infrastructure & development consulting

106 Wyee Road & 1496 Hue Hue Road, Wyee

Utilities Infrastructure Assessment

March 2024

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Project Number	23-037	**Date**	4 March 2024
Project Name	Wyee Infrastructure	**Status**	Final
Client	High Line Projects Pty Ltd	**Revision**	B
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1 Introduction

Infrastructure & Development Consulting (IDC) have been engaged to prepare a utilities infrastructure assessment to support the Planning Proposal for a site on the corner of Wye and Hue Hue Roads, Wyee.

This report will outline a potential strategy for the provision of utility services for the site. Specifically, this report will:

- Review existing services within the vicinity of the site
- Outline the expected demand for utilities infrastructure generated by the proposed development
- Identify a high-level infrastructure strategy to support the proposed development

1.1 The Site

The site is located at 106 Wyee Road & 1496 Hue Hue Road, Wyee, within the Lake Macquarie City Council Local Government Area (LGA). The site is currently zoned RU4 Primary Production Small Lots and covers an area of 1.42 hectares. The site is bound by Wyee Road to the north east, Hue Hue Road to the south east, Palara Road to the south west and RU4 land to the north west. The site is shown in Figure 1 below.

Figure 1 - Site Boundary

2 Proposed Development

The site will be rezoned to E1 Local Centre which will allow for commercial development, including a full-line supermarket, ancillary speciality retail uses and business and office uses such as childcare. Vehicular access to the site will be provided via Palara Road, on the western boundary. A breakdown of the proposed development is provided in Table 1, and the indicative concept plan is shown in Figure 2.

Table 1 - Proposed Land Use Breakdown

Land Use	GFA (m^2)
Supermarket	3,800
Specialty Retail	1,500 – 2,000
Commercial Uses	4,000 – 5,000
Total	9,300 – 10,800

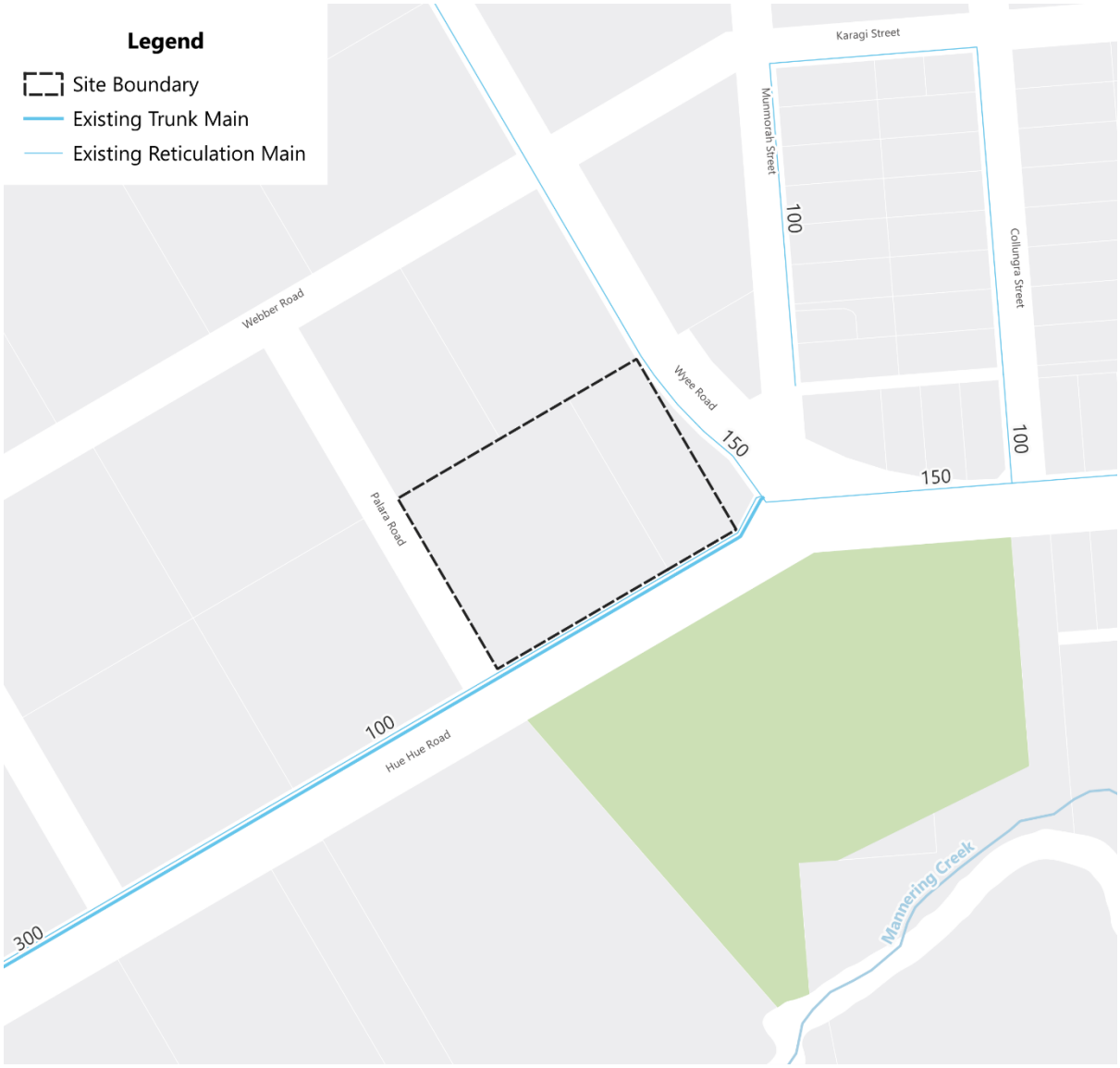
Figure 2 - Indicative Concept Plan

3 Water

3.1 Existing Infrastructure

Hunter Water supplies the site and surrounding properties with potable water. A 300mm diameter trunk main and 100mm diameter reticulation main traverse Hue Hue Road. Both mains connect to a 150mm diameter main which extends along Wyee Road. The existing potable water infrastructure within the vicinity of the site is shown in Figure 3.

Figure 3 - Existing Potable Water Infrastructure



3.2 Proposed Servicing Strategy

A high-level assessment was undertaken using the Water Supply Code of Australia (WSA) to determine the trunk infrastructure requirements to support the proposed development. This involved calculating the peak-hour demand to estimate the likely trunk main size required.

The maximum water demand rates were extracted from the WSA. These rates were used to determine the peak hour demand for each land use type. The results are provided in Table 2.

Table 2 - Proposed Water Demand

Land Use	Max Day Demand Rate (kL/net Ha/Day)	Peak Demand (L/s)
Commercial/Retail	41	1.3
	Total	**1.3 L/s**

Based on the above assessment, a main of approximately 100mm diameter could support the proposed development. The site will be serviced by connecting to the existing mains on Hue Hue Road or Wyee Road. Any potential upgrades required to the existing mains as a result of this development will be confirmed by Hunter Water during a subsequent stage of the project.

3.3 Development Servicing Plan

In 2020 the NSW Productivity Commission undertook an Infrastructure Contributions Review which recommended that Hunter Water reintroduce developer charges. Developer charges are location-specific, upfront charges that assist Hunter Water to recover the costs of providing new and upgraded infrastructure for new developments.

Developer charges reflect the capital cost attributable to the Development Servicing Plan (DSP) area and are calculated on a per Equivalent Tenement (ET) basis. Hunter Water provide typical ET rates for each development type, which have been used to calculate the developer charge associated with the proposed development. The site is located in the South Wallsend and West Lake Macquarie Water Zone, which has an associated developer charge of $2,444.33 per ET. An estimate of the total developer charge associated with the proposed development is provided in Table 3.

Table 3 - Calculated Water Developer Charge

Land Use	ET Rate	Total ET	Developer Charge
Supermarket	0.5 + 0.0027/m^2	10.76	$ 26,300.99
Specialty Retail	1.19/store*	7.14	$ 17,452.52
Commercial Uses**	2.31/centre	2.31	$ 5,646.40
	Total	**20.21**	**$ 49,399.91**

*Assumed six specialty retail stores
**Assumed childcare services

Based on the above, a developer charge of approximately $49,400 can be expected for potable water services.

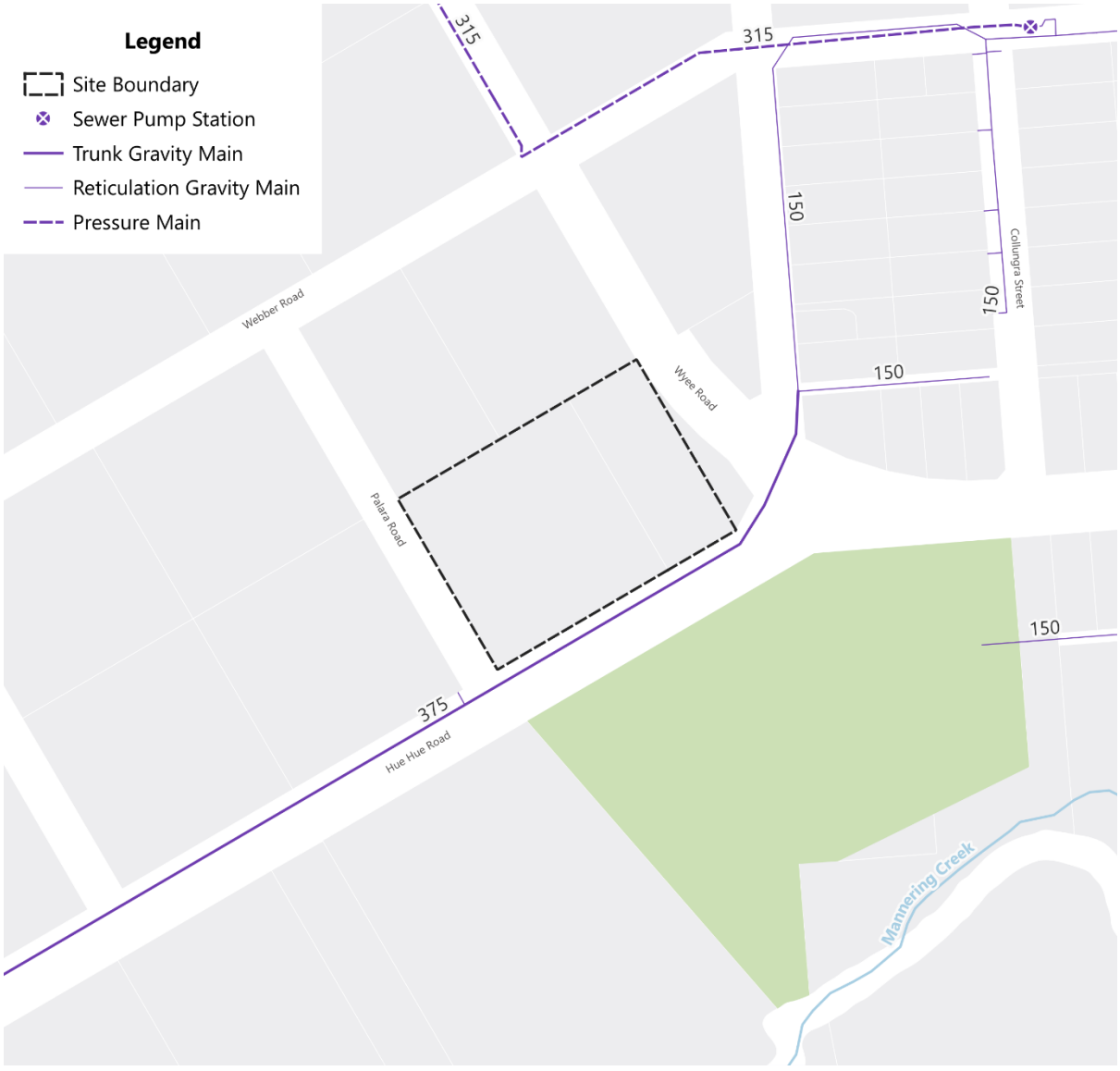
4 Sewer

4.1 Existing Infrastructure

In 2021, Hunter Water invested $30 million to extend their network to service 400 properties within the Wyee township. The scheme has capacity to service up to 2,750 new homes in the future. Initially, tanker trucks were used to transfer flows from the sewer pump station at Karagi Street to the Dora Creek Wastewater Treatment Works. This system was in place until a 9.2km pipeline connecting the pump station to the treatment works was completed in May 2023.

The site is located within the Wyee sewer catchment. A 375mm diameter gravity main traverses Hue Hue Road. This main reduces in size to 150mm and extends along Munmorah Street and Karagi Street to the sewer pump station. Flows are then transferred from the pump station via a 315mm diameter pressure main which extends along Karagi Street and Wyee Road, away from the site. The existing sewer infrastructure within the vicinity of the site is shown in Figure 4.

Figure 4 - Existing Sewer Infrastructure



4.2 Proposed Servicing Strategy

A high-level assessment of the required sewer infrastructure was undertaken using the Sewage Supply Code of Australia (SSA). The load on the sewer network is expressed in Equivalent Population (EP). The EP for the proposed land uses on the site were extracted from the SSA and are expressed as a rate per gross hectare of development. The results are tabulated below.

Table 4 - Proposed Sewer Demand

Land Use	EP Rate	Total EP	PWWF (L/s)
Commercial/Retail	75/Ha	106.2	0.92
	Total	**106.2**	**0.92**

Based on the above assessment, a total equivalent population of 106.2 is expected on the site, with an associated peak wet weather flow (PWWF) of 0.92L/s.

The site will be serviced by connecting to the existing trunk main on Hue Hue Road. Given the size of this infrastructure, it is not expected that upgrades would be required to support the development, however this will be confirmed with Hunter Water during a subsequent stage of the project.

4.1 Development Servicing Plan

Development within the Hunter Water servicing catchment is also subject to a wastewater DSP. The development is located within the Dora Creek wastewater DSP catchment, which has an associated developer charge of $7,854.09 per ET. An estimate of the total developer charge associated with the proposed development is provided in Table 5.

Table 5 - Calculated Sewer Developer Charge

Land Use	ET Rate	Total ET	Developer Charge
Supermarket	1.28 + 0.001/m^2	5.08	$ 39,898.78
Specialty Retail	1.5/store*	9	$ 70,686.81
Commercial Uses**	1.97/centre	1.97	$ 15,472.56
	Total	**16.05**	**$ 126,058.14**

*Assumed six specialty retail stores
**Assumed childcare services

Based on the above, a developer charge of approximately $126,000 can be expected for sewer services.

5 Electricity

5.1 Existing Infrastructure

The site is located within the Ausgrid electrical supply zone. The closest zone substation (ZS) to the site is the Vales Point ZS, located 5.5km to the east. The Vales Point ZS has a firm capacity of 15.2MVA. Ausgrid's Distribution Annual Planning Report (DAPR) includes utilisation data for all zone substations. Ausgrid estimate that the Vales Point ZS has 6.8MVA of spare capacity.

Existing electrical infrastructure within the vicinity of the site consists of a 330kV transmission line, located to the north of Karagi Street. This infrastructure sits within a 60m wide easement as shown in Figure 5. The site and surrounding land uses are supplied electricity via an overhead network of high and low voltage feeders which extend along the road corridors surrounding the site. The existing infrastructure within the vicinity of the site is shown in Figure 5.

Figure 5 - Existing Electrical Infrastructure

5.2 Proposed Servicing Strategy

A high-level assessment was undertaken to determine the electrical servicing requirements for the site. The electrical demand generated by the proposed development was calculated using electrical demand rates extracted from AS/NZS 3000. The results are tabulated below.

Figure 6 – Proposed Electrical Demand

Land Use	Electrical Demand (VA/m^2)	Diversified Electrical Demand (kVA)
Retail	100	432
Commercial	85	340
	Total	**772**

Based on the above assessment, the site would require one padmount substation to service the proposed development. The location of the substation will be determined by Ausgrid during a subsequent stage of the development process.

It is expected that the proposed development can be serviced using available capacity in existing high voltage feeders within the vicinity of the site. High voltage feeders along Hue Hue Road or Wyee Road will be extended into the site to supply future uses. The availability of spare capacity in these feeders to supply the site will be confirmed with Ausgrid.

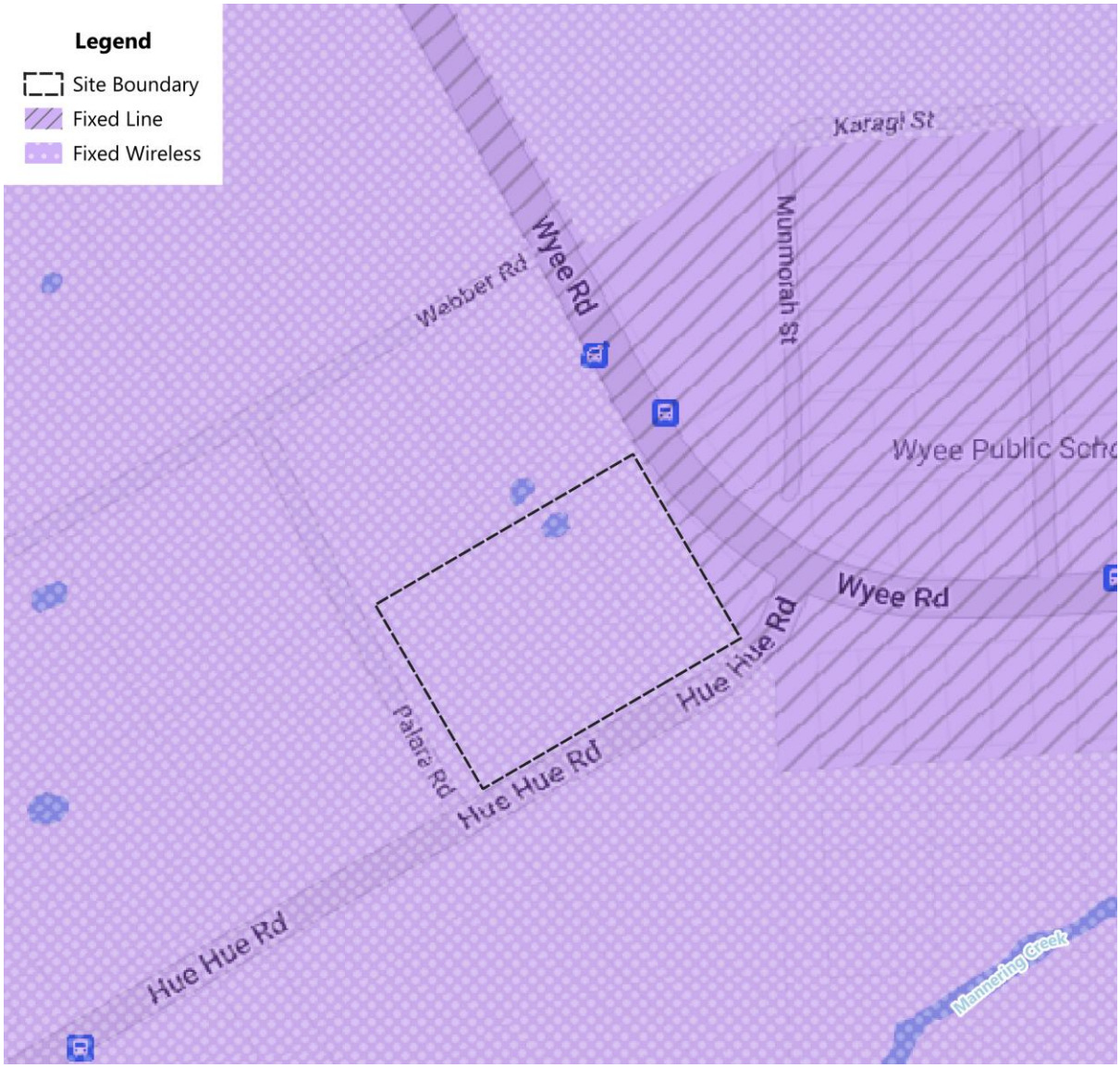
6 Telecommunications

6.1 NBN

NBN Co. are the wholesale provider for new broadband connections. NBN Co. provides services on its local access network on equivalent terms to retail phone and internet providers, to provision for end users.

The site is serviced via fixed wireless technology, where data is transmitted to a rooftop antenna by a transmission tower which can be located up to 14km away from the premises. Areas to the east of Wyee Road, including Wyee Public School and existing residential dwellings are serviced by fixed line infrastructure, where a physical line connects to each property to provide a connection. The fixed line network could be extended to supply future development of the site, subject to confirmation by NBN Co. The existing NBN network coverage is shown in Figure 7.

Figure 7 - NBN Coverage



6.2 Telstra 5G

Telstra have existing blanket 4G coverage across the site. The progressive rollout of Telstra's 5G network has commenced across the Lake Macquarie LGA. The site is not currently covered by Telstra's 5G network, however it is expected that network coverage will extend across the site in the coming years.