



# Planning Proposal at North Rocks

361-365 North Rocks Road, North Rocks NSW 2151

HYDRAULIC  
REPORT

## PREPARED FOR

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# DUE DILIGENCE REPORT

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# 1. INTRODUCTION

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Northrop Consulting Engineers (Northrop) was engaged by EG to prepare a Due Diligence Report for the proposed development at 361-365 North Rocks Road, North Rocks 2151.

The proposed development will involve the demolition of the existing 'Royal Institute for Deaf and Blind Children – RIDBC) building and associated infrastructure within the subject site and the construction of approximately 795 dwellings, 130 independent living units and 100 bed aged care facility.

This report outlines the outcomes of limited Authority consultation, to determine the existing hydraulic services and utilities available for the proposed development. This document is intended to provide a guide and sufficient information to demonstrate hydraulic servicing can be provided to support the proposed development. In general, it should be noted that formal Applications to relevant authorities for site servicing/supply can only be made after Development Consent has been granted.

## 2. SITE DESCRIPTION

### 2.1 Existing Site Description

The address of the subject site is 361-365 North Rocks Road, North Rocks. The site is located within 'R2 Low Density Residential' area within the Parramatta Local Government Area. Refer to **Figure 1** for the site location.



*Figure 1 - Locality Plan*

The site currently comprises a School for the Royal Institute for Deaf and Blind Children (RIDBC) and is 126,700 m<sup>2</sup> in area. It is legally described as Lot 3001 in Deposited Plan 1115866. The site is enclosed by North Rocks Road on its southern boundary, Baden Powell Place and Duncan Place on its western boundary, and remaining boundaries shared with neighbouring private property.

The existing site condition consists of multi-building faculties owned by 'RIDBC', with accompanying infrastructure including parking and access roads.

### 2.2 Proposed Development

The proposed development will involve the demolition of the existing buildings and access roads/parking within the subject site and the construction of 925 dwellings comprising mostly of apartments, with some townhouses, aged care, one commercial/retail area, community facilities and associated infrastructure. The site layout is shown in Figure 2.





① Oval	⑥ Independent Living Units	⑪ Local Parks and Gardens
② Village Square	⑦ Town Houses	⑫ Dog Park and Community Gardens
③ Central Park	⑧ Apartments	⑬ Pavilion and Tennis Court
④ Community Hub, potential Library and Community Facilities	⑨ Detached Houses	
⑤ Aged Care	⑩ Bushland Edge Parkland	

*Figure 2 – Redeveloped Site Layout*

### 3. DEMAND CALCULATIONS

#### 3.1 Potable Cold Water

The Planning Proposal will facilitate:

- Approximately 795 new residential dwellings (including apartments, townhouses, and detached dwellings)
- Approximately 130 independent living units and aged care (seniors housing)
- Approximately 4,400m<sup>2</sup> new community facilities
- Approximately 2,800m<sup>2</sup> retail/commercial floor space
- Associated landscaping, road network, public open space improvements, and increased tree canopy cover

Total Demand: 890 kL/day (Average Day Demand)

Total Demand is estimated from the breakdown of the type of dwellings proposed and the total gross area of commercial and community areas. kL/day is estimated to be 990kL/day.

Based on the zoning/development requirement below for our proposed development a DN250 cast iron service is estimated to be required.

Supply Size Required: DN 200 or DN 250

Obtained from WSA 03-2011-3.1 Water Supply Code of Australia

**TABLE 3.1**  
**MINIMUM PIPE SIZES FOR PARTICULAR DEVELOPMENTS**

ZONING/DEVELOPMENT	MINIMUM PIPE SIZE (DN)	
	Cast iron outside diameter series	ISO series <sup>(3)</sup>
Low and medium density residential	100 <sup>(1)</sup>	125 <sup>(1)</sup>
High density residential (≥ 4 storeys)	150	180
Multiple developments of high density residential (≥ 8 storeys)	200 or 225 <sup>(2)</sup>	250 or 280 <sup>(2)</sup>
Industrial and commercial	150	180

NOTES:

- <sup>1</sup> The Water Agency may authorise smaller pipe sizes to address issues such as water quality, provided that requirements for fire fighting supply are otherwise met.
- <sup>2</sup> The Water Agency to nominate the preferred size.
- <sup>3</sup> For steel (SCL) and polyethylene (PE) pipes only.

#### 3.2 Sanitary Plumbing and Drainage

The Planning Proposal will facilitate:

- Approximately 795 new residential dwellings (including apartments, townhouses, and detached dwellings)
- Approximately 130 independent living units and aged care (seniors housing)
- Approximately 4,400m<sup>2</sup> new community facilities
- Approximately 2,800m<sup>2</sup> retail/commercial floor space
- Associated landscaping, road network, public open space improvements, and increased tree canopy cover

EP per dwelling unit: 2.5

Total EP is estimated from the breakdown of the type of dwellings proposed and the total gross area of commercial and community areas. EP is estimated to be 3300, which is greater than the maximum allowable EP for DN300 main (see over page).

Therefore,

Supply Size Required: DN 375 (Subject To Sydney Water Section 73 assessment)

Obtained from WSA 02-2002-2.2 Sewerage Code of Australia

WSA 02—2002-2.2

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**A2.1.3 Multiple occupancy lots—High-density / multi-storey residential**

*The contribution to EP from high-density residential development should be taken as 2.5 per dwelling unit. The total EP contribution requires planning data or estimates of the density of dwelling units per gross hectare.*

**TABLE 4.4**  
**EP CAPACITY LIMITATIONS FOR RETICULATION SEWERS**

Pipe size DN	Maximum allowable EP
150	600
225	1600
300	3200



## 4. SERVICES AND UTILITIES

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### 4.1 Potable Water Supply

An assessment has been made on the existing water supply, with the intent to investigate the likely requirements for water supply to service the proposed development site. Northrop has performed non-invasive investigations for the existing site conditions and additional loading from the proposed development onto the existing utility infrastructure available for connection to the site.

Our assessment has been based on information provided by the Dial Before You Dig (DBYD) drawings.

The development has access to the following Sydney Water potable water mains:

- DN 150 Sydney Water main within North Rocks Road
- DN 375 Sydney Water main within North Rocks Road located on the opposing side of the road
- DN 100 Sydney Water main within Baden Powell Place adjacent to the property boundary
- DN 100 Sydney Water main within Duncan Place on the opposite side of the road

Based on the demand calculations provided in Section 3, the existing DN 375 water main located within North Rocks Road should have sufficient capacity to service the proposed development. A network of water mains will be extended from the DN375 water main and provided within the development in accordance with Sydney Water requirements. Each building 6 storeys or higher shall have frontage to a DN200 water main.

Final confirmation regarding connection to the DN375 water main and extension of a DN200 water main network would be confirmed by Sydney Water via the Section 73 application to be lodged with Sydney Water upon receipt of DA approval. A Water Servicing Coordinator will need to be engaged for the design of the Sydney Water, potable main extension within the site.

Requirement of potable cold water pumpsets is anticipated and subject to pressure and flow results from Sydney Water for the water main within North Rocks Road and the future proposed water mains within the site. The reticulating new mains within the site would provide the required wet fire requirements to service each building. Final assessment to be undertaken in reference to fire tanks and fire pumps for each building.

Refer to Appendix B 'DBYD Information' for location of Sydney Water services.

Refer to Appendix C for preliminary proposed internal water services.

### 4.2 Recycled Water Supply

The Sydney Water DBYD drawings confirm that there is no recycled water infrastructure near the proposed development.

Rainwater from the non-trafficable roof / terraces in the buildings may be harvested and re-used for toilet flushing and/or toilet flushing. This is subject to requirements within the BASIX and the ESD consultant.

The rainwater harvesting system shall be provided with an in-line pumping assembly located directly after the rainwater tank. The pump and associated equipment shall be capable of delivering non-potable water to the fixtures at the required pressures and on demand.

The rainwater harvesting system shall be provided with a potable cold water make-up supply backflow prevention device and all other associated valves and equipment in accordance with BCA and AS3500 requirements.

The filtration system comprises:

- Backwash filters
- Cartridge Filters
- UV Filtration

At this point, use of non-potable water is not clarified. Harvested rainwater can be used for a number of purposes including irrigation systems (e.g. oval) and toilet flushing.

### 4.3 Sewer

An assessment has been made on the existing sewer supply, with the intent to investigate the likely requirements for sewer supply to service the proposed development site. Northrop has performed non-invasive investigations for the existing site conditions and additional loading from the proposed development onto the existing utility infrastructure available for connection to the site.

Our assessment has been based on information provided by the Dial Before You Dig (DBYD) drawings.

The development has access to the following Sydney Water sewer mains:

- DN 375 VC sewer main outside the property in the north-east direction (near M2);
- DN 150 sewer main terminating within the site adjacent to the south eastern boundary (Jennie Place);
- DN 150 sewer main terminating with the site adjacent to the northern boundary (currently serve the current buildings on site);
- DN 150 sewer main terminating with the site adjacent to the north western boundary (Duncan Place);

Based on the demand calculations provided in Section 3, the existing DN150 sewer mains terminating within the site will not have enough capacity to service the proposed development of 1,305 dwellings and associated commercial areas.

DN 375 sewer main located north-east of the site should have sufficient capacity to service the proposed development (subject to Sydney Water section 73 application and assessment). The existing DN150 sewer main terminating with the site adjacent to the northern boundary will need to be augmented to a DN375 to service the entire site.

A network of DN 225 mains within the proposed roads in the site would serve the development and finally connect to the existing DN 375 sewer main.

Final confirmation regarding the above sewer connection main and extension of a DN375 sewer main network would be provided by Sydney Water via the Section 73 application, to be lodged with Sydney Water upon receipt of DA approval. A Water Servicing Coordinator will need to be engaged for the design of the Sydney Water sewer main extension within the site.

Refer to Appendix B 'DBYD Information' for location of Sydney Water services.

Refer to Appendix C for Sewer servicing strategy within the site.

### 4.4 Natural Gas

The development has access to the following natural gas mains:

- DN 160 Polyethylene 210kPa natural gas main within North Rocks Road
- DN 32 Nylon 210kPa natural gas main within Baden Powell Place

The existing DN 160 210kPa natural gas main located within North Rocks Road should have sufficient capacity to service the proposed development.

A final application to Jemena will be required to confirm a connection to this natural gas main is permitted.

For the proposed development there would be gas network system reticulating through out the site. This will be based on final land subdivision with a combination of using Jemena or private system within the site. Final assessment would be subject to Jemena application and approval.

Refer to Appendix B 'DBYD Information' for location of Jemena gas services.

## 5. CONCLUSION

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Northrop Consulting Engineers has prepared this report to provide information to EG relating to the existing hydraulic services and utilities surrounding the site and feasibility of serviceability allowance for the proposed development.

We conclude that servicing of the site is feasible based on the existing service and utilities present. This conclusion has been reached after review of the following documentation:

- Authority Dial Before You Dig documentation
- Survey drawing prepared by Rygate & Company Pty Limited

In summary, the proposed development will need to consider:

- **Water**: Connection into DN375 Water main within North Rocks Road and proposed reticulation network of DN200 water mains within the site. Further consultation would need to be taken with Sydney Water, to confirm above.
- **Sewer**: Connection to the DN375 Sydney Water sewer main outside the north eastern boundary within the reserve. Existing sewer main augmentation and extension required. Further consultation would need to be taken with Sydney Water.
- **Gas**: Jemena Gas mains within North Rocks Road appear to have sufficient capacity to service the development. Further consultation would need to be undertaken with Jemena.

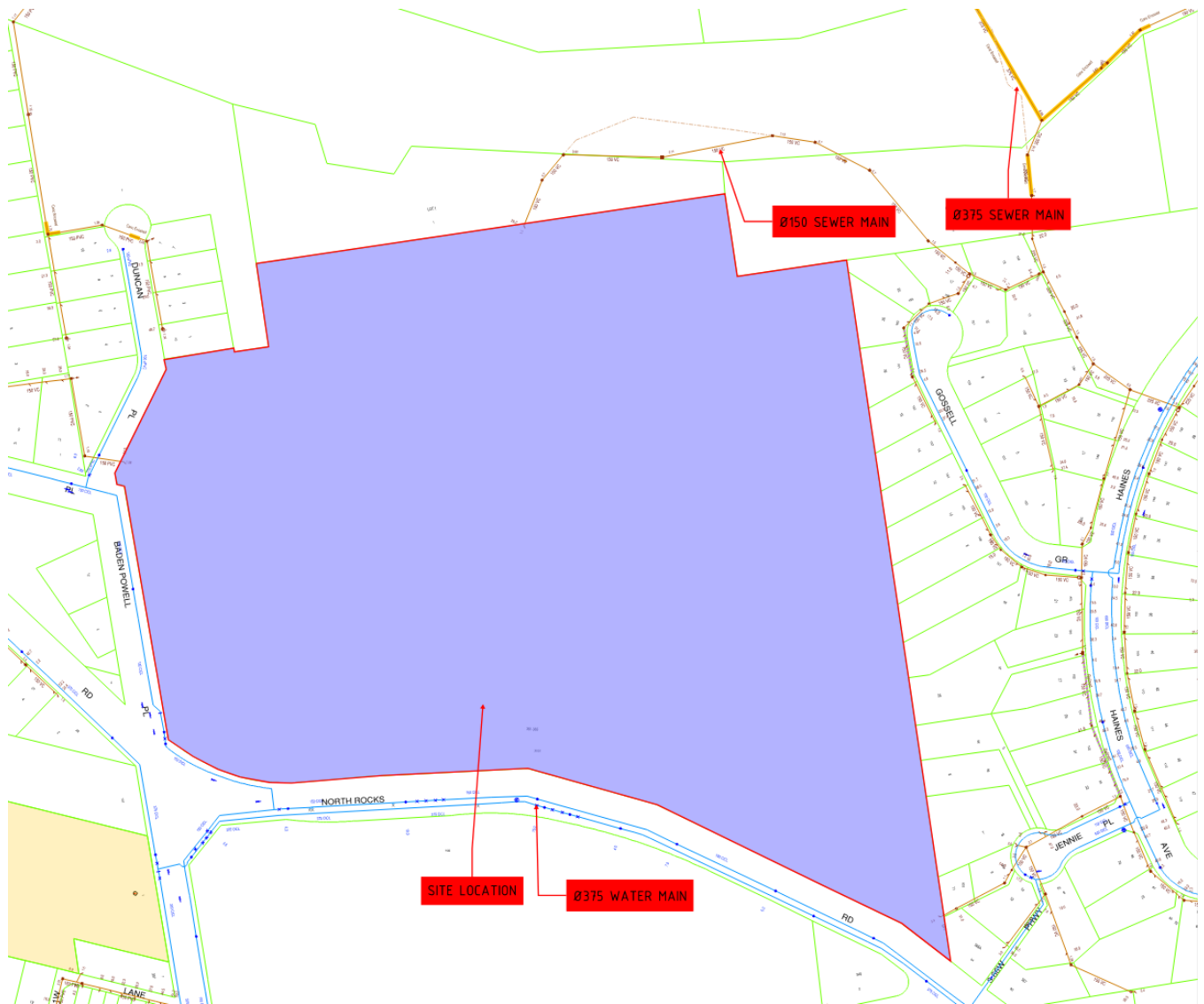


## APPENDIX A – EXISTING SITE SURVEY PLAN



## APPENDIX B – DBYD INFORMATION

### Sydney Water Infrastructure



## Jemena Natural Gas Infrastructure

