



ForbesView Planning Proposal - School Road, Forbes, NSW

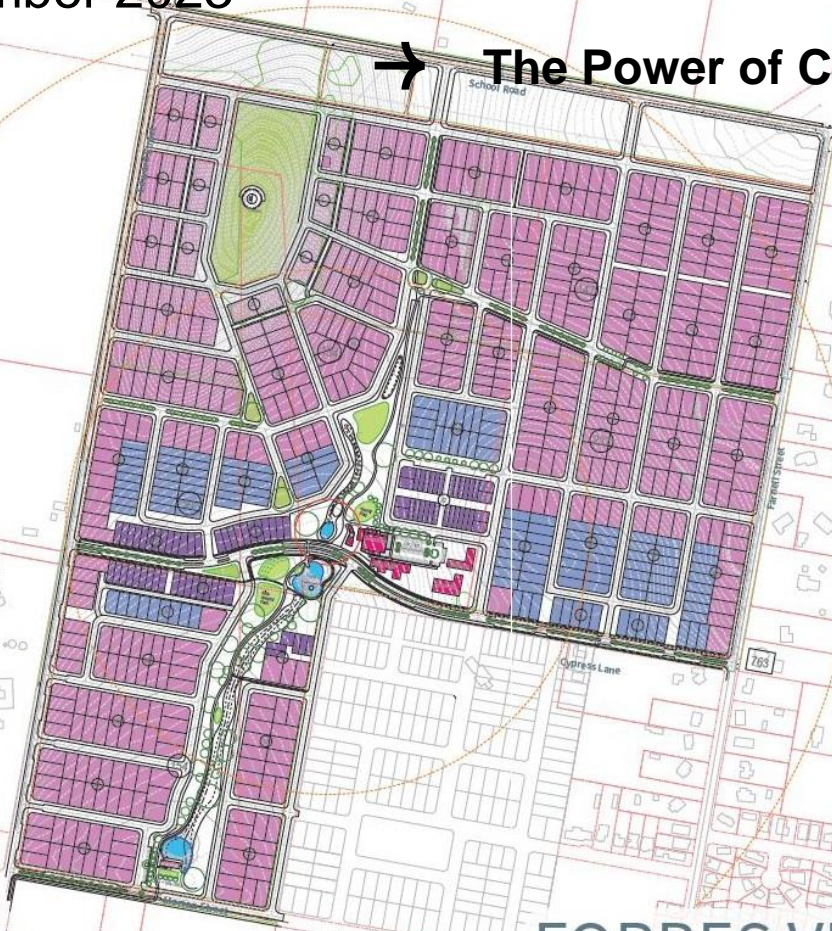
Infrastructure and Servicing Review

ForbesView Property

28 September 2023



The Power of Commitment



FORBES VIEW

SCHOOL RD, FORBES

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Executive Summary

Allera, on behalf of ForbesView, are preparing a Planning Proposal to rezone a 92 hectare parcel of land within the Forbes Shire Council, referred to as School Road, Forbes.

This report summarises the engineering investigations related to the infrastructure delivery strategies, including electrical, telecommunications, water and sewer services for the development site at School Road, Forbes. Based on the assessment in this report, the proposed development can be adequately serviced by current and future reasonable infrastructure upgrades. It is expected that this servicing infrastructure can be delivered to align with the planned development timeline.

Electricity

Forbes is currently supplied by a single 66 kV / 11 kV Zone Substation known as “Forbes Town”, which is owned by Essential Energy, the Local Network Service Provider.

The load data outlined in the Essential Energy Distribution Annual Planning Report (DAPR) 2021 indicates that the Forbes Town Zone Substation has adequate electrical capacity to supply the new subdivision.

The proposed subdivision is likely to require one (1) additional 11 kV feeder which would typically follow the existing 11 kV aerial cable route through the Forbes township.

It is envisaged that approximately six (6) pad-mount (kiosk) substations (11 kV / 400 V) would be required around the subdivision to supply low voltage power to each subdivision lot and street lighting. Low voltage cables would typically be reticulated below the pedestrian pathways and nature strips within the public road reserves.

Telecommunication

Wholesale telecommunications in the Forbes region are provided by NBN Co. The urban areas of the Forbes township generally include fixed-line copper services, known as “fibre-to-the-node” technology, while the rural areas around the township are serviced by NBN’s fixed wireless technology.

NBN have advised that all lots within ForbesView subdivision will be eligible to receive NBN’s “fibre-to-the-premises” (FTTP) telecommunications services, which will require a new underground pit and duct system.

Fibre optic trunk cables will need to be reticulated from an existing NBN telecom exchange (within the Forbes CBD) typically within the existing road reserves.

Water

Initial development of the lots south of Cypress Lane are serviced by Council’s existing water network via extension of the DN225 pipe laid along Morton Street. This will service the first 150 lots approximately and is expected to take the development through to around 2026.

Subsequent future development north of Cypress Lane will require new infrastructure. Through consultation with Forbes Shire Council, GHD understands that Council are currently updating the water system model, which will determine the ultimate needs and required upgrades to ensure that the future growth of Forbes can be accommodated, including delivery timing and methodology.

Sewer

Initial development of the lots south of Cypress Lane are serviced by Council’s existing sewer network by extending the SPS18 gravity catchment via a new DN150 pipe attached to the existing DN225 gravity pipe along Morton Street. This will service the first 150 lots approximately.

Subsequent future development north of Cypress Lane will require new infrastructure. Through consultation with Forbes Shire Council, GHD understands that Council are currently updating the sewer system model, which will determine the ultimate needs and required upgrades to ensure that the future growth of Forbes can be accommodated, including delivery timing and methodology.

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1. Introduction

This report has been prepared as part of the precinct planning process for the ForbesView Subdivision, within the town of Forbes, NSW. This report summarises the investigations, outlines findings and proposes measures to service the subdivision including electricity, telecommunications, water and sewer.

Stormwater management is addressed in a separate report by GHD.

1.1 Overview and purpose of the report

The ForbesView Planning Proposal is a proposed residential development located South of School Road in the Forbes Local Council Area, in the central west region of NSW.

The development includes 750 residential lots and a neighbourhood centre, likely to comprise a small-size supermarket and small food and beverage outlets, a cafe, convenience retail and childcare. Note the number of residential lots is indicative only.



Figure 1.1 Proposed location of development

The land is currently zoned as a mixture of RU1, RE1 and R5 within the Forbes Shire Council (Council or FSC) and Forbes Local Environment Plan (LEP) and will therefore require rezoning.

1.2 Scope and limitations

This report: has been prepared by GHD for ForbesView Property and may only be used and relied on by ForbesView Property for the purpose agreed between GHD and ForbesView Property as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than ForbesView Property arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.3 Assumptions

Assumptions made for the servicing strategy are contained in each service's section.

1.4 Sources of Information

This report has been prepared with information obtained from the following documents:

- Essential Energy, Asset Management Distribution Annual Planning Report 2021, December 2021
- Essential Energy Network Maps website - <https://www.essentialenergy.com.au/our-network/overhead-network-maps>
- Essential Energy Underground Design Manual (CEOM-7098).
- NBN rollout mapping website - <https://www.nbnco.com.au/learn/rollout-map>
- WSAA-02 – Sewerage Code of Australia
- WSAA-03 – Water Supply Code of Australia
- Masterplan area for development area.

2. Electricity supply

2.1 Maximum demand

The maximum demand of the subdivision is outlined below and has been assessed in accordance with load allowances for standard residential properties and commercial areas, as outlined in the Essential Energy Underground Design Manual (CEOM-7098).

Table 2.1 Electricity Maximum Demand Assessment

| LOAD GROUP | No. UNITS | UNIT LOAD (kVA) | LOAD (MVA) |
|----------------------------|----------------------|-----------------------|------------|
| Residential Lots | 750 | 6 kVA/Lot | 4.50 MVA |
| Neighbourhood centre (NLA) | 4,000 m ² | 100 VA/m ² | 0.40 MVA |
| TOTAL | | | 4.90 MVA |

These loads are based on the subdivision having no reticulated gas to the plots.

2.2 Electricity source

The Local Network Service Provider for the Forbes region is Essential Energy.

Forbes is currently supplied by a single 66 kV / 11 kV Zone Substation known as “Forbes Town”, which is owned by Essential Energy and located along Patterson Street – see Figure 2.1 below.



Figure 2.1 Forbes Town Substation – Essential Energy

A Preliminary Enquiry was submitted to Essential Energy in early August 2023 (Application ID: 00101479) outlining the proposed subdivision and the anticipated electrical loads stated above.

While Essential Energy have not provided an official response to the enquiry, the load data outlined in the Essential Energy Distribution Annual Planning Report (DAPR) 2021 indicates that the Forbes Town Zone Substation has adequate electrical capacity to supply the new subdivision.

As outlined in Figure 2.3, the Substation has a firm rating of 33 MVA in Summer and 36 MVA in winter.

The substation demand load is currently around 14 MVA in Summer and 12 MVA in Winter, and apart from the proposed subdivision, this load has been forecast to grow very marginally over the next few years.

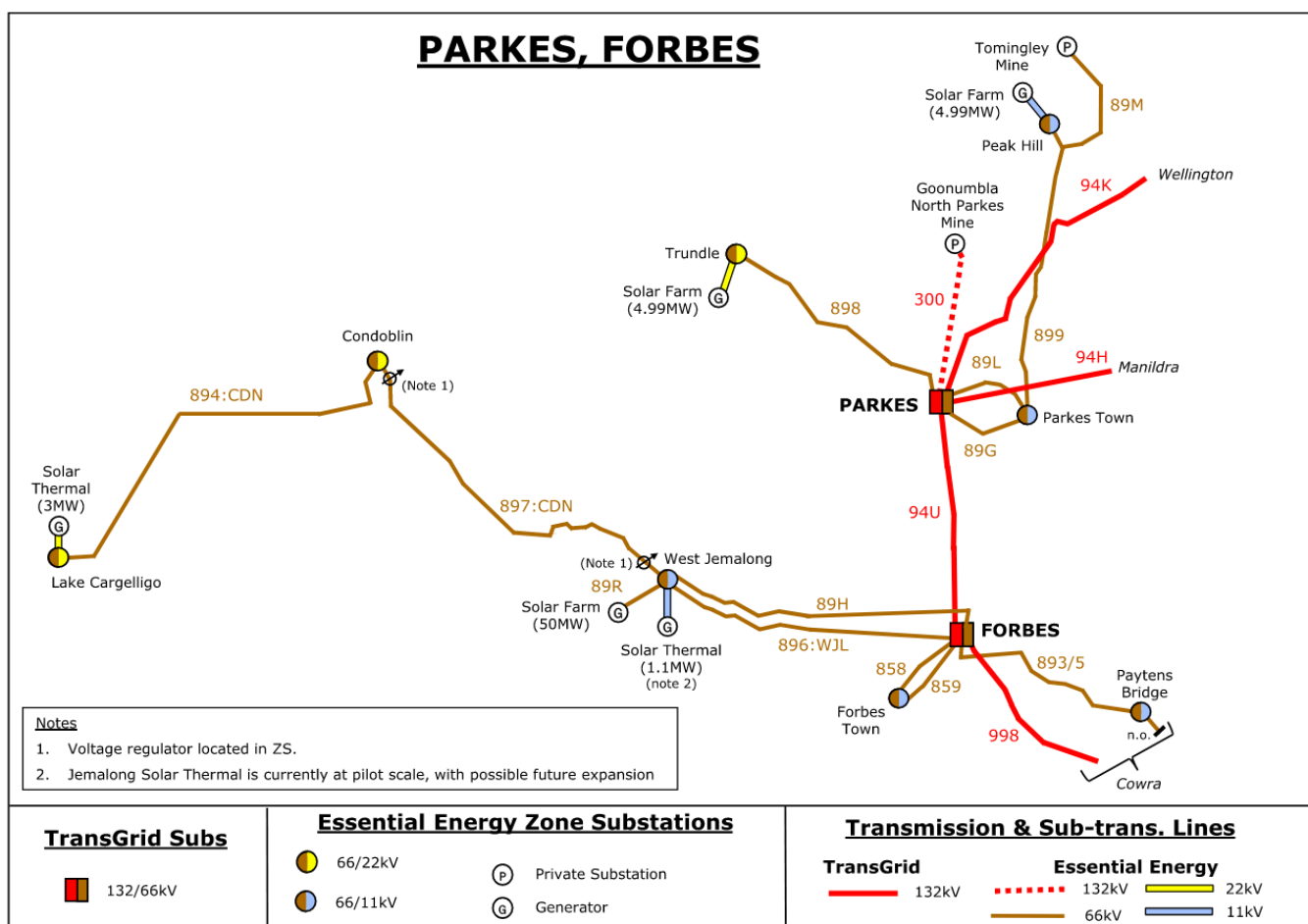


Figure 2.2 Transgrid and Essential Energy HV distribution network – Parkes and Forbes (Source: EE DAPR 2021 Report)

| SUMMER Forbes Supply Area POE50 Indicative Demand Forecast | | | | | | | | | | | | | |
|--|-------|--------------------------|--------|------|---------------------------------|-------------|----------------|-------|-------|-------|-------|--------------------------|------------------------------|
| Substation | kV | Transformer Rating (MVA) | | | Firm Normal Cyclic Rating (MVA) | Forecast PF | Forecast (MVA) | | | | | Embedded Generation (MW) | 95% Peak Load Exceeded (Hrs) |
| | | Tx.1 | Tx.2 | Tx.3 | | | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | | |
| Condobolin | 66/22 | 16 | 10 | | 11 | 1.00 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 3.56 | 8.5 |
| Forbes Town | 66/11 | 18/30 | 15/30 | | 33 | 1.00 | 13.7 | 13.7 | 13.7 | 13.8 | 13.8 | 5.85 | 5 |
| Lake Cargelligo | 66/22 | 8 | 5 | | 5.5 | 0.99 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 2.33 | 4.5 |
| Paytens Bridge | 66/11 | 5 | 5/6.25 | | 5.5 | 0.95 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 0.90 | 2 |
| West Jemalong | 66/11 | 3/4 | 3/4 | | 4.4 | 0.95 | 2.3 | 2.3 | 2.3 | 2.4 | 2.4 | 0.37 | 12 |

| WINTER Forbes Supply Area POE50 Indicative Demand Forecast | | | | | | | | | | | | | |
|--|-------|--------------------------|--------|------|---------------------------------|-------------|----------------|------|------|------|------|--------------------------|------------------------------|
| Substation | kV | Transformer Rating (MVA) | | | Firm Normal Cyclic Rating (MVA) | Forecast PF | Forecast (MVA) | | | | | Embedded Generation (MW) | 95% Peak Load Exceeded (Hrs) |
| | | Tx.1 | Tx.2 | Tx.3 | | | 2022 | 2023 | 2024 | 2025 | 2026 | | |
| Condobolin | 66/22 | 16 | 10 | | 12 | 1.00 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 3.56 | 3 |
| Forbes Town | 66/11 | 18/30 | 15/30 | | 36 | 1.00 | 11.6 | 11.7 | 11.8 | 11.9 | 12.0 | 5.85 | 3.5 |
| Lake Cargelligo | 66/22 | 8 | 5 | | 6 | 1.00 | 3.2 | 3.3 | 3.3 | 3.4 | 3.4 | 2.33 | 4.5 |
| Paytens Bridge | 66/11 | 5 | 5/6.25 | | 6 | 0.99 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 0.90 | 1 |
| West Jemalong | 66/11 | 3/4 | 3/4 | | 4.8 | 0.99 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 0.37 | 4 |

Figure 2.3 Essential Energy Forbes Town Zone Substation forecast loads and capacity (Source: EE DAPR 2021 Report)

2.3 11kV distribution to the subdivision

The subject land is adjacent to two existing Essential Energy 11 kV aerial feeders, designated FSB-52 and FSB-72. The feeders originate from the Forbes Town Zone Substation (Essential Energy) and are reticulated overhead within the main public road reserves.

Preliminary advice from Essential Energy indicates that the proposed subdivision is likely to require one (1) additional 11 kV feeder which would typically follow the existing 11 kV aerial cable route through the Forbes township. The 11 kV feeder design would need to be undertaken by the Level 3 Accredited Service Provider (ASP3) and certified by Essential Energy.

Essential Energy will verify the routes for any additional 11 kV feeders as part of the Connection Application process. While a new cable route may be required, this should be able to occur with relative ease and with minimal impact to the existing 11kV distribution network.

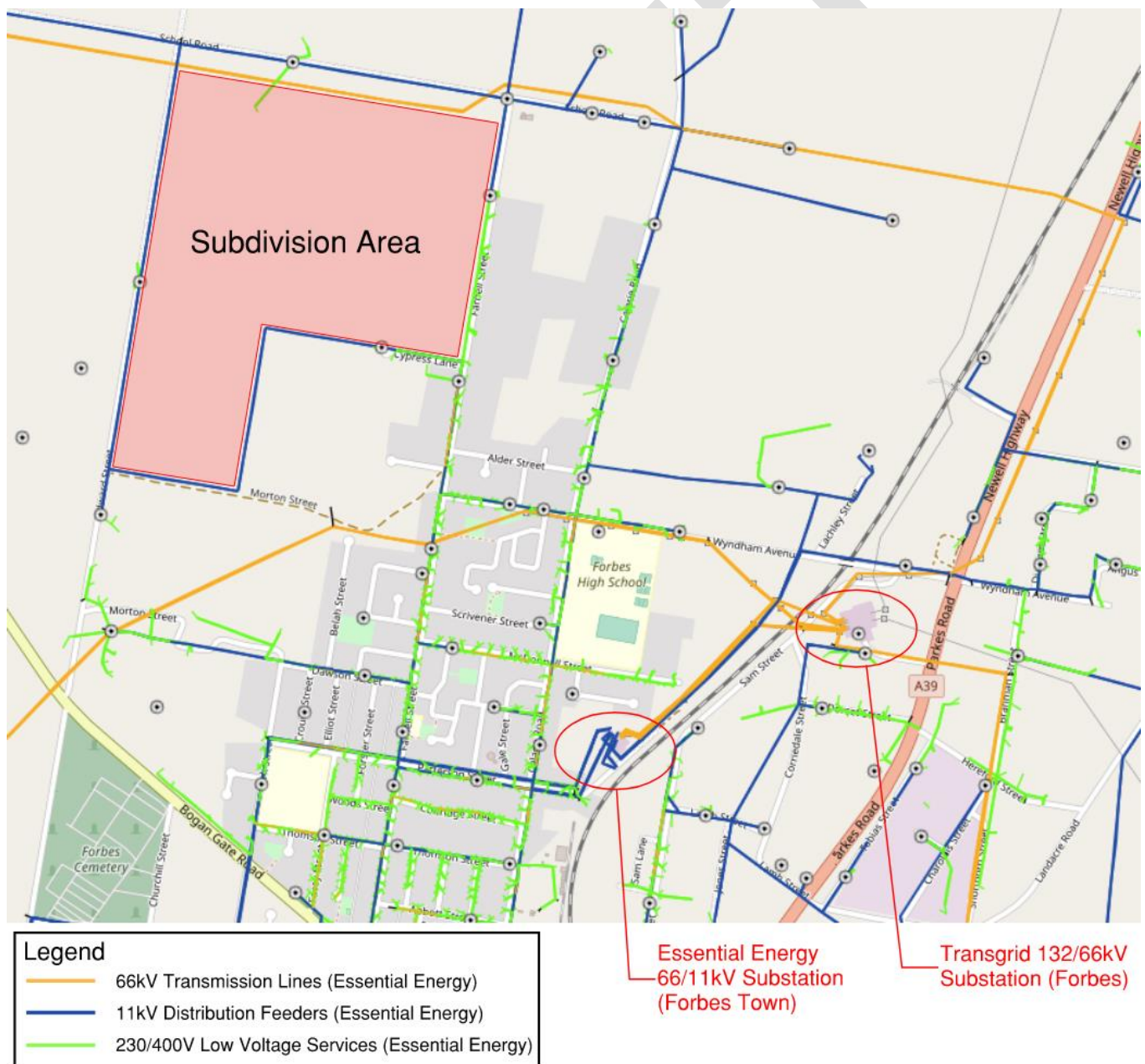


Figure 2.4 Essential Energy Network Map – Subdivision Area, Essential Energy and TransGrid Substations

2.4 Transmission easement adjacent to subdivision

The Essential Energy Network Map (see Figure 2.4 above) indicates a 66kV transmission line running adjacent to the subdivision and parallel to School Road.

This Essential Energy asset is indicated in the Google Maps image below and appears to be supplying power to Essential Energy's 66/11kV West Jemalong zone substation from TransGrid's 132/66kV Forbes Substation.

However, we understand that the transmission line is located outside the boundaries of the proposed subdivision.



Figure 2.5 TransGrid 66kV lines inside the Plot and Essential Energy's 11kV lines along School Road

2.5 Power distribution network within the subdivision

The proposed subdivision will require underground low voltage (230 / 400 V) power reticulation to the residential lots, designed as part of the ASP3 design in accordance with the Essential Energy Underground Design Manual (CEOM-7098).

It is envisaged that approximately six (6) pad-mount (kiosk) substations (11 kV / 400 V) would be required around the subdivision to supply low voltage power to each subdivision lot and street lighting.

Low voltage cables would typically be reticulated below the pedestrian pathways and nature strips within the public road reserves. A pillar box would typically be provided at every second property boundary to provide a point of supply for adjacent residential lots.

The 11kV distribution within the subdivision boundaries would be a combination of underground and overhead, depending on the preferred route selection by the Level 3 ASP.



Figure 2.6 **Installing an Essential Energy kiosk substation**

The low voltage distribution network, kiosk substations and 11kV feeders would be installed by a Level 1 Accredited Service Provider (ASP1), under the supervision of Essential Energy compliance inspectors. The commissioned infrastructure would be handed over to Essential Energy to operate and maintain upon completion.

3. Telecommunications services

3.1 Existing network

Wholesale telecommunications in the Forbes region are provided by NBN Co, the Government-owned corporation tasked to design, build, and operate Australia's National Broadband Network.

The urban areas of the Forbes township generally include fixed-line copper services, known as “fibre-to-the-node” technology, which utilizes the old legacy Telstra voice cables to connect homes to various node boxes installed along public streets. The rural areas around the township are serviced by NBN's fixed wireless technology.

As indicated in the following image, NBN Co. are currently expanding their rollout of fixed-line services in a nearby subdivision, which is likely to comprise “fibre-to-the-premises” (FTTP) technology.

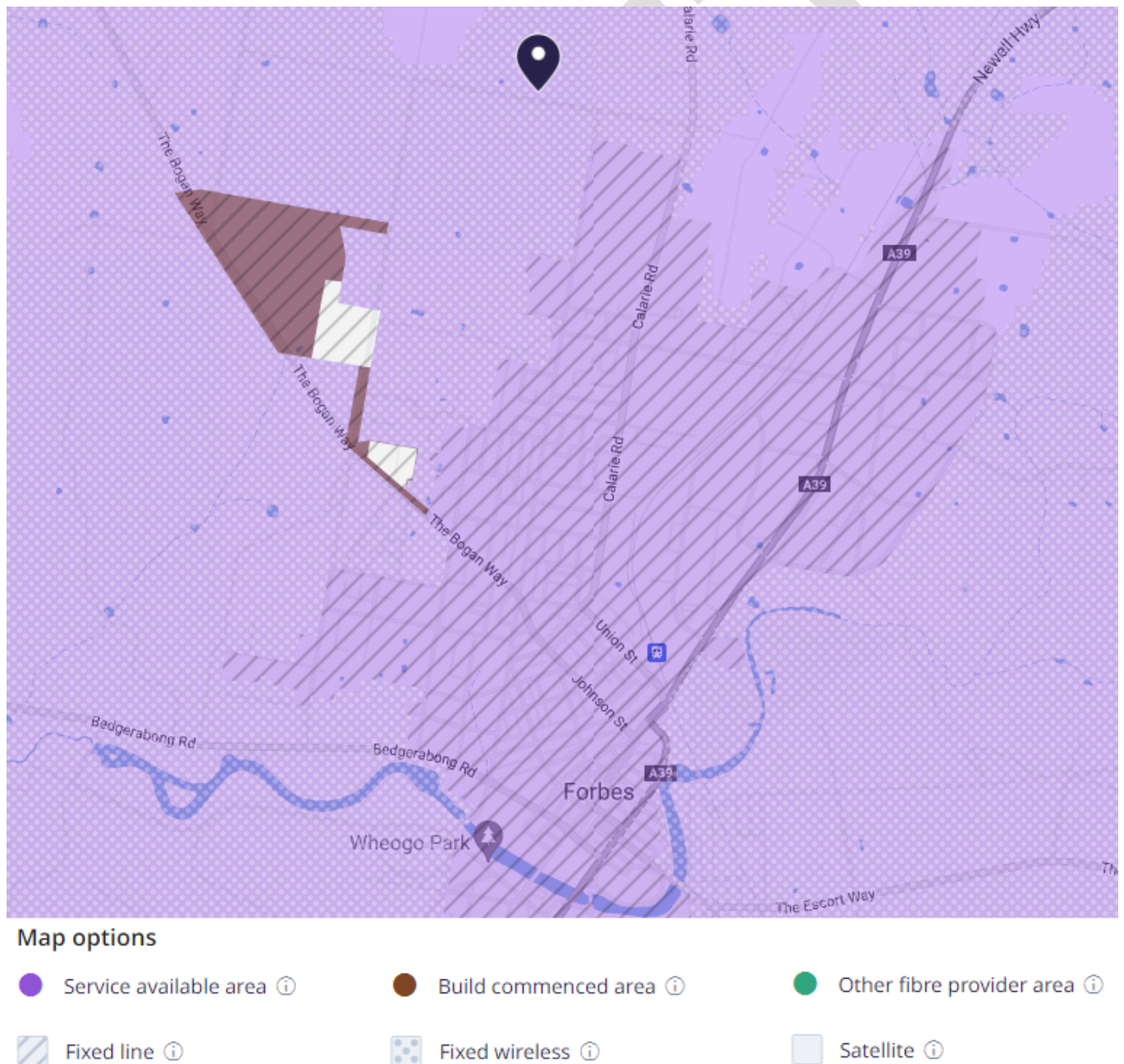


Figure 3.1 Existing NBN network

3.2 Subdivision network

Due to the scale of the ForbesView Planning Proposal, all properties will be eligible to receive NBN's fixed-line telecommunications services via "fibre-to-the premises" (FTTP) technology.

The subdivision developer would be responsible for designing and installing an underground pit and duct system, as outlined in the following image.

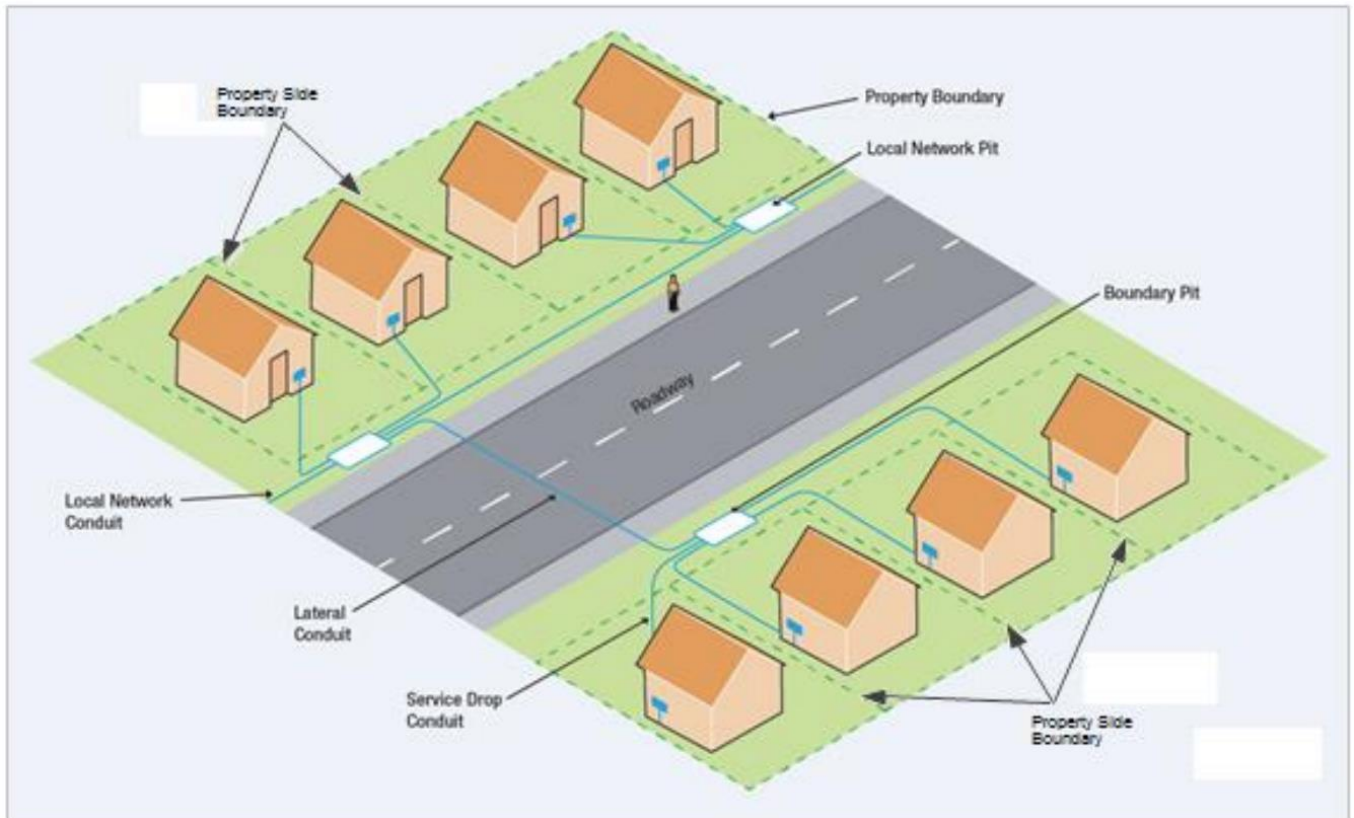


Figure 3.2 Typical NBN Pit and Duct Installation

The individual property owners would be responsible for lodging applications to NBN Co. to obtain incoming fibre optic connections from the nearest fibre optic splitter, typically located in the underground pits.

The network will include a main incoming fibre optic trunk installed from an existing NBN telecom exchange located in the Forbes CBD, typically within the existing road reserves.

The main fibre optic distribution point and cable route would be established by NBN's Planning Team as part of the network design review process. An indicative cable route is indicated in the following image.

4. Water and sewer services

4.1 Introduction

Council is currently in the process of updating their sewer and water models, in anticipation of residential growth and subsequent demand/infrastructure needs. Therefore, a detailed review of the existing Forbes water and sewer networks has not been performed by GHD at this stage.

The ultimate infrastructure to service the water and sewer requirements of the new development area will most likely be independent from the existing networks, as indicated by Council in a meeting held on 4 August 2023. This will be confirmed by Council in due course. It is understood the Forbes Water Treatment Plant (WTP) can supply the water demands and the Forbes Sewage Treatment Plant (STP) has capacity to accept sewage loads from the new developed area.

As advised by Allera, developments south of Cypress Lane is likely to be developed in the first phase. See area illustrated in Figure 4.1 below.

This area should be able to be serviced via the existing gravity main, through existing infrastructure. Internal reticulation will be required. As the development continues, this will require additional infrastructure (at minimum a sewer pump station). Based on discussions with Council, the existing water and sewer networks are assumed to have capacity to serve the initial demands and loads of the area south of Cypress Lane.



Figure 4.1 First Phase, south of Cypress Lane

4.2 Water and sewer services assumptions

- Developed lots within south of Cypress Lane can be supplied by the existing township's water supply network. The capacity of the existing supply to be confirmed by Council once the hydraulic modellings are complete.

4.3 Water demand and sewer load assessment

Water demands and sewer loads were determined using the following Regional WSAA methodologies in the following two codes:

- WSAA-02 – Sewerage Code of Australia
- WSAA-03 – Water Supply Code of Australia

Specific values if not provided within the Regional WSAA were sourced from Hunter Water or Sydney WSAA variation of the as mentioned codes.

From GHD's current understanding of the masterplan information provided by Allera, the new development area is approximately 92.4 ha, consisting of 80.8 ha of which is dedicated for the new residential lots and road development, 1.6 ha for a neighbourhood centre and 10.0 ha for open space and conservation. The proposed residential development encompasses approximately 745 lots. Each lot will vary in size per 'type' of lot (350 to 800 m²) with an average size of 700 m² across the project.

Flows were calculated using staging projections of 30 lot increments as advised by Allera. At this stage, it is estimated 2-3 stages will be developed per year for a total of 25 stages over fifteen years. The staging projections and estimated developments per year are subject to change based on demand. Residential lots in the first phase of development south of Cypress Lane covers the initial five stages of the whole development. The development of this initial area is estimated to take 2-3 years i.e. to be completed in 2025-2026.

A population factor of 2.5 per lot and an equivalent population (EP) factor of 3.5 per lot was applied to the number of developed lots to determine populations for water and sewer projections respectively as seen in Figure EP was the basis for sewer loads, while population was for water demands. The cumulative development EP and population of the residential area are 2,770 and 1,855, respectively. The EP for the parklands and commercial area were calculated based on a 5 EP/Ha and 75 EP/Ha respectively as sourced from Sydney WSAA-03. Therefore, parklands have an estimated EP of 183 and commercial with 127. To note the Sydney WSAA-03 states a 20 EP/Ha for parklands. This has been modified to 5 EP/Ha for appropriateness for regional townships as potable water conservation is typically a focus.

The cumulative EP and population estimations are presented in the table below.

Table 4.1 Cumulative lots, EP and population summary

| | Small lots (350 m ²) | Medium lots (500 m ²) | Large lots (800 m ²) | Cumulative development lots | Cumulative development population | Cumulative development EP |
|--|-------------------------------------|--------------------------------------|-------------------------------------|-----------------------------------|---|---------------------------------|
| First Phase, South of Cypress Lane | 24 | 9 | 121 | 154 | 385 | 539 |
| Commercial | - | - | - | - | - | 120 |
| Parklands | - | - | - | - | - | 50 |
| Ultimate development ¹ | 80 | 132 | 533 | 745 | 1,855 | 2,778 |
| <p>1. Includes all residential lots (including those within the first phase), parkland and commercial.</p> <p>2. Note the number of lot sizes are specified in this table to be categorised in accordance with WSAA-02 – Sewerage Code of Australia. The numbers and sizes of the lots will vary in size per 'type' of lot (350 to 800 m²) with an average size of 700 m².</p> | | | | | | |

4.3.1 Water demand

To determine a standard lot water demand, a residential average day demand of 0.96 kL/lot/day and commercial demand of 11.5 kL/ha/day were sourced from the Hunter Water WSAA-03 code. A 1 kL/day demand was assumed for the parklands within the development for allowances such as park maintenance and watering, drinking fountains etc. See tabulated water demands in Table 4.2 below.

Table 4.2 Residential water demand

| | Average Day Demand (ADD) | | | Peak Day Demand (PDD) | | Peak Hour Demand (PHD) |
|---|--------------------------|-------|-------|-----------------------|-------|------------------------|
| | L/s | ML/d | ML/y | L/s | ML/d | L/s |
| First Phase, South of Cypress Lane | 1.70 | 0.10 | 54.0 | 3.70 | 0.30 | 11.0 |
| Commercial only | 0.22 | 0.02 | 6.9 | 0.35 | 0.03 | 0.69 |
| Parklands only | 0.01 | 0.001 | 0.4 | 0.02 | 0.002 | 0.03 |
| Ultimate development ¹ | 8.48 | 0.73 | 268.1 | 17.5 | 1.5 | 42.3 |
| 1. Includes all residential lots (including those within the first phase), parkland and commercial. | | | | | | |

An ultimate development PDD of 17.5 L/s was estimated for the new ForbesView development. This will be used to determine the infrastructure required for the water services for the entire development.

PDD of first phase has an estimated water demand of 3.7 L/s as determined above.

4.3.2 Sewer load

The calculated sewer loads using the methodology outlined in the Regional WSAA for the staged ForbesView development as well as for the residential lots within the first phase are shown in Table 4.3.

Table 4.3 Residential sewer loads

| | Average Dry Weather Flow (ADWF) | | Peak Dry Weather Flow (PDWF) | | Peak Wet Weather Flow (PWWF) | |
|------------------------------------|---------------------------------|-------|------------------------------|------|------------------------------|------|
| | L/s | ML/y | L/s | ML/d | L/s | ML/d |
| First Phase, South of Cypress Lane | 1.13 | 35.7 | 4.64 | 0.40 | 9.5 | 0.8 |
| Commercial | 0.25 | 7.9 | 1.53 | 0.13 | 2.2 | 0.2 |
| Parklands | 0.11 | 3.3 | 0.75 | 0.07 | 8.0 | 0.7 |
| Ultimate development | 5.83 | 183.9 | 17.94 | 1.55 | 45.0 | 3.9 |

A total PWWF of 45.8 L/s was estimated for the entire ForbesView development. This will be used to establish the required infrastructure to provide sewer services for the whole of ForbesView.

The estimated PWWF sewer load for the residential lots within the first phase is 9.5 L/s.

4.4 Water and sewer – First phase servicing

4.4.1 Water

FSC indicated the developed areas south of Cypress Lane, known as the first phase, can be serviced by the existing township's water supply network. The proposed connection point will be to the existing DN225 pipe laid along Morton St. Following the WSAA-03 criteria on minimum pipe diameters. A DN150 pipe is proposed to supply the initial development. Figure 4.2 below illustrates two proposed water network augmentations. Council have confirmed option two to be the preferred method, to connect to the existing DN225 water main along Morton St.

A detailed review of the existing Forbes water and sewer networks is not part of the scope. Council is currently undertaking this update in anticipation of residential growth and subsequent demand/infrastructure needs.

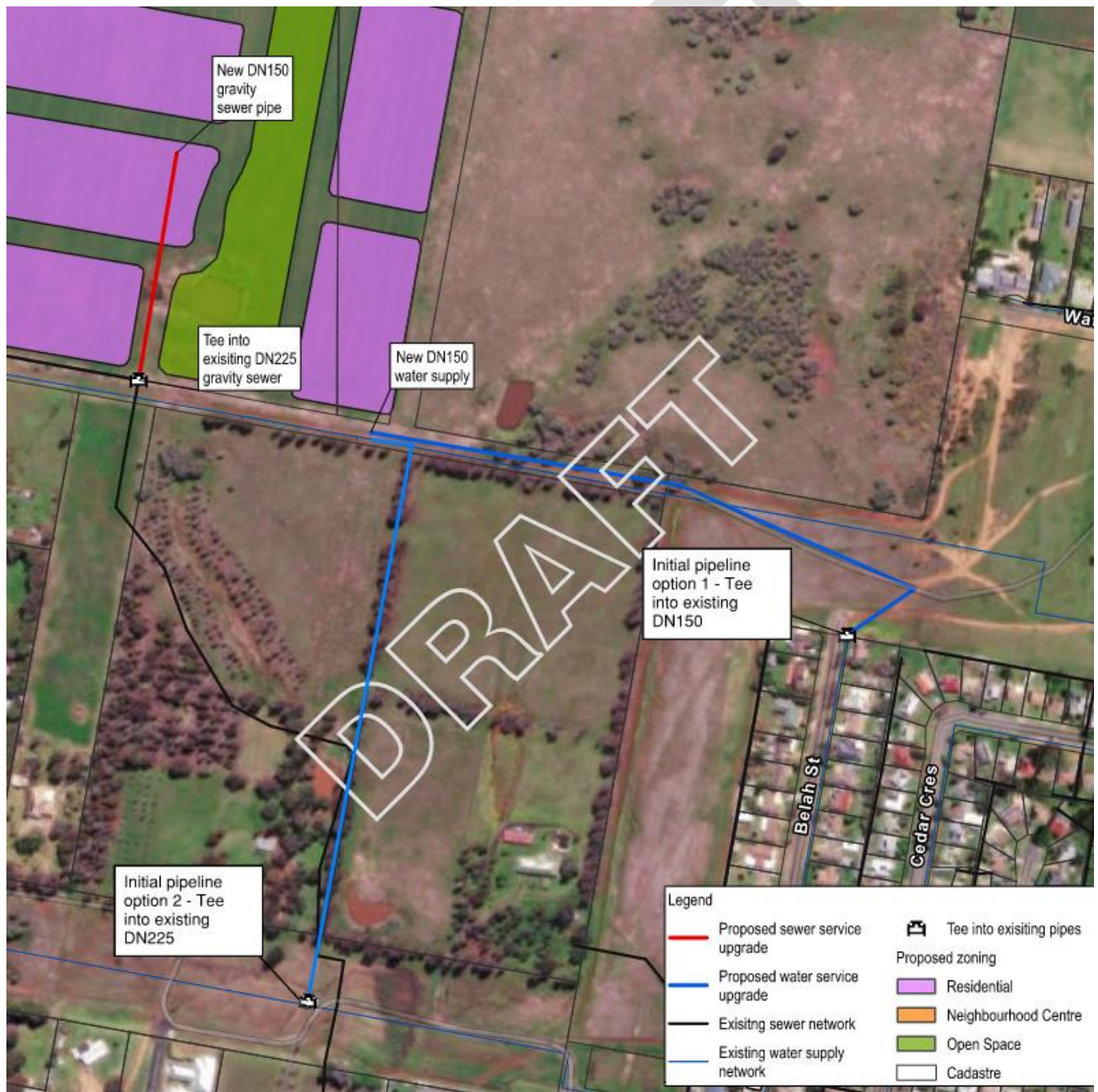


Figure 4.2 Initial development water and sewer servicing

According to Council, the lots south of Cypress Lane will continue to be serviced by the existing main along Morton Street, unless further design indicates otherwise. There will be further development (e.g. the reservoir) but at this stage, the intention would be to retain the connection for these lots from Morton street. A concept design layout for the water network is presented in Appendix A.

4.4.2 Sewer

Similar to the approach outlined above, the existing sewer network can service the initially developed area south of Cypress Lane. A new DN150 sewer main is proposed to connect to the existing DN225 gravity pipe in Morton St that currently services the Catholic Healthcare Jemalong Residential Village as well as Council's own "Goldridge Estate" residential development. Figure 4.2 presents the proposed sewer network augmentation. Flow from this area will discharge into the catchment of SPS 18 located along Bogan Gate Road, opposite Forbes Cemetery. Assuming pipeline will tee off to the existing sewer main with a depth of 2 m, the typical depths of the proposed pipelines in the first phase will range from 0.75 m to 2.1 m approximately.

Council intends to upgrade the existing sewer system such that SPS 18 can handle flows from the first phase and Goldridge Estate. Future infrastructures will be required to service the remainder of the development. This required infrastructure will be defined by Council once the sewer network model is updated. A concept design layout for the sewer network is presented in Appendix B

5. Conclusion

This report summarises the investigations related to the infrastructure delivery strategies for the development site at the Forbes School Road Proposal. Based on the assessments in this report, the proposed development can be.

Water

Initial development of the lots south of Cypress Lane are serviced by Council's existing water network via extension of the DN225 pipe laid along Morton Street. This will service the first 150 lots approximately and is expected to take the development through to around 2026.

Subsequent future development north of Cypress Lane will require new infrastructure. Through consultation with Forbes Shire Council, GHD understands that Council are currently updating the water system model, which will determine the ultimate needs and required upgrades to ensure that the future growth of Forbes can be accommodated, including delivery timing and methodology.

Sewer

Initial development of the lots south of Cypress Lane are serviced by Council's existing sewer network by extending the SPS18 gravity catchment via a new DN150 pipe attached to the existing DN225 gravity pipe along Morton Street. This will service the first 150 lots approximately.

Subsequent future development north of Cypress Lane will require new infrastructure. Through consultation with Forbes Shire Council, GHD understands that Council are currently updating the sewer system model, which will determine the ultimate needs and required upgrades to ensure that the future growth of Forbes can be accommodated, including delivery timing and methodology.

Appendix A

Water network layout

LEGEND

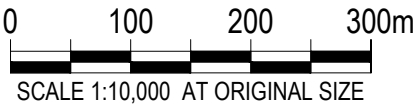
- Water Trunk Main
- Water Mains/Reticulation

Elevated Reservoir

Initial water connection
for area south of
Cypress Lane

| Rev | Description | Checked | Approved | Date |
|----------|----------------|---------|----------|------|
| | | | | |
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| | | | | |
| Author | Drafting Check | | | |
| Designer | Design Check | | | |

Plot Date: 25 September 2023 - 4:53 PM Plotted by: Yasser Khaleghian



File Name: \\ghdnet\ghd\AU\Newcastle\Projects\22\12613388\Tech\Design\Water and Sewer\Water\CAD\2023-09-25\H371649_MasterPlan_230925_Watermains_Layout.dwg



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Project No.
12613388

| | |
|---------|---|
| Client | Forbes Shire Council |
| Project | Planning proposal for School Rd, Forbes |
| Status | For Discussion |

Drawing Title Forbes View Concept Water Network Master Plan

Size
A3

Drawing No. Rev

Appendix B

Sewer network layout

LEGEND

Sewer Mains



Location of proposed SPS

Existing DN225 gravity main

To SPS18

Extension of existing sewer main



| Rev | Description | Checked | Approved | Date |
|----------|----------------|---------|----------|------|
| | | | | |
| Author | Drafting Check | Reg No. | | |
| Designer | Design Check | Date | | |

Plot Date: 22 September 2023 - 5:57 PM Plotted by: Yasser Khaleghian

File Name: \\ghdnet\ghd\AU\Newcastle\Projects\22\12613388\Tech\Design\Water and Sewer\Sewer\CAD\2023-09-22\H371649_MasterPlan_230922_SewerMains_Layout.dwg



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Project Planning proposal for School Rd, Forbes

Status For Discussion

Drawing Title Forbes View Concept Sewer Master Plan

Size
A3

Drawing No. Rev



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