

**BEFORE AN INDEPENDENT HEARINGS COMMISSIONER AT
SELWYN**

IN THE MATTER OF

Clause 21 of the First Schedule of
the Resource Management Act
1991 (Plan Change 67)

IN THE MATTER OF

GW WILFIELD LIMITED
(Applicant)

**STATEMENT OF EVIDENCE OF ANDREW JAMES EMIL HALL ON
BEHALF OF GW WILFIELD LIMITED**

INFRASTRUCTURE

Dated: 30 August 2021

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LAWYERS
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1 INTRODUCTION

- 1.1 My name is Andrew James Emil Hall. I am a Director of Davie Lovell Smith Ltd.
- 1.2 I hold a Bachelor of Engineering (Honours 1st Class) from Coventry University (UK) and a Bachelor of Surveying from Otago University. I am a member of New Zealand Institute of Surveyors (NZIS) and the Institute of Professional Engineers (EngNZ). I am a Chartered Engineer.
- 1.3 My area of expertise is consulting in civil engineering related to the development of land. I have 30 years' experience in this field including 20 years' experience in Christchurch. In that time I have been associated with the development of several thousand new lots including developments in West Melton.
- 1.4 I have been involved in the Wilfield Development since its inception and produced the Infrastructure Report associated with this application. I have reviewed the Geotechnical Report and used its findings in my investigations.

Code of Conduct

- 1.5 I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2011. I have complied with it in preparing this evidence and I agree to comply with it in presenting evidence at this hearing. The evidence that I give is within my area of expertise except where I state that my evidence is given in reliance on another person's evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

Scope of Evidence

- 1.6 My evidence addresses the provision of services to the proposed Plan Change 67 Area (*the Plan Change Area*). These services include stormwater, wastewater, water supply and other services. The investigation into these services deals with the requirements within

the Plan Change Area and also the effect of the greater networks of West Melton and the wastewater connection back to Rolleston.

- 1.7 My evidence also addresses the effects and requirements around earthworks.
- 1.8 I have read the s42 Officers Report completed by Ms Elizabeth White and Mr Shane Bishop on behalf of Council. Mr Bishop has addressed the servicing of the proposed Plan Change Area for stormwater, wastewater and water supply. It is noted that Mr Bishop's evidence includes provision for a number of recent servicing upgrades, and that Mr Bishop supports the viability of the proposal for these services.
- 1.9 I have read the relevant submissions and address these at paragraphs 36 to 37 of my evidence.

2 SUMMARY

- 2.1 The proposals for the servicing of the Plan Change Area for water supply, wastewater and stormwater are all considered viable and are supported by Mr Bishop in his evidence where he states at paragraph 46: *There are viable means to provide drinking water, to manage wastewater and to discharge stormwater. On this basis I support proposed Plan Change 67.*
- 2.2 With respect to each specific component I note and conclude the following:
 - (a) Earthworks.
 - (i) All earthworks will be undertaken in accordance with Council Standards and NZS4431:1989.
 - (ii) All earthworks will be controlled in accordance with the Environment Canterbury (*ECan*) Erosion and Sediment Control Guidelines.
 - (iii) All earthworks will be undertaken in a manner that will not inhibit natural overland stormflows and will ensure that house sites are above the future flow paths (generally located in roads).

- (iv) Earthworks is not an impediment to this application being approved but will be subject to appropriate conditions on specific Land Use applications at the time of subdivision.

(b) Water Supply.

- (i) The additional peak water demand for this proposal is 13.89l/s.
- (ii) Council have confirmed that there is future capacity for this proposal in the West Melton Network.
- (iii) The proposal may require some pipe upgrades and a reservoir however the specific detail of these upgrades can be addressed through the subdivision consent and engineering approval processes.
- (iv) Water supply will be further supplemented by harvested rain water, captured in tanks that will be required as a matter of design for all dwellings enabled through PC67.
- (v) The water supply will comply with Council Standards and Fire Service Standards.

(c) Wastewater.

- (i) The Plan Change Area will be serviced by Local Pressure Sewer.
- (ii) The additional flows will require an upgrade of the Silver Peaks Pump Station but not the rising main.
- (iii) The network connection from West Melton back to the Pines Treatment Plant has been reconsidered with an adjustment to design flows made that is associated with a reduction in water ingress. This has led to an increase in capacity, ensuring the viability of the Plan Change development.
- (iv) Additional capacity can be achieved by pumping the wastewater all the way to the Pines Treatment Plant.

(d) Stormwater.

- (i) The Site is underlain with gravels and the groundwater level is deep.
- (ii) All stormwater discharge will be to ground subject to ECan consent requirements. This is consistent with all stormwater discharges in West Melton.

2.3 On the basis of the above I conclude that there are no servicing constraints such that the Plan Change should be declined.

3 EARTHWORKS

- 3.1 A geotechnical appraisal of the development confirms that the Plan Change Area is not susceptible to earthquake and liquefaction damage, and has determined that the land can be considered to be equivalent to the Ministry of Business, Innovation, and Employment (*MBIE*) Technical Category 1 (*TC1*). This is confirmed by Mr McCahon who undertook the peer review of the applicant's geotechnical assessment.
- 3.2 The Plan Change Area is also considered to be capable of development with minimal disruption to the existing landform. Basically, the ethos of the development relies on the maintenance of natural land form, and therefore will result in only minor earthworks. The earthworks will generally be restricted to the construction of road subgrades and adjustments to the existing overland drainage network.
- 3.3 It is estimated at this stage that the total volume of earthworks will be between 50,000 and 100,000m³.
- 3.4 All topsoil will be retained and replaced on the land immediately following bulk earthworks to a depth of up to 400mm. All disturbed topsoil will be re-sown with Council specification grass seed mixes.
- 3.5 Sediment discharge from the development site will be controlled as per Council requirements. The basis of the sediment control will be the ECAN Guidelines.

- 3.6 All bulk filling will be compacted in accordance with NZS 4431:1989. All fill testing will be carried out by an independent laboratory.
- 3.7 The earthworks are considered normal and will not inhibit the approval of this application.

4 WATER SUPPLY

- 4.1 The Plan Change Area provides for 130 lots comprising 73 additional Wilfield lots plus 57 lots on contiguous properties. This amounts to an additional water supply demand of 15.6l/s. As with lots of a commensurate size in Wilfield, the larger sites may be required to have a storage tank, and be placed on a restrictor, which reduces demand to 13.89l/s.
- 4.2 It is recognised that the current West Melton Water supply has been upgraded to include a connection to the Edendale water supply and the redevelopment of the Wilfield Bore. In addition, the upgraded Wilfield Bore delivers raw water to the Council's Rossington Rd plant for treatment and then the treated water is piped back to Wilfield. Both pipes under the highway are 160mm PE (136mm ID). Otherwise, the pipes are 150mm uPVC. The Pipes under the highway may need upsizing and this will be addressed at the time of the Subdivision Application and following modelling. The existing pipes are laid within a conduit sleeve to enable growth related upgrades. The cost of these pipe upgrades will be met by the applicant.
- 4.3 In addition to these completed and/or confirmed upgrades, the Council has also been investigating the installation of a larger reservoir in the West Melton area to address any demand shortages due to the proposed additional development in the area. Progression of this reservoir will provide further capacity for water supply.
- 4.4 Finally, I note that the applicant is proposing to require the inclusion of rain-water harvesting tanks as part of any dwelling within the PC67 area. This water can be used for toilet flushing and/or garden watering, which will provide for some reduction in load on the community supply water reticulation.

- 4.5 In any event, the water supply will be designed in accordance with SDC specifications and SNZ PAS 4509:2008 New Zealand Fire Service Fire Fighting Water Supplies Code of Practice. The firefighting water supply classification will be FW2.
- 4.6 In summary, I am satisfied that the confirmed/completed upgrades will ensure that there is sufficient future water supply capacity to accommodate the development which would be enabled through this Plan Change. This opinion is shared by Mr Bishop on behalf of the Council who states in his memorandum at paragraph 26: *I consider that although additional capacity within the network to fully service this and other West Melton plan changes currently submitted, is not currently available, capacity upgrades are proposed and planned for and therefore future water demand from the proposed plan change can be met.*

5 WASTEWATER

- 5.1 It is intended that all new sites in the Plan Change Area will be serviced by Local Pressure Sewer. A network of pipes will transfer wastewater to the existing Council pump station on Silver Peaks Drive.
- 5.2 If we include the current approved sites in Wilfield, plus the sites in the Plan Change Area, there will be a total of 389 lots connecting to the existing Silver Peaks pump station. Peak flow will be 13.37l/s.
- 5.3 The Rising Sewer main from the pump station at Silver Peaks Drive to the main sewer pump station at Rossington Drive has capacity to deal with the additional flows produced from the proposed Plan Change Development, but the pumps at Silver Peaks and Rossington Dr will need to be upgraded.
- 5.4 Further, the sewer connection from West Melton back to the Pines Treatment Plant is currently at its expected capacity. The restriction in capacity is created by the gravity sewer running from the corner of Wards and Walkers Road, back into Rolleston.
- 5.5 In consultation with the Council, we completed an investigation into how this capacity can be increased. In short, we identified that the

only feasible option would be to extend the existing rising sewer all the way to the Pines Treatment Plant, bypassing the gravity pipes in Walkers Rd. This equates to 5.75km of new rising main. This upgrade alone would allow for 1276 lots in West Melton to be serviced.

- 5.6 Since the submission of the application for this Plan Change, the Council have commenced an investigation into the levels of water ingress into the system either from stormwater or groundwater. In his memorandum at paragraph 30, Mr Bishop states that *The system is performing better than designed*. The acceptance of this reduction in ingress will allow even more capacity, although the extent of this additional capacity requires further modelling.
- 5.7 In summary, the proposed pipe upgrade and the reduction of the water ingress factors leads to a significant increase in the capacity of the West Melton wastewater system now available. In view of that, Mr Bishop confirms *There is a viable means to treat and dispose of wastewater for this plan change area*. I concur with that conclusion, and consider that there are no wastewater treatment or disposal issues which would prevent the acceptance of this plan change.

6 STORMWATER

- 6.1 The site is underlain with gravels and the groundwater level is at a depth of approximately 20m. All stormwater disposal in West Melton is to ground.
- 6.2 The primary stormwater from the site will be discharged to ground. The soakholes on the individual sites will be constructed as part of the Building Consent process but the drainage and soakholes associated with the roads will be constructed as part of the subdivision and will be vested in the Council.
- 6.3 It is expected that all stormwater associated with the development enabled by this Plan Change can be discharged to ground without needing treatment. Stormwater discharge during construction will comply with the ECan Erosion and Sediment Control Guidelines, and will be subject to Erosion and Sediment Control Management Plans.

Where required resource consent or a certificate of compliance for stormwater discharge to ground from the development site will be obtained from ECan. The applicant will ensure that all stormwater discharge proposals (for which consent from ECan will be sought) will be verified by the Council as being suitable for transfer to its ownership where required.

- 6.4 For his part, Mr Bishop confirms the proposed approach to managing and discharging stormwater from the Plan Change Area is feasible and acceptable. Again, I concur with his conclusion.

7 SUBMISSIONS

Submissions 3, 4, 7 and 8 (Beaven, Manera, Stevenson and West Melton District Residents Assoc.)

- 7.1 These submitters all have concerns about the impact of the Plan Change on the groundwater and existing wells in the area. Whilst it is accepted that there is not currently sufficient supply to meet all proposed plan changes in West Melton, the Council has confirmed that there are viable means to achieve this future demand (including through the confirmed and/or completed upgrades I have already described).

Submission 11 (Canterbury Regional Council)

- 7.2 ECan is concerned about the availability of capacity for water supply and wastewater disposal, and the sequencing of works required to provide the additional capacity. ECan suggests that any proposed or potential future upgrades to SDC's reticulated system cannot be relied on. However, as discussed in my evidence and supported by Mr Bishop, capacity can be provided and steps are well advanced to achieve this. It is my opinion, that whilst this application may be "out of sequence" in terms of the CRPS directions for growth, the provision of services for this proposal should not be a reason for declining this Plan Change. It is also worth noting that the disposal of wastewater, taking of groundwater and disposal of stormwater is all subject to consent from ECan. Those consents will be sought by the applicant where required.

8 CONCLUSION

- 8.1 While there are currently constraints on water supply and wastewater within the relevant networks, the applicant has proposed/identified a number of measures to provide further capacity to service the development enabled by the Plan Change. In terms of stormwater, the applicant has also proposed a range of measures to manage and discharge stormwater associated with the site. As noted above, where required, consents will be obtained from ECan to authorise that discharge.
- 8.2 In my opinion, all of the measures proposed by the applicant to address these capacity constraints and to ensure that the Plan Change Area is adequately serviced are feasible and appropriate. For his part, Mr Bishop on behalf of the Council agrees.
- 8.3 For the reasons set out in this brief, I therefore consider that there are no servicing or earthworks issues which would preclude the acceptance of this Plan Change.

Andrew Hall

A handwritten signature in blue ink, appearing to read 'Andrew Hall', is written over a light blue rectangular background.

August 2021