

Bingara Gorge Residential Development

Utility Services Investigation

NA82013043-05 Report 002 Rev 3



Prepared for
Lend Lease

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Prepared by
for and on behalf of
CARDNO (NSW/ACT) PTY LTD



Alex Facchin
Civil Engineer

Reviewed by



Ryhan Thomson
Project Director

Prepared for:
Lend Lease
30 The Bond, 30 Hickson Road, Millers Point NSW Australia 2000

Prepared by:
Alex Facchin

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Executive Summary

Cardno has been engaged to prepare a Utilities Services Investigation Report to support a proposed Development Application for the Bingara Gorge Residential Development at Wilton on behalf of Lend Lease. The proposed development will comprise of approximately 1,800 residential lots, a primary school catering to 350 students and a 1,252 m² neighbourhood retail centre.

Bingara Gorge is located within the Wollondilly Shire Council Local Government Area. Its location provides easy access to both the Hume Highway to Sydney and Picton Road to Wollongong. The existing planning consent allows for the development of up to 1,165 lots, commercial precincts, school and recreation facilities.

Lend Lease is currently in the process of undertaking a review into the development opportunities available for Bingara Gorge. This report details the utility services investigation carried out by Cardno, in association with Lend Lease, in relation to an increased lot yield of 1,800 lots.

This report details the findings of the review into the existing capacity and access to utility services infrastructure including telecommunications, gas, electricity, sewer and water. After enquiry into the existing facilities it was found that no considerable utility services capacity issues are likely to impede the development of this site up to 1,800 lots.

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1 Introduction

Lend Lease approached Cardno to provide an assessment of the infrastructure requirements to support a range of potential development yields in excess of the currently approved master plan for Bingara Gorge. It was subsequently decided that the preferred development scenario for Lend Lease would be 1,800 lots.

In order to ensure that sufficient utility services infrastructure was available to Bingara Gorge, Cardno was engaged to carry out a review of the availability of utility services to service the expanded development proposal.

This report details the review of the existing utility services available to the Bingara Gorge development and assesses the capacity within the networks to service 1,800 lots. The review has involved discussions with the utility service providers where possible and Lend Lease staff and consultants to ascertain the availability of existing services and also any future upgrade requirements.

2 Utility Services

2.1 Objectives

The consultation undertaken for this project has been carried out in accordance with the following objectives. Details of the consultation are included as **Appendix A** of this report.

1. *To identify key utility service providers in relation to the Bingara Gorge Residential Development Project;*
2. *To provide key stakeholders an understanding of the clients aspirations for the site and information suitable to their area of expertise or interest, and;*
3. *To provide key stakeholders with an opportunity to provide suitable comments on the potential for an increased lot yield of 1,800 lots for Bingara Gorge at an early stage so that they can provide considered feedback on any impediments that they foresee may impact on the proposed development yield being achieved.*

The following service providers were consulted as part of this Utility Services Investigation.

2.2 Natural Gas

Jemena were approached by Cardno to determine whether the existing gas supply infrastructure present at Bingara Gorge would be suitable to service a development with increased lot yields. Jemena responded by saying that it believed there was sufficient capacity within its existing network to service up to 1,800 lots at Bingara Gorge.

Please refer to attached correspondence included within **Appendix A**.

2.3 Telecommunications

Bingara Gorge is currently serviced by the Telstra Velocity fibre to the premises telecommunications network. Currently, all new residential subdivision projects are required to apply to NBN Co for connection to the National Broadband Network, however, given Lend Lease's historical commitment to fibre to the premises through the Telstra Velocity network, Telstra will be able to continue to supply this service to Lend Lease as required.

Cardno understands that Lend Lease wishes to continue the provision of Telstra Velocity within future development stages at Bingara Gorge and therefore we have approached Telstra to confirm whether they could supply an eventual development scenario up to 1,800 lots.

Telstra has confirmed that assuming the increase in lot yield occurs within the existing footprint of the current development extent, it can continue to provide Velocity to lots up to 1,800 lots. Telstra has also confirmed that the provision of this service will be made in accordance with the current contractual agreements on a price per lot basis.

Please refer to attached correspondence included within **Appendix A**.

2.4 Electricity

Cardno has issued a Supply Enquiry request to Endeavour Energy in order to provide a greater level of certainty with regard to the potential to service a larger development yield than the recently commissioned Zone Sub-station was original proposed to service. We have received a formal response to our supply enquiry from Endeavour Energy which states that the new Wilton ZS and the 66kV network can adequately supply 1,800 lots in total at Bingara Gorge.

They have also stated that whilst Endeavour Energy will not prioritise the supply of power from this sub-station they do give preference to developments that are substantially underway such is the case at Bingara Gorge.

2.5 Sewer

Lend Lease has provided details for the upsizing of the Sewage Treatment Plant to cater for a greater development yield to service up to 1,800 lots at Bingara Gorge. The current proposal is for the installation of a Recycled Water Treatment Plant (packaged treatment plant) capable of servicing 1,800 lots in Bingara Gorge. The packaged treatment plant option proposed by Veolia is capable of being expanded to service an increased development density up to 1,800 lots within Bingara Gorge.

The relevant costs associated with the expansion of the Bingara Gorge Wastewater Treatment Plant are to be covered by the developer as Bingara Gorge is a private wastewater network.

2.6 Water

Lend Lease engaged AECOM to assess the potential impacts to the water supply network of increasing the potential lot yield at Bingara Gorge to 1,800 lots. An important consideration in this assessment is the existing lead in infrastructure to the estate that was designed to service smaller lot yield demands based on an ultimate development scenario of 1,165 lots. AECOM has undertaken a revised hydraulic model to identify augmentation works that may be required and an indicative cost estimate for necessary infrastructure works required to service the increased lot yield.

The latest SWC Growth Servicing plan has Bingara Gorge listed as on hold subject to further studies – refer to Page 47 of the *2012 Growth Servicing Plan, Sydney Water Corporation*. SWC has said that it does have sufficient capacity to service the Bingara Gorge development on its current build out forecast up to FY17 based on recent work SWC has successfully negotiated with the mines located in the area which are the largest peak demand users affecting SWC operational pressures. SWC is aware that Lend Lease is considering an increase in lot yield and that there is a further pending 10,000 lots that could be generated in the adjoining landowner precinct known as Wilton Junction.

SWC has said in previous meetings with Lend Lease that it can facilitate a lot yield of 1,800 lots. AECOM prepared a Basis of Planning document which outlines the proposed water demand for the development and the design criteria to which the lead-in watermain will be designed to. Sydney Water has endorsed this document which details the full water demand requirements for the 1,800 lots, retail, employment lands, Waste Water Treatment Plant and primary school. This has formed the design basis for the modelling of the 3 lead-in watermain that are required to service Bingara Gorge. **Figure 1** denotes the three lead-in watermain that are required to service the development.



Proposed Bingara Gorge Potable Water Strategy

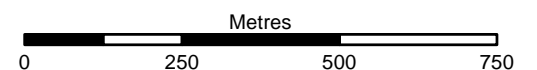
BINGARA GORGE, NSW

Legend

- Underbore
- Cadastre (LPI, 2013)
- Bingara Gorge Development Area
- Proposed Potable Water Lead-in Infrastructure**
 - Lead-in Potable Water Main to Service Bingara West
 - Lead-in Potable Water Main to Service WWTP
 - Recycled Water Reticulation
 - Potable Water Reticulation
 - Lead-in Potable Water Main to Service Bingara East
 - Existing 450 Ø Water Main

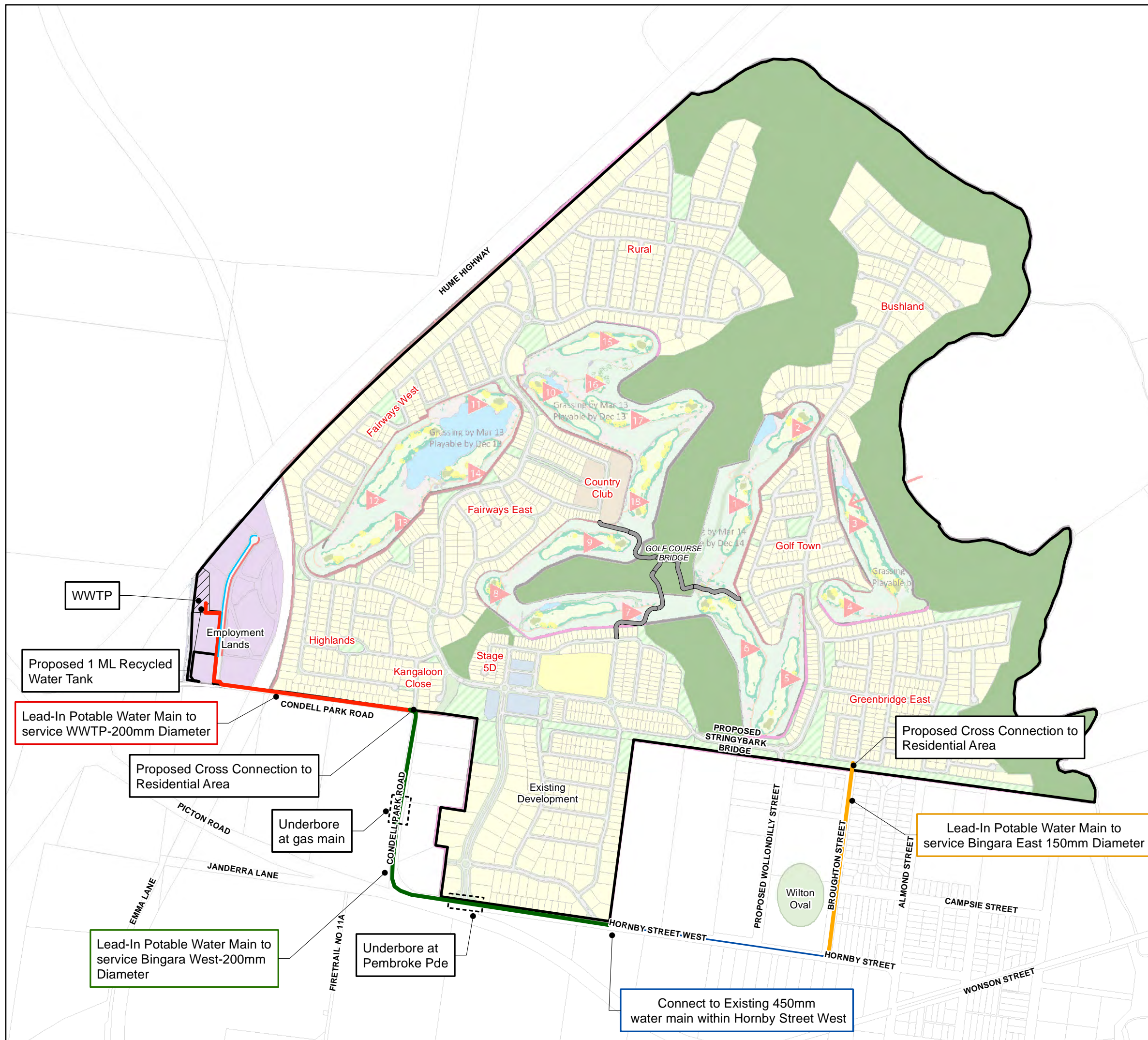


1:12,000 Scale at A3



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2014-12-04
Coordinate System: GDA 1994 MGA Zone 56
Project: NA82013043-35
Map: G35005_PotableWaterStrategyNoPWR.mxd 01

Golf course layout from staging master plan supplied by Lend Lease (2013).



3 Conclusion

This Utility Services Investigation has been prepared by Cardno to provide an understanding of the potential utility services infrastructure upgrades required to service an increased development yield at Bingara Gorge of 1,800 lots.

Cardno's investigations revealed that all utility supply authorities could service a development yield of 1,800 lots at Bingara Gorge.

In addition, the only significant cost implications of the increased development yield relates to the upgrade to the private Wastewater Treatment Plant and that these works would need to be funded by Lend Lease as the proponent of the private sewer network.

In summary, there does not appear to be any impediments to increasing the residential development yield to 1,800 lots at Bingara Gorge related to the supply of utility services or the cost of major lead in infrastructure upgrades.

Bingara Gorge Residential Development Utility Services Investigation

A

Correspondence with existing Utility
service providers



From: Alex Facchin
Sent: Friday, 12 April 2013 10:16 AM
To: Ryhan Thomson
Cc: Wollongong Document Control
Subject: FW: Telstra Services Bingara Gorge Willton (82013043-5)

Hi Ryhan

Telstra have confirmed that they can service the additional lots proposed for Bingara Gorge. As per Glenns email there will be an additional charges for the extra lots.

Cheers

Alex Facchin
CIVIL ENGINEER
CARDNO



Phone +61 2 4231 9652 Fax +61 2 4228 6811

Address Level 1, 47 Burelli Street, Wollongong 2500 NSW Australia
Postal P.O. Box 1285, Wollongong NSW 2500
Email alex.facchin@cardno.com.au Web www.cardno.com
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From: Weir, Glenn R [<mailto:Glenn.R.Weir@team.telstra.com>]
Sent: Friday, 12 April 2013 10:15 AM
To: Alex Facchin
Subject: RE: Telstra Services Bingara Gorge Willton (82013043-5)

Hi Alex

I have just received confirmation that Telstra will be able to offer the current product for additional lots within the same footprint.

Please note that a cost per lot rate will also apply to the additional lots.



Regards

Glenn Weir Area Planner

Forecasting & Area Planning NSW and Wideband | Networks & Access Technologies |
Telstra Operations

P 02 8576 9797 | E Glenn.R.Weir@team.telstra.com | W www.telstra.com/ism/nswareaplanning/

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From: Alex Facchin [<mailto:alex.facchin@cardno.com.au>]
Sent: Tuesday, 9 April 2013 11:28 AM
To: Weir, Glenn R
Cc: Ryhan Thomson
Subject: RE: Telstra Services Bingara Gorge Willton (82013043-5)

Hi Glenn

Thanks for getting back to me. I have spoken with my boss Ryhan Thomson and he has said that the increase lot yield will be from reducing the size of the proposed lots and not from new land

release as I suggested. Does this enable Telstra to continue with the Smart Community network within Bingara Gorge or will NBN need to reject the estate? I recall you said that if the lots are within the 1km radius of where Telstra started then you are able to continue with the Telstra Network as NBN is only required for new land releases. There are no new estates being proposed, just that the lot yield of the existing and future approved stages will be increased.

Cheers

Alex Facchin

CIVIL ENGINEER
CARDNO



Phone +61 2 4231 9652 Fax +61 2 4228 6811
Address Level 1, 47 Burelli Street, Wollongong 2500 NSW Australia
Postal P.O. Box 1285, Wollongong NSW 2500
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From: Weir, Glenn R [<mailto:Glenn.R.Weir@team.telstra.com>]

Sent: Tuesday, 9 April 2013 11:17 AM

To: Alex Facchin

Subject: FW: Telstra Services Bingara Gorge Willton (82013043-5)

Alex

I have spoken to our SME for FTTP estates and he has summed things up as follows.

Current process does not allow us to sell Velocity to any further estates and it seems that **NBN needs to reject an estate before we will make an offer to provide FTTP.**

We have an enterprise fibre solution which can be purchased on a stage by stage basis only (as I understand it we cannot commit to the full extent of a large estate).

The deployment of an FTTP solution is dependent on approval by Telstra.

Also bear in mind that the FTTP solution which is deployed will not include any video (ie. No FTA or Foxtel).

There is a fixed rate for provision of service per lot including duct and I believe there is an option to reduce this if the developer provides their own duct.

Hope this clarifies things.



Regards

Glenn Weir Area Planner

Forecasting & Area Planning NSW and Wideband | Networks & Access Technologies |
Telstra Operations

P 02 8576 9797 | E Glenn.R.Weir@team.telstra.com | W www.telstra.com/ism/nswareaplanning/

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From: Weir, Glenn R

Sent: Friday, 5 April 2013 12:23 PM

To: 'alex.facchin@cardno.com.au'

Subject: FW: Telstra Services Bingara Gorge Willton (82013043-5)

Hi Alex,

With regards to Highland stage 2, I'm told you will need to submit a site plan and electrical conduit plan on the Telstra Smart Community website.

If you would like to speak with our forecaster for that area, I would suggest Tony Urquhart on (02) 4918 8564.



Regards

Glenn Weir Area Planner

Forecasting & Area Planning NSW and Wideband | Networks & Access Technologies |
Telstra Operations

P 02 8576 9797 | E Glenn.R.Weir@team.telstra.com | W www.telstra.com/ism/nswareaplanning/

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From: Scolamiero, Sam
Sent: Thursday, 4 April 2013 7:53 AM
To: Weir, Glenn R
Subject: FW: Telstra Services Bingara Gorge Willton (82013043-5)

Glenn,

Could you please advise Alex if there is sufficient capacity for the expansion of the Bingara Gorge subdivision at Wilton.

regards,



Sam Scolamiero Network Designer
Access Network Design NSW South
Network Design | Network Construction | Telstra Operations
Ph: [\(02\) 8576 5040](tel:0285765040) | Mob: [0400 288 279](tel:0400288279) | Email: Sam.Scolamiero@team.telstra.com

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From: Alex Facchin [<mailto:alex.facchin@cardno.com.au>]
Sent: Wednesday, 3 April 2013 4:40 PM
To: Scolamiero, Sam
Cc: Wollongong Document Control

From: Alex Facchin
Sent: Wednesday, 3 April 2013 4:36 PM
To: Ryhan Thomson
Subject: FW: Gas Services Bingara Gorge, Wilton (82013043-3)

Hi Ryhan

FYI re: gas supply at Bingara Gorge.

Cheers

Alex Facchin
CIVIL ENGINEER
CARDNO



Phone +61 2 4231 9652 Fax +61 2 4228 6811
Address Level 1, 47 Burelli Street, Wollongong 2500 NSW Australia
Postal P.O. Box 1285, Wollongong NSW 2500
Email alex.facchin@cardno.com.au Web www.cardno.com
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From: Elle Peters [<mailto:Elle.Peters@jemena.com.au>]
Sent: Wednesday, 3 April 2013 4:33 PM
To: Alex Facchin
Cc: Wollongong Document Control
Subject: RE: Gas Services Bingara Gorge, Wilton (82013043-3)

Hi Alex,

There is enough capacity in our network in Wilton to accommodate right up to 2000 lots without any upgrade.

Regards,

From: Brendon Hince (Sydney)
Sent: Wednesday, May 01, 2013 4:15 PM
To: Ryhan Thomson
Cc: Wollongong Document Control
Subject: Fwd: Wilton Zone Substation - Bingara Gorge

Hi Ryhan,

EE have confirmed that capacity is available in the Wilton zone substation to supply 1800 lots.

Regards
Brendon Hince
Cardno ITC
Mobile 0419 175 988

Begin forwarded message:

From: David Ho <David.Ho@endeavourenergy.com.au>
Date: 1 May 2013 4:07:05 PM AEST
To: "Brendon Hince (Sydney)" <Brendon.Hince@cardno.com.au>
Subject: RE: Wilton Zone Substation

Hi Brendon,

Network Planner confirmed that new Wilton ZS and the 66kV network can supply 1800 lots in total at Bingara Gorge.

Whenever the revised master plan is made available, please provide us a copy.

Regards,
David Ho
Contestable Projects Manager | **Network Connections** | Network Operations
☎ Direct: (02) 9853 7901 | 📠 Fax: (02) 9853 7903
✉ Email: david.ho@endeavourenergy.com.au

490 Hoxton Park Road, Hoxton Park NSW 2171



From: Brendon Hince (Sydney) [<mailto:Brendon.Hince@cardno.com.au>]
Sent: Thursday, 4 April 2013 8:44 AM
To: David Ho
Subject: Wilton Zone Substation

Hi David,

I will submit a supply enquiry application if need be but I think this is a fairly simple question. The Bingara Gorge estate at Wilton , which the new Wilton ZS will supply, was initially going to have approx. 1200 lots. The developer is reconfiguring the lot layout into smaller lots to suit market trends. Will there be capacity available for a total of 1800 lots?. We did a master plan previously and I am aware we will need to revise this with additional feeders.

Please don't hesitate to contact me should you require further information.

Thanks
Kind regards

Brendon Hince

ELECTRICAL INFRASTRUCTURE DESIGN MANAGER
CARDNO ITC



Phone +61 2 9495 8100 Fax +61 2 9495 8111 Direct +61 2 9496 7741 Mobile +61 419 175 988
Address Level 9 - The Forum, 203 Pacific Highway, St Leonards, NSW 2065 Australia
Postal PO Box 19, St Leonards NSW 1590
Email Brendon.Hince@cardno.com.au Web www.cardno.com Web www.cardnoitc.com.au

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