BEFORE THE WAIKATO INDEPENDENT HEARINGS PANEL

In the Matter	of the Resource Management Act 1991 (**Act**)
And	
In the Matter	Hearing 25: Zone Extents for the Proposed District Plan (the 'PDP')

Statement of Primary Evidence of Campbell James McGregor on behalf of Thorntree Orchards, Cindy and Tony Young and Parkmere Farms

(Civil Engineering)

Dated 11 February 2021

Jeremy Brabant

Barrister

Level 4, Vulcan Building Chambers

PO Box 1502, Shortland St

Auckland City

021 494 506

Email: jeremy@brabant.co.n

Introduction

1. My full name is Campbell James McGregor. I am a Civil Engineer and hold a Bachelor of Surveying from University of Otago, Master of Engineering Studies (Honours) and Post Graduate Diploma in Business from Auckland University. I am a Chartered Professional Engineer and chartered member of Engineering New Zealand. I am also a member of the Institute of Directors and Water NZ.

2. I have worked in New Zealand, Australia and the United Kingdom over the past 20 years within various engineering consultancies, providing infrastructure planning and design advice for residential, commercial and industrial developments as well as large scale infrastructure projects. I am currently a Technical Director with Harrison Grierson

3. I was instructed by the submitters to provide a statement of evidence in support of their submission on the Proposed District Plan (PDP).

4. The Submitters are all landowners within an area that is defined by State Highway 1, Avon Road and State Highway 2 ('Pokeno East'). This roughly triangular area of land comprises some 63ha and is split between 24 different landowners.

5. A summary of the relevant submissions lodged and a description of the area for which rezoning is sought (Pokeno East) is set out in the evidence of Mr Grala. To avoid repetition, I adopt Mr Grala's evidence in that regard.

6. I have visited the site and surrounds, most recently in February 2021.

7. I record that I have read and agree to abide by the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2014. This evidence is within my area of expertise, except where I state that I rely upon the evidence of other expert witness as presented to this hearing. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

Scope of Evidence

8. My evidence will address the following:

    a. Proposed zoning

    b. The existing three waters infrastructure.

    c. The likely demand on infrastructure that would be enabled by the proposed zoning.

    d. The feasibility that infrastructure demand can be met.

9. I was not involved in the submitters' original submissions' nor their further submissions, but I have been asked as part of Hearing 25 to provide an evidence brief on the above matters.

Proposed zoning

10. I understand the submitters are seeking a Future Urban zone but are also investigating whether it would be appropriate for the Panel to apply a live residential zoning for the area. The appropriate zoning as outlined in Mr Grala's evidence is in part predicated on when infrastructure servicing can be provided to the area[1].

11. The proposed rezoning as well as the Indicative Masterplan that has been prepared by Mr Vile on behalf of the submitters[2] indicate that approximately 300-320 residential dwellings could ultimately be established within Pokeno East. A copy of the Indicative Masterplan is illustrated in **Figure 1** below.

[1] Statement of Mr Nicholas Grala, paragraph 25
[2] Statement of Mr Anthony Vile, Appendix 1

Figure 1 –Indicative Masterplan

12. The masterplan indicates that if the site was to be developed for residential purposes, then it would be likely that approximately 50% of the 63ha of land area will be used for residential lots, with an additional 24ha of land to comprise of parks and reserve. The reserve area is primarily orientated around a tributary of the Mangatawhiri River which flows through the site in a south easterly direction. The remaining area could consist of streets and roads along with a small (0.5ha) village centre area.

Existing Infrastructure

13. There is currently very limited water infrastructure within or immediately adjacent to Pokeno East.

14. In preparation of my evidence as it relates to wastewater and potable water, I have consulted briefly via email with Watercare Services Limited (WSL) to gain a better understanding of the potential site constraints.

Wastewater

15. No wastewater infrastructure exists within Pokeno East with existing dwellings relying on onsite treatment and disposal systems or septic tanks. The closest infrastructure to the site is on the western side of SH1 and the North Island Main Trunk (NIMT) rail line within the existing Pokeno township.

16. Within the existing Pokeno residential area (predominantly created under Plan Change 24) waste flows are conveyed by gravity to two pumping stations. A rising main then conveys flow from Pokeno to the Tuakau township (before being sent to the Pukekohe Wastewater Treatment Plant. This work was completed in 2013.

17. From the Beca Water and Wastewater Technical Assessment report prepared as part of the Tuakau Structure Plan[3] in 2014, the flow from Pokeno exacerbated capacity issues (with increased overflows during storm events) within the Tuakau local reticulation network. A further pumping station and rising main was later constructed in 2014/2015 to divert flows received from Pokeno directly via a new connection onto Pukekohe Wastewater Treatment Plant (WWTP).

18. The Pukekohe WWTP was recently granted a new discharge consent with allowance for growth through to 2052.

19. Advice from Watercare note the growth allowance for the plant allows for roughly doubling the current service population within the next 10 years to approximately 65,000 people. This service population will be the result of the soon to be completed upgrades currently underway at Pukekohe WWTP.

20. This does not include significant increases from the industrial area in Pokeno which would likely require additional upgrades and further discussion with Waikato District Council (WDC) and Watercare to assess the consequence. Nor would it specifically include the additional residential area that would arise from the proposed rezoning.

[3] Tuakau Structure Plan: Water and Wastewater Technical Assessment – 29 August 2014

Potable Water

21. A 150mm watermain within Fraser Road and rider main within Avon Road are the only water supply infrastructure near Pokeno East.

22. Most existing dwellings currently utilise roofwater tanks. The existing development to the west of SH1 is serviced by a bulk (280mm diameter) watermain that connects to the Waikato main.

Stormwater

23. There is currently no stormwater infrastructure (reticulation) in Pokeno East given the existing rural zoning and rural land uses within the area. Any stormwater generated from existing impervious areas within Pokeno East is either collected for water supply or is discharged back to ground.

24. The development is situated in the Lower Waikato zone of the Waikato Regional Council's (WRC) catchment management plan. No flood protection or land drainage assets are identified within or in proximity to the proposed Pokeno East (see Figure 2). The WRC river flood hazard maps also don't identify any river flooding in proximity to the site.

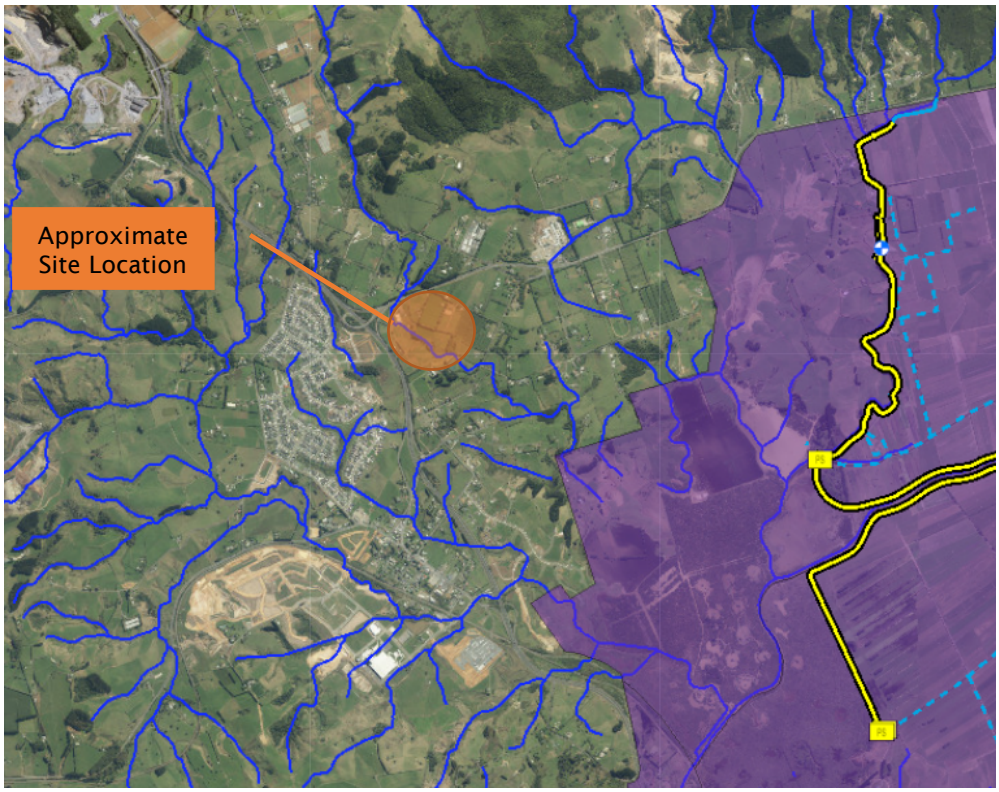

Figure 2 – Existing WRC Flood Protection and Land Drainage Assets

25. A local stream passes through the site continuing in a south easterly direction before discharging to Mangatawhiri Wetland, before ultimately discharging to Mangatawhiri River.

26. The banks of the stream where it traverses through the site are well defined. Slope analysis of the site gradients has been used to determine an approximate development extent in relation to the stream banks.

27. Further work would need to be carried out as part of the plan change and/or resource consent stage to determine an appropriate stream bank definition and stream flow depths and levels.

Infrastructure Demand

Wastewater

28. In accordance with the Watercare Code of Practice I have calculated the average daily flows and peak demand that would result from the development envisaged by the Indicative Masterplan.

29. Utilising a residential dwelling total of 300 and per dwelling population of 3, along with allowance for the small village centre area, results in a design allowance of 183,700l/day and peak wet weather flow of 13.82l/s.

Potable Water

30. Similarly, for Potable Water utilising Watercares' Code of Practice I have calculated the daily allowance and peak flow.

31. These calculations show a design allowance of 417,700l/day and peak flow of 12.71l/s would be required for the intended development.

32. For demand of this scale using Watercare's Empirical sizing table a 200mm watermain connection would be required to service the development.

Stormwater

33. No analysis of the pre and post-development storm events has been completed for the potential development at this time. Given the existing topography and falls towards the existing stream, I would expect that discharge of development flows to the stream that bisects Pokeno East will be the likely point of discharge. Discharge via soakage may also be viable subject to geotechnical investigations and definition of the underlying geological conditions.

Infrastructure Feasibility

Wastewater

34. Subject to downstream capacity checks (that would occur at either the plan change and/or resource consent stage) a network extension from Deans Road/Great South Road to Avon Road would provide a viable way to provide connectivity to the development. This is illustrated in **Figure 3** below.

35. While feasible, the ability to connect, will need to be confirmed by capacity checks of the downstream reticulation network, pumping stations and Wastewater Treatment Plant.

36. Depending on the allocation of growth allowance, upgrades to the Pukekohe WWTP may also require consent variations.

37. However, it may equally be feasible for some level of development to occur earlier, subject to appropriate upgrade\development triggers being put in place to stage development in step with infrastructure upgrades and capacity.

38. I am aware based on other development in the catchment that WDC is aware of the capacity issues within Pokeno and does have plans to upgrade existing wastewater infrastructure to allow for growth in the area.

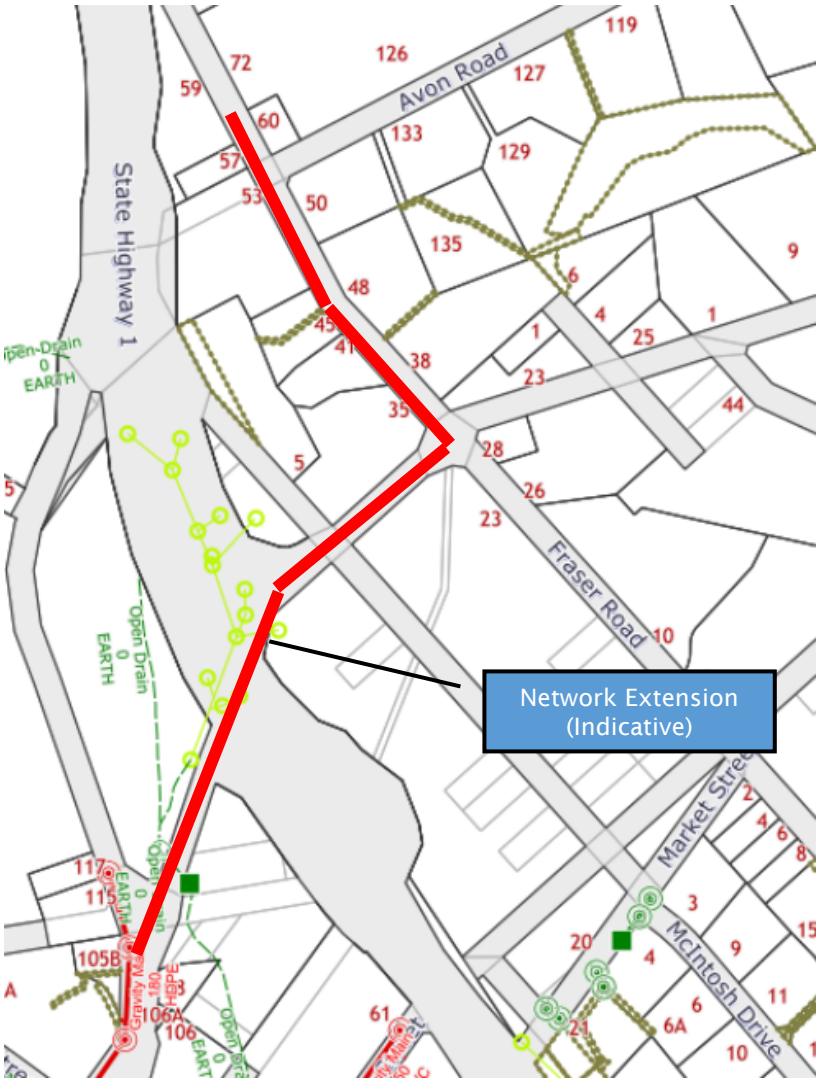

Figure 3 – Wastewater Network Extension

39. Therefore, making additional allowance for further capacity to allow for the proposed development zoning in the downstream network upgrades (pipe

reticulation, pumping stations, treatment plant) I consider is feasible.

Potable Water

40. As noted with wastewater, it is likely should other residential development proceed as proposed by the zone changes in the PDP, that upgrades to the network reticulation from the Waikato main to Pokeno, as well as upgrades to the capacity of the Pokeno Reservoir would be required.

41. I therefore consider it would be feasible to provide additional allowance (along with future growth allocation) for the proposed development. This may or may not necessitate upgrades to the existing 150mm diameter subject to flow and head loss analysis.

42. Subject to confirmation of capacity it is feasible some level of development could occur through servicing by the existing 150mm dia. main. Further analysis could determine an upgrade trigger which could be provided for under the plan to allow some level of development to occur in advance of any upgrades.

Stormwater

43. As a result of the development, hydrology mitigation would be required to mitigate the creation of additional impervious areas in accordance with best practice and Parts 26 and 27 of the Operative WDC district plan (Chapter 14.11).

44. In addition, attenuation of flows from larger storm events may also be required so to ensure the development does not cause adverse effects (erosion, flooding) on the immediate stream or the downstream environment.

45. A Stormwater Catchment Management Plan was created by Plan Change 24 for the Pokeno township west of the SH1 corridor, however, no management plan exists for Pokeno East i.e. east of the SH1 corridor.

In my opinion a similar catchment management plan would be required to

assess the effects of the development on the immediate stream reach and downstream environment. This in my opinion should form the basis of any future plan change / resource consent in relation to Pokeno East rather than being required at this stage.

Conclusion

46. In preparation of my evidence, I have reviewed and assessed the Indicative Masterplan that has been prepared to support the proposed rezoning and the existing three waters infrastructure and supporting reports. Accordingly, my assessment is effectively of a residential zoning.

47. With reference to the proposed Future Urban Zone provisions as described in Mr Grala's evidence, no infrastructure or capacity issues arise because a Future Urban Zone does not of itself provide for urban development.

48. Returning to my consideration of a residential zone, while no analysis of stormwater discharge has been conducted at this time, I do not consider stormwater within this catchment represents a constraint and that a solution in accordance with the WDC district plan is feasible. This in my opinion should be conducted in the form of a catchment management plan for Pokeno East and the wider catchment area as part of a plan change or resource consent process.

49. While there are both wastewater and potable water constraints, in my opinion neither of these are insurmountable, given adequate time and planning to allow for the intended growth proposed by the submitters. The question then turns to timing, which will be dependent on the required infrastructure upgrades, a decision which will ultimately reside with Watercare. Mr Grala's evidence identifies that Pokeno East is shown as suitable and required for additional residential capacity in several applicable strategic documents. Given that strategic backdrop my expectation would be that infrastructure planning will either be underway or imminent with a view to providing capacity and connection for Pokeno East.

50. In my opinion, an appropriate way to allow for residential rezoning now could

be to include development triggers whereby existing upgrades are constructed prior to or in conjunction with development to ensure adequate capacity within the downstream network. While the triggers could be provided for under the district plan, consultation with both Watercare and WDC would be required to provide oversight of all development within the catchment area.

_____

Campbell McGregor

Dated 19th February 2021