HYDRAULIC SERVICES ASSESSMENT

of

OATLEY BOWLING CLUB
HYDRAULIC SERVICES INFRASTRUCTURE

Prepared for

HURSTVILLE CITY COUNCIL
Civic Centre, MacMahon Street
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Architect

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EXECUTIVE SUMMARY

This report has been commissioned to provide an overview of the hydraulic utilities' infrastructure that supplies the former Oatley Bowling Club.

It had been prepared to assist in accessing the services' fitness of the site for redevelopment for aged care.

The report presents the findings of inspections and reviews undertaken in November, 2006, to assess the general condition, statutory compliance, economic service life and contingent liabilities associated with the site's hydraulic services infrastructure.

Key findings and recommendations of the report are as follows:

- An existing sewer sub-main trespasses the site;
- The site is well serviced by Sydney Water sewer mains;
- Stormwater disposal is available via the water course that abuts the western boundary;
- Water quality control measures would be applicable to the stormwater discharge;
- Water mains are available to the site, however, further evaluation of the available flows and a redundancy study is required to confirm the reliability of supply for fire protection services;
- Natural gas mains are available in the vicinity of the site; however, a mains extension would be required to provide a gas supply with sufficient capacity to cater for a future development;
- The site is provided with sufficient Utilities services to support a higher density development.

1. INTRODUCTION

This report has been prepared for and on behalf of Hurstville City Council to provide an overview of the site's infrastructure and its potential to house a future development.

The site is comprised of Lots 14 to 20 in Section 3 of DP 7124 which forms to create a development site in the order of 11,005m2.

The site is serviced via River Road which provided the route for utilities underground services from Mulga Road.

The property falls from the northwest to the southeast corner of the site at a grade of approximately 6.5%.

The eastern boundary abuts the Illawarra railway line whilst the western border is formed by a nature reserve containing a water course.

The northern boundary is created by neighbouring residential properties whist the southern boundary aligns a future Road reserve.

The current site contains Bowling greens & Club House with the remained of the site consisting of Lawn area.

1.1 OBJECTIVES

Objectives of this report are to provide the Properties' stakeholders with an assessment of the base building services with respect to:

- Their fitness for purpose with respect to currently accepted commercial performance parameters;
- Adequacy and flexibility for future design.

1.2 SCOPE

The scope of the investigations and report encompasses the hydraulic utilities infrastructure that is provided to service the precinct adjacent the development site.

1.3 TERMS OF REFERENCE AND LIMITATIONS

Information contained within this report has been prepared for the purposes outlined in Sections 1.1 & 1.2 within the following terms of reference and limitations.

The information presented in this report is based upon:

- A visual inspection on the 17th August, 2006, of representative areas of the site and its immediate surrounds;
- Review of available Utilities' records;
- Discussions with representatives of Hurstville City Council and the Consultant Team.

The report should not be considered to be a detailed engineering report as investigations generally do not include:

- Detailed performance testing of the Utilities' services;
- Detailed design calculations to verify compliance with statutory requirements or design criteria;
- Verification of information received from Statutory Authorities (Hurstville Council) beyond that which can be achieved from visual appraisal of the services installation at the time of inspection;

Further detailed investigative reports may be appropriate to more fully define any technical and commercial risks associated with the report's findings and recommendations and its terms of reference and limitations.

Only major systems are reviewed and reported upon.

Section 2 of this report provides a description of the development site and is provided for general reference only. Compiled from information gained from a number of sources it is accurate to the best of our knowledge. All information however should be verified if it is to be relied upon.

1.5 DISCLAIMER

The report has been prepared in good faith and is believed to be accurate. Without limiting duty to exercise professional skill and judgment and duty of care, no representation or warranty, express or implied, is or will be made in or in relation to, and no responsibility or liability is or will be accepted by as to, or in relation to, the accuracy or adequacy of this report or the information used to prepare this report.

2. HYDRAULIC SERVICES

2.1 SEWER DRAINAGE

A Sydney Water sewer sub-main trespasses the Northern corner of the site. The main is 1.8m x 2.7m and dissects Lots 16 & 17 which could impose some limitations on a future building proposal as the position of the main is offset from the site boundary.

Whilst it may be possible to build over sewer mains the levels of the main and building structure would have to be closely co-ordinated to meet the following Sydney Water requirements:

- Building loads are not to be imposed on the sewer;
- A minimum clearance of 1,000mm between the outside of the sewer pipe and any structure must be maintained.

A detailed submission of the proposed development and its relationship to the sewer main is required to be tabled with Sydney Water. During this process it would be determined whether additional strengthening (i.e. concrete encasement) and access requirements would be necessary.

From the sub-main the following sewer mains reticulate throughout the surrounding residential sub-division offering a number of sewers available to service the development site.

- A ø225mm sewer extends along River Road connecting the upstream catchment from Mulga Road;

- In the opposite direction a ø300mm sewer extends south past the lower portion of the site before change direction eastwards towards the Railway Line. From this main a Sydney water sewer side line connection is provided into the property which currently drains the existing Bowling Club House.

The ø300mm pipeline would most likely provide the future sewer drainage facility for any proposed development.

The location of the connection point is well positioned to maximise the potential site drainage whilst the size of the main appears to be adequately sized to cater for future expansion of the site.

Sewer facilities associated with any future development would be subject to a Sydney Water Section 73 Application as part of any Development Application.

2.2 Stormwater Drainage

Currently the site does not appear to be provided with a stormwater disposal system. Run-off flows overland to the water course that is positioned on the lower elevation (western) of the site.

Stormwater from the precinct drains to an existing Wet Lands that form the upper reaches of Gungah Bay in the following manner:

Upper River Road Catchment: Box Culvert connecting the a head wall discharging into the water course;

Larool Ave Catchment: Underground concrete stormwater pipe connection to a head wall discharging on the upper slope of the watercourse.

On the basis of the existing stormwater terminals from the surrounding catchments it would be reasonable to assume that run-off from the site would be able to be discharged to the wetlands via the adjacent water course.

Water quality control measures would be applicable. Sediment containment could be controlled on-site via silt arrestors in combination with a GPT while erosion control could be managed by a scour control device at the stormwater terminal.

An easement over the neighbouring Council Reserve in favour of the Development site's title would be required along the route of the stormwater discharge pipeline.

As the development site is located within the Georges River catchment On-Site Stormwater Detention (OSD) is not required.

2.3 Water Supply

A Sydney Water ring main is positioned in Mulga Road from this pipeline a branch main extends down River Road supplying the residential property addresses of 1, 3, 5 River Road & the Bowling Club. The branch main terminal consists of a Street Hydrant providing both fire flows and a flush-out facility.

As the branch main forms a dead end which is isolated at the Mulga & River Roads intersection. As the pipeline is not interconnected to the ring main grid reliability of supply may be an issue.

Further investigations concerning the available flow rates and residual pressures would be necessary to determine if any augmentation would be required.

Should the future buildings be arrangement in a manner that would require the provision of fire sprinklers (i.e an underground carpark in excess of 40 car spaces or a Class 9b building) it may be possible that a waster storage tank would be required. This condition would be subject to further calculations based on the performance of the water main.

An application nominating the flows associated with the proposed development would be required to be lodged with Sydney Water as part of any future DA process.

2.4 Gas Supply

A medium pressure (210kPa) AGL main extend along the southern side of Mulga Road suppling natural gas to the residential properties fronting the Street.

The development site does not have a AGL branch main extending into the boundary of the site.

The service in Mulga Road would be available to supply sufficient natural gas to service a future development; however, a mains extension would be required into the site.

A Request for Gas Supply (RGS) is required to be lodged with AGL as part of any future Development Application.

3.0 Conclusion

Considering the increased flows associated with a higher density development the site is well serviced with Utilities mains to accommodate future expansion.

Sewer facilities are readily available whilst stormwater, water and gas serviced require mains extension to connect to the Utilities mains.

We note that should the residential properties to the north of the site be acquired mains extension would not be necessary as the property would have direct frontage to a Road containing Authorities' ring mains.

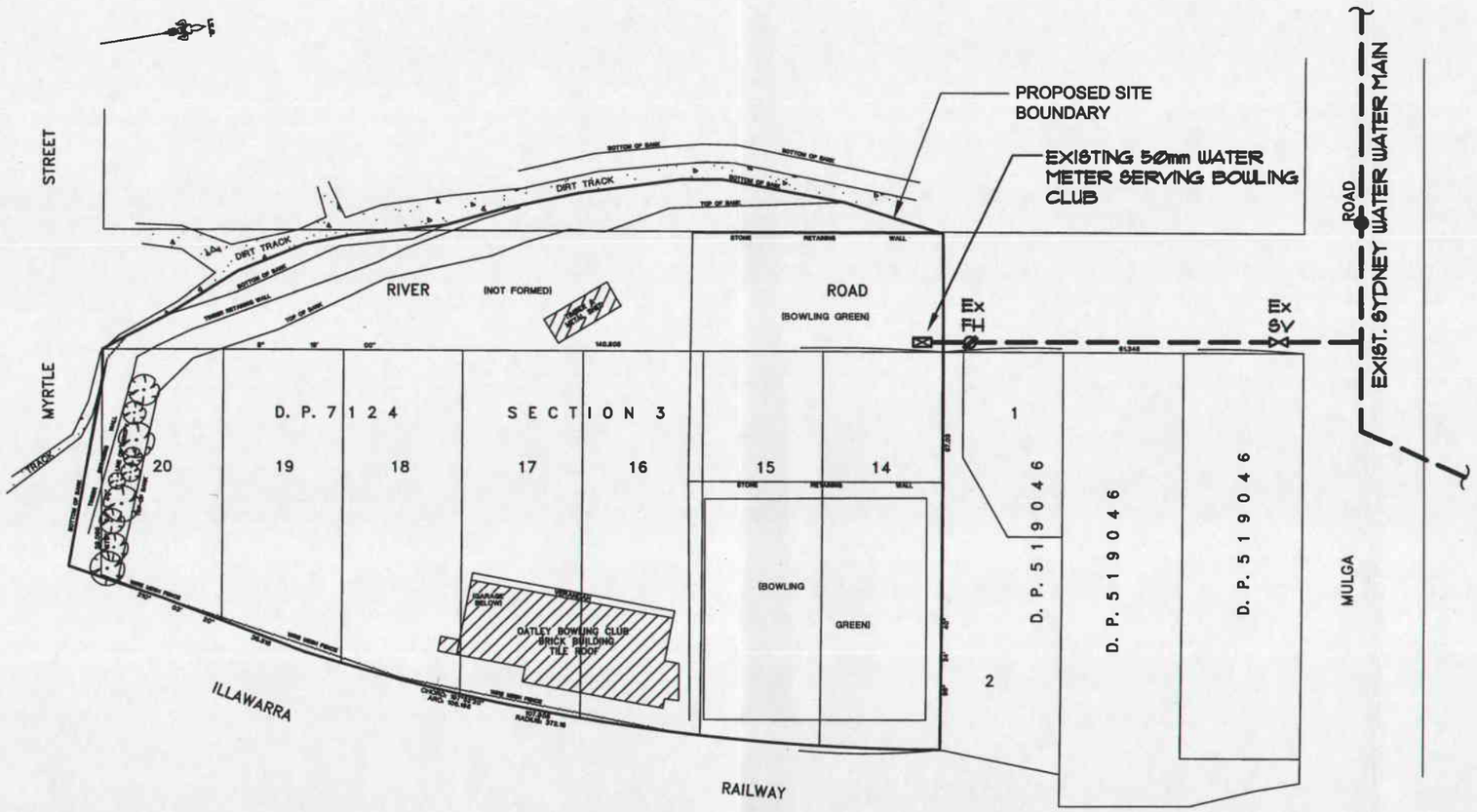
4.0 Attachments

4.1 Sewer Diagram

4.2 Stormwater Diagram

4.3 Water Mains Diagram

4.4 Gas Mains Diagram



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project:
OATLEY BOWLING CLUB
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title:
EXISTING SITE SERVICES
WATER SERVICES
DIAGRAM
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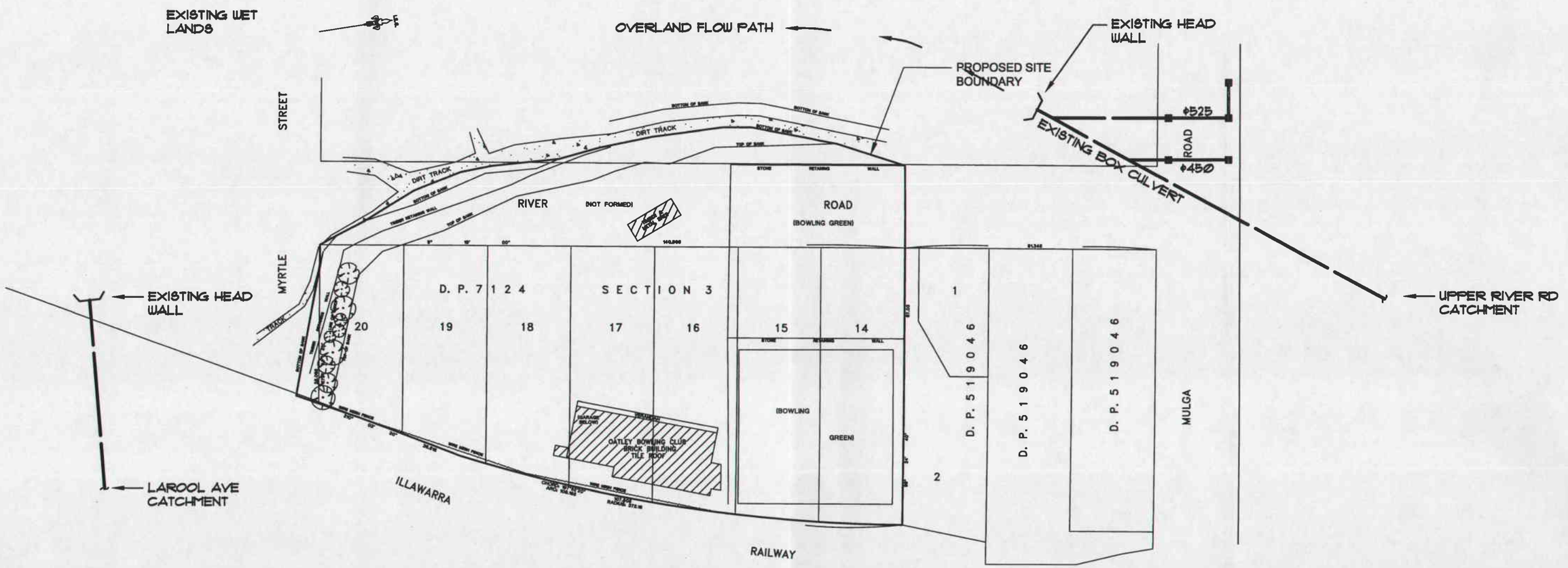

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project:
OATLEY BOWLING CLUB
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title:
EXISTING SITE SERVICES STORMWATER DRAINAGE DIAGRAM
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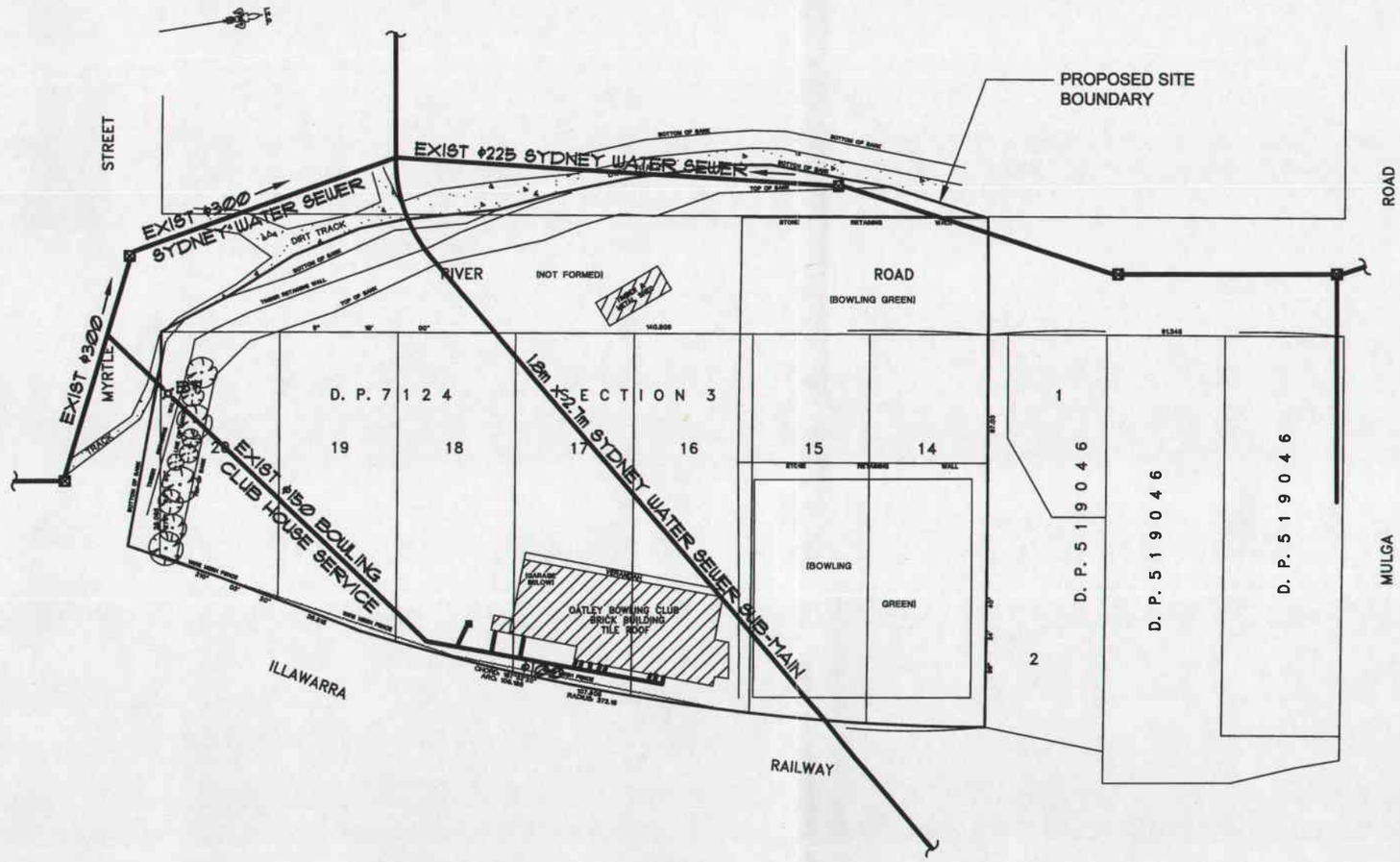

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project: OATLEY BOWLING CLUB * * *	title: EXISTING SITE SERVICES SEWER DRAINAGE DIAGRAM *
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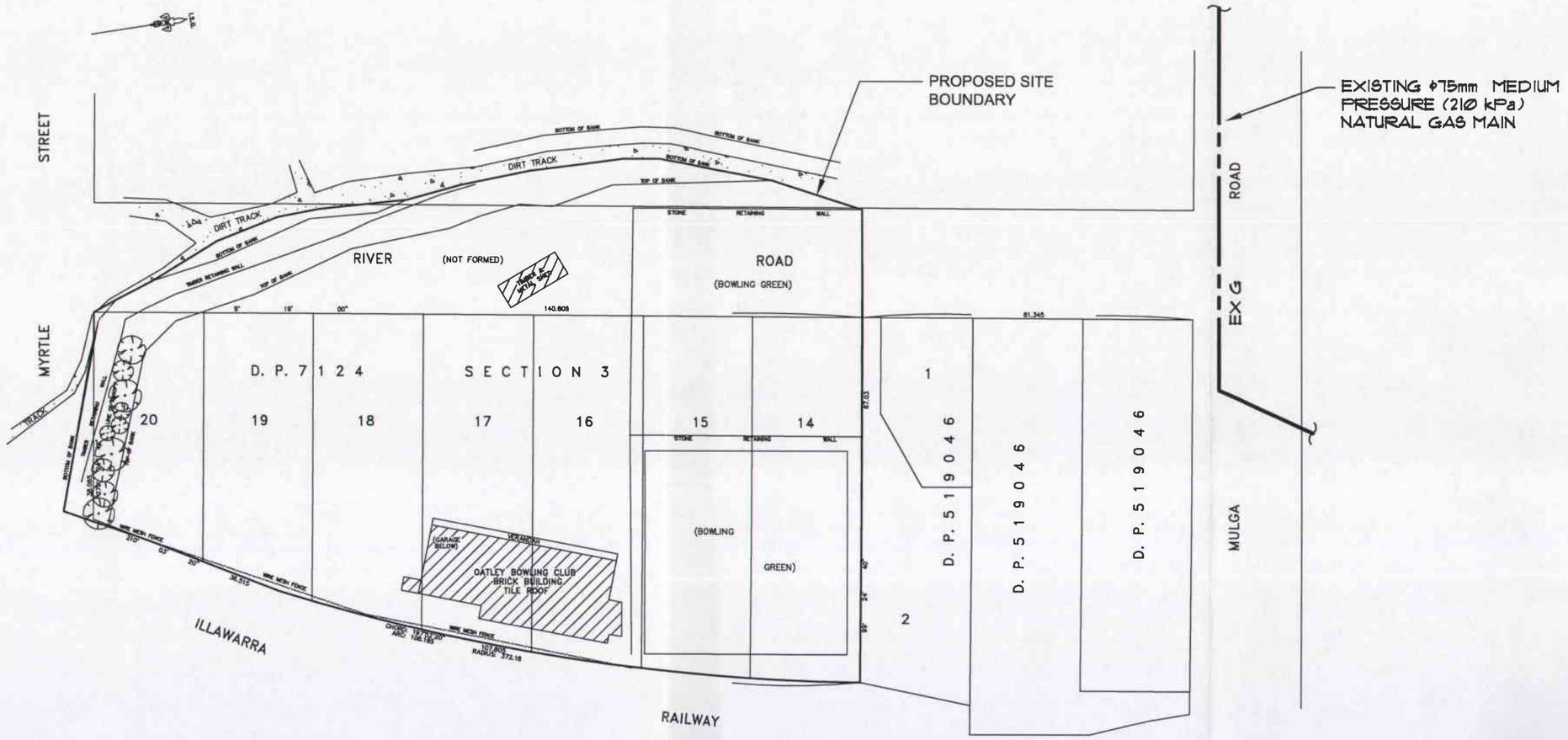

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project:
OATLEY BOWLING CLUB
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title:
EXISTING SITE SERVICES
GAS SERVICES
DIAGRAM

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