

BEFORE THE HEARINGS COMMISSIONERS FOR THE WAIKATO DISTRICT COUNCIL

UNDER the Resource Management Act 1991

AND

IN THE MATTER of hearing submissions and further submissions on the
Proposed Waikato District Plan

Hearing 25 – Residential Zone Extents

PARTIES REPRESENTED **POKENO WEST LIMITED (97)**

CSL TRUST AND TOP END PROPERTIES (89)

**STATEMENT OF CIVIL ENGINEERING EVIDENCE OF
WILLIAM MOORE FOR POKENO WEST LIMITED, CSL TRUST AND TOP END
PROPERTIES**

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1. INTRODUCTION

- 1.1 My full name is William Edwin Lewis Moore. I am a Chartered professional engineer and a Director of Maven Associated Ltd.
- 1.2 I hold a Bachelor of Engineering degree in Civil engineering from Auckland University). I am a registered member of Engineering New Zealand.
- 1.3 I have 15 years' experience in undertaking civil engineering design for clients in land development projects both the public and private sectors on a wide variety of major projects.
- 1.4 This evidence is in support of the submission by Pokeno West Limited, CSL Trust and Top End Properties for the proposed urbanisation of the 255 hectare area of land at 53 & 53A Munro Road and 87, 119, 133, 145A, 145C, 179, 203 and 205 Helenslee Road, Pokeno ('the **Site**').
- 1.5 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. I have complied with the Code of Conduct in preparing this statement of evidence and confirm that I will do so in presenting my evidence to the hearing commissioners. Unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

2. SCOPE OF EVIDENCE

- 2.1 My evidence will outline why I consider that the proposed Pokeno West development is appropriate and would fulfil the need for residential intensification and provide an opportunity for an innovative and environmentally sustainable urban development.
- 2.2 My evidence will cover:
 - a) Summary of evidence (Section 3);
 - b) Brief overview of the engineering aspects of the proposal (Section 4);
 - c) Overland flow and Flooding (Section 5)
 - d) Earthworks (Section 6);
 - e) Stormwater (Section 7);
 - f) Wastewater (Section 8);

- g) Water (Section 9)
- h) Other Utilities (Section 10)
- i) Comment on Council's section 42A report (Section 11);
- j) Comment on submissions; (Section 12) and
- k) Conclusions (Section 13).

3. SUMMARY OF EVIDENCE

- 3.1 I can confirm based upon our investigation and reports to date that servicing for the Plan Change can be provided and enable development as proposed by the District Plan review.
- 3.2 WDC and WRC have confirmed that stormwater, wastewater, water supply servicing can be provided with the necessary upgrades being implemented as and when required for the development of the Pokeno West structure plan area.

4. THE PROPOSAL

- 4.1 The structure plan area will be subject to a live residential zoning. In total the residential redevelopment of the structure plan area will provide for approximately 1350 new houses.
- 4.2 The development of the structure plan area will require a comprehensive stormwater management plan (SMP) providing stormwater quality treatment and stormwater attenuation to restrict any potential downstream flooding effects.
- 4.3 The development of the structure plan area will require a new comprehensive wastewater and water supply network design including the installation of new infrastructure connecting the structure plan area to the existing network.

5. OVERLANDFLOW AND FLOODING

- 5.1 The Pokeno Stormwater Catchment Management Plan identifies overland flow paths ("OLFP's") which traverse the site from the west to the east.
- 5.2 Future development of the structure plan area will maintain the entry/ exit points and the capacity of existing OLFPs and not cause an increase in risk or hazard to any upstream or downstream properties.
- 5.3 Future development will maintain the function of OLFPs to safely convey flood waters and not increase the risk of flooding to any downstream property.

- 5.4 The 1% annual exceedance probability (“AEP”) floodplain was prepared by WSP OPUS in 2018 which entails a comprehensive assessment of cumulative flooding effects of current Pokeno development.
- 5.5 In accordance with Regional Infrastructure Technical Specifications (“RITS”) requirements, new structures and buildings adjacent to the 1% AEP floodplain require minimum floor levels (“MFL’s”) to meet freeboard requirements.
- 5.6 Future development of the Pokeno West area will not be within the 1% AEP floodplain, with all development will be located outside of this flood plain, please refer to appended plans within Appendix A.
- 5.7 Future development will require specific MFL assessment to confirm the 1% AEP flood level and ascertain minimum floor levels in accordance with RITS requirements.

6. EARTHWORKS

- 6.1 The subject site is located within the Tanitewhiora stream catchment area. The perennial stream is the immediate receiving environment for stormwater runoff, downstream discharge is to the Mangitawhiri swamp/ wetland and ultimately the Waikato River.
- 6.2 Earthworks will be required to create suitable roading and lots to facilitate future residential development. The proposed concept plan prepared by Birch Surveyors Ltd. Proposed standard sized lots within the flatter portion of the site, with larger lots proposed in the steeper areas of the site.
- 6.3 Runoff from the future development area during earthworks will be treated to ensure that the receiving water’s stormwater quality is not adversely affected.
- 6.4 Proposed measures for erosion and sediment control will be designed in accordance with the Waikato Regional Council’s (“WRC’s”) Erosion and Sediment Control Guidelines for soil disturbing activities document and sediment control factsheets.

7. STORMWATER

- 7.1 A new Stormwater Management Plan (‘SMP’) will be required to facilitate future development of the area which will determine stormwater management requirements. The SMP should be undertaken by WDC or by a suitably qualified private consultancy on behalf of WDC.
- 7.2 WDC have confirmed that a new SMP will be implemented in a timely manner to allow future development within the proposed timeframes of the District Wide Review.

- 7.3 The new SMP will set out recommendations for the long-term stormwater management within the catchment which will form the basis for a stormwater discharge consent in support of the future development.
- 7.4 The SMP will incorporate a Water Sensitive Design approach focusing on reducing or eliminating stormwater runoff generation through source control and utilising natural systems and processes to manage stormwater quality effects.
- 7.5 Future development of the structure plan area will be consistent with the SMP and incorporate stormwater attenuation and stormwater quality methods into the infrastructure design associated with residential land.
- 7.6 The proposed stormwater management methods will entail the following:
- Wetland ponds to provide stormwater treatment of the water quality volume (1/3 of the 2 year, 24-hour rainfall).
 - Wetland ponds to provide stormwater attenuation to limit post-development peak discharges for the 10% AEP and 1% AEP storm events to their pre-development peak discharge release rates.
 - Wetland ponds located offline from the existing watercourse and streams.
 - Streams to be protected through planted riparian areas.
 - Streams to be protected from the receiving environment by maintaining flow of the 'first flush' rainfall event (34.5mm or that calculated from first principals) released over a 24-hour period.
 - Onsite measures to provide soakage, retention, and detention.
 - Raingardens for public roads to provide stormwater treatment and retention.
 - Existing flood plain areas to retain existing flood volumes.
- 7.7 Future development will require specific design in accordance with the guidelines of Waikato District Council's RITS and be in accordance with Waikato Regional Council guidelines.
- 7.8 Subject to the development complying with the overarching principles listed above, stormwater management (mitigating downstream flooding effects) can be achieved within the proposed Pokeno West plan change area, thus enabling the land suitable for residential development, and ensuring no downstream effects.

- 7.9 Stormwater management will maintain pre-development flood flows from future land use change. (ie. no change from pre to post development), ensuing the development is stormwater neutral.
- 7.10 Attenuation measures will be provided wholly within the Pokeno West area with a combination of measures located both onsite and within the lower flatter land within the catchment, as necessary.
- 7.11 WDC and WRC have confirmed that stormwater management information provided to date confirms that the proposed Pokeno West area can facilitate future residential development without having adverse effects on downstream properties.

8. WASTEWATER

- 8.1 Waikato District Council has commissioned GHD to develop a Wastewater Servicing Strategy (“WSS”) for the Pokeno area. The WSS outlines the long-term wastewater strategy for Pokeno provides guidance around the required upgrades to support the growth of Pokeno, including the structure plan area.
- 8.2 The WSS will facilitate future development of the Pokeno area by providing wastewater infrastructure to cater for the projected growth of Pokeno. Projected population growth and the resulting wastewater flows from the Pokeno catchment are documented in GHD’s ‘Tech Memo – Growth: Population and Flows’, October 2018.
- 8.3 The proposed ‘upgrade packages’ and the sequencing of these upgrades, have been selected based on ensuring that sufficient capacity is available in the wastewater network at the right time period, to enable residential, commercial and industrial growth in the Pokeno area.
- 8.4 The recommended strategy entails a new “Hitchen 2” pump station and new rising main to be constructed from Pokeno along Whangarata road to Bollard road (gravity network). This new Hitchen 2 Pump station would have an initial capacity of 220 to 250 L/s.
- 8.5 Pokeno West is predicted to contribute approximately 41 l/s of Peak Wet Weather Flows (‘PWWFs’). Pokeno West would utilise the exiting rising main on Whangarata Rd once the new pump station and rising main is constructed.
- 8.6 For the purpose of this evidence, it is anticipated that the wastewater upgrades will be completed prior to the development of the structure plan area to enable future residential development. This has been confirmed with WDC.

9. WATER

- 9.1 Waikato District Council are tasked with servicing the Pokeno region for both wastewater and potable water supply. WDC IntraMaps identifies a public water network adjacent to the eastern perimeter of the structure plan area (within the existing urban area).
- 9.2 There is an existing 150mmØ watermain which runs on the eastern boundary of Helenslee Road which contains Fire Hydrants at regular intervals to service the residential development to the east. There is an existing 300mmØ bulk watermain located at the corner of Helenslee Road and Hillpark Drive approximately 700m from the structure plan area.
- 9.3 The development of the structure plan area will require a comprehensive water network upgrade including the installation of new infrastructure connecting the future urban area to the existing network. The WDC RITS sets out the design principles for potable water supply and firefighting service and requires adequate lot connections for all future development lots.
- 9.4 All new infrastructure will be designed to have capacity to cater for the MPD of the structure plan area in accordance with WDC RITS guidelines and will be subject to Engineering Approval. The proposed network will provide suitable water connection points for the future development of the structure plan.
- 9.5 The Watercare Code of Practice for Land Development and Subdivision sets out the design principles for potable water and firefighting supply and requires assessment against SNZPAS 4509:2008 NZ Fire Service Fire Fighting Water Supply Code of Practice.
- 9.6 The firefighting water supply classification for residential development in suburban areas is FW2. Any future residential development would need to meet the following water supply requirements.
- 9.7 Network capacity has been investigated with Waikato District Council who have informed potential upgrades will likely be required with future development of the structure plan area, however, water supply can be provided as necessary for residential development.
- 9.8 Further investigation will be undertaken under the RC process to determine what upgrades are necessary for the future development of the structure plan area. Any shortfall on supply can also be overcome onsite with private water tanks
- 9.9 Flow rates and pressures are to be tested to confirm minimum requirements for the water supply classification stipulated in SNZPAS 4509:2008 can be achieved for all future buildings.

10. OTHER UTILITIES

- 10.1 Existing service networks are present in the surrounding area and telecommunications and power is available for future development of the Pokeno West area.
- 10.2 It is anticipated that network upgrades and extensions will be required to support future residential development which will be undertaken as required.
- 10.3 Services will be connected to the proposed development as per respective service agreements with providers. Telecommunications in the area are managed by Chorus, power is managed by Counties Power, there is no known gas reticulation within the area

11. COMMENT ON SUBMISSIONS

- 11.1 Comments on submission from Pokeno Village Holdings Limited dated 09/10/18.
- 11.2 5.26 Disagree, stormwater management can be achieved within the proposed Pokeno West plan change area enabling the land suitable for residential development.

Stormwater management including attenuation and quality treatment will be provided as necessary to avoid adverse downstream stormwater issues. This will be achieved via mitigation measures to maintain pre-development flood flows from future land use change.

Attenuation and quality measures will be provided wholly within the proposed plan change area via a combination of measures located both onsite and within the lower flatter land within the catchment as necessary.

WDC and WRC have confirmed that information provided to date will allow the proposed Pokeno West plan change area to facilitate SW management and future residential development.

- 11.3 5.29 Disagree, The Engineering Report prepared by Maven Associates includes stormwater management analysis which will mitigate any potential adverse downstream impacts.

It is noted that this level of detail is not typically required as part of proposed plan change documentation. Irrespective of this, the report provides specific detail as to how future stormwater will be managed, which will enable the intended development whilst avoiding any downstream impacts. I draw attention to the following as evidence of sufficient detail to support the intended rezoning:

- Proposed attenuation measures to maintain pre-development flood flows from future land use change.

- Stormwater sub catchment analysis which has identified and sized stormwater management devices (wetlands).

SW management will be provided wholly within the plan change area with a combination of measures located both onsite and within the lower flatter land within the catchment, as necessary.

In response to Paragraph 5.26-5.29 of the Pokeno Village Holdings Ltd submission, I disagree that this approach presents any risk to downstream properties. All stormwater attenuation devices will be subject to detailed design through the future resource consenting and engineering plan approval processes. The devices will be constructed in accordance with best practice guidelines and will be designed to contain events for an up to the 100-yr event (with allowance for climate change).

It is not appropriate nor common practice to plan for the failure of infrastructure or to evaluate the risks if proposed infrastructure were to fail.

11.4 5.3 Disagree – there is a clear framework developed which identifies the required infrastructure upgrades and the developer will be responsible for the construction and funding of all stormwater networks, inclusive of attenuation devices. The design will be subject to resource consent and engineering plan approvals processes. The development of the stormwater network (inclusive of catchment wide attenuation) will be completed in support of development applications.

11.5 5.31 Agree, The Engineering Report prepared by Maven Associates states that a new SMP will be required in support of any future development resource consent application in the proposed Pokeno West plan change area. (post zoning change).

The SMP will likely be undertaken by WDC and will confirm stormwater management requirements, including:

- Identifying stormwater issues within the catchment and identifying potential options to address these issues,
- Set out recommendations for the long-term stormwater management within the catchment which would form a basis for a stormwater discharge consent in support of future development.

11.6 5.33 Disagree, The Engineering Report prepared by Maven Associates acknowledges that there is no capacity in the wastewater network for the development of Pokeno West,

however, the report identifies solutions which have been further investigated by WDC and Watercare.

At the time the report was issued by Maven Associates, WDC were investigating wastewater capacity solutions, since this time a strategy plan has been determined which is consistent with the solutions identified in the report, including-

- The proposed Pokeno West plan change area will require a new pump station located at the low point of the catchment and will have telemetry with the other main pump stations in the area.
- The pump station will connect to a new upgraded rising main on Pokeno Road which will be installed on the same alignment as the existing network rising main.
- The pump station will connect to the network rising main at the closest point to the site via Munro Road and 'plug' into the existing network.

11.7 The GHD report (identifies the wastewater upgrades required to facilitate the development of Pokeno West. The report also outlines capital costs associated this work, to cover the next WDC Long-Term Plan period. This infrastructure will be funded by WDC, in collaboration with Watercare Services Ltd.

12. CONCLUSIONS

12.1 In conclusion, the proposed Pokeno West development would fulfil the need for residential development and provide an opportunity for an innovative and environmentally sustainable urban extension of the existing Pokeno area. The proposal is largely consistent with regional growth strategies for the area and would result in a logical extension of the Pokeno township.

12.2 The development is supported by a detailed water and wastewater infrastructure strategy prepared by GHD on behalf of WDC and Watercare. The strategy identifies infrastructure upgrades which will enable the intended rezoning of the land. The work will be completed and funded by WDC.

12.3 The stormwater management solution (which will guide the future SMP) will enable the proposed residential development, whilst ensuring there are no downstream effects. A SMP will be prepared prior to any development of the Pokeno West area and will be subject to consultation with WDC and WRC.

Will Moore

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