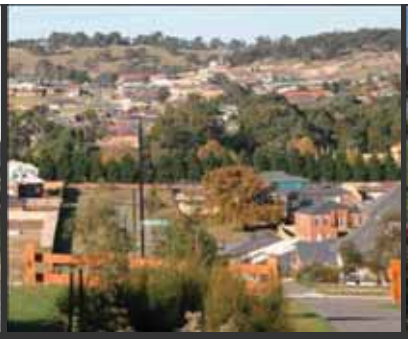
Attachment 2.1

Infrastructure Report

Environmental Property Services
Services Report

L.A. Kennett Enterprises
Glenfield

May 2012

SMEC Urban Ref No.: 31177679

urban design | planning | engineering | transport planning | surveying | landscape architecture | project management

Quality Assurance – Report Record	
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Date of issue:	21 May 2012
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1 Background

SMEC Urban have been engaged by Environmental Property Services to undertake a review and prepare a report on its findings in relation to the availability of utility services on and adjacent to a landholding owned by L.A.Kennett Enterprises at Cambridge Avenue, Glenfield. This report is to be included with an application to Campbelltown Council for rezoning of the majority of the land to the Standard Instrument LEP Zone IN1 General Industrial.

2 The Study Area

The entire landholding owned by Kennett Enterprisers has an approximate area of 100 ha area comprised of 10 contiguous parcels**.** Together they roughly form a triangular shape bounded on the north western boundary by the Macarthur Rail Corridor, on the east by the Georges River, on the south by residential development in Fergusson Street and Goodenough Street, and then on the west by Canterbury Road and the Glenfield Road Overpass. Cambridge Avenue, and the East Hills Rail Corridor bisects the southern portion of the site in an east / west direction.

The site falls within the Local Government Area (**LGA**) of Liverpool City Council and Campbelltown City Council. The Local Government boundary between Liverpool and Campbelltown approximates the northern boundary of Lot 91 adjacent to the northern alignment of the East Hills rail line.

The study area the subject of this report is the southern portion of the landholding within the Campbelltown LGA. It is comprises of five lots with a total area of 59Ha bounded on the south by residential development in Fergusson Street and Goodenough Street, on the west by Canterbury Road and the Glenfield Road Overpass, on the north by the LGA boundary between Liverpool and Campbelltown being the northern boundary of Lot 91 , and finally on the east by the Georges River.

3 Study Area Title Particulars

Title Reference	Lot & Deposited Plan	Proprietor	Area (Ha)
Auto Consol 14018-92	Lot 1 DP 113201	JC&FW Kennett P/L	0.1418 ha
	Lot 2 DP 333578		1.346 Ha
	Lot 91 DP 1155962		29.96 Ha
3/735524	Lot 3 DP 735524	Figela Pty Ltd	2.432 Ha
3/736881	Lot 3 DP 736881	Figela Pty Ltd	25.21 Ha

That part of Lot 3 DP 736881 on the south side of Cambridge Avenue is burdened by an electrical easement effecting most of the land.

Lot 91 is effected by stratum Lots 7 and 8 in DP 833516 that have a small impact on the useable area adjacent to the East Hills rail corridor.

4 Existing Infrastructure

4.1 Electricity

Development in the immediate vicinity of the site is mainly urban land use. As a result there is minimal high voltage reticulation in place to service the area. Power and street lighting is provided on the southern side of Cambridge Avenue. Connection to the waste depot is assumed to occur at the eastern end of Cambridge Avenue. There are two existing 330kV transmission lines running in the electrical easement on the southern side of Cambridge Avenue.

The 11kV feeders for the existing reticulation are from the Prestons Zone Substation (Cnr Bernera Road and Camden Valley Way) and the Macquarie Fields Zone Substation (Cnr Macquarie and Fields Streets). It appears from our initial enquires with Endeavour Energy that these feeders do not have additional capacity to support industrial land use.

4.2 Sewer

Existing residential development adjacent to the site is reticulated by gravity mains that fall to 2 sewer pump stations, one near the intersection of Railway Parade and Canterbury Road, the other within public reserve in Trobriand Crescent. The pump stations then pump via pressure main to a ridge further south and then by gravity main to the Glenfield treatment plant. The subject site is not reticulated to sewer.

4.3 Water

The residential precincts adjacent to the site are currently serviced from a 300mm diameter water main running along Glenfield Road down into Canterbury Road past the intersection with Cambridge Avenue. There are not any water mains laid in Cambridge Avenue. It is unlikely there will be additional capacity in the 300 diameter main to service the proposed land use.

4.4 Telecommunications

- AAPT have installed optic fibre cable some distance from the study area closer to Glenfield Station, and will not be in a position to bring trunk services to site.
- Optus fibre optic cable is located within Telstra conduits in Railway Parade extending to end to the roundabout intersection with Cambridge Avenue and Canterbury Road. From there it passes under the State Rail interchange infrastructure before heading north to service Glenfield Road and Leacocks Lane,
- Visionstream run their cables within the same third party conduits used by Optus in Railway Parade and Glenfield Road,
- A Telstra underground service runs in a single conduit from the intersection roundabout at Canterbury Road along the northern side of Cambridge Avenue for approximately 500m in an easterly direction to a communications tower. Other Telstra service are contained within the southern side of the East Hills rail corridor.

4.5 Gas

- APA Group manages a high pressure ethane pipeline on behalf of Gorodok. The pipeline runs within Lot 91 parallel to the southern side of the East Hills Rail Corridor and passes under the rail corridors towards the western end of the site near Glenfield Road. The pipeline is a dedicated service for the ICI petrochemical plant at Botany and cannot be accessed to service the proposed development of the site. Building restriction will apply adjacent to the pipeline.
- A Jemena high pressure 1050kPa 150mm steel natural gas main is located within Canterbury Road, and passes under the Cambridge Ave intersection and the rail junctions into Glenfield Road. It currently services the subject site.

5 Site Generated Infrastructure Demands

Given the sites location proposed zoning classification as IN1 General Industrial, it is assumed development will take the form of warehousing, and logistics. Given also the site constrains, it had been assumed that the site area available for rezoning is 28 Ha.

5.1 Electricity

For the purposes of determining likely power demand requirements it is assumed after allowing for setbacks, new roads, hard stand, and trafficable area, that the nett useable building area will be in the order of 20 Ha.

Endeavour Energy advised an expected load of 5 MVA assuming the site is development for mainly warehouse use. If other uses such as data centres or cold storage are proposed, this would increase the requirement significantly. In this circumstance, specific information would be required by Endeavour Energy before demand calculations could be determined.

Under current Endeavour standards an 11kV feeder is able to carry 4.5 MVA necessitating two feeders for the site. As advised elsewhere in this report the closest existing zone substation is located at Prestons. An additional zone substation is currently under construction in Box Road Casula and is expected to be completed in 2014.The likely feeder distances would be:

- Casula – 3.1 km
- Preston -- 5.5km

See Appendix A for route maps.

Actual availability to supply the proposal will be determined by Endeavour at the time a formal request is made for connection and cannot at this stage be guaranteed from any particular zone substation.

Supply to the site would be via spare existing 150mm ducts within the road reserves, however additional road crossing may need to be under bored where crossing major roads such as Camden Valley Way and the M5. There may be other location along the route that will require under boring of Council roads at additional cost. We are advised that ducts are available for use to cross under the railway lines subject to approval. Should these duct be in use prior to the feeders being installed there will be additional costs to install additional ducts and a delay of up to three years to achieve the necessary approvals.

Reticulation of an industrial subdivision would also include a requirement for provision of pad mounted substations at strategic locations within the subdivision. In addition, each separate development on individual lots would also require a dedicated 1000kVA pad mount substation to service specific power requirements.

5.2 Sewer

The subject land on the northern side of Cambridge Avenue ultimately falls to the north eastern corner of the site adjacent to the Georges River. Development of the site would therefore likely drain by gravity sewer to this point before being pumped via a new rising main to either the pump station in Trobriand Crescent or an alternative route if required. Given the disturbed nature of the landform in the north east corner, a site level survey would assist at the appropriate time to confirm the area of the site that can be serviced by sewer and confirm the number of pump stations needed. Additional grading of the site may assist in ensuring all of the site is able to be serviced by sewer.

Alternatively, a gravity system that drains to a pump station located adjacent to the existing water bodies in the middle of lot 91 and thence by rising main to Trobriand Crescent could service the site.

The position of any pump station and final route for a rising main would be determined by Sydney Water after detailed analysis of the existing system including the capacity of the existing pump stations and downstream gravity systems to accommodate additional flow.

Conservatively, Sydney Water guidelines for determining design flows for future industrial development based on 150 EP per ha, suggest a discharge of 83 litres per second. Depending upon the final approved land use zone and development controls this figure may be able to be reduced.

Reticulation of a gravity system within the site is dependant upon the layout of road and lot patterns proposed. Costing for site reticulation is therefore sensitive to this and may ultimately require careful lot grading and design to avoid additional costs associated with installing additional rising mains and pump stations.

See Appendix B for rising main route options

5.3 Water

As noted elsewhere in this report the existing 300mm diameter water main in Canterbury Road is unlikely to have capacity to service the proposed development.

There is a 375mm diameter main within Glenfield Road some distance away from the site that may be able to be able to be extended to service the site. If it were extended to the existing 300mm diameter main where it exits from beneath the rail line in Glenfield Road the likely mains required could be as follows;

- Glenfield Road 375 mm main - 800m
- Cambridge Avenue 150 mm main - 500m
- Site reticulation 100mm main - 1600m

If the 375mm main requires upgrading at the rail crossing there will be considerable time delay and costs associated with gaining the necessary approvals and under boring the rail lines.

The above information is an estimate only and will require an application to Sydney Water for a feasibility study to determine the capacity of the existing main and how the site could be serviced.

See Appendix C for trunk water main location.

5.4 Telecommunications

Telstra, Optus and Visionstream have services within close proximity of the site. Each provider will have different costs associated with extending service to the site. Once the preferred provider is determined an application will need to be made to confirm costs. Again, site demand and costs will be determined by the configuration of the ultimate development pattern.

5.5 Gas

Jemena advise that the 1050kPa main in Canterbury Road has capacity to service the proposed industrial land use. Demand will be site specific to individual end users on site. Generally, experience has shown there is little demand for gas supply to warehousing. An exception to this may be where a user proposes gas for cogeneration of electricity.

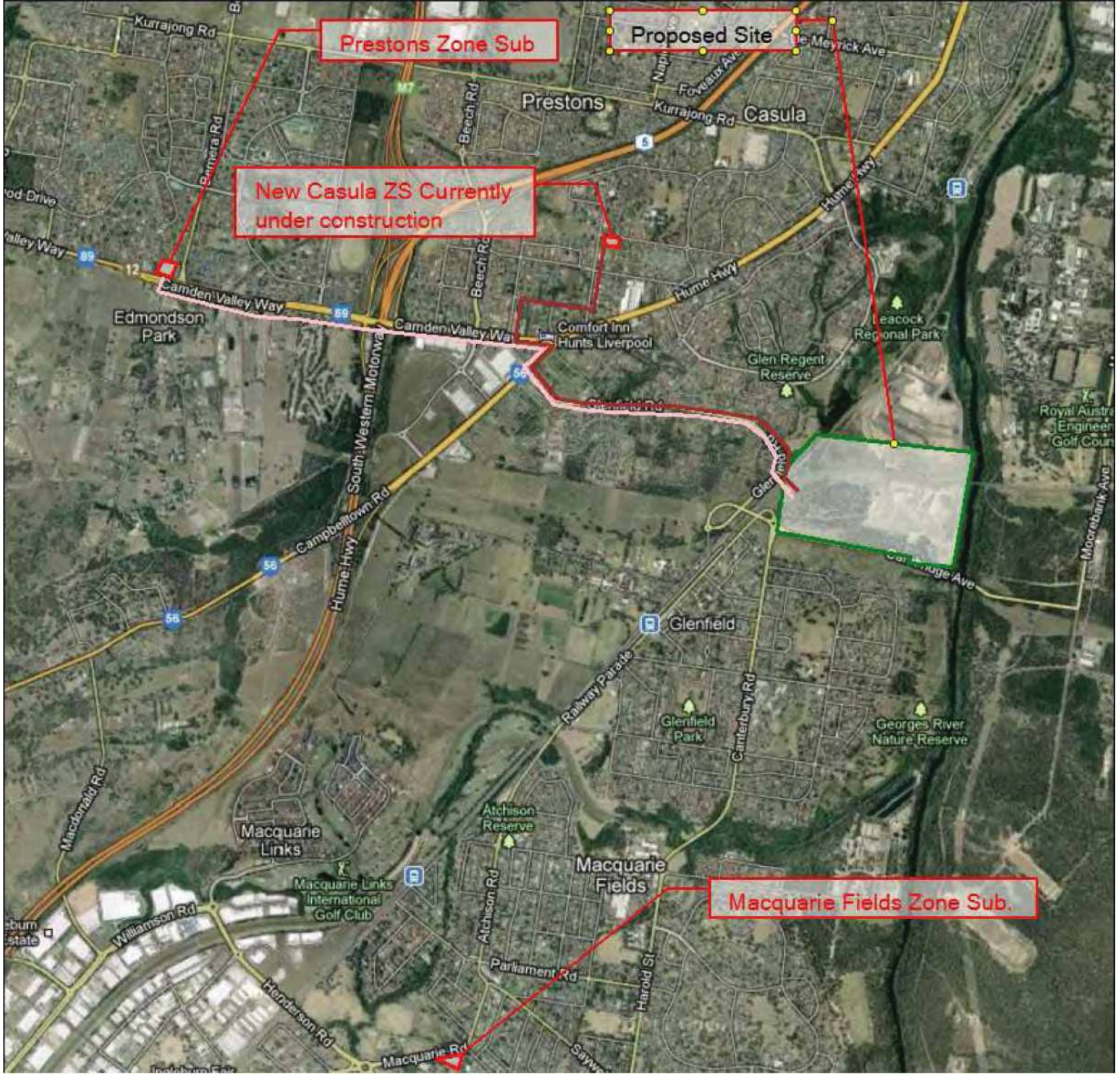
Jemena policy is not to extend network to new industrial subdivisions without a known gas load to a specific end user .

6 Conclusion

Our investigations of the study area confirms all major utility services are currently within the vicinity of the subject site. Given the area of land proposed for rezoning, it would be appropriate to make a formal approach to Sydney Water and Endeavour Energy as early as practical, to identify likely future utility requirements for the site . This will assist the service authorities in their long term network planning and ensure that when needed, utility services are available.

This report has considered provision of utility servicing to the site via upgrades to existing services only. There may be opportunities in the future with improvements in technology to investigate alternative methods of service provision. These could include harnessing of methane gas or solar energy for electrical generation, or onsite management of waste water. The long term viability of alternatives will need to address cost differentials, installation costs, maintenance and service agreements with authorities, continuity of supply, and acceptance in the marketplace, to be able to be successfully utilised at this site.

Appendix A


Prestons Zone Sub
Proposed Site
New Casula ZS Currently under construction
Macquarie Fields Zone Sub.
Prestons
Casula
Edmondson Park
Glenfield
Macquarie Links
Macquarie Fields
Kurrajong Rd
Camden Valley Way
Hume Hwy
South Western Motorway
Campbelltown Rd
Beech Rd
Barners Rd
Comfort Inn Hunts Liverpool
Glen Regent Reserve
Leacock Regional Park
Glenfield Park
Georges River Nature Reserve
Railway Parade
Canterbury Rd
Macdonald Rd
Atchison Reserve
Atchison Rd
Parkland Rd
Harold St
Williamson Rd
Henderson Rd
Macquarie Rd
Macquarie Links International Golf Club
Moorebank Ave

Appendix B

PLAN OF POTENTIAL SEWER UPGRADE

SCALE 1:2500

REVISION		DATE	DES/DFT	APP'D
A	INITAL ISSUE	18/05/12	MP/MN	--

Principal
L.A. KENNETT
ENTERPRISES

Designed
M. PLETKAN

Drawn
M. NEILSON

Checked
P. PARFENOW

Authorised
P. G. McNAMARA

Date
MAY 2012

N

Scale @ A1
1:2500

0 25 50 100

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GLENFIELD
CAMBRIDGE AVENUE
CAMPBELLTOWN CITY COUNCIL
SERVICES REPORT
PLAN SHOWING POTENTIAL SEWER UPGRADE

Drawing No. 77679.00.P02 **Rev** A
Sheet No. 1 of 1

Check Print
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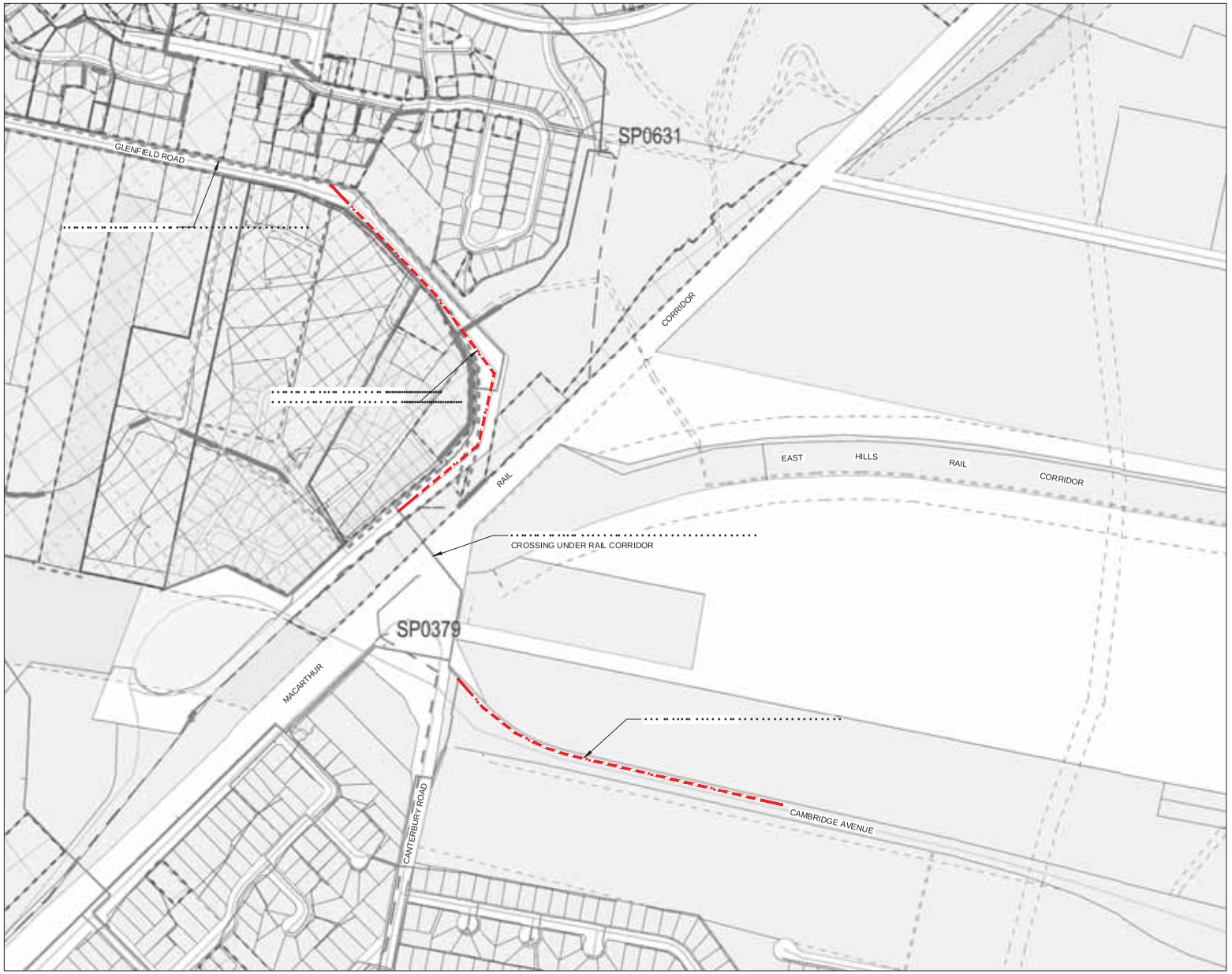
Appendix C



LEGEND:

PROPOSED WATER

PLAN OF POTENTIAL WATERMAIN UPGRADE

SCALE 1:2500

REVISION		DATE	DES/DFT	APP'D
A	INITAL ISSUE	18/05/12	MP/MN	--

Principal
L.A. KENNETT ENTERPRISES

Designed
M. PLETKAN

Drawn
M. NEILSON

Checked
P. PARFENOW

Authorised
P. G. McNAMARA

Date
MAY 2012

N

Scale @ A1
1:2500

0 25 50 100

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GLENFIELD

CAMBRIDGE AVENUE
CAMPBELLTOWN CITY COUNCIL
SERVICES REPORT
PLAN SHOWING POTENTIAL WATERMAIN UPGRADE

Drawing No. 77679.00.P01 **Rev** A

Sheet No. 1 of 1

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