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1 August 2022

MURWILLUMBAH EDUCATION CAMPUS

RESPONSE TO SUBMISSIONS – HYDRAULIC SERVICES MEMO

PROJECT NAME:	Murwillumbah Education Campus
PROJECT ADDRESS:	86 Riverview Street, Murwillumbah, NSW, 2484
PROJECT NUMBER:	210450
SSD REFERENCE NUMBER:	SSD-16848913
ATTENTION:	Tahlia Alexander <i>A/Team Leader, School Infrastructure Assessments NSW Department of Planning and Environment</i>
FROM:	Alexander Raad – JHA Engineers

To Tahlia Alexander,

Response to Infrastructure comments made by Tweed Shire Council on Murwillumbah Education Campus.

JHA Engineers prepared Hydraulic and Fire Service documentation for the redevelopment of Murwillumbah Education Campus. The proposed redevelopment has been submitted as part of a State Significant Development (SSD-16848913). Mace Australia on behalf of SINSW have requested that JHA respond to comments made by Tweed Shire Council on a number of infrastructure items to clarify site demand in relation to the existing infrastructure.

A meeting with Tweed Shire Council representatives was convened on the 11th July 2022 to open dialogue on the items addressed in this infrastructure memo.

JHA has provided a table of the comments from council and our response below.

Yours sincerely,

Alex Raad

Hydraulic Engineer

Item 3	TSC Comment	JHA Response
a. Please amend the Infrastructure Management Plan by JHA accordingly to reflect that:		
i.	All new water connections are to be from the proposed 150 mm water main extension in Nullum Street (to be completed by TSC) with:	JHA has assessed the existing site infrastructure (both the potable water and fire service requirements) and confirmed that the existing 100mm water main and existing 100mm connection in Riverview Street provide more than adequate performance to service the development. The intent is that the hydrant and potable water service for the site are both supplied from the existing connection at the north of the site adjacent to the main entry. The fire sprinkler service will be provided via storage tank on-site and hence the combined fire flows will have no impact on the main. During the meeting with Tweed Shire Council representatives on Monday the 11th of July, it was confirmed that there are no objections with use of this connection location. Based on the Pressure and Flow Test results provided by 'Tweed Shire Council' on the 14th July 2022 following the meeting with council representatives, the 100mm water main is able to provide 30L/s which exceeds our site fire hydrant system performance of 20L/s and potable water probable simultaneous demand of 5.0L/s. During dialogue with Tweed Shire Council on the 11th July 2022, it was noted that council had no concerns with the development utilising existing potable water infrastructure if it provided sufficient performance. In summary, no new water connections are required from the proposed 150mm water main extension in Nullum Street as the existing connection at the northern main entry on Riverview Street can be utilised and provides the necessary performance for both the potable water service and fire service to supply the site.
i.	A new fire flow connections from this main; and	JHA has assessed the existing 100mm water main in Riverview Street as having more than adequate performance to cater for the development. Based on this, the new fire flow connection from the proposed 150mm water main extension in Nullum Street is not required, nor provides any benefit to the development.

	A fire flow connection on Nullum Street would significantly impact upon the overall site infrastructure. To comply with AS2419.1 and FRNSW requirements, the Hydrant and Sprinkler Booster assemblies are to be located on Riverview Street. This is for several reasons, including: • Nullum Street is impacted by a significant 1% AEP flood event which would prevent the fire brigade appliance from accessing the hydrant and sprinkler booster assemblies if the area was inundated during a flood event. • A connection on Nullum Street would require the reticulation of fire service pipework from the south (Nullum Street) to a compliant booster in the north (Riverview Street). • To ensure compliance with AS2419.1, 150kPa operating pressure is required at the hydrant booster assembly for brigade operation. Given the topography of the site and accompanying losses in pipework, it is unlikely that this performance would be achieved if the fire flow connection be made on Nullum Street. To meet compliance, a dual diesel hydrant pump-set and 25kL fire water storage tank would be required. This will add significant cost to the development and like the hydrant booster, would require the additional infrastructure to be situated outside the 1% AEP flood impacted area which cannot be achieved by the brigade. During the meeting with Tweed Shire Council representatives on Monday the 11th of July, the extent of flooding on the site was discussed and its importance was agreed by all parties. This confirmed the requirement for the Hydrant and Sprinkler Booster location on Riverview Street. As a result of the Booster location, the water supply is to be from the existing connection on Riverview Street.
ii. An interconnection of the existing fire water meter/connection in the north west corner of the site to the new fire connection in Nullum Street. This is to be via a private main linking the two public water meters.	Having assessed the existing 100mm water main in Riverview Street as having adequate performance, there is no need to interlink the existing fire water meter/connection in the north west corner of the site to a potential new fire connection in Nullum Street. Interconnection of the two authority mains would also impact future development and expansion opportunities within the site. Given the existing Riverview Street water connection is suitable for providing potable and fire

		water for the site via an existing connection without impacting Council infrastructure, an additional private main through the site is not necessary, and the project need not be burdened with the additional works, cost and ongoing maintenance this would generate.
II.	Please provide a quantification of the proposed development's water demand in accordance with Development Design Specification D11.	Refer to Appendix A(i).
III.	Please confirm if the proposed development is to be serviced via the existing water meter for potable domestic supply, or, if additional water meters are proposed. Please note all new water meters are to be from the water main extension in Nullum Street are to be hydraulically interlinked from the private "mainline" servicing the existing water meters.	Based on existing survey data, there is an existing 100mm potable water meter kit serving the site adjacent to the main entry along Riverview Street. JHA has assessed the site's potable water demand and has confirmed that the existing 100mm meter kit is of ample size to cater for the site. During the meeting with Tweed Shire Council representatives on Monday the 11 th of July, it was confirmed that there are no objections with the intent to utilise the existing 100mm meter kit and repurposing the connection for the both fire service and potable water supply. In summary, no additional water meters are required and hence no connection to the Nullum street main is necessary.
b.	The Infrastructure Management Plan by JHA states "all new portions of the development can drain via gravity to Council's infrastructure". Please provide conceptual engineering plans demonstrating that all proposed buildings can be serviced via private sanitary drainage.	JHA has provided documentation indicating how the private sewer drainage reticulates through the site. (Appendix B).
c.	Please provide a quantification of the proposed development's sewer demand in accordance with TSC Development Design Specification D12.	Refer to Appendix A(ii).
d.	There are existing 750mm trunk water mains traversing the site. Please provide amended plans displaying compliance with TSC Development Design Specification D15 and TSC Development Design Specification D11 which specifically addresses the following: <i>I. Please provide a survey plan of the infrastructure;</i> <i>II. Please include a 5.0-metre-wide easement centrally located about the surveyed location of the infrastructure;</i>	Refer to response undertaken by TTW.

- III. No buildings, structures, footings or landscaping greater than 1.0 metre in height at maturity within the infrastructure are to be located within the required easement;
- IV. Please provide plans demonstrating that these water mains can be access and maintained at times, and, that any repairs and/or augmentations to these mains will not interfere with the proposed development's operations; and
- V. Please provide plans confirm that cut/fill over these water mains will not compromise TSC's cover requirements as identified in TSC Development Design Specification D11. Please note TSC intends to provide conditions of approval requiring a Section 68 application to demonstrate how this main will be protected throughout construction.

APPENDIX A

(i) WATER LOAD ESTIMATION

Peak Potable Water Flow – 5L/s (based on Probable Simultaneous Demand in accordance with AS3500)

(ii) SEWER LOAD ESTIMATION

Abbreviations

- EP – Equivalent Tenements
- ADWF – Average Dry Weather Flow
- PDWF – Peak Daily Dry Weather (sanitary) Flow

Formulas

- $ADWF = 0.0021 \times EP$
- $PDWF = d \times 0.0021 \times EP$
 - $d = 5$
 -

Current school population: 495

Proposed School population: 1872

Increased School population: 1377

Calculations based on new development without consideration for existing loads:

Units (Students/Staff)	EP/Units (Table A2)	Calculated EP's	ADWF (l/s)	PDWF (l/s)
1872	0.2	374.4	0.786	3.93

Calculations based on existing development with consideration for existing loads:

Units (Students/Staff)	EP/Units (Table A2)	Calculated EP's	ADWF (l/s)	PDWF (l/s)
1377	0.2	275.4	0.578	2.89

APPENDIX B

Refer to attachment.