Tumbi Umbi Retirement Living Display Suite

Electrical and Hydraulics, Site Infrastructure Report

Prepared for:
Pariter

23 October 2025

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Project/File:
30135398

Stantec Australia Pty Ltd

Revision Schedule

Revision No.	Date	Description	Prepared by	Project Manager Final Approval
001	25.09.2025	Preliminary Issue	PM/AM/SY	VE
002	23.10.2025	Revised Issue	PM/AM/SY	VE

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1 Introduction

The purpose of this report is to provide Pariter and Mingara Leisure Group with information on the current provision and condition of the existing public utilities and likely authority requirements to support the new display suite for future development:

This report is based on the following sources of information:

- Before You Dig Australia (BYDA) information.
- Publicly available information.
- NCC 2022

At this time no discussions or applications have been made with authorities for the project.

1.1 Site

- The display suite site is on a vacant land between Mingara Dive (private road) and the access roadway to the club entry for future development at 14 Mingara Drive Tumbi Umbi, legally known as Lot 13 DP 120 4397 which is a privately owned property by Mingara Leisure Group;
- The display suite area is about 250m2 with 4x outdoor parking lots of about 70m2

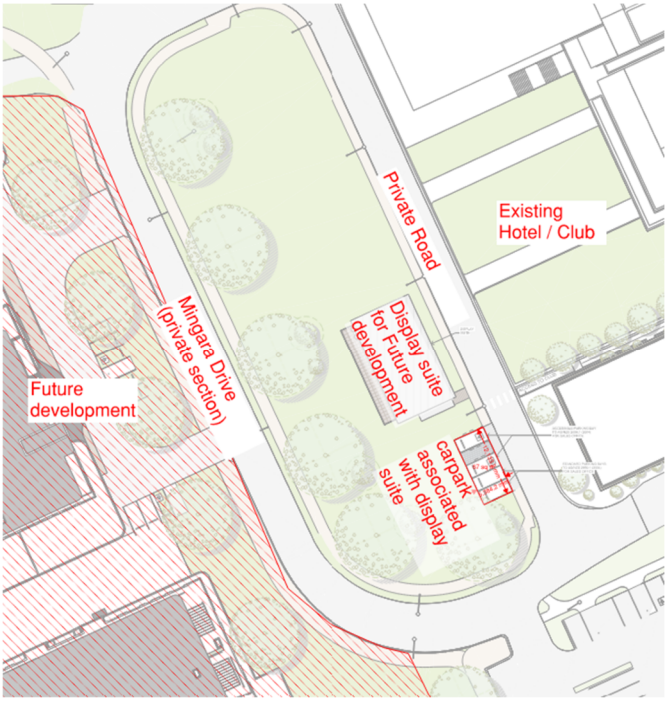

Figure 1: Indicative site layout

1.2 Proposed Construction:

Stantec understand that a planning proposal has been prepared which includes the following:

- A new 4 x parking lots outdoor carpark which includes 2 disable parking facility.;
- A new display suite consisting of 170m2 internal and 80 m2 external space.

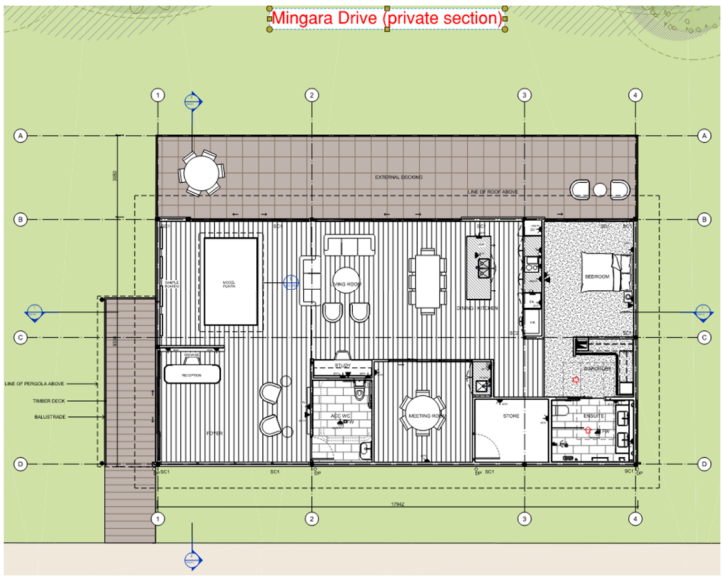

Figure 2: Indicative Display Suite layout

Limitations of this report are as follows:

- No calculations were performed to check existing system capacities.
- No taking or testing of material samples was carried out.
- All information provided by others, particularly verbal information has been taken at face value.
- No testing for or advice is provided with respect to asbestos, microbiological or other contaminates.
- No detailed survey and detailed authority information is available.
- No formal discussions with Authorities (feedback only available through a formal submission)
- We assume that Authority services are to be private and that easements may be required for those services should roadways within the site become public roads

2 Electrical Services

2.1 Power Supply

2.1.1 Existing Supply Authority Network

The Supply Authority is Ausgrid, the existing supply network in the area is depicted in the image below:

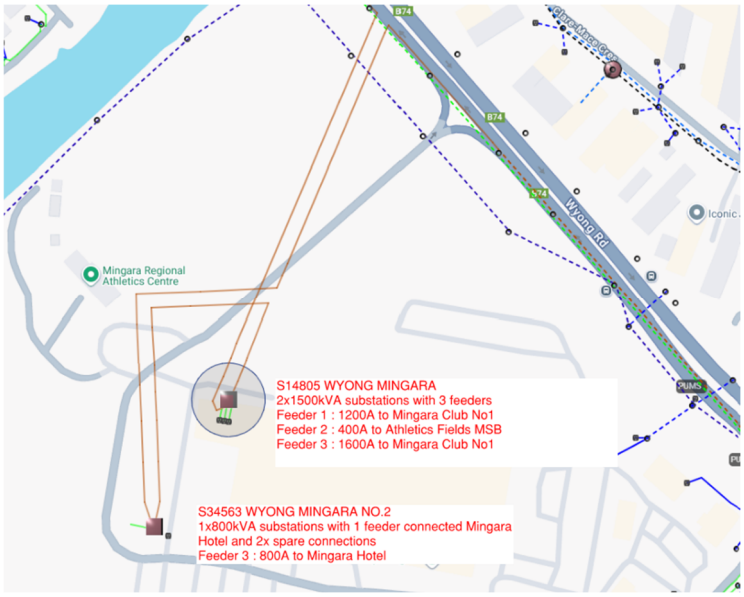

Figure 3: Existing Supply Authority network from Ausgrid WebGIS

From the Ausgrid WebGIS information there are 2 existing substations on site, S14805 Wyong Mingara & S34563 Wyong Mingara No.2.

Both substations are housed on the private land and connected to the same HV feeder with the HV cable connection from Ausgrid street network via the private section of the Mingara Drive from Wyong Road.

The substation S14805 Wyong Mingara consists of 2x1500kVA transformers with 3 feeders connected. Both feeder 1, a 1200A supply to Mingara Club No 1 MSB and feeder 2, a 400A supply to the Athletics Field MSB are assumed to be connected to the same transformer while Feed 3, a 1600A supply to Mingara Club No 2 MSB is assumed to the remaining transformer.

The substation S34563 Wyong Mingara 2 consists of a new 800kVA (1148A) transformer established in 2024 for the new Mingara Hotel. Feeder 3 is a 800A supply for the Mingara hotel while Feeder 1 is a spare feeder for future connection subject to Ausgrid approval.

As of the date this report is done 25/09/2025, there is no loading data available for the substation S34563 on Ausgrid WebGIS platform

The below information was retrieved from WebGIS for the existing substation S14805 including transformer **KVA rating(s)** and the latest **Maximum Demand Indicator (MDI)** reading & most recent MDI reading on each distributor. Note that this data may not accurately represent the current maximum substation or low voltage distribution load and does not account for existing electrical load constraints or pending connection applications.

		Rating (A)	MDI (A)	Recorded time	Last Reading (A)	Last reading time
Distributor 1	MINGARA REC CLUB NO.1	1200	1053	2001	600	2019
Distributor 2	ATHLETICS FIELD MSB	400	113	2023	102	2024
Distributor 3	MINGARA REC CLUB NO.2	1600	964	2007	600	2019

Ausgrid WebGIS substation data for S14805 substation

As the new substation S34563 was built in 2024, there is no MDI recorded in Ausgrid system

2.1.2 Calculated Maximum Demand

A maximum demand for the proposed display suite and AS3000 allowances at the time of this report equates to 60 Amps per phase.

A summary of the calculated Maximum Demand is depicted below:

NAXIMUM DEMAND CALCULATION					Date	23-Sep-25	
PROJECT NO	301351398 Mingara Drive Display Suite						
	Mingara Drive Tumbi Umbi						
AS/NZS 3000:2007	Wiring Rules Appendix C1						
TABLE C1							
	1	2	3	4	5		
LOAD GROUP	DESCRIPTION	Single Domestic electrical installation	2 to 5 Units per Phase	6 to 20 Units per Phase	21 or more Units per Phase	LOAD	
Ai	Lighting	3A for 1 to 20 points + 2A for each additional 20 points or part thereof	6A	5A + 0.25 per unit	0.5 per unit	3	per phase
Aii	Outdoor lighting	75% of connected Load	No assessment for purpose				
Bi	Socket Outlets not exceeding 10A	10A for 1 to 20 points + 5A for each additional 20 points or part thereof	10A + 5A per living unit	15A +3.75A per living unit	50A + 1.9A per living unit	10	per phase
Bii	Socket Outlets not exceeding 10A (SSO above 2.3m, perm installed heatering or combination SSO) in Buildings with Permanent heating/cooling	10A				0	
Biii	Socket Outlets exceeding 10A (SSO above 2.3m or combination)	15A				15	per phase
C	Appliances for cooking, instant water heaters, heating and cooling	50% of connected load	15A	2.8A per living Unit		0	
D	Fixed space heating or air conditioning equipment, saunas or socket outlets rated at more than 10%	75% of connected load				25	3 phase
E	Instantaneous water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	0	
F	Storage water heaters	33.3% of connected load	6A per living Unit		100A + 0.8A per unit	7	4.8kW
G	Swimming Pools. Spas	75% of largest spa, plus 75% of largest swimming pool, plus 25% of remainder				0	
				Total		59.96	

Figure 4: Maximum demand calculation

The above maximum demand is done based on the following assumptions:

1) The cooking appliances (cooktop / oven) installed are display only and not required to be functional.

2) AC power is estimated to suit the high volume of people in the space, which will draw more power than the one that's actually to be installed in the living unit. The power might be reduced if a mechanical engineer / contractor confirm the exact power requirement.

3) General lighting and power required only.

4) Hot water will be a storage type if required.

2.1.3 Power supply options for the display suite

2.1.3.1 Connection to the Hotel MSB

If Mingara Drive between the hotel and the sport field is a private roadway, the power supply to the display suit may be treated as an internal power supply from the Mingara Hotel pending agreement and approval from the Hotel.

Authority electrical meter and account cannot be set up with this connection and electricity billing rate is to be negotiated with the Hotel as there is no um-metered section on the Hotel Main switchboard for additional Utility meter. The power supply to the display suits should come from the metered section of the hotel. A NMI certified and patten approved may be installed for sub metering purpose. Electrical cost for the use in the display suite may be based reading on the NMI meter and the agreed rate.

Supply to the Display suit could potentially be connected to the House distribution board DB-G which is a 250A rated distribution board with upstream protection devices on the main switchboard set to 140A. At the time of site visit, the switchboard is only drawing maximum of 10A at one of the phases pending final engineering calculations. As there is not power meter on the main incomer, it is unable to determine the power load on the Hotel main switchboard what amperage is the main switchboard running at the time of visit.

The cable from the hotel main switchroom to the display suite is proposed to be underground using spare conduits provided from main switchrooms via the existing cable pits to cross roadway. Conduit size & quantity need to be confirmed by the base building contractor. Diversion of the existing conduits to the display will be required and coordinate with existing in-ground services.

If the spare conduits cannot be used, a plan will need to be developed for how the power can be run from the main switchroom and crossing the roadway to the display suite.

2.1.3.2 Connection direct to authority Substation

As Mingara Drive, the display suite and the substation are within the same development title which is different to the development title of the Hotel, a separated supply to the display suite can be requested from the Authority pending final approval. It is noted that from earlier sections there is power capacity available in the substations on site.

The new substation S34563 for the Hotel is closer to the display suite, it is proposed to have the new connection from this substation. Feeder is proposed to be inground directly from the substation to keep the cable as short as possible

A dedicated electricity billing meters can be set up with the authority. Electricity bill is based on the actual consumption market rate.

The adverse impact for this option is that an application will need to be submitted for the disconnection of this supply when not required. L1 ASP will be required for the disconnection work.

Estimated Time for application to Ausgrid.

1.	Application made to Ausgrid	
2.	Ausgrid response	2 weeks
3.	Level 3 ASP quotation	2 weeks
4.	Level3 ASP design work as per Ausgrid response	6-8 weeks
5.	Ausgrid review and approval on Level 3 Design	2weeks
6.	Level 1 ASP quotation	4 weeks
7.	Construction Process	As per Builders Program

2.1.4 Impact on Proposed Retirement Village Power

The power infrastructure required for the display suite is independent to the proposed power supply to the retirement village development. Referring to the Services Infrastructure Report prepared by Neuron, 47045_SIR_05 – 12-14 Mingara Drive, Tumbi Umbi, the power supply to the Retirement Village is through an extension to the Ausgrid HV network connecting to new substations provided as part of the development. The proposed options for the Display Suite are to connect to existing substations or LV switchboards, which would not be part of the works for the Retirement Village.

2.2 Telecommunications

2.2.1 Existing Carrier Services Infrastructure

The existing Carrier infrastructure in the vicinity of the site is depicted in the images below. It is noted that no diversions/relocations are envisaged apart from the carrier cables associated with the Mobile Base Station.

2.2.1.1 Mobile Base Stations

From Radio Frequency National Site Archive (RFNSA) website, there is a Mobile Base Station located on site (all 3 carriers have equipment associated with the site)

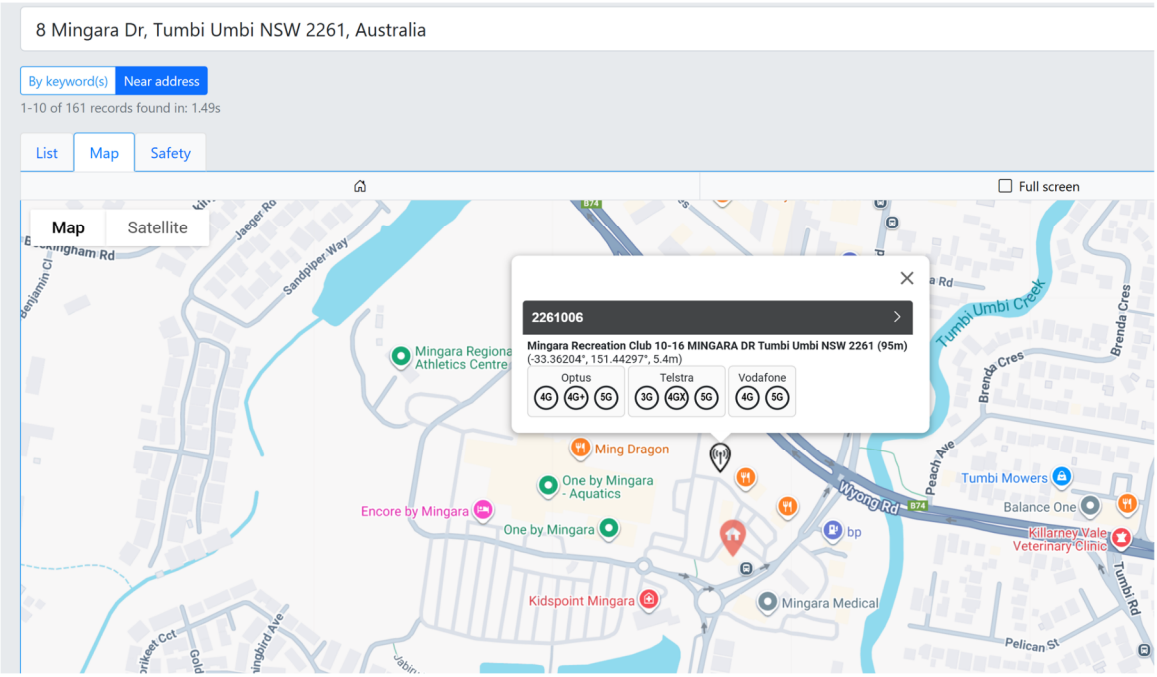

Figure 5: Mobile Carrier Base Station

2.2.1.2 Telstra

Telstra existing inground services are shown below, there are 2 Telstra cable connection to the Club/Hotel from the public section of the Mingara Drive. There is no overhead or inground services to the site where the display suite to be built;

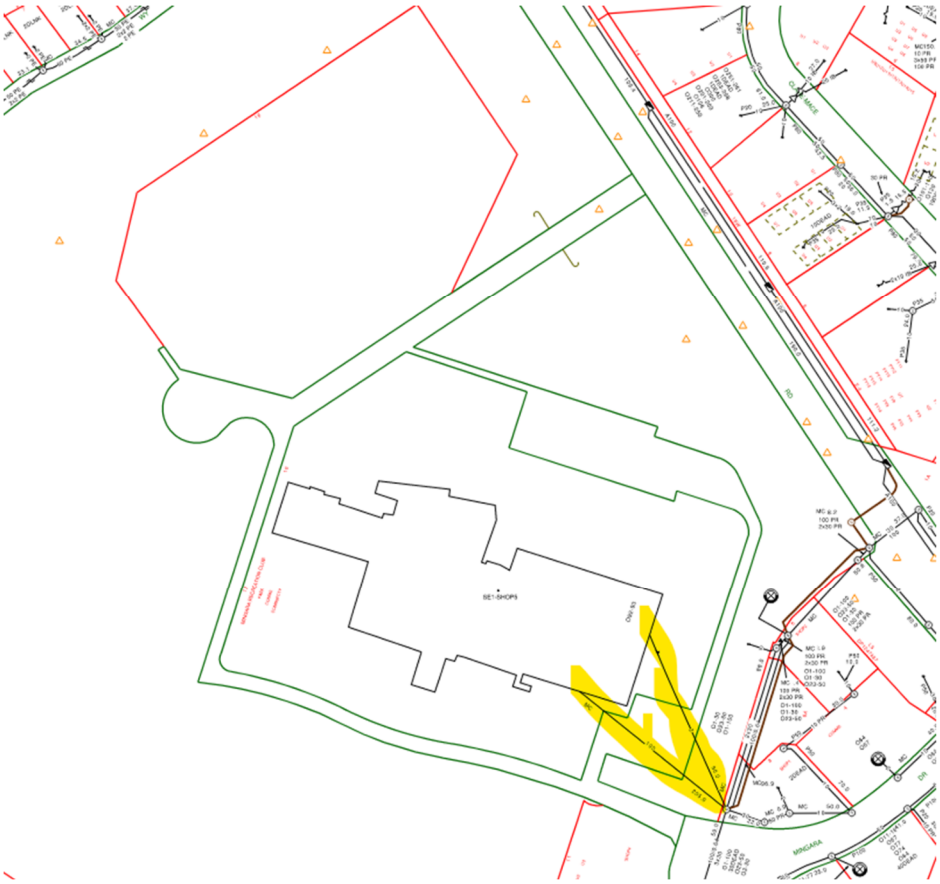

Figure 6: Telstra Cable Plan obtained via DYBD

2.2.1.3 NBN

There are NBN inground services in the public section of Mingara Drive. NBN services is not connected to the site nor the hotel/Club.

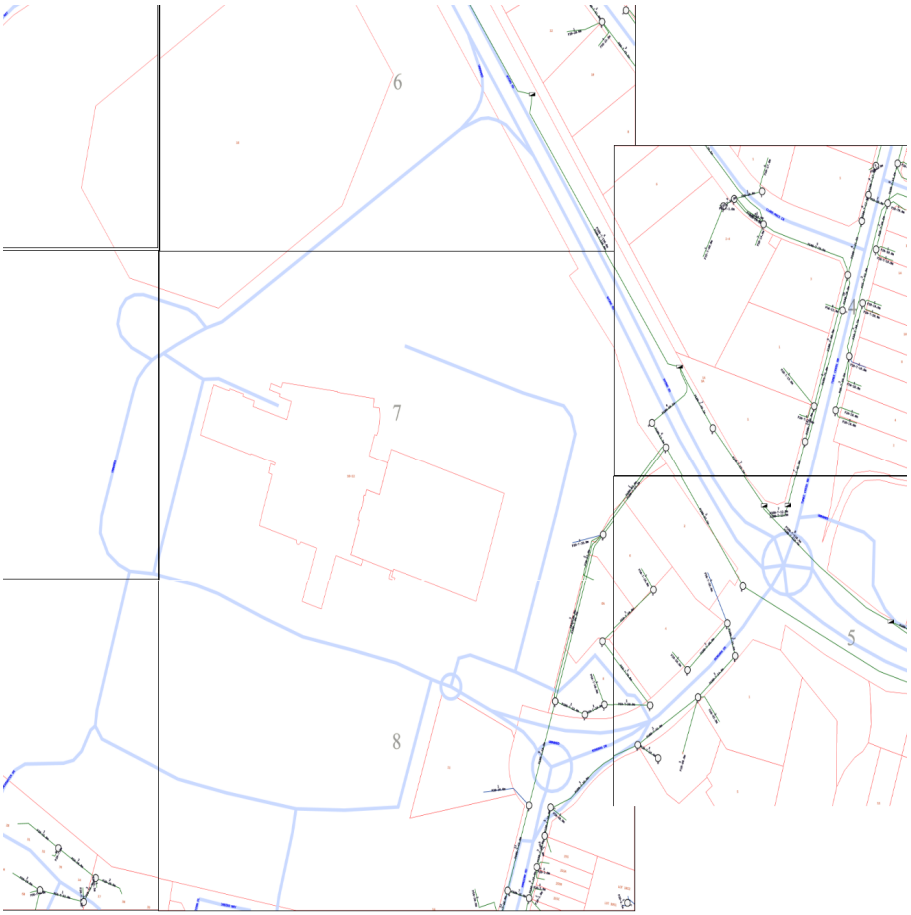

Figure 7: NBN Plan around the site from DYBD

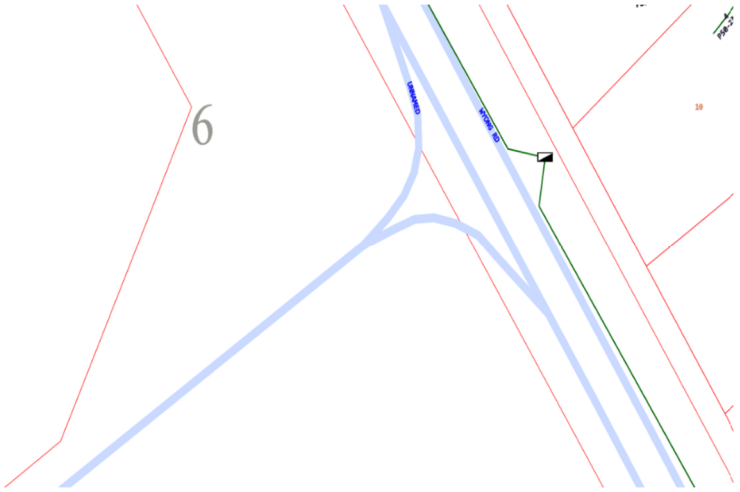

Figure 8: NBN Plan from DYBD (No NBN connection to site from Wyong Road)

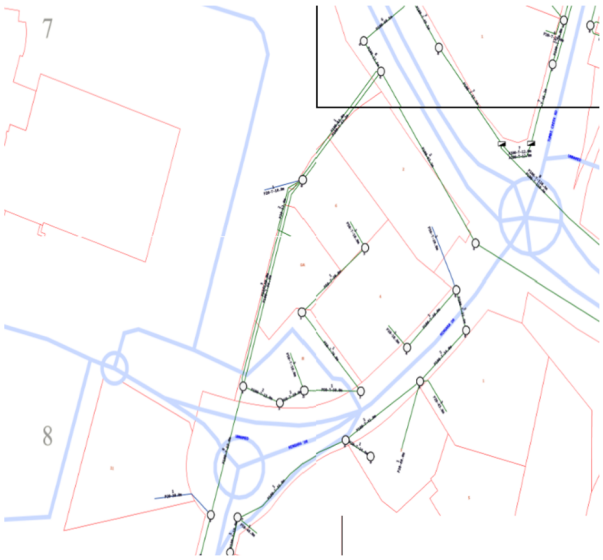

Figure 9: NBN Plan from DYBD (NBN inground services in the public section of Mingara Drive)

2.2.1.4 Optus

There appears to be an existing Optus service into the site vicinity.

Figure 10: Optus cabling plan within the site

2.2.1.5 NBN application

An application for NBN carrier services will need to be lodged. An expected timeframe would be as follows:

1.	Application made to NBN	
2.	NBN response	2 weeks
3.	NBN issue Development Agreement	2 weeks
4.	Developer accepts agreement and returns to NBN Company	2 weeks
5.	Design process	3 - 4weeks
6.	NBN review and accepts process	4 - 6 weeks
7.	Construction Process	As per Builders Program

It is noted that, NBN will levy an infrastructure deployment charge final cost to be advised by NBN.

2.2.2 Other options for communication connections

Considering that the Display suite is temporary services, client to confirm if fixed / wired communication connection is required.

2.2.2.1 Option 1: 5G/wireless boardband

Since there is no inground authority services to the area near the display suite and the carrier mobile services antenna is located near the Mingara Club, 5G boardband connections could be an easy option. Compared to the conventional wired system, 5G/wireless boardband is relative quick and easy to connect. This will also save cost and time for the construction of the inground infrastructure from the street however, there will be no fixed land line connection and all phone conversation shall be using mobile phones.

2.2.2.2 Option 2: a new connection from street

This is a new dedicated services from the street either from public section of the Mingara Drive or from Wyong Road pending which services operation is chosen.

Instead of inground services, overhead Telstra services is available on Wyong Road on the development site.

If Optus or NBN is chosen, the services will need to be underground from the public section of Mingara Drive. If services are expected to be Wyong Road, these services need to cross the other side of Wyong Road.

In additional to the infrastructure costs, there will be carrier charges for the extension of the services.

This is the most expensive option.

2.2.2.3 Option 3: Extending Hotel services communication services

Similar to power option 1, the services might be extended from the Hotel pending approval and agreement on the connection.

This will minimise any work required for infrastructure and maintain the wired connection. However, if the spare conduits in the hotel comms room are not running to the display suite location, a new plan will need to be development how to run the conduits from the hotel main comms room to the display suite.

2.2.3 Impact on Proposed Retirement Village Communications

The communications infrastructure required for the display suite is independent to the proposed communications supply to the retirement village development. Referring to the Services Infrastructure Report prepared by Neuron, 47045_SIR_05 – 12-14 Mingara Drive, Tumbi Umbi, the incoming communications to the Retirement Village will need to be a full NBN pit and pipe solution. The proposed options for the Display Suite are to connect to use 5G / wireless connections or connect to existing networks, which would not be part of the works for the Retirement Village.

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3 Hydraulic Services

3.1 Authority Services

The display suite site is located on a vacant land between Mingara Dive (private road) and the access roadway to the club entry for future development at 14 Mingara Drive Tumbi Umbi which includes an existing sewer and water within the site. The local Water and Sewer Authority for the site is Central Coast Council. The local Gas Authority for the site is Jemena. Dial Before You Dig Plans (DBYD) have indicated the proposed development is in proximity to existing Water, Sewer and Infrastructure Services within the site wide as per list below;

Existing Authority Hydraulic Infrastructure includes:

- Ø200 Authority Water potable water main located in Hansens Road.
- Ø150 Authority Water potable water main located in Thornbill Grove.
- Ø150 Authority sewer main located in Wyong Road.
- Ø150 Authority sewer main located in Sandpiper Way.
- Ø110 @210kPa Jemena gas main located in Hansens Road.
- Refer to the figure below for the existing Authority water and sewer mains.

Refer to the figure below for the existing Authority water and sewer mains.

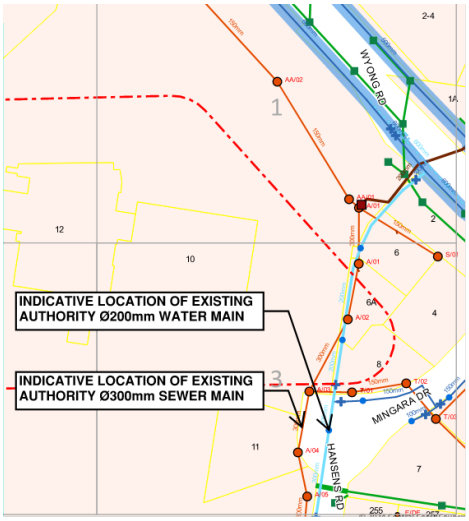

Figure 11: Existing Authority Potable water and Sewer mains off Dial Before You Dig

The proposed development includes roads within the site. It has been assumed that these site roads will not be gazetted and will remain private rather than becoming public roads.

The site includes existing internal water mains, sewer mains and gas mains, which will be utilized to serve the proposed Display Suite.

3.1.1 Water Supply

There is currently a 100 mm water main running adjacent to the proposed display suite. Based on our initial investigations, the as-built drawings and the site plan prepared by Triaxial Consulting indicate that the existing 100 mm water main serves the hotel also runs alongside the proposed display suite.

A branch off the existing 100mm can be extended from this main to the proposed site to supply the required domestic water. Refer to the figure below for the proposed potable water connection.

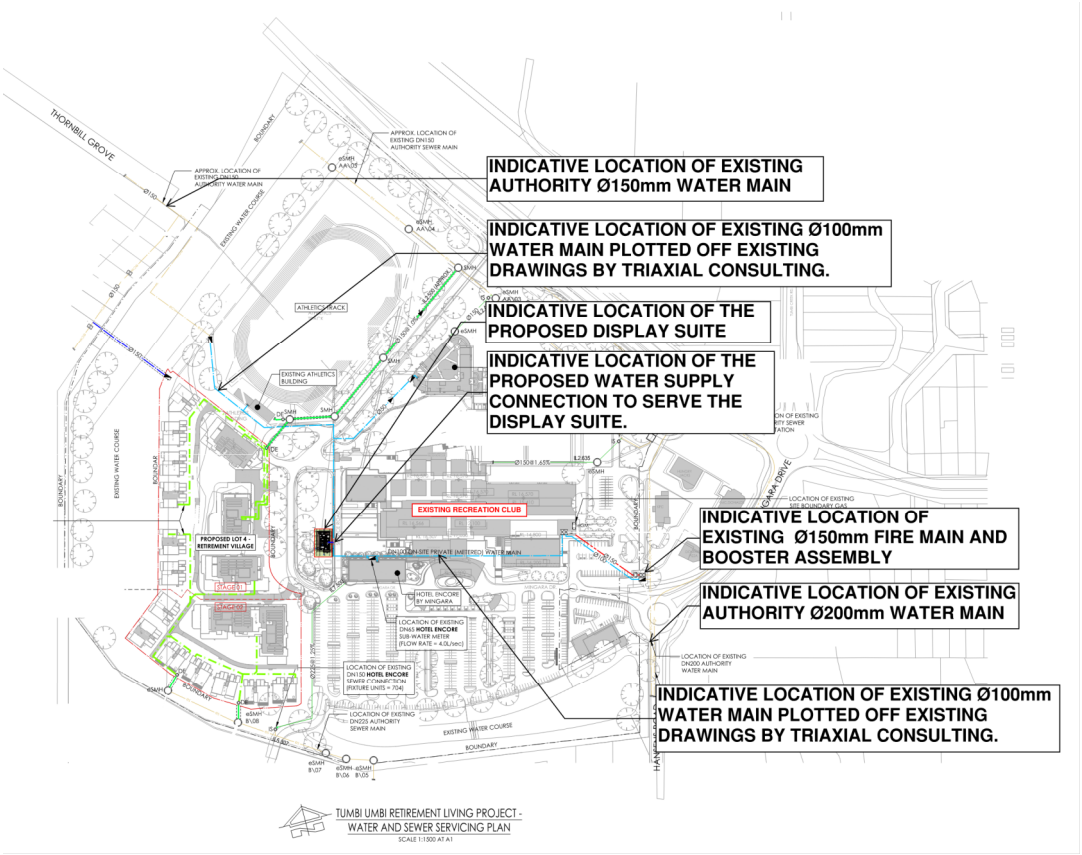

Figure 12: Proposed Potable Water Supply Connection Point

We anticipate the probable simultaneous demand for the proposed development to be approximately 0.52 L/s based on the number of fixtures as shown on plan and calculation table below and can be served via 25mm branch off the existing 100mm potable water main, the Table below includes calculation summary

Table 1 Probable Simultaneous Demand Calculation summary

FIXTURE UNIT LOADING				
PROJECT:	Tumbi Umbi- Display Suite Site Hydraulic Calculation			
FIXTURE	FIXTURE ABBREVIATION	COLD WATER LOADING	QUANTITY	COLD WATER TOTAL LOADING
BASIN	BM	1	3	3
BATH	BTH	8	0	0
BATHROOM GROUP (BASIN, BATH, SHOWER, WC)	N/A	12	0	0
BOILING WATER UNIT	BWU	8	2	16
CLEANERS SINK	CS	3	0	0
CLOTHES-WASHING MACHINE (DOMESTIC)	CWM	3	1	3
DISHWASHING MACHINE (DOMESTIC)	DWM	3	1	3
DRINKING FOUNTAIN	DF	1	0	0
HOSE TAP (20mm)	HT	8	1	8
LAUNDRY TROUGH	LT	3	1	3
SHOWER	SHR	2	2	4
SINK	SK	3	1	3
URINAL	UR	2	0	0
WATER CLOSET	WC	2	2	4
TOTAL				47
DIVERSITY OF FLOW FOR FIXTURES				
LOADING UNITS	47			
FLOW RATE (L/sec)	0.52			

POTABLE WATER CAPACITY

We anticipate the expected water supply demand for the proposed site (Display suite) to be 2.8 KL/Day this based on the assumption on usage, and all fixtures are connected to water supply, below is summary calculation table with the number of fixtures as displayed on the architectural drawings and the assumptions on usage.

This may vary depending on the final usage and number of fixtures will be connected to the water supply. Refer to table below for the design assumptions on the potable water usage and expected water demand calculation summary

Table 2 Expected Potable Water Demand Calculation Summary and Design Assumptions

Fixtures	
No of WC	2
No of Basins	3
No of showers	2
No of Sinks	1
No of LT	1
No of WM	1

Usage Assumptions	Assumed Expected Demand (L/H)	Assumed Expected Demand (L/Day)	Assumed Expected Demand (KL/Day)
WC-4 Flush per hour and 12 hours per Day	32	384	0.384
Basin-4 uses per hour and 12hours per Day Each Basin 6.0L	48	576	0.576
sink -6 uses per hour and 8hours per Day Each sink 20.0L	120	960	0.96
DW-Assume people will use Dishwashing (4 Cycles @ 15L/Cycle)	60	720	0.72
Shower - 1 use per hour 60L and max 2 use per day	120	240	0.24
Assumed Total Amenites/Staff rooms Expected Demand	380	2880	2.88

3.1.2 Sewer Services

There is currently a 225 mm sewer main serves the Hotel Encore located adjacent to the proposed display suite. Based on our initial investigations, the as-built drawings and the site plan prepared by Triaxial Consulting we expect the existing 225 mm sewer is capable of meeting the additional required

sewer demand off the proposed display suite as the proposed number of fixtures connected to the sewer will be minor and can be served via a 100mm sewer pipe connected to the existing 225mm *(Noting most of the time only part of the fixtures off the display units will be connected to the sewer).*

In the case if the invert level of the new sewer off the display suite is not adequate for the connection to the existing a sewer pump station can be an option and will be sized based on the number of fixtures will be connected to the sewer.

Refer to the figure below for the proposed potable water connection.

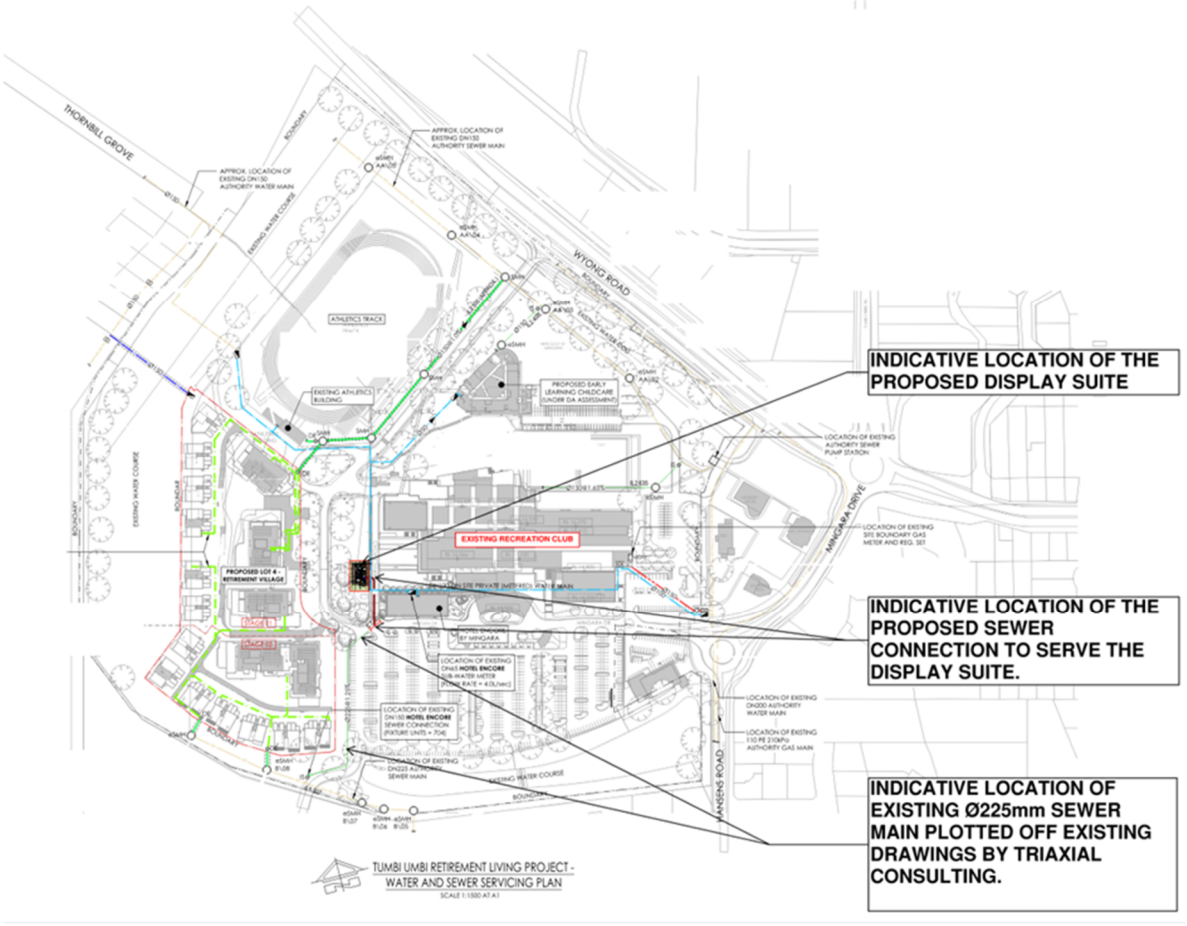

Figure 13: Proposed Sewer Drainage Connection Point

3.1.2.1 Sewer Capacity

The approximate expected sewer discharge off the display suite 2,592 L/day (90% of average daily water usage) ~ 2.592KL/Day. Refer to table below for the design assumptions and expected drainage discharge calculation summary.

Table 3 Expected Drainage Discharge Calculation Summary and Design Assumptions

Fixtures	
No of WC	2
No of Basins	3
No of showers	2
No of Sinks	1
No of LT	1
No of WM	1

Usage Assumptions	Assumed Expected Demand (L/H)	Expected Demand	Drainage Discharge (L/Day)	Assumed Expected Demand (KL/Day)	Drainage Discharge (L/Day)
WC-4 Flush per hour and 12 hours per Day	32	384	345.6	0.384	0.3456
Basin-4 uses per hour and 12hours per Day Each Basin 6.0	48	576	518.4	0.576	0.5184
sink -6 uses per hour and 8hours per Day Each sink 20.0L	120	960	864	0.96	0.864
DW-Assume people will use Dishwashing (4 Cycles @ 15L/	60	720	648	0.72	0.648
Shower - 1 use per hour 60L and max 2 use per day	120	240	216	0.24	0.216
Assumed Total Amenites/Staff rooms Expected Demand	380	2880	2592	2.88	2.592

3.1.3 Gas Services

No Gas has been provided to serve the display suite based on the assumption the cooktop will be display only and not functioning, or will be an electric cook top.

There is currently a Ø110 @210kPa Jemena gas main located in Hansens Road. That could be utilised as a source of supply if gas is required.

3.2 Documents Reviewed

The following documents were reviewed as part of these assessments

- Services Infrastructure report Revision A.
- Services Infrastructure report Revision 5.
- Review of Dial before you dig information.
- Site Plan with all inground existing mains documented by Triaxial Consulting.
- Site Survey.

3.3 Impact on Proposed Retirement Village Water and Sewer

The water infrastructure required for the display suite is independent to the proposed water supply to the retirement village development. Referring to the Services Infrastructure Report prepared by Neuron, 47045_SIR_05 – 12-14 Mingara Drive, Tumbi Umbi, the incoming water connection point to the Retirement Village will need to be a 150mm new mains connection from Thornbill Grove or Wyong Road. The proposed options for the Display Suite are to connect to the existing 100mm mains which runs along side the existing Hotel development. This mains is not be part of the works for the Retirement Village.

The sewer infrastructure for the Display Suite is proposed to be connected to the existing sewer connection to the Hotel. Referring to the Services Infrastructure Report prepared by Neuron, 47045_SIR_05 – 12-14 Mingara Drive, Tumbi Umbi, a new sewer will be required to the development from Wyong Road. This new sewer will be separate to the existing sewer servicing the Hotel to which the Display Suite is proposed to connect to.

3.4 Hydraulic Critical Issues

The following risks and critical issues have been identified at this stage, together with the corresponding objectives and the designated parties responsible for implementing mitigation strategies or corrective actions.

Item No	Hydraulic Service Risk / Issue	Risk Mitigation	Risk Rate
1	There is a risk that a gravity sewer connection from the Display Unit may not be achievable due to the inadequacy of the existing sewer invert level. This may arise either from the higher invert level at the proposed connection point or from coordination constraints with existing inground services, which could result in a lower invert level at the sewer pipe serving the Display Suite.	Sewer pump Station sized based on the number of fixtures connected to the sewer can resolve the issue	Low
2	Low Water Pressure at the connection to the Display suite.	Potable Water pump can resolve the issue	Low

Appendix A

Electrical Power option sketch

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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