Before the Hearing Panel
appointed by Selwyn District Council

Under	the Resource Management Act 1991
In the matter of	Proposed Plan Change 61 to the Selwyn District Plan

Statement of evidence of James Matthew Phelps Hopkins

30 March 2021

1 My name is James Hopkins. I completed a Bachelor of Technology (Environmental Engineering) degree in 1999 and I am currently a Chartered Professional Engineer (CPEng) and a Chartered Member of Engineering NZ.

2 My work experience includes 20 years of civil engineering, asset management, resource management and land development. I have undertaken work on other projects for one of the submitters to this plan change.

3 I have read the engineering servicing report that was appended to the plan change application.

4 In preparing this statement of evidence I have considered the following documents:

(a) Environment Canterbury (ECan) Land and Water Resources Plan (LWRP);

(b) SDC Engineering Code of Practice (ECOP);

(c) Relevant submissions on proposed Plan Change 61; and

(d) The section 42A officers report prepared by Mr. Jon Trewin, and infrastructure report prepared by Mr. Murray England.

5 My evidence addresses stormwater, water supply and wastewater disposal related elements of the Application.

Code of Conduct for Expert Witnesses

6 While this is not a hearing before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2014 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

7 I have prepared evidence in relation to:

(a) Stormwater;

(b) Water supply; and

(c) Wastewater management.

Plan change area summary

8 The proposed plan change area is comprised of land that is currently utilised for agricultural purposes. The total plan change area is approximately 60 ha.

9 The plan change application in its modified form seeks 35 residential allotments over 11.6 ha and future Business 2 Zone activities over approximately 12.7 ha of the Plan Change Site. The balance of the site will be made up of landscaping and roading, including the Creyke Road intersection realignment in the eastern corner of the site.

Stormwater

10 As set out in the original servicing report groundwater is at depths of at least 80 m beneath Darfield. Given this distance to groundwater there is ample opportunity to utilise the disposal of stormwater to ground via soak pits and appropriate treatment devices where required.

11 On-site stormwater disposal will be required within individual residential and Business 2 zone allotments from roof and hardstanding areas. Runoff from the roading network will also be to ground via soak pits, located within the road corridor. The specific design of treatment and disposal systems will be undertaken as part of future building consents, and/or through future subdivision consenting as part of the development of the site. Best practice methods for treatment and disposal specific to the road, building and hardstanding facilities proposed will be required.

12 Best practice systems adopted in Darfield and surrounding areas typically include sumps with trapped and drowned outlets and soak pits. Swales and raingardens may be adopted in locations where predicted contaminant levels require the level of treatment provided by those devices. Consent to discharge stormwater to ground is required from Environment Canterbury under the provisions contained in the Canterbury Land and Water Plan and will be required to be approved prior to undertaking any discharge.

13 In my opinion, the site conditions are such that there are no obvious impediments to obtaining a stormwater discharge consent for residential and industrial development.

Water Supply

14 The application servicing report sets out that at the time it was prepared additional water supply may be required to service the application site.

15 Mr. Murray England has clarified in his report in Appendix 3 of the Section 42A report that the current water supply system is operating at a capacity that can accommodate development on the site. Access to the water supply network is available in Creyke Road.

16 Through the further information request from Mr. England, received on 7 January 2021, he identified that a Community water supply bore was being drilled across Creyke Road from the Application Site, which will have the capacity to provide for on-demand metered connections for future allotments[1]. Otherwise, each individual allotment will be provided with a restricted water connection limited to 3,000 litres per day.

17 In my view, the site can be developed with adequate potable water services to provide for the needs of future owners via restricted supply, and this would be enhanced with the successful consenting for the use of water from the proposed Community water supply bore.

Wastewater disposal

18 The servicing report attached to the original application sets out that there are no reticulated wastewater services available within Darfield, resulting in the most likely solution being on-site wastewater disposal.

19 Given the size of future residential allotments will include allotments less than 4 ha, discharge permits will be required from Environment Canterbury for individual systems, resulting in a specific design being required for allotments. No discharge consents will be granted over areas where there is a protection area around a community water supply bore, which may mean systems at the eastern end of the application site are located outside of any protection areas. Reviewing the 100 m setback shown on the plan provided as part of further information, this can easily be achieved.

20 Modern systems are designed in accordance with New Zealand Standard NZS1547:2012, which requires consideration of depths to groundwater, other discharges in the area, and the quality of treated effluent from of the system utilised. These systems are design to reduce the pathogen loading

[1] paragraph 17, Appendix 3, Section 42A report.

in any discharged water to prevent public health risks. Typically, these systems include a maintenance schedule and a contract with a qualified servicing agent preventing the risk of the system failing through poor maintenance.

21 Given these features, it is my view that on-site wastewater systems can be implemented within the site without having an adverse effect, subject to these systems being maintained in accordance with the manufacturers recommendations.

22 Since the Plan Change was lodged, the Council has advanced plans for a reticulated wastewater network in Darfield, with a view to installing a connection from Darfield to the Pines Plant in Rolleston. As confirmed in a response to a further information request (22 January 2021), wastewater from the application site can be designed to connect to any new reticulated system, should it be available at the time of development. The advantage of a reticulated system, over on-site wastewater disposal is the onus of maintenance of the system falls to Council and is funded through rates, rather than the responsibility of individual landowners with separate systems. However, I consider both options, when properly maintained, offer acceptable solutions.

Submissions

23 Several submissions have been received relating to concerns about the location of the application site in proximity to future wastewater treatment ponds across Creyke Road, and one submission from the Canterbury District Health Board relating to concerns with additional discharges of on-site wastewater to ground.

24 As noted by Mr. England methods to advance a reticulated wastewater system have been explored, and the option of piping untreated wastewater to the existing WWTP in Rolleston, which does not include wastewater treatment ponds at Darfield, is being progressed as a preferred option. Therefore, issues relating to proximity to potential future wastewater treatment ponds are unlikely to arise.

25 One submission from the Canterbury District Health Board raises concerns with cumulative effects on the quality of water for Darfield and downstream communities arising from increasing reliance on on-site solutions. In my view, while the cumulative effects of on-site wastewater disposal could be a matter for concern, modern on-site treatment and disposal solutions that meet the design requirements of NZS1547:2012, including the adoption of discharge control trenches, combined with the large distance to

groundwater and appropriate maintenance schedules all combine to offer an acceptable solution that does not give rise to significant adverse effects.

Conclusion

26 I conclude that, with respect to three-water services it will be practicable to develop the plan change area in accordance with the proposed zoning. Water supply, wastewater disposal and stormwater disposal solutions exist that will not generate adverse effects on the receiving environment.

Dated this 30 day of March 2021

James Hopkins