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CIVIL ENGINEERING ASSESSMENT

29-33 MARKET STREET, MERIMBULA

PREPARED FOR: squillace

CLIENT: MERIMBULA CENTRAL PTY LTD

REFERENCE: M9358 - REVB

GEOFF METZLER & ASSOCIATES PTY LTD

21 FEBRUARY 2022

CONTEXT

Geoff Metzler & Associates have been engaged by Squillace Architects on behalf of Merimbula Central Pty Ltd to prepare a preliminary assessment of stormwater, water and sewer services for the proposed redevelopment of 29-33 Market Street, Merimbula.

The proposed redevelopment was initially lodged as a concept DA and planning proposal to Bega Valley Shire Council in response to Council's draft Commercial Land Strategy. Following revisions to the design, the submission is ready for lodgement as a DA. The proposal is for a mixed use development comprising retail, parking and activated laneways at street level. The upper ground level has additional parking area with void space above the ground level retail spaces. Further carparking spaces are located on Level 1 which includes residential units above the ground level commercial / retail areas. Levels 2 to 4 are residential units. Transfer structures will be needed above the commercial / retail areas at Level 1 and above the carpark at Level 2.

Preliminary Services Investigation

We have undertaken a desktop services search via Dial Before You Dig and direct contact with Council. We have also reviewed existing survey plans and conducted a site walkover. The existing stormwater, water and sewer services have been collated onto an existing base plan for the site.

The plan positions have been provided however there is limited information available on size and depth of services. This is considered appropriate for the preliminary services assessment.

Stormwater

We have completed a stormwater analysis of the off site flows from the development. We have made a comparison to a greenfield site condition but we consider that there would be a net zero increase in flows due to the current site being a combination of roofed and impervious surfaces.

The catchment of the site extends north to Main Street, south to Monaro Street and west to View Street encompassing an area of approximately 22.6 hectares. There is a drainage gully between Reid Street and Kyeamba Street that arrives at Park Street before entering the stormwater pipe network. There are a series of inlets along Park Street and through the carpark to the west of the site. The inlets are ultimately collected in a box culvert beneath the site comprising twin 2.7m wide x 0.6m high box

culverts. The box culvert discharges to Merimbula Lake beneath the board walk near the intersection of Market Street and Beach Road.

In conducting the analysis of the off site flows we have conservatively assessed the Level 1 garden areas as impervious and applied a runoff coefficient of 0.9.

The off site flows are calculated as follows;

- 5% AEP – 190l/s
- 1% AEP – 260l/s

The preliminary catchment flows for the 1% AEP event have been assessed at 8 cumecs with a time of concentration of approximately 30 minutes. The development flows are expected to have a time of concentration of 2 to 5 minutes. We expect that with the development being located virtually at the outlet of the network that high early discharge would be preferred. The twin cell box culvert appears to have sufficient capacity although we have needed to make assumptions about inlet conditions as the western extent of the culvert is unknown.

The stormwater connection for the development is proposed as 3 branches with direct connection into the existing culvert that collect roof and surface water from each services stack in the development.

Water

There is a 200mm diameter uPVC water main along the Market Street frontage. We have assessed the simultaneous demand for potable water from the development as 9 l/s. The water main is fed from the Berambool reservoir with a site RL of approximately 90 metres. Allowing for say 20% head losses in the system under various flow conditions there is sufficient pressure to serve the development. The proposed branch of the main to service the site is estimated at 80 to 100mm depending on the configuration of metering.

Pressure and flow testing would be required prior to final design.

Fire services would be considered separately.

Sewer

A sewer main runs beneath the site to the north of the proposed lane way in the car park area. We propose to install a new manhole over the sewer main in the car park area and provide a connection point to new sewer branches to the development. Depending on whether a single branch or multiple branches are required, 100mm to 150mm sewer services would be appropriate. At preliminary stage the simultaneous flow for the sewer network has been based on the potable water demand of 9l/s.

Please don't hesitate to contact us to discuss any aspect of the preliminary services assessment.

Yours faithfully,

Geoff Metzler & Associates

Jack Metzler

Director B.E.(Hons) MIE AUST. C.P.ENG

ENGINEERS
AUSTRALIA
Chartered Professional Engineer
MEMBER