

Utility Servicing Strategy Report

Planning Proposal Glenmore Park East



Prepared for:
Nergl Developments
Pty Limited

Prepared by:
Proust & Gardner
Consulting Pty Limited

September 2023

TABLE OF CONTENTS

	Page
1. Introduction	4
1.1 Background	4
1.2 Site Location and Context	5
1.3 Existing Infrastructure Easements	6
1.4 The Planning Proposal	7
2. Potable Water and Waste Water	9
3. Electricity	12
4. Natural Gas	17
5. Communications	19
6. Conclusion	22

List of Figures

1. Property Plan
2. Aerial Photograph
3. Glenmore Park East Concept Masterplan

List of Inclusions

1. Potable Water and Waste Water Concept Review
Qalchek Pty Ltd – 13 September 2023
2. Electrical Network Investigation
Estate Power Design NSW – 14 September 2023
3. Jemena email correspondence – 6 September 2023
4. Design It Telco email correspondence – 21 August 2023
5. NBN Co. email correspondence – 11 September 2023

INTRODUCTION

1. Introduction

1.1 Background

Proust & Gardner Consulting Pty Ltd has prepared this Utility Servicing Strategy Report on behalf of the proponent Nergl Developments Pty Ltd as a support document to a Planning Proposal in respect of a parcel of properties at Glenmore Park bound generally by Glenmore Parkway to the north, The Northern Road to the east, Bradley Street to the south and the existing Glenmore Park neighbourhood to the west.

For the purposes of the Planning Proposal the parcel of properties are described as Glenmore Park East.

The purpose of the Utility Servicing Strategy Report (USSR) is to;

- identify the utility services required to facilitate the development of Glenmore Park East for residential and associated use purposes
- identify the responsibilities for the provision of the utility services
- identify the available capacity and upsizing requirements of the respective utility services to facilitate the development of Glenmore Park East
- determine an indicative strategy for the staged delivery of the utility servicing.

The utility services that are addressed in the USSR include;

- potable water
- waste water
- electricity
- natural gas
- telecommunications.

The utility servicing providers/authorities and design consultants that have been consulted in the preparation of the USSR are;

- Potable Water
 - Sydney Water Corporation
 - Qalchek Pty Ltd - Water Service Coordinator
- Waste Water
 - Sydney Water Corporation
 - Qalchek Pty Ltd - Water Service Coordinator
- Electricity
 - Endeavour Energy
 - Estate Power Design NSW Pty Ltd – Electrical Designers

- Natural Gas
 - Jemena
- Telecommunications
 - NBN Co.
 - Design It Telco Pty Ltd – Communications Designers (NBN Co. and Telstra accredited)

1.2 Site Location and Context

Glenmore Park East is situated in the Penrith Local Government Area and is located approximately 5 kilometres south of the Penrith CBD and approximately 10 kilometres to the north of the Western Sydney International Airport.

Glenmore Park East is made up of rural and rural residential properties in private and public ownership and one (1) Public Reserve extending into the Glenmore Park Stage 1 neighbourhood along the Transmission Line Easement.

The Glenmore Park East properties comprise an area of approximately 47.95ha and are bound;

- to the north by Glenmore Parkway and Penrith Golf Course
- to the east by The Northern Road
- to the south by Bradley Street
- to the west by the established residential neighbourhood of Glenmore Park Stages 1 and 2.

- Refer:
- Figure 1
Property Plan
 - Figure 2
Aerial Photograph

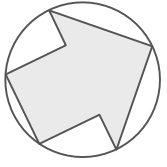
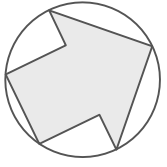


FIGURE 1

LEGEND	
(A)	EASEMENTS FOR TRANSMISSION LINE - TRANSGRID/ENDEAVOUR ENERGY
(B)	EASEMENTS FOR WATER SUPPLY PURPOSES - SYDNEY WATER
(C)	ELECTRICITY EASEMENTS - ENDEAVOUR ENERGY



AERIAL SOURCE: NEARMAP 24/08/2022

PROUST & GARDNER
CONSULTING PTY LIMITED
SURVEYORS & PLANNERS

406 Pacific Highway
PO Box 132
Lindfield NSW 2070
Tel: 9416 1335
Email: png@png.com.au

LEGEND	
(A)	EASEMENTS FOR TRANSMISSION LINE - TRANSGRID/ENDEAVOUR ENERGY
(B)	EASEMENTS FOR WATER SUPPLY PURPOSES - SYDNEY WATER
(C)	ELECTRICITY EASEMENTS - ENDEAVOUR ENERGY

FIGURE 2

AERIAL PHOTOGRAPH

PROPERTY PLAN
GLENMORE PARK EAST

1.3 Existing Infrastructure Easements

Some of the properties within Glenmore Park East are affected by the following major servicing infrastructure easements:

Lots 9 & 10 DP 26658

- Easements for Transmission Line 25 wide (DP 643509)
- Easement for Transmission Line variable width (DP 643509)
- Easement for Transmission Line 70 wide (DP 640904)
- Easement for Water Supply Purposes 2.5 & 0.5 wide (DP 1006519)
- Easement for Water Supply Purposes 4 wide & variable (DP 644906)

Lot 8723 DP 1040626

- Easement for Transmission Line 91.44 wide (L 892485)
- Easements for Transmission Line 25 wide (DP 644152)
- Easement for Water Supply Works variable width (DP 876748)

The Easements for Transmission Line traverse the site east/west from The Northern Road and contain transmission line towers and cables under the control of Transgrid and Endeavour Energy.

The Easements for Water Supply Purposes traverse the site east/west from The Northern Road and contain large watermains under the control of Sydney Water.

Lot 2 DP 1240377

- Easement for Padmount Substation 2.75 wide (DP 1133119)
- Easement for Underground Cables 1 wide (DP 1133119)
- Easement for Underground Cables variable width (DP 1133119)
- Easement for Underground Cables 1.5 wide (DP 1133119)

The easements are located at the southern end of Harold Bentleys Way and contain electrical infrastructure under the control of Endeavour Energy.

Refer: • Figure 1
Property Plan

1.4 The Planning Proposal

The Glenmore Park East properties are currently zoned C4 Environmental Living (44.93ha), R2 Low Density Residential (225m²), SP2 Infrastructure (113m²) and RE1 Public Recreation (2.98ha).

The Planning Proposal seeks to rezone the C4 Environmental Living and SP2 Infrastructure lands to a combination of the following zones;

- R2 Low Density Residential
- R3 Medium Density Residential
- MU1 Mixed Use
- E1 Local Centre
- SP2 Infrastructure
- RE1 Public Recreation
- C2 Environmental Conservation

The Glenmore Park East Concept Masterplan has been prepared to illustrate the vision and the development intent of the Planning Proposal which provides for;

- approximately 1,710 new homes in a diverse range of housing types
- a range of non-residential uses including mixed use retail spaces, childcare facilities, medical services, food and beverage establishments, fresh food market, specialty shops, restaurants, cafes, entertainment venues, offices and a hotel for short term accommodation
- public open space, communal open space areas and areas for stormwater management purposes
- connectivity to and integration with the existing Glenmore Park Stage 1 and Stage 2 residential neighbourhoods to the west.

The Concept Masterplan has been used as a reference to assist with the assessment of the utility servicing requirements for the development of Glenmore Park East.

- Figure 3
*Glenmore Park East
Concept Masterplan*

**Potable Water and
Waste Water**

2. Potable Water and Waste Water

A Potable Water and Waste Water Concept Review has been prepared by Qalchek Pty Ltd – Water Service Coordinator (Sydney Water accredited).

The objectives of the Concept Review are;

- Estimate the proposed development flows
- Review possible internal potable water and waste water services options
- Review and consider services options to service the development
- Estimate cost for any lead-in infrastructure

The Concept Review includes concept plans showing the location of existing potable and waste water infrastructure proximate to the site and proposed potable and waste water infrastructure to service the staged development of Glenmore Park East.

The plans have been prepared for the purpose of determining indicative costings for provision of the new infrastructure.

The recommendations of the Concept Review are provided as follows;

1. *In summary the site can be serviced*
2. *The client should make a feasibility application to Sydney Water, Qalchek has been engaged to undertake this application*
3. *The client should seek permission from Sydney Water to undertake Sewer/Potable water modelling of the proposed development. This should identify any system issues the proposed development may cause on the existing sewer/potable water network*
4. *Any issues identified in the modelling works could be addressed in detail design. For example, if the existing downstream sewer network had any capacity issues. The proposed pump station storage in option 1 could be increased or in option 2 you could increase the size of the carrier pipe. Both options have capacity to address such issues.*
5. *The development yield needs to be checked and locked in as they directly affect the Sewer/Potable water demands for the site.*
6. *Sewer Option 2 being the lead in sewer carrier appears to be a suitable cost-effective option. It may also provide sewer capacity to the adjacent golf course if it was to be rezoned.*

7. *The existing DN450 and DN750 potable Water mains through the site would need to be surveyed and confirmed if the proposed roadworks\development will have any impact on these mains. No adjustment of these mains has been investigated or costed in this report.*

A Feasibility Application has been made to Sydney Water under Case No. 209755.

Refer: • *Potable Water and Waste Water Concept Review*

POTABLE WATER AND
WASTEWATER CONCEPT REVIEW
FOR GLENMORE PARK EAST
PLANNING PROPOSAL



13th Sep 2023

NERGL DEVELOPMENTS PTY LTD

QALCHEK REFERENCE: PM 33060

CONTENTS

.....	1
INTRODUCTION	3
Report Objectives.....	4
Development Yields	4
Wastewater Servicing Options.....	5
Potable Water Servicing Options	10
Recommendations	12
Prepared / Reviewed by	12

INTRODUCTION

Qalchek has been engaged by Proust & Gardner on behalf of Nergl Developments Pty Ltd to undertake a Wastewater / Potable Water strategy for the proposed redevelopment to Glenmore Park East Planning Proposal lands.

The site has an approximate area of 47.95 Ha.

Please refer to the map below for the site location.



REPORT OBJECTIVES

This report aims to determine the following:

- Estimate the proposed development flows.
- Review possible Internal Potable Water and Wastewater service options.
- Review and consider services options to service the development.
- Estimate cost for any lead-in infrastructure.

DEVELOPMENT YIELDS

Based on the proposed development yields, We expect the site to generate the following demands

Sewer flows:

Catchment Refer to Figure 1	E.P. loading	PDWF L/S	Design flow L/S	Required size pipe
Catchment 1	5799	22.47	65.89	375

The above figures were determined by using Sydney Water Flow Schedule spreadsheet table.

The development is within the Penrith STP area.

Potable Water demand:

Lots	Combine total of Max day (MLD)	Combine Total of Max Hr Demand
1600	3.35	9.28

The development is located in the Orchard Hills Potable water zone.

WASTEWATER SERVICING OPTIONS

In summary the whole site can drain to one natural low point located along the northern site boundary.

The low point fronts Glenmore Park Way. Unfortunately, the nearest existing sewer is a DN150 main and has a invert higher than the sites low point, which means the site will not drain to the existing sewer network. Further to this is if the sewer was at a suitable invert level it would be too small to service the full development proposal.

Upon review we have determined two possible sewer service options to service the development.

Option 1 – Is based on a pump station being built within the development and a pressure main being constructed to a suitable sewer connection point to the north.

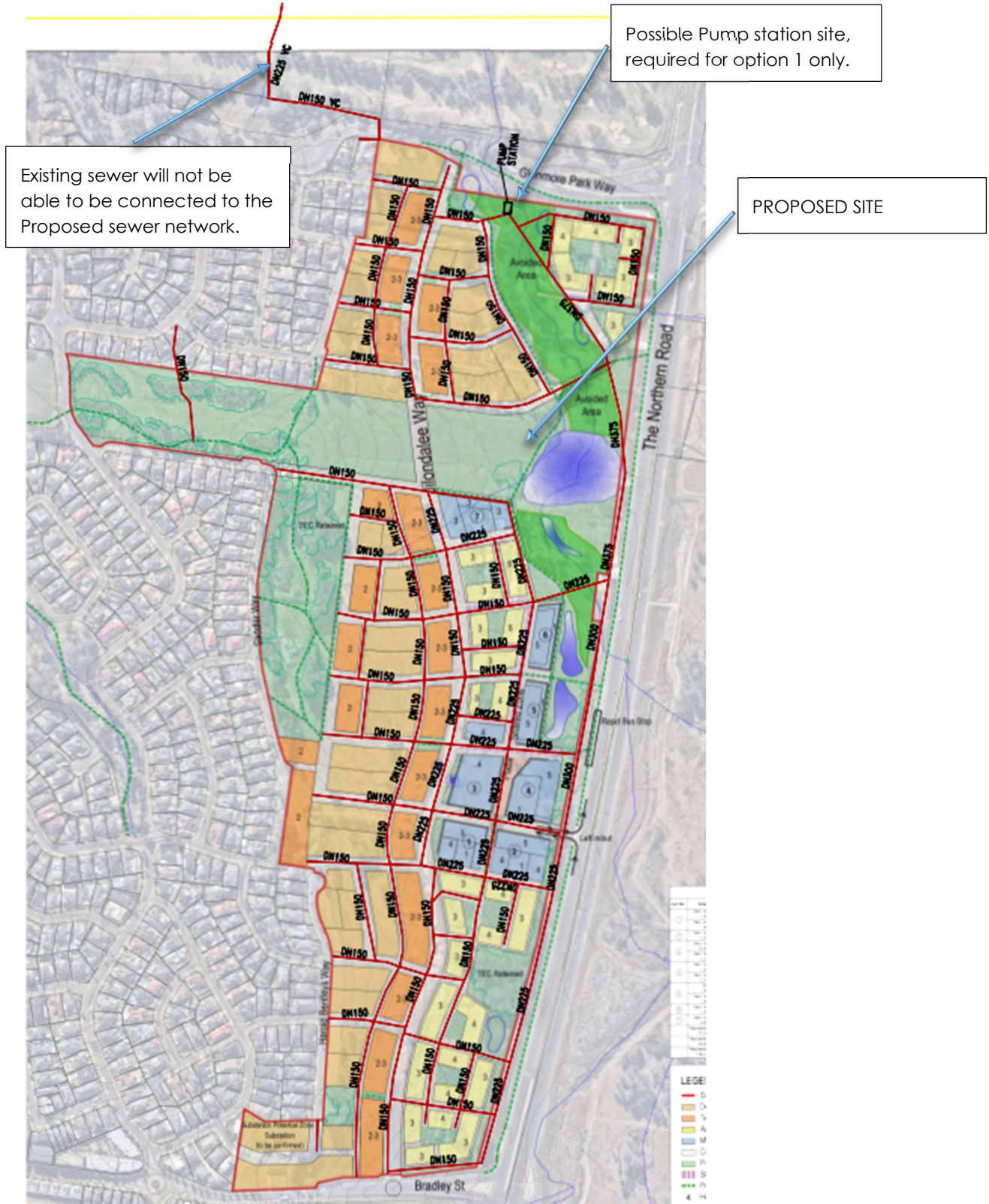
Option 2 -Is based on Gravity sewer lead in extension.

The following diagrams are provided.

- Possible Internal Sewer layout within the development. This should be the same for both options.
- Option 1 Pump station location and proposed pressure main route and possible connection point.
- Option 2 Lead-in gravity sewer main route.

Please note both options are proposed to connect to the same location on the existing sewer network.

Possible Internal Sewer layout and sizing plan.

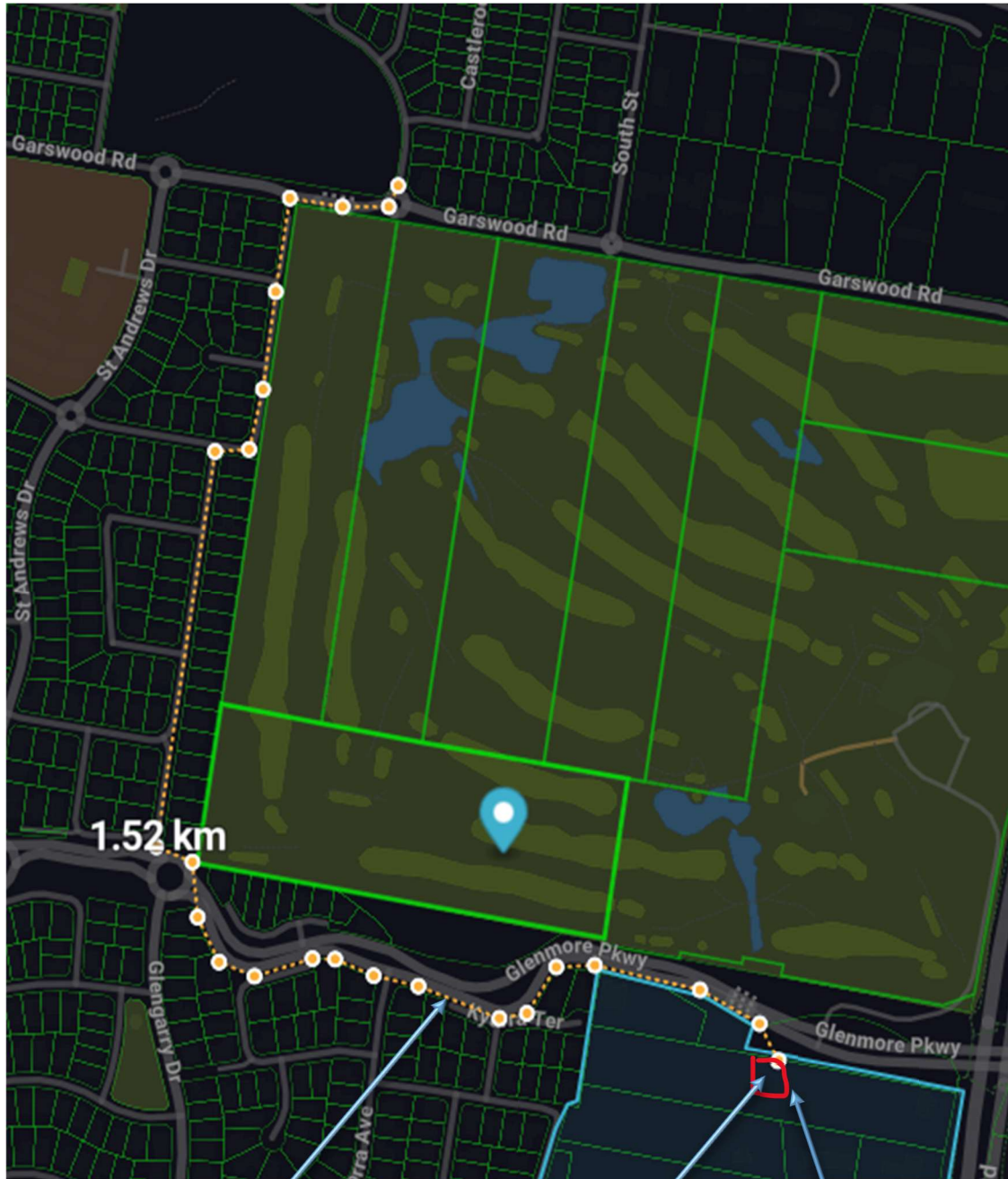


Existing sewer will not be able to be connected to the Proposed sewer network.

Possible Pump station site, required for option 1 only.

PROPOSED SITE

Option 1 (Based on pump station and pressure main option)

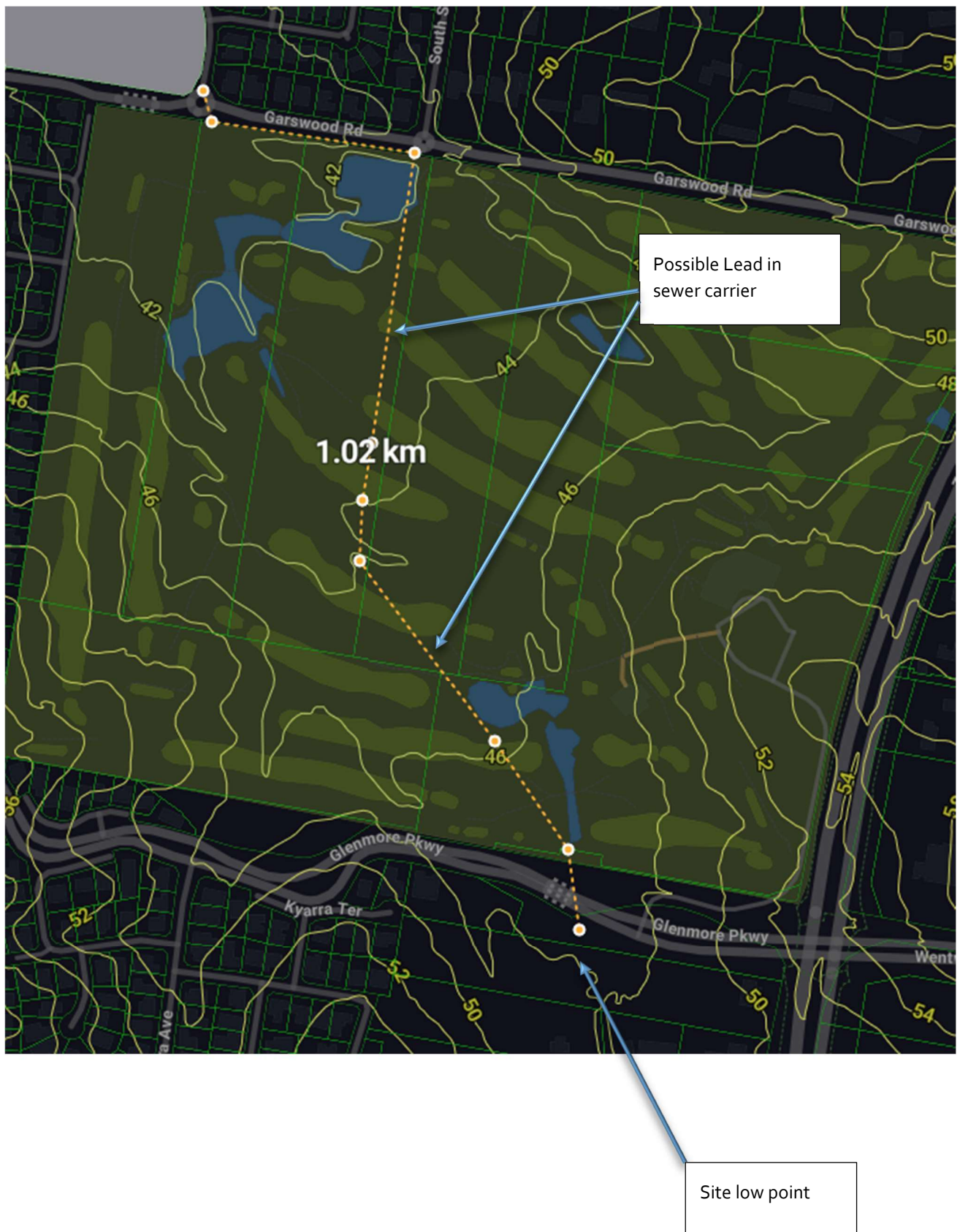


DN300 PRESSURE SEWER MAIN

Pump Station Location

Site low point

Option 2 (Based on a lead in sewer carrier)



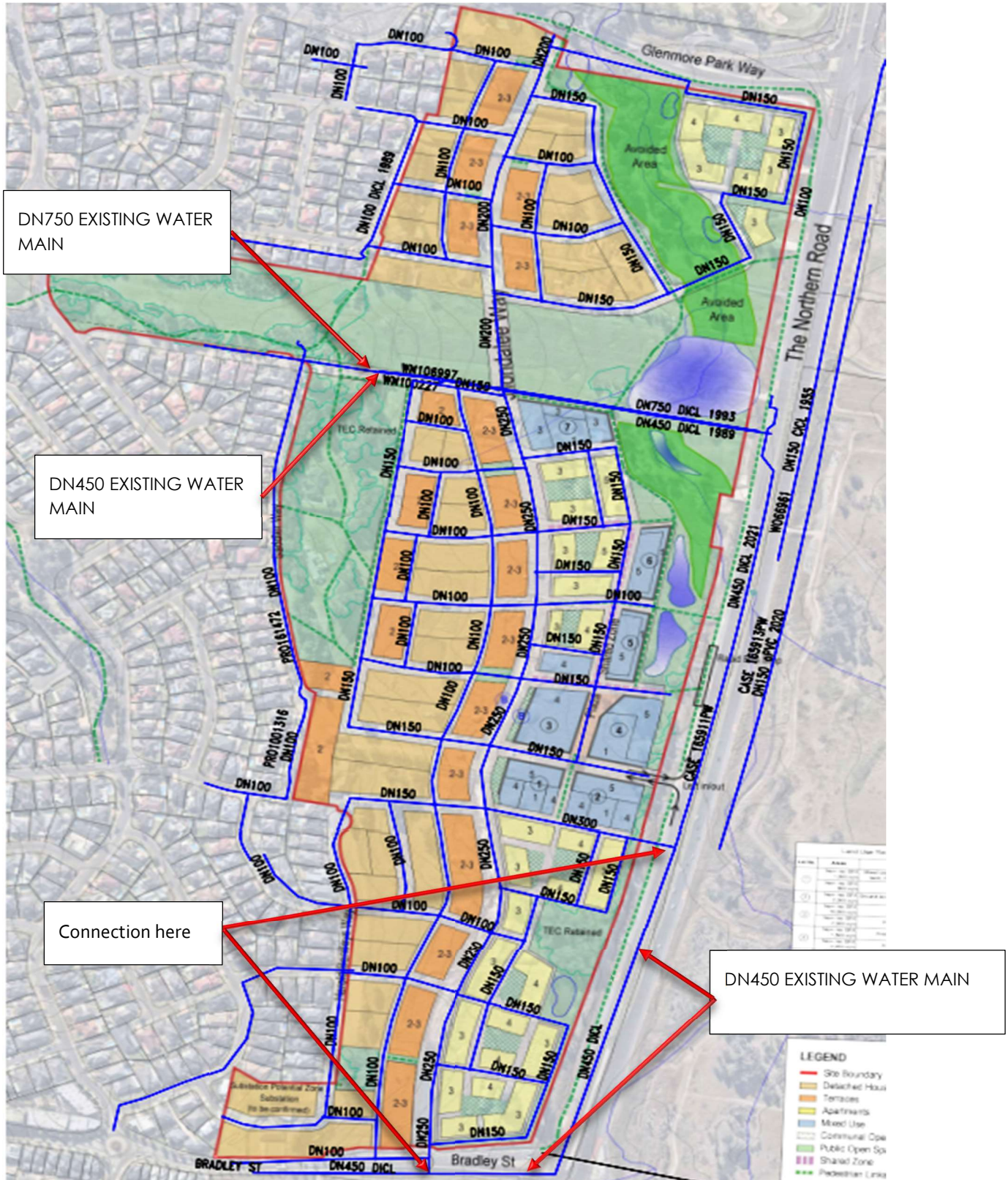
Sewer cost summary

	Option 1		Option 2	
Item	Length	Estimated Cost	Length	Estimated Cost
DN375 Lead-In Sewer	494m	\$ 518,700.00	494m	\$ 518,700.00
DN300 Lead-In Sewer	445m	\$ 443,665.00	445m	\$ 443,665.00
DN225 Lead-In Sewer	501m	\$ 499,497.00	501m	\$ 499,497.00
DN150 Sewer Lead-In	6158m	\$ 2,573,760.00	6158m	\$ 2,573,760.00
DN300 Pressure sewer main	1520m	\$ 1,515,440.00		N.A.
SPS	1	\$ 3,400,000.00		N.A.
Lead in carrier DN375	1010m	N.A.	1010m	\$ 1,111,000.00
Structures	108	\$1,728,00.00		\$1,728,00.00
	Total	\$ 9,971,121.00		\$ 6,238,121.00

POTABLE WATER SERVICING OPTIONS

The site has water main frontage along The Northern Road to a DN450 water main and on Bradley Street DN450. A water main extension will be required from these mains.

Please refer to the map below showing proposed internal pipe sizes and possible connections points to the existing Sydney water Potable Water network.



The internal pipe sizing has been determined by using table 3.1 of The Water Service Code of Australia WSA 03 – 2011.

Please refer to the table below as a guide.

Nominal size of main DN	Capacity of main
Outside diameter of pipe	Residential lots
100	40
150	160
200	400
225	550
250	650

- The table above is based on a single source feed. It should be noted that the site will have multiple points for connection and pipe service capacity would increase.
- We anticipate the initial development will be serviced off a single source feed.
- As the development is progressed it may be necessary to provide a second feed to the development.
- Based on the above we do not believe Sydney Water will require Pressure Reducing Valves on the site to operate their systems.
- Based on our assessment we anticipate the following works would be required.
- Please Note that Sydney Waters' primary task is to provide potable water for domestic supply. Sydney Water does not need to provide water to meet firefighting requirements.
- If Sydney Waters' system provides sufficient flow and pressure to meet the fire flow requirements for the proposed building then SWC may permit fire connection.

Internal Water Costing

Item	Length	Estimated Cost
DN250 Lead-In Water Main	833m	\$ 708,050.00
DN200 Lead-In Water Main	280m	\$ 114,800.00
DN150 Lead-In Water Main	2389m	\$ 446,743.00
DN100 Lead-In Water Main	3803km	\$ 593,268.00
	Total	\$1,862,861.00

RECOMMENDATIONS

- 1) In summary the site can be serviced.
- 2) The client should make a feasibility application to Sydney Water. Qalchek has been engaged to undertake this application.
- 3) The client should seek permission from Sydney Water to undertake Sewer / Potable water modelling of the proposed development. This should identify any system issues the proposed development may cause on the existing sewer / potable water networks.
- 4) Any issues identified in the modelling works could be addressed in detail design. For example if the existing downstream sewer network had any capacity issues. The proposed pump station storage in option 1 could be increased or in option 2 you could increase the size of the carrier pipe. Both options have capacity to address such issues.
- 5) The development yield needs to be checked and locked in as they directly affect the Sewer / Potable water demands for the site.
- 6) Sewer Option 2 being the lead in sewer carrier appears to be a suitable cost effective option. It may also provide sewer capacity to the adjacent golf course if it was to be rezoned.
- 7) The existing DN450 and DN750 potable Water mains through the site would need to be surveyed and confirmed if the proposed roadworks \ development will have any impact on these mains. No adjustment of these mains has been investigated or costed in this report.

PREPARED / REVIEWED BY

Prepared by - Kamini Panchal

Reviewed by - David Loizou

Version A.

ELECTRICITY

3. Electricity

Electrical Network Investigation

An Electrical Network Investigation for the Planning Proposal has been prepared by Estate Power Design NSW.

The Investigation provides details regarding the;

- Existing electrical network
 - Glenmore Park Zone Substation
 - Endeavour Energy Transmission Network – 33kV
 - High Voltage Network – 11kV
 - Low Voltage Network – 415V
- Proposed Development and Load Requirements
- Endeavour Energy Technical Review Enquiry
- New High Voltage Feeders

The Investigation also includes plans showing the location of the various components of the existing electrical network within Glenmore Park and along The Northern Road.

A Technical Review Enquiry Application was made to Endeavour Energy by Estate Power Design NSW outlining the scope of the Planning Proposal and the intent of the Technical Review Enquiry.

The intention of lodging the Technical Review Enquiry is to:

1. *Identify the HV requirements to support the proposed multi-staged residential development consisting of 1,600 x lots to assist with preparing Utility and Infrastructure Servicing Strategy Report.*
2. *Provide the developer certainty on supply requirements so they can proceed with confidence with the rollout of a multi-staged development as per their proposed delivery program.*
3. *Confirm how much residual 11kV load from the existing HV network and Glenmore Park Zone Substation is available.*
4. *Identify any limitations with the existing network configuration.*
5. *Confirmation of a new 11kV feeder is required to be established and if so at what point in their schedule does Endeavour Energy envisage the new feeder would be required.*

Reference documentation:

1. *Concept Master Plan with Indicative Lot Yield + Loading.pdf*
2. *Nergl Developments – Current Zoning – 04082023.pdf*
3. *Nergl Developments – Master Plan Area – 04082023.pdf*
4. *Nergl Developments – Aerial Photo – 04082023.pdf*

Endeavour Energy issued its Technical Review on 5 September 2023, a copy of which is included in the Electrical Network Investigation.

The Endeavour Energy Technical Review was initiated and completed based on a preliminary Concept Masterplan.

The final Glenmore Park East Concept Masterplan supporting the Planning Proposal includes a broader mix of housing types and substantially more retail/commercial space which has increased the indicative loads provided for the purpose of the Technical Review.

Estate Power Design NSW has reviewed the additional loads and advised that the provision of additional 11kV feeders from the west would provide total capacity of 13MVA for the development which would support the increased load.

The Summary from the Electrical Network Investigation is provided as follows;

5. Summary

Whilst Endeavour Energy's Technical review response was prepared on an indicative load assessment of 8.7MVA, it is understood that the masterplan has since evolved and the indicative load for the overall development has increased to 10.5MVA due to a broader mix of housing types and substantially more retail/commercial space.

Endeavour Energy have indicative that 2x new HV feeders supplied from Glenmore Park ZS would be required to support the ultimate load for the development, which are rated at 5MVA/feeder. There is currently around 3MVA spare capacity from Glenmore Park ZS (Feeders #S772/A & S768/A), which could partially supply some of the proposed lots in early stages of development.

Given the limited capacity on the existing feeders and from the indicative staging of the development, the spare capacities on the above feeders could potentially be utilised up until 2030 at which point the first new 11kV feeder will be required to be installed. The second 11kV feeder would then be required by 2035, which would equate to a total provision of 13MVA for the development which would be able to support the increased load to 10.5MVA.

Modification may be required to these existing CBs to accommodate the termination of multiple feeders. These modifications are generally carried out by Endeavour Energy with a timeframe of 6 to 9 months after the Letter of Intent is received and should be taken into consideration with the construction program.

Consideration of best route for the 2 x new HV feeders will be required and it is strongly recommended that the site constraints such as the Blue Hills Wetland and Blue Hills Oval located within the public recreation corridor be investigated further.

Furthermore, noting Transgrid's overhead dual 330kV Feeder #32 + #38 traverses the site, the developer should refer to Transgrid's Easement Guidelines and lodge an enquiry or apply to obtain the necessary approvals to carry out within their easement by contacting

Further investigation will be undertaken subsequent to rezoning of the lands to determine a feasible route for the new feeders from the Glenmore Park Zone Substation.

Electrical reticulation will be provided within Glenmore Park East as it is developed in accordance with Endeavour Energy's underground design and construction standard and street lighting to AS1158.

Further investigation will be undertaken subsequent to rezoning of the land to determine a feasible route for the new feeders from the Glenmore Park Zone Substation.

Electrical reticulation will be provided within Glenmore Park East in accordance with Endeavour Energy's underground design and construction standard and street lighting the AS1158.

Electrical Reticulation Design and Approvals

Electrical reticulation design plans will be prepared for each stage of residential development in accordance with Endeavour Energy's Offer of Supply Letter, that will be issued subsequent to submission of an Application for Provision of an Electricity Network in a Subdivision.

The electricity reticulation design plans will be prepared by a Level 3 Accredited Service Provider and submitted to Endeavour Energy for certification.

The electrical reticulation contestable construction works will be undertaken by a Level 1 Accredited Services Provider.

On completion of the electrical reticulation construction and issue of the Letter of Acceptance, a Notification of Arrangement will be issued by Endeavour Energy to facilitate issue of the Subdivision Certificates for the various stages of residential subdivision.

Transgrid Considerations

As previously discussed, part of the site is traversed westerly from The Northern Road by a Transgrid 330kV Transmission Feeder which is contained within Easements for Transmission Line wide as shown on Figure 1 – Property Plan.

Any activities within the easement are will be restricted to those that are identified as permitted in the Transgrid Easement Guidelines:

Transgrid has previously advised that;

Transmission line easements are acquired by Transgrid to provide adequate working space along the route of the line for construction and maintenance and also to ensure that no work or other activity is undertaken under or near the transmission line or the structures which could either by accident or otherwise create an unsafe situation either for persons or for the security of the transmission line. (Reference is made to the Electricity Safety Act, the Electricity Supply Act and WH&S Act).

There will be no alteration to Transgrid's 330kV transmission line from the Planning Proposal.

Works within the Transmission Line Easement area will involve a section of the proposed collector road, Jilondalee Way, passing directly under the transmission lines and a stormwater management basin proximate to The Northern Road.

Transgrid's standard clearance requirements to the transmission line at the maximum operating temperature will be maintained.

Street lighting will be located accordingly to avoid any potential conflict with the transmission lines.

It is understood that the Planning Proposal will be referred to Transgrid by DPIE for comment as part of the rezoning process.

Further referrals to Transgrid will occur through the Development Application phase in accordance with Clause 45 of State Environmental Planning Policy (Infrastructure) 2007.

Refer: • *Electrical Network Investigation*

ESTATE POWER DESIGN NSW

ELECTRICAL NETWORK INVESTIGATION



PLANNING PROPOSAL – GLENMORE PARK EAST

Document Information

Doc Number: EPD-NSW 00170 - Rev 2

Client: Nergl Developments Pty Ltd c/o Proust & Gardner Consulting Pty Ltd

Attn: Phil Gardner

p.gardner@png.com.au

Prepared By: John Doherty

Senior Electrical Designer

john@estatepower.com.au

Reviewed By: Michael Tatlock

Electrical Designer

michael@estatepower.com.au

Approved By: Chris Doyle

Director

chris@estatepower.com.au

Revision History:

Rev	Date	Details
0	08/09/2023	Issued to Client
1	13/09/2023	Revised to align with client's review
2	14/09/2023	Updated Summary to reflect evolved Master Plan

Contact Estate Power Design NSW:

7 – 9 Jessica Place, Prestons NSW 2170

Phone: (02) 4731 8333 info@estatepower.com.au

Table of Contents

	Page
TABLE OF CONTENTS	3
OVERVIEW	4
1. EXISTING ELECTRICAL NETWORK	6
1.1. TRANSGRID 330kV FEEDER #32 + #38	6
1.2. GLENMORE PARK ZONE SUBSTATION (ZS)	7
1.3. ENDEAVOUR ENERGY TRANSMISSION (TR) NETWORK - 33kV	7
1.4. HIGH VOLTAGE (HV) NETWORK - 11kV.....	8
1.5. LOW VOLTAGE (LV) NETWORK - 415V.....	9
2. PROPOSED DEVELOPMENT & LOAD REQUIREMENTS	9
3. ENDEAVOUR ENERGY TECHNICAL REVIEW ENQUIRY	10
4. NEW HIGH VOLTAGE (HV) FEEDERS	11
5. SUMMARY	12
6. APPENDIX A - ENDEAVOUR ENERGY ENL4837 RESPONSE	13
7. APPENDIX B – ENDEAVOUR ENERGY NETWORK (GIS) MAPS	16
Figure 1 - Subject Site (Near Maps).....	4
Figure 2 – Glenmore Park East Concept Masterplan Rev H.....	5
Figure 3 - Endeavour Energy GIS Maps Overview.....	6
Figure 4 - Transgrid Network Map	7
Figure 5 - Google Street View < No.2035- 2037 The Northern Rd looking south/west at overhead networks >	8
Figure 6 - Google Street View < No.2035- 2037 The Northern Rd looking north/west at overhead networks >	8
Figure 7 - Extract of Endeavour Energy’s Technical Bulletin TB 0188A < ADMD Schedule >	9
Figure 8 – Indicative Lot Yield / Program / Demand Loadings.....	10
Figure 9 - Extract from Endeavour Energy UG maps < Glenmore Park ZS – Recreation Corridor >.....	12

Overview

Estate Power Design NSW (EPD-NSW) have been engaged by Proust & Gardner to assist with with a Planning Proposal for the rezoning of a substantial portion of land along The Northern Road at Glenmore Park.

The properties involved in the Planning Proposal are shown on the attached Master Plan Area Plan and are identified as Glenmore Park East.

The area of land being assessed is approximately 47.95 ha and is currently zoned “C4” – Environment Living.

The current concept Masterplan provides for approximately 1,600x new residential lots and supporting neighbourhood commercial / retail centre over a 11x year program.

The initial DA consent is anticipated in June 2025, with the 1st stage delivering 100x lots in 2026.



Figure 1 - Subject Site (Near Maps)

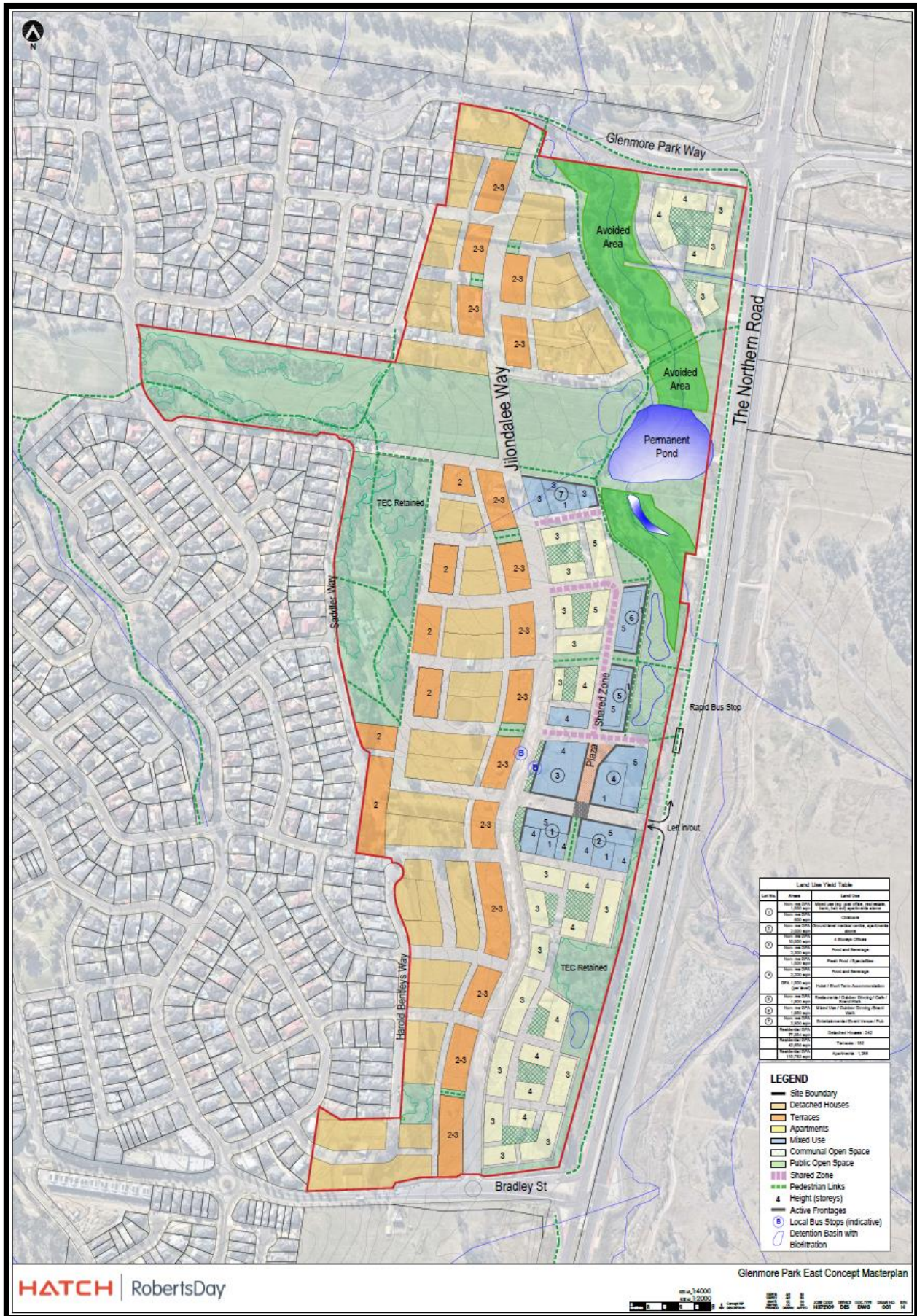


Figure 2 – Glenmore Park East Concept Masterplan Rev H

1. Existing Electrical Network

Endeavour Energy own & operate an extensive underground and overhead network within the vicinity of the development site, consisting of 415V + 11kV + 33kV networks. Glenmore Park Zone Substation is located only 2.5km (direct route) from the western perimeter of the development site.



Figure 3 - Endeavour Energy GIS Maps Overview

Furthermore, Transgrid overhead network consisting of dual 330kV Feeder #32 & #38 traverses the site through the public recreation corridor (see figure 4). This 330kV overhead network is located on the southern side of the corridor supported by steel stanchions.

1.1. Transgrid 330kV Feeder #32 + #38

Whilst it is noted that Transgrid dual 330kV Feeder #32 & #38 traverses the site through the public recreation corridor, this investigation is to concentrate on an assessment of Endeavour Energy distribution network with an emphasis on the High Voltage (HV) to support the proposed multi-staged residential development.

This 330kV network is critical transmission infrastructure with Feeder #32 being the supply to Sydney West Transmission Substation (TS) being supplied from Bayswater Power Station and Feeder #38 being an intertie from Sydney West TS to Regentville TS.

The developer should refer to Transgrid’s Easement Guidelines and lodge an enquiry or apply for permission to carry out an activity with a Transgrid easement by contacting their Easements and Development Assessment Team easements&development@Transgrid.com.au

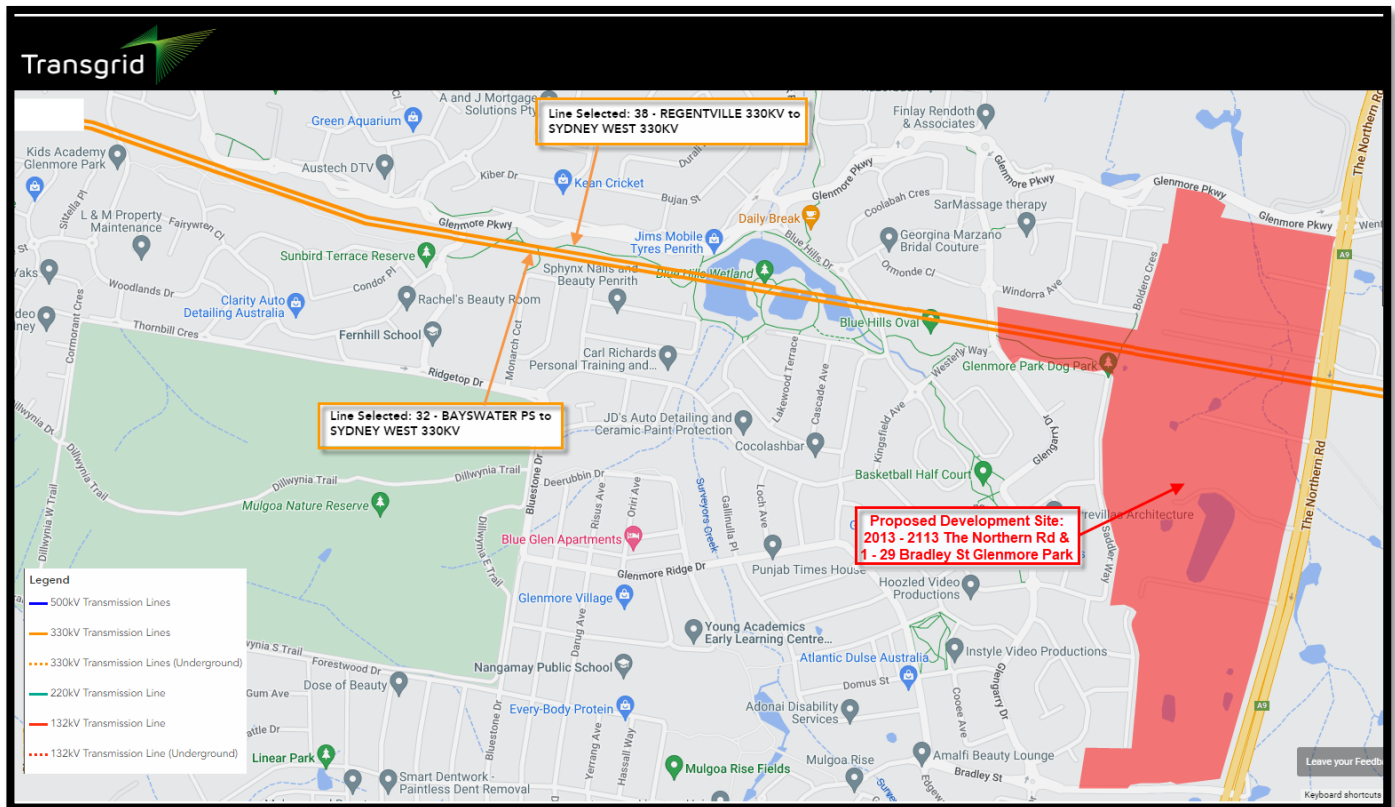


Figure 4 - Transgrid Network Map

1.2. Glenmore Park Zone Substation (ZS)

Glenmore Park ZS is supplied from Regentville TS via 132kV Feeders #231 + #232 and is configured as a 132/11kV system with two (2) by 30/45MVA transformers supplying thirteen (13) 11kV Feeders S764–S772 & S774–S776.

The 11kV feeders predominately service the low-density residential suburb of Glenmore Park and the southern section of adjoining suburb of Jamisontown and create HV interties with adjacent Kingswood ZS, Penrith ZS, Claremount Meadows ZS and Luddenham ZS.

Glenmore Park ZS is fitted with a further 132/33kV transformer which supplies Luddenham ZS via 33kV overhead Feeder #464/1 which traverses the site through the public recreation corridor. This 33kV overhead network is located on the northern side of the corridor supported by concrete poles with HV underbuilt network being 11kV Feeder #S764.

1.3. Endeavour Energy Transmission (TR) Network - 33kV

As identified above in section 1.1, existing 33kV overhead Feeder #464/1 traverses the site through the public recreation corridor and is located on the northern side of the corridor supported by concrete poles.

This Feeder branches off at The Northern Rd, with the Feeder #464 heading south and north as an overhead network located in the western verge of The Northern Rd abutting the development site.



Figure 5 - Google Street View < No.2035- 2037 The Northern Rd looking south/west at overhead networks >



Figure 6 - Google Street View < No.2035- 2037 The Northern Rd looking north/west at overhead networks >

1.4. High Voltage (HV) Network - 11kV

As identified above in section 1.1, there are 13x HV 11kV feeders deriving from Glenmore Park Zone Substation. The 11kV feeders predominately service the low-density residential suburb of Glenmore Park and the southern section of adjoining suburb of Jamisontown and create HV interties with adjacent Kingswood ZS, Penrith ZS, Claremount Meadows ZS and Luddenham ZS.

HV overhead Feeder #S764 (Homestead Rd) traverses the site through the public recreation corridor and is underbuilt overhead construction on 33kV Feeder #464/1 and is located on the northern side of the corridor supported by concrete poles with HV being 11kV Feeder #S764.

Similar to the 33kV network, 11kV Feeder #S764 branches off at The Northern Rd which heads south and north as an overhead network located in the western verge of The Northern Rd abutting the development site.

HV Feeders #S768/A and #S772/A are the closest underground feeders to the site and supplies a number of Padmount (PM) Substations at the eastern portion of Glenmore Park with several underground interties with overhead Feeder #S764.

1.5. Low Voltage (LV) Network - 415V

There is an extensive Low Voltage (LV) underground network supply approx. 8,000 dwellings adjacent to the subject site with a well-meshed Multiple Earth Network (MEN). It would be expected that the proposed development would create a number LV interties to ensure a robust / strong LV network.

2. Proposed Development & Load Requirements

As previously identified, the area of land being assessed is approximately 47.95 ha and is currently zoned “C4” Environment Living and the current concept Masterplan provides for approximately 1,600x new residential lots and supporting neighbourhood commercial / retail centre over an estimated 11x year program.

Endeavour Energy’s standards stipulate that an After Diversity Maximum Demand (ADMD) shall be used to calculate a residential development load requirements. The ADMD is the average contribution of each customer in a homogenous group towards the maximum aggregated peak demand of the group as seen at the point of supply of that group and for a specific period of time.

Endeavour Energy’s current standard MDI 0030 and Technical Bulletin TB-0188A, indicates that the average contribution of each customer in a homogenous group shall be used as depicted below.

Dwelling Type	Geographic Area	Density (Land Size)	ADMD (kVA)
Houses	Urban	Low (>350m ²)	6.5
		Medium (<350m ²)	5.0
	Rural Residential	Low	10
Apartments*	All	High	3.5

*Note: This excludes any material spot loads associated with the development.

Figure 7 - Extract of Endeavour Energy’s Technical Bulletin TB 0188A < ADMD Schedule >

With consideration of Endeavour Energy’s ADMD schedule, EPD-NSW have prepared an indicative program with consideration of maximum demand loadings. The indicative overall total load requirements for the proposed development has been calculated being in the order of 8.7MVA.

Nergl Developments Pty Ltd - Glenmore Park East Multit-Staged Residential Development - Indicative Program + Loadings					
Year	Lot Type	# Lots	Indicative Load (kVA)	Commercial & Retail (m ²)	Indicative Load (kVA)
2026	Conventional Residential	100	575kVA	3,000 to 5,000	300kVA to 500kVA
2027	Conventional Residential	100	575kVA		
2028	Conventional Residential	100	575kVA		
2029	Medium Density Residential	150	750kVA		
2030	Medium Density Residential	150	750kVA		
2031	Medium Density Residential	150	750kVA		
2032	Medium Density Residential	150	750kVA		
2033	Medium Density Residential	150	750kVA		
2034	Medium Density Residential	150	750kVA		
2035	Medium Density Residential	150	750kVA		
2036	Medium Density Residential	150	750kVA		
2037	Medium Density Residential	100	500kVA		
2026 - 2037 TOTAL	Low / Medium Density Residential	1600	8.2MVA		
TOTAL INDICATIVE LOAD 8.7MVA					
NOTES: indicative loads have been calculated as follows: 1). Medium Density assumed < 350m ² = 5kVA/lot 2). Conventional Residential allowance 50/50 split of 5kVA/lot & 6.5kVA/lot 3). Commercial / Retail = 100VA/m ²					

Figure 8 – Indicative Lot Yield / Program / Demand Loadings

3. Endeavour Energy Technical Review Enquiry

EPD-NSW lodged a Technical Review Enquiry with Endeavour Energy to:

1. Identify the HV requirements to support the proposed multi-staged residential development consisting of 1,600 x lots to assist with preparing Utility and Infrastructure Servicing Strategy report.
2. Provide the developer certainty on supply requirements so they can proceed with confidence with the rollout of a multi-staged development as per their proposed delivery program.
3. Confirm how much residual 11kV load from the existing HV network and Glenmore Park Zone Substation is available.
4. Identify any limitations with the existing network configuration.
5. Confirmation if a new 11kV feeder is required to be established and if so at what point in their schedule does Endeavour Energy envisage the new feeder would be required.

Endeavour Energy have processed the Technical Review Enquiry under ref # ENL4837 and have provided their response on the 5th of September 2023. Endeavour Energy’s response forms part of the appendix of this investigation.

Based on the 8.7MVA indicative load required for the proposed development, Endeavour Energy have indicated that 2x new HV feeders supplied from Glenmore Park ZS would be required. There is currently around 3MVA spare capacity from Glenmore Park ZS (Feeders #S772/A & S768/A), which could partially supply some of the proposed lots in early stages of this development.

Given the limited capacity on the existing feeders and from the indicative staging of the development, the spare capacities on the above feeders could potentially be utilised up until 2030 at which point the first new 11kV feeder will be required to be installed. The second 11kV feeder would then be required by 2035.

Noting that Endeavour Energy has identified that Glenmore Park ZS has no spare Circuit Breakers (CB) to terminate the new feeders for the whole development. Alternatively, the new feeders can be doubled up onto existing CBs. However, modification may be required to these existing CBs to accommodate the termination of multiple feeders. These modifications are generally carried out by Endeavour Energy with a timeframe of 6 to 9 months after the Letter of Intent is received and should be taken into consideration with the Construction program.

Other considerations and requirements such as additional ducts to facilitate future development in the area maybe requested as part of the formal application. Existing overhead network which lies within the site will also require undergrounding as per Endeavour Energy policy for redevelopment areas.

Furthermore, it should be noted that Endeavour Energy do not reserve loads until a formal application is lodged and subsequent designs are certified.

4. New High Voltage (HV) Feeders

As per Endeavour Energy Technical Review response (ENL4837), 2x new HV feeders supplied from Glenmore Park ZS would be required to be installed to supply the overall development consisting of approx. 1,600x new residential lots and supporting neighbourhood commercial / retail centre.

Endeavour Energy's 11kV feeders are rated at 5MVA and with consideration of diversity would typically support the connection of ten to fifteen 500kVA PM Substations.

As identified in section 1, Glenmore Park ZS is located approx. 2.5km (direct route) from the western perimeter of the development site and as per Endeavour Energy's Technical Review response, modifications will be required within the ZS to accommodate the connection of the new feeders.

Currently there are limited spare ducts within the direct vicinity of Glenmore Park ZS (see figure 9 – red cloud) and subject to review by Endeavour Energy (at time of formal application), these spare ducts may be able to be utilised to establish the 2x new HV feeders.

The most direct route to the site would be to establish the 2x new HV underground feeders within the public recreation corridor as there is currently suitable spare ducts installed within the corridor up to Monarch Cct which is approx. 1km in route length from Woodlands Dr (refer to figure 9 – green cloud).

Beyond Monarch Cct, there would be a requirement to review the best route to extend the 2x new HV underground feeders with consideration of site constraints such as the Blue Hills Wetland and Blue Hills Oval located within the public recreation corridor.

One option is to review the possibility of underboring the wetlands and oval, though consideration to costs and environmental impact will need to be reviewed in more detail. An alternative is to review the possibility of installing new ducts within the existing road network, though this could be very tedious and costly with consideration of restoration costs.



Figure 9 - Extract from Endeavour Energy UG maps < Glenmore Park ZS – Recreation Corridor >

5. Summary

Whilst Endeavour Energy’s Technical Review response was prepared on an indicative load assessment of 8.7MVA, it is understood that the master plan has since evolved and the indicative load for the overall development has increased to 10.5MVA due to a broader mix of housing types and substantially more retail / commercial space.

Endeavour Energy have indicated that 2x new HV feeders supplied from Glenmore Park ZS would be required to support the ultimate load for the development, which are rated at 5MVA / feeder. There is currently around 3MVA spare capacity from Glenmore Park ZS (Feeders #S772/A & S768/A), which could partially supply some of the proposed lots in early stages of this development.

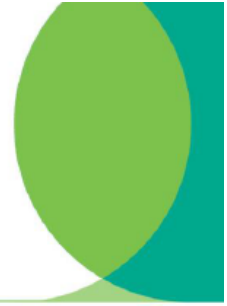
Given the limited capacity on the existing feeders and from the indicative staging of the development, the spare capacities on the above feeders could potentially be utilised up until 2030 at which point the first new 11kV feeder will be required to be installed. The second 11kV feeder would then be require by 2035, which would equate to a total provision of 13MVA for the development which would be able to support the increased load of 10.5MVA.

Modification may be required to these existing CBs to accommodate the termination of multiple feeders. These modifications are generally carried out by Endeavour Energy with a timeframe of 6 to 9 months after the Letter of Intent is received and should be taken into consideration with the Construction program.

Consideration of best route for the 2x new HV feeders will be required and it is strongly recommended that the site constraints such as the Blue Hills Wetland and Blue Hills Oval located within the public recreation corridor be investigated further.

Furthermore, noting Transgrid’s overhead dual 330kV Feeder #32 + #38 traverses the site, the developer should refer to Transgrid’s Easement Guidelines and lodge an enquiry or apply to obtain the necessary approvals to carry out works within their easement by contacting easements&development@Transgrid.com.au

6. Appendix A - Endeavour Energy ENL4837 Response



Technical Review

5 September 2023

Endeavour Energy Ref: ENL4837

John Doherty

Estate Power Design NSW
7-9 Jessica Place
Prestons NSW 2170

ENL4837 –Enquiry Application: 2013 THE NORTHERN ROAD NULL, GLENMORE PARK

Thank you for your application for Endeavour Energy to provide connection services in respect of the proposed development at the above location. Your application for connection services in respect of the Proposed Development has been registered under the above reference number. Please quote this reference number on all future correspondence relating to the Connection Application.

Endeavour Energy has completed a preliminary desk top assessment of the information provided in the Technical Enquiry and is pleased to make this Technical Review letter.

Endeavour Energy (EE) acknowledges that the proposed development is to facilitate approximately 1600 new residential lots and supporting neighbourhood commercial and retail centre on an area of land 42.6ha over an 11-year program. The initial Development Approval (DA) is expected to be completed in June 2025 and will follow with Stage 1 subdivision of approximately 100 lots in 2026. Subsequent stages will follow every year up to 2037 including low and medium density residential development.

The indicative load for the whole development is anticipated at 8.7MVA based on After Diversity Maximum Demand (ADMD) of 5-6.5kVA for residential lots and 100VA/m² for the commercial/retail areas.



Figure 1: Site Location

Supply Arrangement

Based on the indicated load of 8.7MVA, Network analysis determines that 2x new High Voltage feeders would be required and supplied from Glenmore Park Zone Sub. Each new feeder will require 3 ties to the existing HV network.

There is currently around 3 MVA spare capacity from nearby existing Glenmore Park ZS feeders (S772/A & S768/A), which could partially supply some of the proposed lots in early stages of this development based on the proposed delivery program. However, please note that we do not reserve capacity for enquiries and that this existing spare capacity is subject to change between now and the formal load application of this development.



endeavourenergy.com.au



Therefore, at this stage, Endeavour Energy cannot confirm how much of the development can be supplied by the existing spare capacity.

As mentioned, there are two existing feeders from Glenmore Park ZS with spare capacity as follows:

Glenmore Park ZS feeders spare capacity:

S772/A = 0.5 MVA

S768/A = 2.5 MVA

Given the limited capacity on the existing feeders and from the indicative staging of the development, the spare capacities on the above feeders could potentially be utilised up until 2030 at which point the first new 11kV feeder will be required to be installed. The second 11kV feeder would then be require by 2035.

Moreover, Endeavour Energy has identified that Glenmore Park ZS has no spare Circuit Breakers (CB) to terminate the new feeders for the whole development. Alternatively, the new feeders can be doubled up onto existing CBs. However, modification may be required to these existing CBs to accommodate the termination of multiple feeders. These modifications are generally carried out by Endeavour Energy with a timeframe of 6 to 9 months after the Letter of Intent is received and should be taken into consideration with the Construction program.

Other considerations and requirements such as additional ducts to facilitate future development in the area maybe requested as part of the formal application. Existing overhead Network which lies within the site will also require undergrounding as per Endeavour Energy policy for redevelopment areas.

Hope this assists for the meantime and this advice provided is in response to an enquiry only and does not constitute a formal method of supply. An application for Subdivision must be submitted and subsequent designs have been certified or approvals granted will Endeavour Energy reserve capacity on the network.

Should you have any enquiries regarding your application please contact the undersigned,

Yours faithfully,

A handwritten signature in black ink that reads "Eugene Lorenzo".

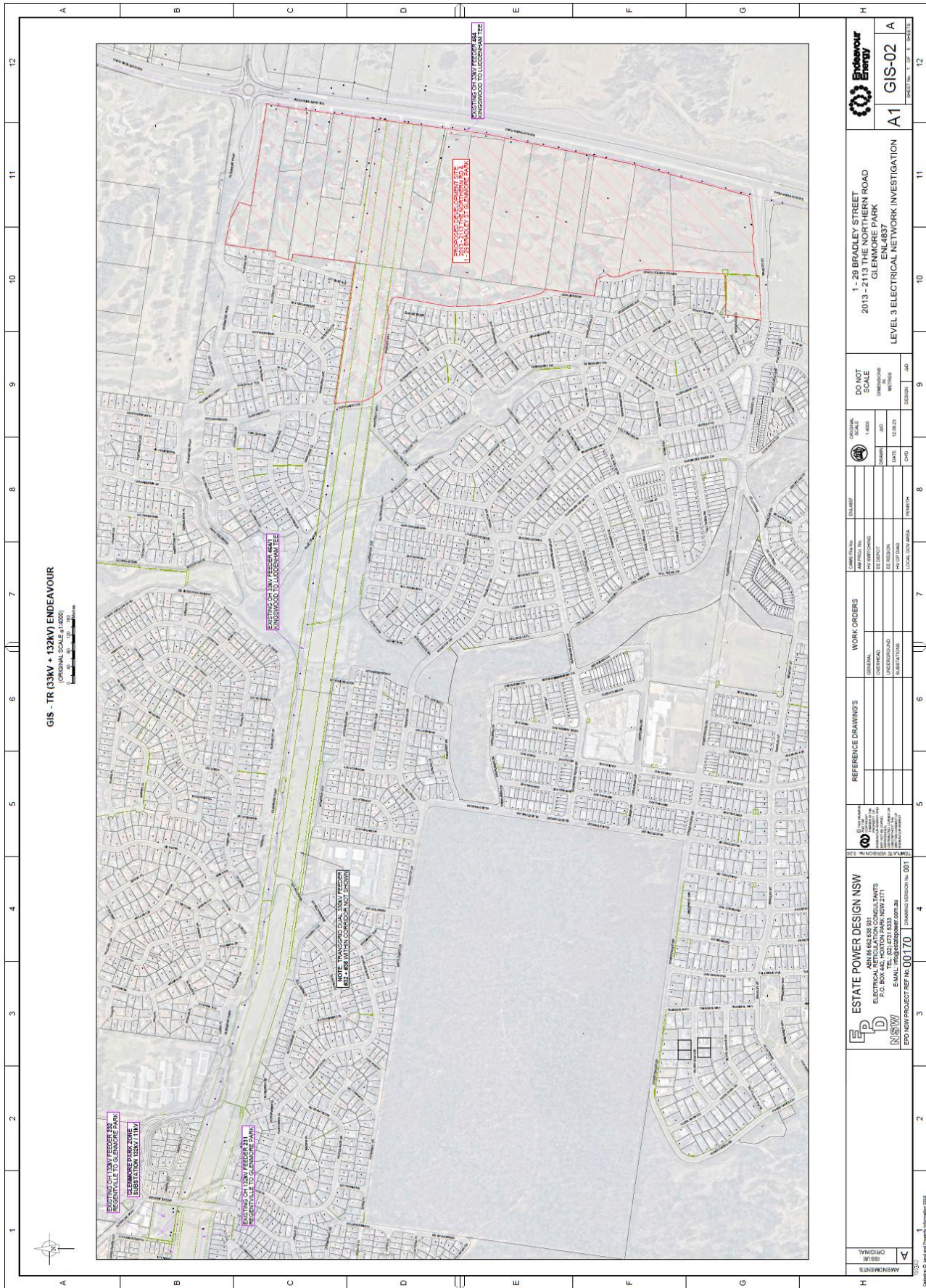
Eugene Lorenzo
Customer Network Engineer
Ph: 02 9853 7909
Email: CWTEch@endeavourenergy.com.au

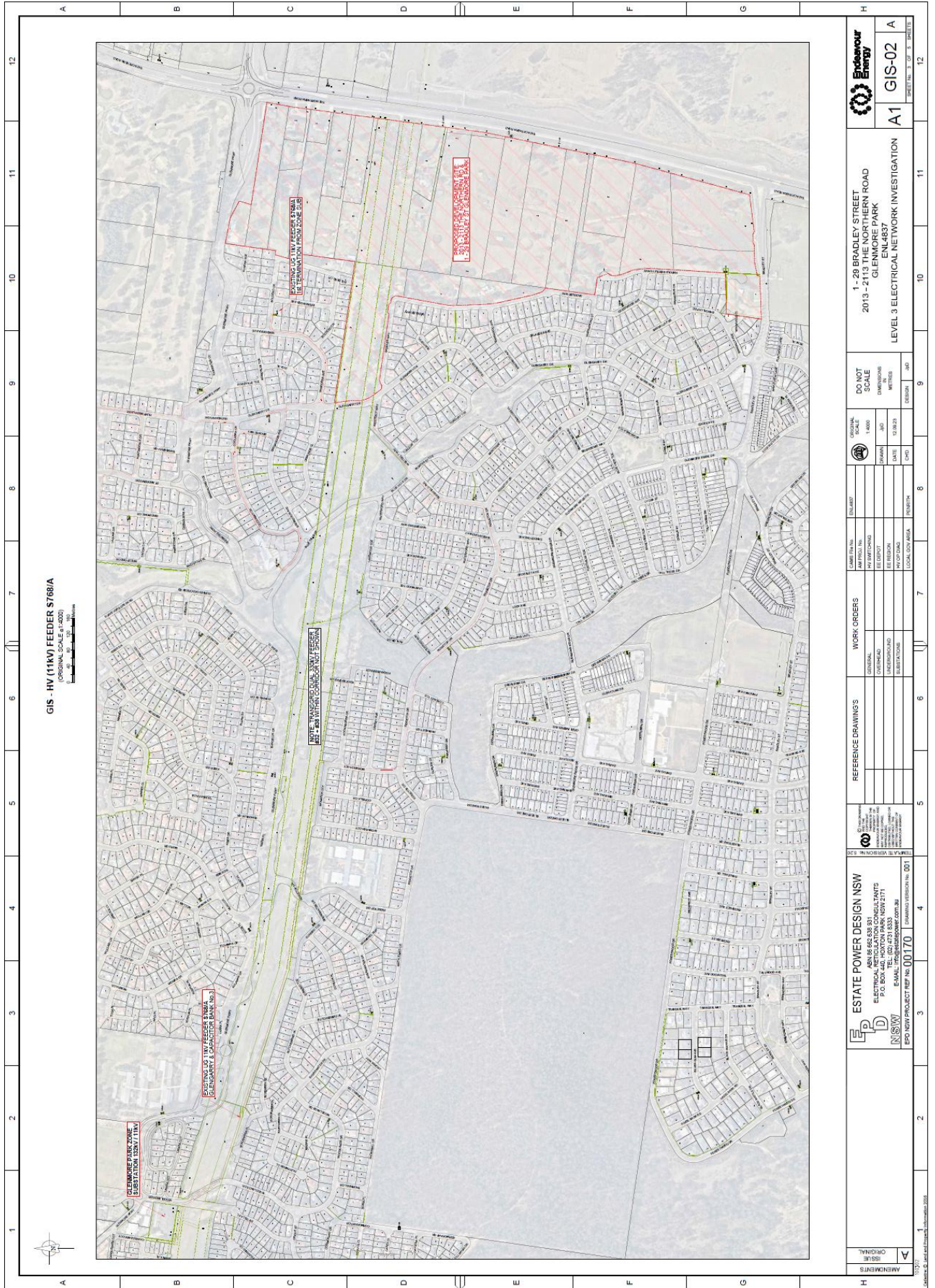


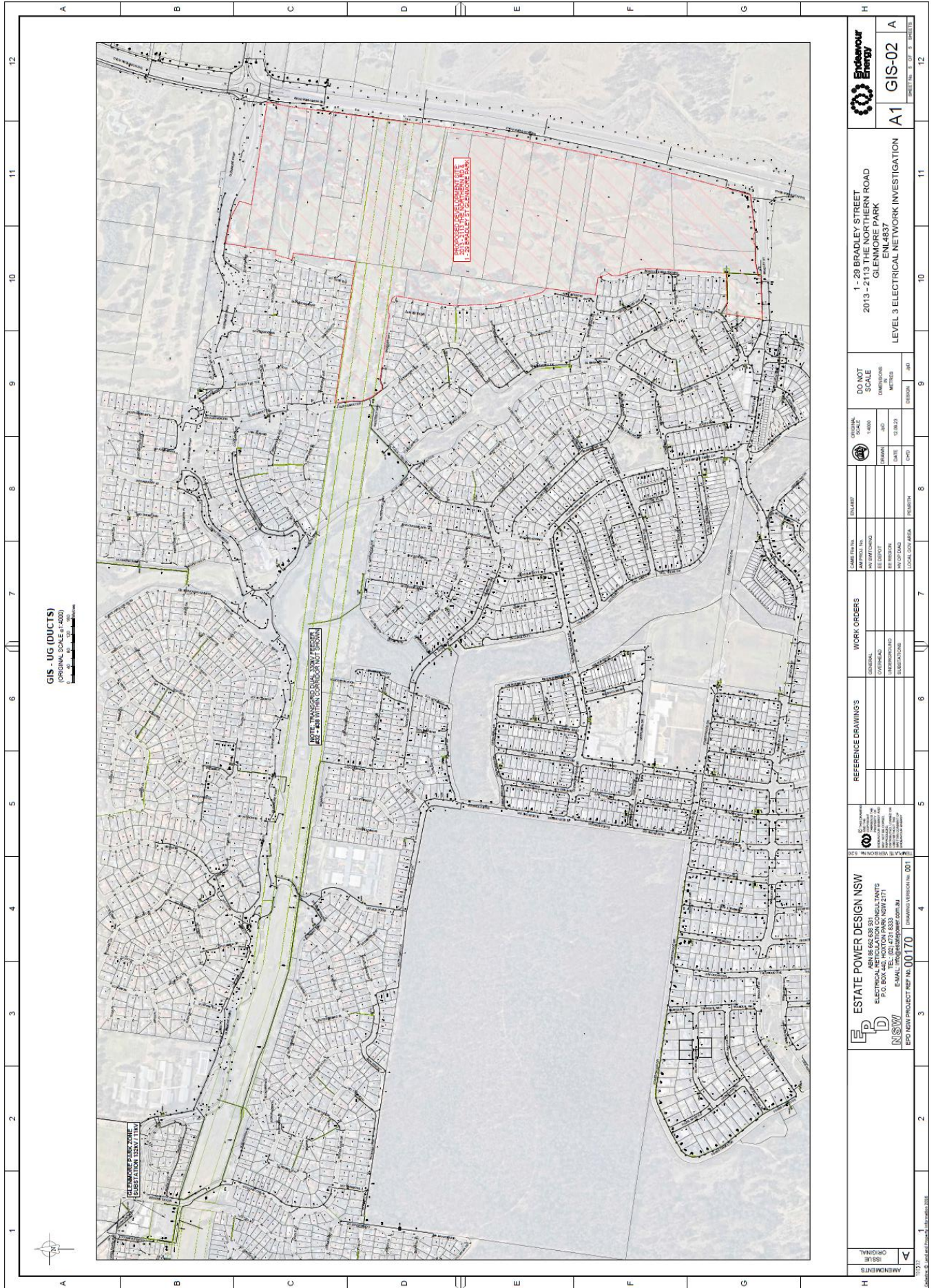
endeavourenergy.com.au

7. Appendix B – Endeavour Energy Network (GIS) Maps

For clarity of interpretation of these GIS maps, refer to accompanying drawing GIS 02 (12/09/2023)







GIS - UG (DUCTS)
ORIGINAL SCALE @ 1:5000

GLENMORE PARK ZONE
SUBSTATION (250KV / 11KV)

NOTE: WASTEWATER MAINS ARE NOT SHOWN

PROPOSED ELECTRICAL NETWORK

	1 - 29 BRADLEY STREET 2013 - 2113 THE NORTHERN ROAD GLENMORE PARK ENL-4637		A1 GIS-02 A
	LEVEL 3 ELECTRICAL NETWORK INVESTIGATION		
DO NOT SCALE	ORIGINAL SCALE 1:5000	DIMENSIONS METRES	SHEET NO. 1 OF 1 SHEETS
CLIENT NO. PROJECT NO. SITE NO. SITE REGION DATE LOCAL GOV AREA	PROJECT PROJECT NO. PROJECT NAME PROJECT DATE PROJECT LOCATION	WORK ORDERS GENERAL OVERHEAD UNDERGROUND SUBSTATIONS	DATE TIME USER PROJECT
REFERENCE DRAWINGS			
ESTATE POWER DESIGN NSW ABN 88 662 638 931 ELECTRICAL REGULATORY CONSULTANTS 7/6 DONALD STREET, GLENMORE PARK NSW 2111 TEL: (02) 4231 8333 EMAIL: INFO@ESTATEDESIGNNSW.COM.AU ESD NSW PROJECT REF NO: 00170 DRAWING VERSION NO: 001			

Natural Gas

4. Natural Gas

Glenmore Park East is within Jemena's service zone for natural gas supply.

Email correspondence was forwarded to Jemena's Network Development – Residential Medium Density/High Rise requesting advice regarding the provision of natural gas supply to service the development of the Planning Proposal lands.

In its email response dated 6 September 2023 Jemena advised as follows;

Jemena asset engineering have reviewed this overall proposal based on historical usage data for single residential homes.

The medium pressure 210kPa network has limited capacity at this location and it is anticipated that Developers will have to accommodate a new 160mm feeder main north from Bradley Street through the development and tie back into the existing Boldero Crescent. Additionally, and depending on growth rates an upgrade of a below ground regulator station could be required to meet housing construction volumes. Please note Jemena does not capacity for any individual project.

Please make a formal application via the Jemena portal to your earliest convenience to initiate an offer.

The correspondence received from Jemena indicates that natural gas supply can be made available to service the development of Glenmore Park East by extension of a new feeder main from Bradley Street and connection to the existing reticulation network at Boldero Crescent with Glenmore Park Stage 1.

A formal application will be made to Jemena once the rezoning of Glenmore Park East has been initiated to confirm availability of supply.

Jemena will provide its offer and a decision made by the proponent/developer parties whether or not to provide natural gas reticulation within the development.

- Refer:
- *Jemena Email Correspondence*
 - *Bradley Street Feeder Location Plan - Jemena*

Reception

From: Neale Hilton <neale.hilton@jemena.com.au>
Sent: Wednesday, 6 September 2023 2:52 PM
To: Phillip Gardner
Cc: Gas Mains_New Estates
Subject: RE: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - Natural Gas Supply Investigation

Phil

Jemena asset engineering have reviewed this overall proposal based on historical usage data for single residential homes.

The medium pressure 210kPa network has limited capacity at this location and it is anticipated that Developers will have to accommodate a new 160mm feeder main north from Bradley St through the development and tie back into the existing Boldero Cres. Additionally, and depending on growth rates an upgrade of a below ground regulator station could be required to meet housing construction volumes. Please note Jemena does not reserve capacity for any individual project.

Please make a formal application via the Jemena portal at your earliest convenience to initiate an offer.

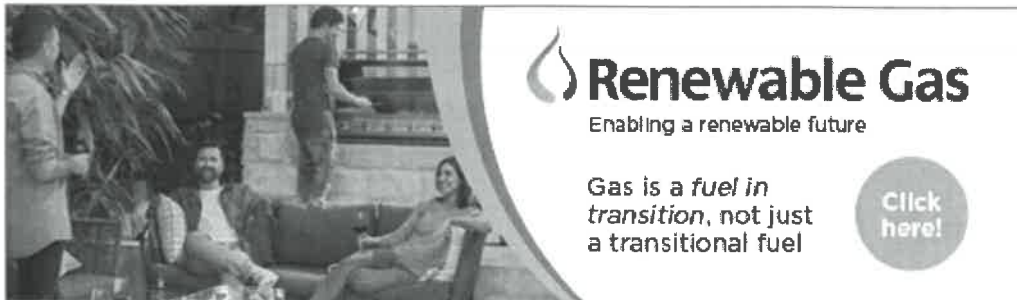
Regards

Neale Hilton

Network Development Specialist –
Residential Medium Density/High Rise

Jemena

Level 14, 99 Walker Street, North Sydney, NSW 2060
M 0402 060 151
neale.hilton@jemena.com.au | www.jemena.com.au



From: Phillip Gardner <p.gardner@png.com.au>
Sent: Wednesday, 6 September 2023 12:02 PM
To: Neale Hilton <neale.hilton@jemena.com.au>
Subject: FW: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - Natural Gas Supply Investigation

⚠ WARNING: This email originated from outside of the organisation. Do **not** click links or open attachments unless you recognise the sender and are expecting the content or attachment from the sender.

Neale,
Could you please call when free.

Regards

Phil Gardner

Director

Proust & Gardner Consulting Pty Ltd

Project Management . Surveying . Planning

406 Pacific Hwy, Lindfield, NSW 2070

PO Box 132, Lindfield, NSW 2070

t. 9416 1335 | e. p.gardner@png.com.au

From: Phillip Gardner

Sent: Monday, 14 August 2023 3:36 PM

To: neale.hilton@jemen.com.au

Subject: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - Natural Gas Supply Investigation

Neale,

As discussed we act for Nergl Developments Pty Ltd in connection with a Planning Proposal for the rezoning of a substantial portion of land along The Northern Road at Glenmore Park.

The properties involved in the Planning Proposal are shown on the attached Master Plan Area Plan and are identified as Nos. 2013-2113 The Northern Road and 1-29 Bradley Street, Glenmore Park.

The area of land is approximately 42.6 ha.

The current draft Masterplan, copy attached, provides for approximately 1600 dwellings and supporting neighbourhood commercial/retail centre along The Northern Road as well as open space/public recreation areas.

As part of the Planning Proposal submission to the Dept. of Planning, Infrastructure and Environment we have been requested to assist with the preparation of the Utility and Infrastructure Servicing Strategy to address the current capacity and future needs of the Planning Proposal lands as they are developed and a strategy (program and broad feasibility) for delivery of the following;

- potable water
- wastewater
- storm water
- natural gas
- electricity
- communications

Could you please investigate and advise on the feasibility of providing natural gas supply to service the development of the Planning Proposal lands and if feasible a strategy and indicative costing for the delivery of the required infrastructure.

It is anticipated that the rezoning through DPIE will occur by 30 June 2024 with the first Development Consent to be issued by 30 June 2025.

Infrastructure works (civil and utility servicing) would then proceed.

The first dwellings would require utility services by about the end of 2026.

An indicative program for the development of the land would be as follows;

2026 – 100 conventional residential lots

2027 – 100 conventional residential lots

2028 – 100 conventional residential lots

2029 – 2036 - 150 medium density lots/yr

2037 – 100 medium density lots

Estimated total yield – 1,600 dwellings/lots

The development of the commercial/retail component would occur once there was sufficient demand.

The client in the matter is Nergl Developments Pty Ltd.

Could you please assess the scope involved to provide Jemena’s preliminary advices and provide a Fee Estimate to undertake the works.

Will call to discuss.

Regards

Phil Gardner

Director

Proust & Gardner Consulting Pty Ltd

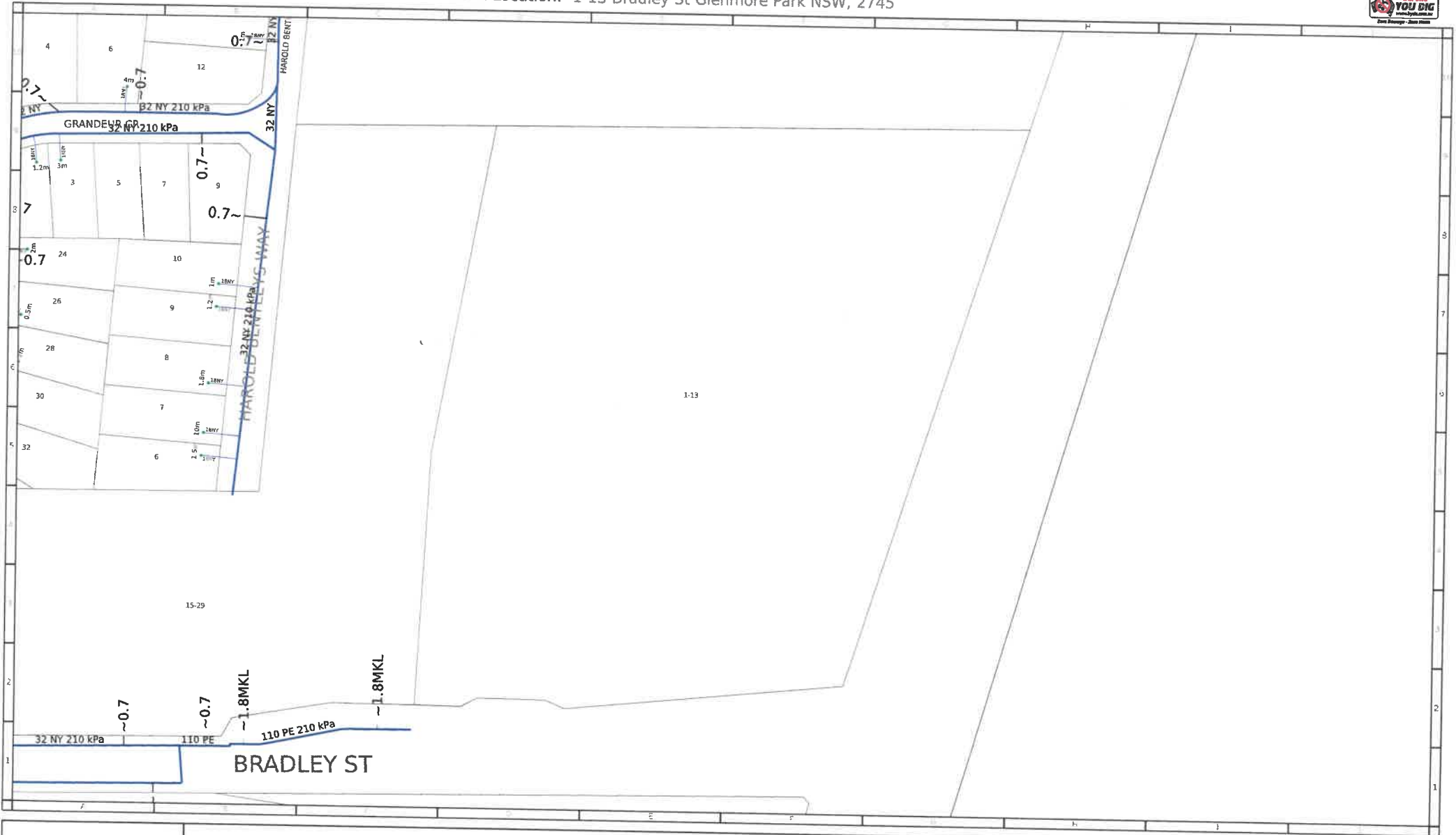
Project Management . Surveying . Planning

406 Pacific Hwy, Lindfield, NSW 2070

PO Box 132, Lindfield, NSW 2070

t. 9416 1335 | e. p.gardner@png.com.au

This is a confidential message intended for the named recipient(s) only. The contents herein are privileged to the sender and the use thereof is restricted to the intended purpose. If you have received this e-mail in error, please do not use, disclose, distribute, copy, print or relay on this email. If receipt is in error, please advise the sender by reply email. Thank you.



For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.



Scale: 1:2000

Issue Date: 12/09/2023
 BYDA Seq No: 229571107
 BYDA Job No: 35038612

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagrammatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. The information contained on this plan is only valid for 28 days from the date of issue. This extract is subject to those conditions.

Communications

5. Communications

Investigation into the availability of communications infrastructure to service the development of Glenmore Park East has been undertaken by Design It Telco Pty Ltd (Telecommunications Designers – NBN Co. and Telstra Accredited).

NBN Co. has also been consulted.

In email correspondence dated 21 August 2023 Design It Telco has advised as follows;

Supply Availability

- *NBN Co. infrastructure (optical Fibre cable) is available outside the site along The Northern Road & Bradley Street*
- *Mulgoa Rise precinct is currently serviced by NBN Co. with fibre to the premises reticulation (FTTP)*
- *NBN Co. will have the capacity to service the site. As the proposed development is located within 1km of a serviced estate no backhaul fee will apply*
- *Existing Telstra network along The Northern Road.*

Developer will have to enter into a Master Development Agreement with NBN Co. NBN Co. normally charge a fee of \$600.00 per lot but this can be negotiated (please get in touch with us before the developer signs and documents as we can work out a reduced rate with NBN Co.)

Application to NBN Co. will be submitted via the NBN Co. portal. Please refer attached NBN Co. process document.

NBN Co. can also offer additional technologies if required (e.g. smart pole retic with WIFI content, EV charging stations).

Once the MDA is accepted, we will provide NBN Co. specification designs as required. All design plans and process will be managed via the NBN Co. portal.

Strategy for delivery of required infrastructure

- *Liaise with NBN Co. planning team to work out best point for the site to service Stage 1 of development*
- *Complete Stage 1 design with sufficient capacity to allow for future stages*
- *Fibre Ready pit and pipe design to be completed and issued for approval to NBN Co.*
- *Future stage designs to be issued as required to service approximately 1600 dwellings over the duration of the NBN Co. Master Development Agreement.*

Design process and construction

- *Submit design to NBN Co.*
- *Once the design is accepted 'For Construction' design plans to be issued to pit and pipe installers*
- *Pit and pipe installed. NBN Co. to be issued with final As Built plans and we will also issue the notice of practical completion for the site*
- *NBN Co. to inspect the pit and pipe infrastructure. If no defects are found NBN Co. will issue the Practical Completion Certificate for the site to the developer (if defects are found they will have to be remediated)*
- *NBN Co. will take ownership of pit and pipe and deploy cable*
- *NBN Co. to have live working cable before the first home is built.*

Refer: • *Design It Telco Email
correspondence 21
August 2023*

Email correspondence has also been received from NBN Co. regarding the provision of communications supply.

NBN Co. email correspondence dated 11 September 2023 – Kareena Prado – Senior Account Manager – New Developments has advised that;

NBN Co. can cater for and provide Fibre to the Premise (FTTP) to this site once an agreement has been accepted by the developer.

Refer: • *NBN Co. Email
correspondence 11
September 2023*

Phillip Gardner

From: Ciprian Pascu <ciprianpascu@bigpond.com>
Sent: Monday, 21 August 2023 9:22 AM
To: Phillip Gardner
Cc: 'Julie Pascu'
Subject: RE: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - Communications Supply Investigation
Attachments: Application Process Checklist - SDU May 2015.pdf

Hi Phillip,

Was going to send this email on Friday but I'm waiting on some DYBD plans to arrive. I will send them to you as soon as they are received.

We have investigated the capacity and infrastructure requirements for the site.

Please refer to report below:

- NBN Co infrastructure (optical Fibre cable) available outside the site along The Northern Road & Bradley St.
- Mulgoa Rise precinct is currently serviced by NBN Co with fibre to the premises reticulation (FTTP).
- NBN Co will have the capacity to service the site. As the proposed development is located with-in 1k of a serviced estate no backhaul fees will apply.
- Existing Telstra network along The Northern Road.

Developer will have to enter into a Master Development agreement with NBN Co. NBN Co normally charge a fee of \$600.00 per lot but this can be negotiated (please get in contact with us before the developer signs and documents as we can work out a reduced rate with NBN Co).

Application to NBN Co will be submitted via the NBN Co portal. Please refer to attached NBN Co process document.

NBN co can also offer additional technologies if required (e.g., smart pole retic with WIFI content, EV charging stations).

Once the MDA is accepted we will provide NBN Co specification designs as required. All design plans and process will be managed via the NBN Co portal.

Strategy for delivery of required infrastructure:

- Liaise with NBN Co planning team to work out best point of connection for the site to service Stage 1 of development.

- Complete Stage 1 design with sufficient capacity to allow for future stages.
- Fibre Ready pit and pipe design to be completed and issued for approval to NBN Co.
- Future stage designs to be issued as required to service approximately 1600 dwellings over the duration of the NBN Co Master development agreement.

Design process and construction below:

- Submit design to NBN Co.
- Once the design is accepted 'For Construction' design plans to be issued to pit and pipe installers.
- Pit and pipe installed. NBN Co to be issued with final As Built plans and we will also issue the notice of practical completion for the site.
- NBN Co to inspect the pit and pipe infrastructure. If no defects are found NBN Co will issue the Practical Completion Certificate for the site to the developer (if defects are found they will have to be remediated).
- NBN Co will take ownership of pit and pipe and deploy cable.
- NBN Co to have live working cable before the first home is built.

In the meantime should you have any queries regarding this or any other matter and/or require any further assistance, please do not hesitate to contact me via the details listed below.

Regards,

Ciprian Pascu

Design It Telco Pty Ltd
Telecommunication Design Services
NBN Co and Telstra accredited designer

Mobile: **0412 230 134**

Email: CiprianPascu@bigpond.com

www.designittelco.com.au

From: Phillip Gardner <p.gardner@png.com.au>
Sent: Monday, August 14, 2023 1:59 PM
To: Ciprian Pascu <ciprianpascu@bigpond.com>
Subject: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - Communications Supply Investigation

Ciprian,

As discussed we act for Nergl Developments Pty Ltd in connection with a Planning Proposal for the rezoning of a substantial portion of land along The Northern Road at Glenmore Park.

The properties involved in the Planning Proposal are shown on the attached Master Plan Area Plan and are identified as Nos. 2013-2113 The Northern Road and 1-29 Bradley Street, Glenmore Park.

The area of land is approximately 42.6 ha.

The current draft Masterplan, copy attached, provides for approximately 1600 dwellings and supporting neighbourhood commercial/retail centre along The Northern Road as well as open space/public recreation areas.

As part of the Planning Proposal submission to the Dept. of Planning, Infrastructure and Environment we have been requested to assist with the preparation of the Utility and Infrastructure Servicing Strategy to address the current capacity and future needs of the Planning Proposal lands as they are developed and a strategy (program and broad feasibility) for delivery of the following;

- potable water
- wastewater
- storm water
- natural gas
- electricity
- communications

We have recommend Design It Telco Pty Ltd to investigate the capacity and infrastructure requirements for the provision of communications supply to service the development of the Planning Proposal lands and a strategy for the delivery of the required infrastructure.

The client in the matter is Nergl Developments Pty Ltd.

Could you please assess the scope involved to provide your report and provide a Fee Estimate to undertake the works.

Will call to discuss.

Regards

Phil Gardner

Director

Proust & Gardner Consulting Pty Ltd

Project Management . Surveying . Planning

406 Pacific Hwy, Lindfield, NSW 2070

PO Box 132, Lindfield, NSW 2070

t. 9416 1335 | e. p.gardner@png.com.au

Phillip Gardner

From: Kareena Prado <kareenaprado@nbnco.com.au>
Sent: Monday, 11 September 2023 5:10 PM
To: Phillip Gardner
Cc: Ciprian Pascu (ciprianpascu@bigpond.com)
Subject: RE: [External] FW: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - NBN Co. Communications Supply Investigation - DEV-00207900 reference number [Commercial - Anyone]

Hello Phillip,

Nbn can cater for and provide Fibre to the Premise (FTTP) to this site once an agreement has been accepted by the developer.

Please let me know if you require any further support with this site

Kind Regards

Kareena Prado
Senior Account Manager (NSW/ACT) – New Developments
M +61 428 537 208 | **E** kareenaprado@nbnco.com.au
100 Mount Street, North Sydney NSW 2060
Cammeraygal Country



nbn acknowledges and pays respects to the traditional custodians of all the lands upon which we work.

Notice to recipient: This e-mail is intended only to be read or used by the addressee. It is confidential and may contain information that is subject to legal professional privilege or protected by copyright. If you are not the addressee indicated in this message (or responsible for delivery of the message to that person), you may not copy or deliver this message to anyone, and you should destroy this message and kindly notify the sender by reply e-mail. Copyright, confidentiality and legal professional privilege are not waived or lost by reason of mistaken delivery to you. Emails to/from nbn co limited ABN 86 136 533 741 may undergo email filtering and virus scanning, including by third party contractors, however, nbn co limited does not guarantee that any email or any attachment is secure, error-free or free of viruses or other unwanted or unexpected inclusions. Any views expressed in this message are those of the individual sender, except where the sender specifically states them to be the views of nbn co limited.

PLEASE CONSIDER OUR ENVIRONMENT BEFORE PRINTING

From: Phillip Gardner <p.gardner@png.com.au>
Sent: Wednesday, September 6, 2023 12:02 PM
To: Kareena Prado <kareenaprado@nbnco.com.au>
Cc: Ciprian Pascu (ciprianpascu@bigpond.com) <ciprianpascu@bigpond.com>
Subject: RE: [External] FW: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - NBN Co. Communications Supply Investigation - DEV-00207900 reference number [Commercial - Anyone]

EXTERNAL SENDER – Be cautious opening Links and Attachments

Thank you Kareena.

Regards
Phil Gardner
Director
Proust & Gardner Consulting Pty Ltd
Project Management . Surveying . Planning
406 Pacific Hwy, Lindfield, NSW 2070
PO Box 132, Lindfield, NSW 2070
t. 9416 1335 | e. p.gardner@png.com.au

From: Kareena Prado [<mailto:kareenaprado@nbnco.com.au>]
Sent: Wednesday, 6 September 2023 11:33 AM
To: Phillip Gardner <p.gardner@png.com.au>
Cc: Ciprian Pascu (ciprianpascu@bigpond.com) <ciprianpascu@bigpond.com>
Subject: RE: [External] FW: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - NBN Co. Communications Supply Investigation - DEV-00207900 reference number [Commercial - Anyone]

Hello Phillip,

Thank you for your email and attachments.

I have lodged the application to supply **nbn** FTTP (Fibre to the Premise) to the master planned development - DEV-00207900 reference number

nbn can cater for the capacity to bring the fibre into the development once the developer has accepted the agreement with **nbn**.

We will also look to reserve the capacity to cater for the commercial tenancies if required.

Please do not hesitate to contact me if I can support you further with this site

We look forward to working with you

Kind Regards

Kareena Prado
Senior Account Manager (NSW/ACT) – New Developments
M +61 428 537 208 | E kareenaprado@nbnco.com.au
100 Mount Street, North Sydney NSW 2060
Cammeraygal Country



nbn acknowledges and pays respects to the traditional custodians of all the lands upon which we work.

Notice to recipient: This e-mail is intended only to be read or used by the addressee. It is confidential and may contain information that is subject to legal professional privilege or protected by copyright. If you are not the addressee indicated in this message (or responsible for delivery of the message to that person), you may not copy or deliver this message to anyone, and you should destroy this message and kindly notify the sender by reply e-mail. Copyright, confidentiality and legal professional privilege are not waived or lost by reason of mistaken delivery to you. Emails to/from nbn co limited ABN 86 136 533 741 may undergo email filtering and virus scanning, including by third party contractors, however, nbn co limited does not guarantee that any email or any attachment is secure, error-free or free of viruses or other unwanted or unexpected inclusions. Any views expressed in this message are those of the individual sender, except where the sender specifically states them to be the views of nbn co limited.

PLEASE CONSIDER OUR ENVIRONMENT BEFORE PRINTING

From: Phillip Gardner <p.gardner@png.com.au>
Sent: Wednesday, September 6, 2023 10:57 AM
To: Kareena Prado <kareenaprado@nbnco.com.au>
Subject: [External] FW: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - NBN Co. Communications Supply Investigation

EXTERNAL SENDER – Be cautious opening Links and Attachments

Regards

Phil Gardner

Director

Proust & Gardner Consulting Pty Ltd

Project Management . Surveying . Planning

406 Pacific Hwy, Lindfield, NSW 2070

PO Box 132, Lindfield, NSW 2070

t. 9416 1335 | e. p.gardner@png.com.au

From: Phillip Gardner

Sent: Tuesday, 5 September 2023 5:36 PM

To: kareenaprado@nbnco.com.au

Subject: The Northern Road, Glenmore Park - Utilities & Infrastructure Report - NBN Co. Communications Supply Investigation

Kareena,

We act for Nergl Developments Pty Ltd in connection with a Planning Proposal for the rezoning of a substantial portion of land along The Northern Road at Glenmore Park.

The properties involved in the Planning Proposal are shown on the attached Master Plan Area Plan and are identified as Nos. 2013-2113 The Northern Road and 1-29 Bradley Street, Glenmore Park.

The area of land is approximately 42.6 ha.

The current draft Masterplan, copy attached, provides for approximately 1600 dwellings and supporting neighbourhood commercial/retail centre along The Northern Road as well as open space/public recreation areas.

As part of the Planning Proposal submission to the Dept. of Planning, Infrastructure and Environment we have been requested to assist with the preparation of the Utility and Infrastructure Servicing Strategy to address the current capacity and future needs of the Planning Proposal lands as they are developed and a strategy (program and broad feasibility) for delivery of the following;

- potable water
- wastewater
- storm water
- natural gas
- electricity
- communications

Design It Telco Pty Ltd has been requested to investigate the capacity and infrastructure for the provision of communications supply to service the development of the Planning Proposal lands and a strategy for the delivery of the required infrastructure.

To assist with the Utility and Infrastructure Servicing Strategy Report could you please advise if NBN Co. has or will have the infrastructure capacity available in the area to service the residential development of the Planning Proposal lands on a staged basis.

An indicative program for development of the land is as follows;

2026 – 100 conventional residential lots

2027 – 100 conventional residential lots

2028 – 100 residential lots

2029-2036 – 150 medium density lots/year

2037 – 100 medium density lots

Estimated total yield – 1,600 dwellings/lots

The development of the commercial/retail component would occur once there was sufficient demand.

Thank you for your assistance.

Regards

Phil Gardner

Director

Proust & Gardner Consulting Pty Ltd

Project Management . Surveying . Planning

406 Pacific Hwy, Lindfield, NSW 2070

PO Box 132, Lindfield, NSW 2070

t. 9416 1335 | e. p.gardner@png.com.au

Conclusion

6. Conclusion

This Utility Services Strategy Report outlines and confirms the availability of the infrastructure required to service the development of Glenmore Park East.

The USSR has been prepared on the basis of information made available by the relevant utility service providers/authorities.

The table below provides a summary of services to be delivered to facilitate development of the project.

Utility Services Summary

Utility	Description	Delivery Methodology	Estimated Timing
Potable Water	Lead-in infrastructure/ subdivision reticulation	Developer funded reticulation services delivered as part of each stage of residential subdivision.	First stage December 2026
Wastewater	Lead-in infrastructure/ subdivision reticulation	Sydney Water funded lead-in infrastructure and developer funded gravity fed reticulation system delivered as part of each stage of residential subdivision.	First stage December 2026
Electricity Services	Lead-in infrastructure/ subdivision reticulation	Developer funded lead-in and reticulation services delivered as part of each stage of residential subdivision.	First stage December 2026
Communications	Lead-in infrastructure/ subdivision reticulation only	Optic Fibre network to be delivered as part of each stage of residential subdivision.	First stage December 2026
Natural Gas	Lead-in infrastructure/ subdivision reticulation	Reticulation within developer funded trench to be delivered as part of each stage of residential subdivision subject to Jemena offer.	First stage December 2026

In addition to the delivery of utility services, the development must meet the requirements of Transgrid whose infrastructure currently exists within or proximate to the site as discussed in the Electricity section of this report.

The delivery of utilities lead-in infrastructure required to service the development will be subject to application and arrangements between the proponent/developer and the relevant utility provider/authority.

The USSR has not identified the requirement for infrastructure contributions as part of the development of Glenmore Park East.

If required contributions will be made in accordance with the requirements of the respective utility service provider/authority.

This USSR confirms that utility services are or can be made available to facilitate development of Glenmore Park East for residential and associated use purposes.