

Before an Independent Hearings Panel  
Appointed by Waimakariri District Council

---

*under:* the Resource Management Act 1991

*in the matter of:* Submissions and further submissions on the Proposed  
Waimakariri District Plan and Variation 1

*and:* Hearing Stream 12: Rezoning requests (larger scale)

*and:* **Crichton Developments Limited**  
(Submitter 299)

Statement of evidence of Tim McLeod (Civil Engineer) on behalf of  
Crichton Developments Limited in relation to Gladstone Road  
rezoning request

---

Dated: 5 March 2024

---

Reference: J M Appleyard (jo.appleyard@chapmantripp.com)  
A M Lee (annabelle.lee@chapmantripp.com)

chapmantripp.com  
T +64 3 353 4130  
F +64 4 472 7111

PO Box 2510  
Christchurch 8140  
New Zealand

Auckland  
Wellington  
Christchurch



## **STATEMENT OF EVIDENCE OF TIM MCLEOD ON BEHALF OF CRICHTON DEVELOPMENTS LIMITED**

### **INTRODUCTION**

- 1 My full name is Timothy Douglas McLeod. I am a Senior Civil Engineer at Inovo Projects Limited.
- 2 My qualifications include a Bachelor of Natural Resources Engineering from Canterbury University (BE[NatRes]), and I am a Chartered Member of Engineering New Zealand (CMEngNZ) and Chartered Professional Engineer (CPEng).
- 3 I have nearly thirty years' experience as a Civil Engineer working on a range of infrastructure and land development projects.

### **CODE OF CONDUCT**

- 4 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

### **SCOPE OF EVIDENCE**

- 5 I have been asked to comment on the relief sought by Crichton Developments Limited (*Submitter 299*) in relation to the proposed Waimakariri District Plan (*Proposed Plan*). Specifically, the request to rezone land at 145-167 Gladstone Road (*the site*), Woodend to Large Lot Residential Zone (*the Proposal*).
- 6 My evidence provides an infrastructure assessment of the Proposal.
- 7 In preparing my evidence, I have reviewed:
  - 7.1 The Outline Development Plan (*ODP*) prepared for the proposal by **Mr Compton-Moen**;
  - 7.2 Waimakariri District Council Activity Management Plan 2021 - Woodend-Pegasus Water Supply Scheme;
  - 7.3 Waimakariri District Council Activity Management Plan 2021 - Woodend Wastewater Scheme; and
  - 7.4 Tetrattech Coffey Geotechnical Assessment Report 773-CHCGE332958.

## **SITE DESCRIPTION**

- 8 The site is legally described as Lots 1 & 2 DP 29099 and has a total area of approximately 22.72ha. The site is located at the south-eastern edge of the Woodend township, bounded to the north by Gladstone Road and Rural Land, to the west by Rural Land and Residential Land zoned Res4a and Res2, to the south by Rural Land and to the east by Rural land. The site topography is generally flat land and the site is currently used for farming or associated rural activities, with a dwelling located on Lot 1.
- 9 The eastern portion of the site is designated for the Woodend Bypass section of the proposed Belfast to Pegasus Motorway.
- 10 The proposed zoning change from Rural Lifestyle Zone (*RLZ*) to Large Lot Residential Zone (*LLRZ*) is generally consistent with the surrounding existing LLRZ environment to the south-west. The change in zoning to LLRZ will yield approximately 27 new lots/dwellings.

## **POTABLE WATER**

- 11 The nearest connection point to the existing Waimakariri District Council (*WDC*) reticulated potable water supply main is located at the intersection of Gladstone Road and Petries Road. Should this be the point of supply, a new watermain will be required to be installed for approximately 370m along Gladstone Road from the existing Ø100mm main at the intersection of Gladstone Rd and Petries Road to the site boundary to service this site. Fire hydrants will be required to be installed to meet the New Zealand Fire Service Firefighting Water Supplies Code of Practice.
- 12 Regarding capacity for supply of potable water to the site, on Page 28 of the WDC Activity Management Plan 2021 (Woodend-Pegasus Water Supply Scheme) it states for the Woodend-Pegasus Water Supply Scheme *"while there is sufficient capacity for current demands, there is not sufficient capacity available to meet the 10 year projected demand. However, there is a well site in the Equestrian Park area which has the potential to deliver similar flows to the other EQ wells (approximately 37L/s) once fully developed. This source upgrade is scheduled to be undertaken in 2025/26, bringing the total capacity to 192 L/s (155 L/s + 37 L/s). There is an additional upgrade scheduled for 2043/44 to provide source water for the full 50 year period."*
- 13 Based on the above statement, capacity of 192 L/s will be available in 2025/2026 and, based on Table 16, the projected 10 year demand and required capacity for the current scheme would be 174 L/s. This means there would be 18 L/s additional capacity for growth outside of the existing projected scheme boundary. Based on a 27 lot development on restricted water supply, demand is expected to be >1 l/s for potable water supply and 26.5 l/s for a fire fighting scenario.

- 14 2025/2026 would coincide with the timeframe for development of this site so capacity in the water supply network will be available at the time of development.

### **WASTEWATER**

- 15 There is currently no reticulated wastewater available for connection at the site boundary.
- 16 Similar to the Copper Beech rural-residential development on the adjacent site to the south-west, a low-pressure sewer system discharging to the Woodend gravity network in Petries Road is a feasible option to service the proposed development density.
- 17 A new low-pressure main will be required to be installed for approximately 370m along Gladstone Road discharging into the existing gravity manhole at the intersection of Gladstone Rd and Petries Road. The existing gravity system drains to the Petries Road Wastewater Pump Station, which then pumps to the Woodend Wastewater Treatment Plan.
- 18 Regarding overall capacity for providing wastewater reticulation to the area, on Page 23 of the Waimakariri District Council Activity Management Plan 2021 for the Woodend Wastewater Scheme it states *"The capacity of the Woodend Wastewater Treatment Plant is designed to accommodate the new Pegasus Town and future upgrades to Woodend. A third oxidation pond is scheduled for construction in 2031 to cater for predicted growth."*
- 19 Projected wastewater demands for the proposed large lot residential zoning are approximately 2.11 L/s for peak wet weather flow.
- 20 A low-pressure sewer system has built-in on-site storage and the ability to regulate the pumped discharge to the Council reticulated network to discharge at off-peak times which can assist in reducing demand on the downstream network and to ensure capacity is available.

### **STORMWATER**

- 21 Tetrattech Coffey (NZ) Ltd have completed several CPTs and Hand Augers and provided a Geotechnical Assessment for the site. Testing indicates that the site has a surficial topsoil layer between 0.3 and 0.6m thick which overlays sands, silty sands and sandy silts of varying densities to between 4.5mbgl and 6.0mbgl. Their report states *"Site specific CPTs indicate a groundwater level between 2.0mbgl and 5.5mbgl. Deepest groundwater was observed in the southwest of the site and shallowing towards the northwest"*. Their report also states *"the risk of lateral spreading within the terrace area is considered to be low"* and *"a foundation technical category, as per MBIE, of TC1 like for foundation design is appropriate for the proposed development site"*.

- 22 Given the favourable ground conditions as stated above, there are multiple options for providing stormwater treatment and attenuation on-site to mitigate the effects of residential development on stormwater quality and attenuate run-off to pre-development levels. Options include treatment by swales and basins, and attenuation and mitigation of increased run-off by retention basins, soakage basins and on-site soakpits. Due to the large lot nature of the sites, and the relatively low ground water levels, there is likely to be ample space for such options. An indicative location is shown on the ODP for a stormwater management area for managing runoff from the road corridor should this be necessary.
- 23 There are no obvious impediments to obtaining a stormwater discharge consent (for disposal of stormwater to ground via soak pits and appropriate treatment devices where required) for large-lot residential development that would be enabled by the Proposal.

### **FLOOD RISK**

- 24 The WDC Natural Hazards Map of the 200 year Localised Flood Depth, indicates that small parts of the site to west of the proposed motorway designation (Woodend Bypass) has flood depths of between 0.1m and 1m concentrated around an existing stormwater network drainage channel in the centre of the site.
- 25 Given the proposed development density for residential large lot is a minimum site area of 5,000 m<sup>2</sup>, there will be sufficient opportunities, at the time of development of the site, to provide suitable building platforms, with set finished floor levels and suitable freeboard from modelled flooding in the 200 year event.
- 26 The WDC Natural Hazards Map indicates inundation from the flood channel associated with the Wai Hora Stream affecting the eastern part of the site. The flood channel is located on the north and east side of the proposed motorway designation which will effectively cut-off or divert flood flows and protect the site.

### **POWER AND TELECOMMUNICATIONS**

- 27 MainPower New Zealand Ltd (electricity supplier) have confirmed there is sufficient capacity within their high voltage network to supply the proposed development site.
- 28 Enable Networks Ltd (fibre telecommunications supplier) have confirmed there is sufficient capacity within their network to supply the proposed development site.

### **CONCLUSION**

- 29 All the reticulated infrastructure required for the site to be developed as LLRZ can be provided by extending existing infrastructure to the site. The WDC Activity Management Plans for water and wastewater

describe planned network upgrades to cater for projected growth in the area. Electricity and fibre network providers have confirmed the existing network has capacity to service the proposal.

- 30 Increase in stormwater runoff can be managed on-site to ensure post-development runoff generated from the site is no greater than pre-development runoff. A range of stormwater treatment options are available for the site.
- 31 Any flood risk can be managed through setting appropriate minimum floor levels for any buildings on the site.

Dated: 5 March 2024

---

Tim McLeod