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AUSTIN McFARLAND ARCHITECTS
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Date: 1 July 2025
Reference no: 5467-4225X

Attention: **Carolyn McFarland**

Project: **BARRINGTON PRE SCHOOL**

RE: **ADEQUACY OF EXISTING HYDRAULIC SERVICES**

McCallum PFCA has carried out calculations on the existing water supply system and sewer discharge system for the proposed residential conversion to a new Preschool Facility. The results of the calculations are as follows.

EXISTING WATER SUPPLY ANALYSIS

The existing water supply to the site is a 20mm copper supply pipeline to a 20mm boundary water meter. (15W060379)

The pipeline issuing from the outlet side of the meter is a 25mm copper pipeline.

Based on a total Fixture Unit loading of 40 for all sanitary fixtures, a water supply probable simultaneous demand of approximately 0.5 litres/second is expected. (0.5 litres second equates to approximately 5 fixtures being used simultaneously)

Calculations show that the existing 25mm pipeline can accommodate this flow rate at an internal water velocity of approximately 1.2 metres/second.

This is well within the limits of Australian Standard 3500.1:2021 and is considered to be acceptable.

The 0.5 litres/second flow rate through the 20mm customer service pipeline from the water main to the boundary water meter equates to an internal water velocity of approximately 2.2 metres/second. This falls within the 3.0 metres/second velocity requirements of Australian Standard 3500.1:2021 and is considered to be acceptable.

EXISTING LOW PRESSURE SANITARY SYSTEM ANALYSIS

Information obtained from MidCoast Council suggests that the existing sanitary wastewater pump station is approximately 850-900 litres in size. The council has not been able to retrieve accurate records for the property but notes that this is the likely tank size based on other approved residential pump stations in the area.

Calculations have been based on a Sydney Water recommended water consumption rate of 35 litres/child/day for a Childcare facility. Applying a Sydney Water sewer conversion rate of 78% equates to a total sewer discharge rate for the facility of 1,692 litres/day. This allows for a maximum occupancy of 58 children and 4 staff for the facility.

Therefore, the existing sewer pump station is of an insufficient size to be able to cater for the proposed facility.

Our recommendations to cater for the Pre School facility are per the following options.

1) The existing sewer pump station is within the proposed building footprint. If the sewer tank includes a dual pump system and the tank can be successfully excavated and relocated and reinstalled, then another chamber of a similar size will be required to be connected to it. This will achieve a minimum of one day's storage for the site in the event of a pump station failure.
2) If it is found that if the existing system is not a dual pump system, then it is likely that MidCoast Council will require a minimum of 3 days of storage to allow for a pump failure and ensuing maintenance response time. This will require a second chamber of approximately 4,500 litres to be connected to the existing relocated pump station to achieve the minimum storage requirements.
3) If it is not possible to relocate the existing pump station, then a new pump station containing a dual pump system of approximately 2,000 litres will be required to provide storage for a minimum of one day.

4) If a single pump only is intended for use, then a new pump station of approximately 5,200 litres minimum storage capacity will be required.

We trust that this gives sufficient information on the adequacy of the existing sewer and water services for the proposed Pre School facility.
Please call the undersigned should you require either additional information or clarification on any of the points raised in this letter.

Regards

Robert McCallum (Director)
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