

**BEFORE THE COMMISSION  
APPOINTED BY THE DUNEDIN CITY COUNCIL**

<b>Under</b>	The Resource Management Act 1991 (the <b>Act</b> or <b>RMA</b> )
<b>IN THE MATTER</b>	of proposed Variation 2 (Additional Housing Capacity) to the Second Generation Dunedin District Plan ( <b>2GP</b> )
<b>BY</b>	<b>Fletcher Glass</b>  <b>Submitter (OS123.001, OS123.002, OS123.003, OS123.004)</b>

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**STATEMENT OF EVIDENCE OF KURT BOWEN**  
**Dated: 5 August 2022**

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## **BRIEF OF EVIDENCE OF KURT BOWEN**

### **Introduction**

1. My full name is Kurt Alistair Bowen. I am a surveyor and director of Paterson Pitts Management Limited.
2. I visited the site multiple times over the period from late 2016 to present.
3. On behalf of the Submitter I have been involved in various aspects of the proposal and in preparing this evidence I have reviewed:
  - The evidence of Tony Milne
  - The evidence of Conrad Anderson
  - The Section 42A Report, and
  - the relevant planning documents.

### **Code Of Conduct for Expert Witnesses**

4. Although not necessary in respect of council hearings, I can confirm I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note dated 1 December 2014 and agree to comply with it. I have complied with the Code of Conduct in preparing this evidence, and I agree to comply with it while giving oral evidence before the hearing panel. Except where I state that I am relying on the evidence of another person, this written 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 expressed in this evidence.

### **Section 42A Report - Transport Issues**

5. The s42a report raises questions over the ability for Watts Road to support the increased level of traffic that might be anticipated from the proposed rezoning areas. Specifically, these questions relate to carriageway and footpath widths, the width of the legal road corridor,

and the impact of the increase in traffic on the Watts Road / North Road intersection.

6. The s42a report also raises several concerns about the suitability of access from North Road into the southern portion of the property, which is necessary to provide access to the RS77 area, and the bulk of the RS206a area. Specifically, concerns are raised over the crossing structure and emergency access.
7. Regarding the Watts Road concerns, I have undertaken an assessment of the likely number of additional sites that might result from the proposed rezoning.
8. In the RS 206 region, Council has estimated a capacity of 7 dwellings. This is reasonable from a practical perspective given the topography at this location, although the maximum number of sites is in fact 10 (the area of land in RS 206 is 2.1ha; the LLR1 zone allows for a minimum site size of 2.0ha). All of the sites within the RS 206 region will make use of Watts Road for access.
9. In the RS 206a region, it is my assessment that the northern portion of this (shown as Area A on the master plan) is likely to make use of the Watts Road for access. The remaining portion of RS 206a is split between Area B, which is now proposed to become a Recreation Zone (no anticipated traffic movements), and Area C, within which the bulk of sites will instead use the land's direct connection to North Road for access. I have allowed an area of 0.8ha of land utilising Watts Road for access. Under the proposed GR2 zone, this area provides for a maximum of 26 dwellings. However, most of this land is already zoned GR1, which currently provides for 14 dwellings. So, the increase in dwellings within this portion of the proposed RS 206a region is 12.
10. Overall, this shows that we might expect the proposed rezoning areas that will make use of Watts Road for access will generate a maximum of 22 additional dwellings.
11. The intersection at Watts Road / North Road is a 'T' intersection, at a flat grade, and with long sight-lines available from the give-way

markings at the eastern end of Watts Road in both directions along North Road. The shortest sight line is approximately 120m (looking south along North Road from the intersection). Watts Road is classified as a Local Road in the 2GP. North Road is classified as an Arterial Road. The minimum sight distance in the 2GP for access onto a road in a 50km/hr environment is 69m. In this respect, the proposed additional 22 dwellings are not anticipated to adversely affect the operation of the intersection.

12. There appear to be around 20 existing residential dwellings that use Watts Road (including several dwellings that reside on the southern section of Kelvin Road). A reasonable assessment of the potential for additional development along Watts Road (outside the rezoning land) would be 8 new houses. Therefore, the total number of anticipated future dwellings using Watts Road for access can be determined to be 64, comprising-

- (i) 20 existing dwellings
- (ii) Potential for 8 new dwellings outside the rezoning land
- (iii) Potential for 14 new dwellings within the rezoning land, under the current GR1 zone provisions
- (iv) Additional 10 dwellings from the proposed rezoning at RS 206.
- (v) Additional 12 dwellings from the proposed rezoning at RS 206a (Area A).

13. On top of this, there appear to be 7 accesses from Watts Road that service the existing industrial activities located at the eastern end of Watts Road. The extent of traffic that these accesses support appears to be low.

14. The lower section of Watts Road has an 8.0m wide carriageway and footpaths on both sides. The legal width of the road at this location is a fraction over 12m. The 2GP requires a legal width of 16.0m, which cannot be achieved by the submitter. However, the carriageway width

and footpaths are consistent with the 2GP provisions, and will remain consistent in the event that the proposed rezoning proceeds. The one exception to this is at the bridge structure, where there is a footpath on one side of the road only. Sight lines for pedestrian at this location are reasonably good, and combined with the low-volume of traffic using Watts Road, this suggests that the risk to pedestrians in crossing the road at this location is low. Furthermore, the proposed rezoning will occur on the southern side of the Watts Road, which is where the footpath remains unbroken. Therefore, provided that the footpath on the southern side of Watts Road is extended in support of the future development within the rezoning blocks, any new pedestrian traffic that result from the rezoning will have access to a continuous length of footpath to North Road.

15. The next section of Watts Road, west of the bridge, sees the carriageway reduce to 6.0m and a footpath only remains on the southern side of the road (this footpath also reduces to below 2.0m in width). At approximately halfway between the bridge and the northern point of RS 206, the footpath ceases altogether. It is reasonable for Council to expect that any development within the rezoning land will extend the footpath to the westernmost point of access into the development, and the existing footpath is widened to 2.0m.
16. To achieve the required footpath standard, the development will need to undertake significant earthworks and potentially also relocate some existing above ground infrastructure. The length of this work is estimated at 200m. The cost of this work, allowing for excavation, a 1.0m high retaining wall, footpath construction, and finishing works, has been assessed at \$300,000. This is believed to be financially feasible, on the basis that this cost can be distributed at a share of around \$14,000 for each of the additional 22 sites will be enabled by the rezoning.
17. It is noted that the result of the above work will be a 2.0m footpath along the southern side of Watts Road to near the northern point of the rezoning land. The existing 6.0m wide carriageway is sufficient in its

present form to support the rezoning. No additional footpath is deemed necessary on the northern side of Watts Road.

18. Regarding the legal width of Watts Road, this will need to be increased in places to accommodate the new footpath. Where the submitter has control of the land, it is relatively easy to vest land as road with the local authority during the course of future subdivision work. In these areas, the road could be widened to 16.0m (to meet the 2GP standard), however it is quite possible that a reduced width might be agreed between Council and a future developer. This is a consideration that would occur at the stage of resource consent for a future subdivision.
19. With the following considerations in mind, it is my view that the rezoning is able to proceed in a manner that ensures adverse effects on Watts Road are no more than minor. This view is contingent on the rezoning being clear that a 2.0m wide footpath will be required to be constructed along the southern side of Watts Road at the time of any future residential development.
20. Considering now the access from North Road into the larger portion of the rezoning land, there are several initial matters to note. First, the existing bridge is single lane, of relatively low elevation, and of uncertain structural condition. Some modification of this bridge will almost certainly be needed to support its use as part of any moderate-to-large future development. Second, I understand that the submitter has an agreement with Otago Regional Council (via a covenant on the title) that promises the construction of a new bridge (by ORC) in exchange for taking ownership of a portion of land along the banks of the Lindsay Creek.
21. The bridge currently services approximately 2.8ha of undeveloped GR2 zone land. This has capacity for 93 new dwellings. Regardless of the outcome of this rezoning request, the suitability of the bridge will need to be considered as part of the development of the existing GR2 zone land.

22. The submission plans show a new bridge to be installed at a slightly different location to the existing bridge. This will come at a cost, however the agreement with ORC for a new bridge may remove some of the cost from the development works. The new bridge will need to comprise a two-lane structure (I expect that this will be required regardless of the rezoning request as the existing GR2 zone land is not insignificant).
23. North Road, at the location of the new bridge, appears able to achieve the required sight-line distances of 69m. Any access to the development block that is located south of this point will also achieve the required sight-line distances.
24. Council's concerns over a single access point into the development land are reasonable. Presumably, these concerns would arise as part of a resource consent process for the existing GR2 zone land (the 93 sites that this land can accommodate are expected to trigger this consideration).
25. The rezoning land is assessed as comprising an area of 5.4ha (4.2ha in the RS77 area, and 1.2ha being the Area C portion of the RS206a area, which has not been accounted for in the Watts Road access considerations above). Note, the Area B portion of RS206a is proposed to become Recreation Zone, and will accordingly generate neither dwellings nor traffic movements. This area allows for an additional 180 dwellings at the GR2 density of 300m<sup>2</sup> per site. Combined with the existing GR2 zone region, the maximum number of dwellings that would be accessed from North Road is determined to be 273.
26. Considering access for 273 sites, it is not unreasonable for Council to desire a secondary point of access. There are two options to for this that I consider have merit. The first involves the construction of a second bridge over the Lindsay Creek to North Road. Two accesses onto North Road are permitted by the 2GP rules, although a minimum 30m separation distance will need to be provided between the two accesses (this is achievable). It may be acceptable for the second bridge to be a single-lane structure designed for the principal purpose

of emergency access, but that will be a matter for discussion at the time of resource consent. The second option is to provide an emergency access connection through the site to Watts Road. The topography along this route is relatively steep, but likely to be manageable through design. A connection in this direction would not be available to ordinary traffic (otherwise the safe and efficient use of Watts Road could be compromised), but would be available for use by emergency traffic and for residents of the development if required for evacuation purposes (in the event that the main access is not useable).

27. The cost of providing a secondary access, particularly a second bridge, will be significant. However, spread over 273 sites, even this cost will quickly be diluted to a feasible level (for instance, a \$1m bridge will be spread at a cost of a little under \$3,700 per site across 273 sites).
28. The two matters described above, being the footpath extension along Watts Road and the need for a second access from the southern portion of the rezoning block, could easily be implemented through Structure Plan rules, should that be a desirable outcome of the rezoning process.
29. Overall, I consider that the concerns raised by Council's Transportation department over access to the requested rezoning areas can be readily overcome through design processes. Implementation of key outcomes can be provided for within the rezoning rules. The cost of meeting the key outcomes, while not insignificant, are certainly feasible due to the large-scale nature of the development opportunity that the requested rezoning will support.

#### **Section 42A Report Stormwater Issues and Lindsay Creek**

30. The 42a report suggest that in regard to stormwater flows, any increase in peak flows could potentially have a negative effect on ORC's level of service for flood protection associated with the Water of Leith. It is noted that stormwater attenuation to meet the 100-year Annual Recurrence Interval conditions is necessary. Council notes a concern over the affordability of infrastructure to achieve this. Concerns



are also raised around in respect of the flood hazard that exists downstream of the rezoning land, and the potential for degradation of Lindsay Creek as a consequence of the rezoning.

31. In response to the above concerns, I agree that stormwater attenuation to meet the 100-year Annual Recurrence Interval conditions is necessary. This is becoming common practice around Dunedin and detention systems are fairly well understood. I expect that any development within the rezoned land will require on-site detention to ensure that peak flows are not increased as a result of the development.
32. For the sites that are created within RS206 and the northern part of RS206a (the portion of RS206a that is shown as Area A and accessed from Watts Road), the most suitable method of detention will likely take the form of individual on-site storage tanks. These tanks are commonly used for small-scale developments, where a community system is not able to be implemented. I am confident that on-site tanks will not be unaffordable to install on sites.
33. For the sites in RS77 and the portion of RS206a marked as Area C, the most suitable method of stormwater detention will likely take the form of one, or possibly two, community stormwater ponds. Ponds are effective in dealing with larger volumes of water. These features would be located at the lower ends of the water catchments, immediately before the water is allowed to discharge into the Lindsay Creek. There is a wealth of space available within the development land to accommodate these pond facilities. Comprehensive calculations and design will be required to determine the capacity of the pond(s) and the allowable discharge rate. This information would be expected to be provided as part of a future resource consent application. As with individual on-site tanks, pond infrastructure tends to be reasonably cost-feasible to install (relative to other development cost such as road construction). I have no doubt that the cost of suitable stormwater detention methods can be accommodated within the development budget.

34. The requirement for the design and implementation of a stormwater detention system is something that could be specifically included in a Structure Plan for the rezoning area, or by the implementation of a New Development Mapped Area (NDMA) provision across this land. Additionally, a Private Development Agreement (PDA) is a mechanism that could be employed to manage stormwater obligations (stormwater PDA's have been successfully employed recently on a number of other 2GP rezoning sites).
35. Overall, I am confident that there are available methods (and available resources) for appropriate stormwater management to occur at this location.

#### **Section 42A Report Wastewater Issues**

36. The s42a report notes that immediately downstream of the site, wastewater flows enter an infrastructure constraint area, and that there are occurrences of wastewater overflow in wet weather (with discharge into Lindsay Creek). The report states that wastewater detention may be a possibility, but that dealing with the sub-catchments may be challenging. The report also notes that the wastewater network constraint issues are expected to be resolved within the medium-long term.
37. In response to the above concerns, I agree that wastewater detention may be required to avoid exacerbating the downstream issues until such time as the constraint is resolved. Recent considerations by Council as part of other 2GP rezoning areas have established a baseline in which wastewater detention is acceptable or developments of 50 sites or more. Such detention systems generally comprise a suitably sized storage tank (shared by all development sites), and a telemetry link to the Musselburgh Pumping Station. Musselburgh staff are able to remotely control when wastewater is released from the detention tank and when it is held back.
38. For the sites that are created within RS206, these sites are expected to manage wastewater via on-site to-ground (septic tank) disposal

methods (being located in the Large Lot Residential 1 Zone, which allows for on-site wastewater management). Wastewater from these sites will not enter the existing reticulated network, and as such will not present an opportunity for existing issues to be exacerbated.

39. For the sites within northern part of RS206a (the portion of RS206a that is shown as Area A, and accessed from Watts Road), it is unlikely that the release of wastewater without detention will have a noticeable effect on the downstream network. The total number of additional sites within this area, if the rezoning is approved, is 12. This is lower than the 50 minimum required for Council to accept a shared detention system, and individual on-site wastewater detention systems are typically not favoured by Council's 3-Waters department. The wastewater flows from 12 sites will be small compared to the overall catchment flows, and I consider that the adverse effect generated as a consequence of 12 additional sites will be no more than minor.
40. Should the discharge of flows from 12 sites in the northern portion of the RS206a region into the existing wastewater network be of concern to Council's 3-Waters department, an alternative solution would be for these sites to each pump wastewater across the hillside and into the detention facility that I discuss below. Individual pump systems are relatively common on sites that have topographical difficulties, and modern system are reasonably cost-effective to install.
41. For the sites in RS77 and the portion of RS206a that is shown as Area C, the most suitable method of wastewater management is by way of a large community detention tank, with a telemetry link to the Musselburgh Pumping Station. This feature would be located at the lowest part of the development land, to capture all development wastewater flows through a gravity reticulated system. The detention tank would then discharge wastewater to the public network, through a gravity pipeline, however the flow through this pipeline could be controlled (and switched off entirely) by DCC staff at Musselburgh during wet weather events. Detailed calculations and design will be required to determine the capacity of the detention tank, with this information to be provided to Council as part of a future resource

consent application. As with other elements of the development infrastructure considered in this evidence, the cost of installing a community detention tank, while potentially significant, is very likely to be feasible in light of the number of sites that this cost will be spread across. It would not surprise me if the cost of the wastewater detention tank ended up in the order of \$600,000. This cost equates to close to \$2,200 per site when spread over 273 sites.

42. The requirement for the application of a wastewater detention system is something that could be specifically included in a Structure Plan for the rezoning area, or by the implementation of a New Development Mapped Area (NDMA) provision across this land. Additionally, a Private Development Agreement (PDA) is a mechanism that could be employed to manage wastewater obligations (wastewater PDA's have been successfully employed recently on a number of other 2GP rezoning sites).
43. Overall, I am confident that there are available methods (and available resources) for appropriate wastewater management to occur at this location.

#### **Section 42A Report – Water Issues**

44. The s42a report advises that a minor network extension would be required to connect the site to the existing potable water supply network, along with some local upgrades to existing pipes. The s42a report then states that significant upstream upgrades are required.
45. The DCC water maps show that there is a 100mm dia watermain within Watts Road, that extends from North Road to a distance of approximately 70m north of the site's northernmost extent. This watermain includes 8 fire hydrants along its length. The highest fire hydrant is located at an elevation of approximately 112m, which is some 26m higher than the highest level within the proposed Area A rezoning land (the northern portion of RS 206a). This area of the water network is marked as 'high' water pressure on the City's on-line water pressure maps. This information is suggestive that there will be no

significant hurdles in supplying both potable water supply and fire-fighting water flows to the rezoning land.

46. There is an existing 225mm dia watermain extending along North Road in front of the development land. This watermain includes 2 fire hydrants along the site's frontage. The water pressure in this area is also mapped as 'high'. As with the water supply network that exists within Watts Road, the nature of the infrastructure within North Road is also supportive of the proposed level of residential development.
47. Regarding the statement that 'significant upstream upgrades are required', I have not been able to identify the nature of this. The s32 report does not mention issues with water supply, instead the content of that assessment, where reasons for rejection are described, comprises:

'A large part of 43 Watts Road has been identified as a Significant Natural Landscape and is considered inappropriate for residential development due to the significance of the landscape values and their protection under the 2GP policy framework. Development would exacerbate downstream wastewater overflows.'

This statement does not suggest that water supply concerns are significant.

48. Reviewing the s42a report more closely, we find that the statement relating to significant upstream upgrades occurs within Appendix D (supporting Information), found on page 36 of the PDF document sequence. The relevant statement occurs within the assessment table for the RS206, RS206a and RS77 rezoning land. In this table, the assessment of potable water supply is judged to have an 'Issue Grade' of 'some issues (manageable)'. My interpretation of this assessment is that whatever the significant upstream upgrades happen to be, it is anticipated that there are solutions available to overcome these concerns.

Date: 5 August 2022

Kurt Bowen