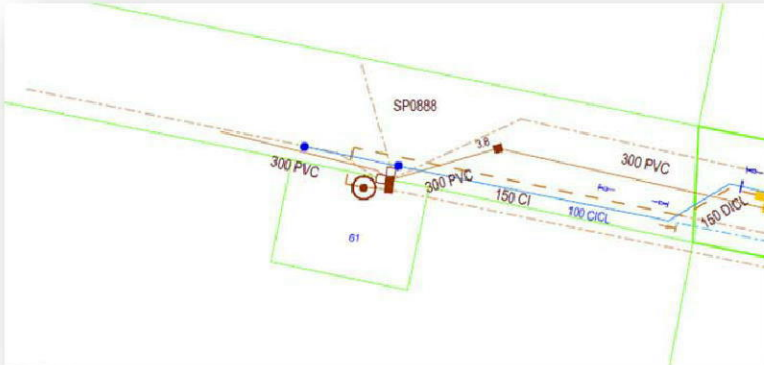
- Endeavour Energy Low Voltage and High Voltage Network Plans



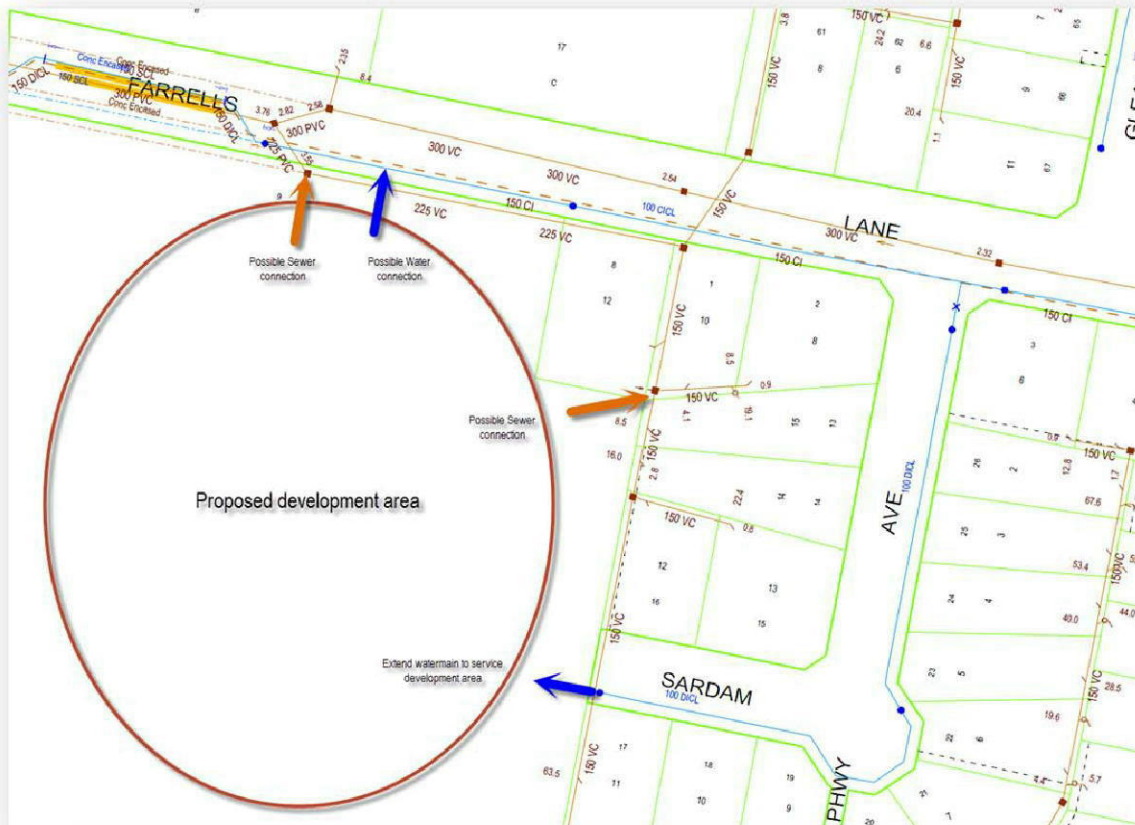
Appendix C

Water and Sewer Plans

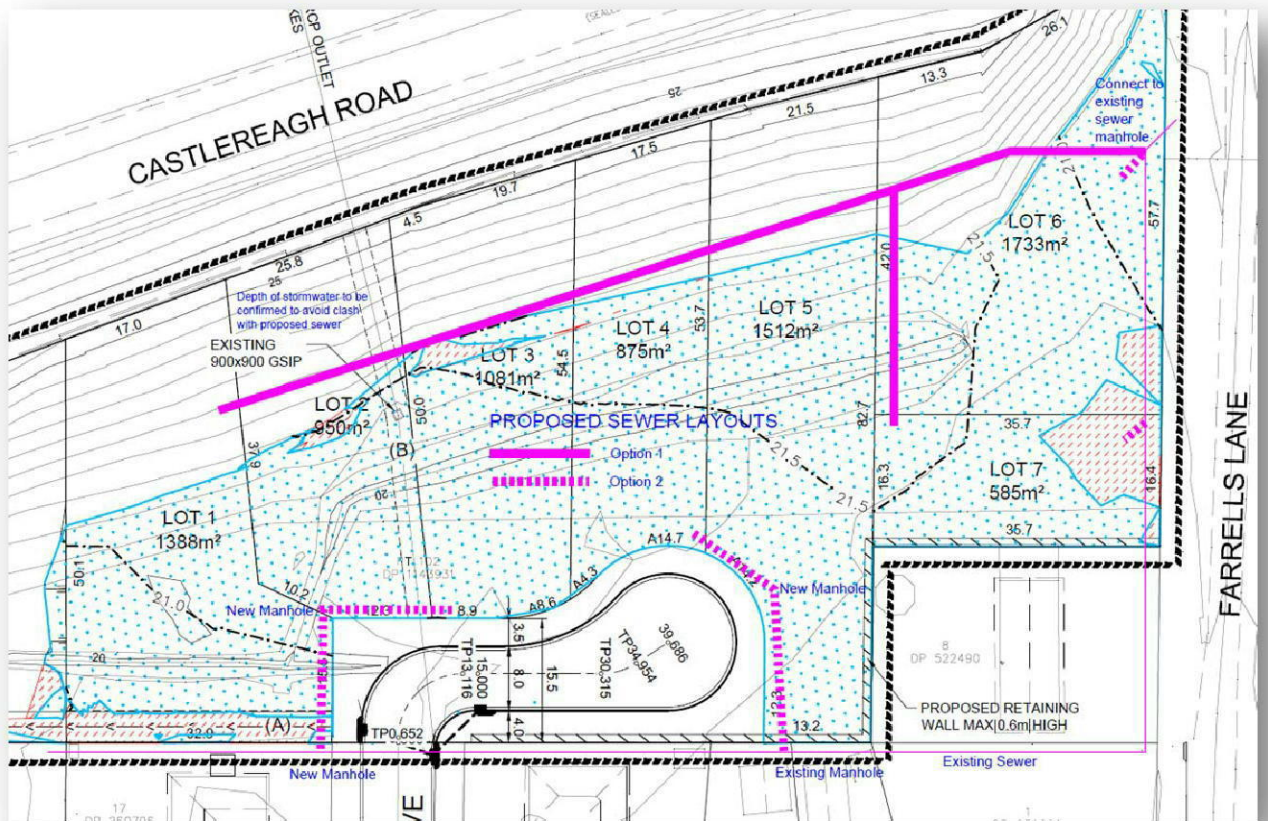
Sydney water Hydra Plans Sardam Ave and Farrells Lane



Farrells Lane sewer pumping station



Existing water and sewer infrastructure



Proposed sewer layout options

Appendix D

Site Photos taken 07/11/13



Photograph 1. Looking north from the end of Sardam Ave to Farrells Lane



Photograph 2. Looking west from the end of Sardam Ave towards Castlereagh Road



Photograph 3. Farrells Lane street frontage