

**BEFORE THE HEARINGS PANEL  
FOR THE PROPOSED QUEENSTOWN LAKES DISTRICT PLAN**

**IN THE MATTER** of the Resource  
Management Act  
1991 and the

**AND**

**IN THE MATTER** of the Residential  
Hearing Stream 6

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**STATEMENT OF EVIDENCE OF ULRICH WILHELM GLASNER ON BEHALF OF  
QUEENSTOWN LAKES DISTRICT COUNCIL**

**INFRASTRUCTURE**

**14 September 2016**

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## 1. INTRODUCTION

- 1.1 My full name is Ulrich Wilhelm Glasner. I hold the position of Chief Engineer at Queenstown Lakes District Council (**QLDC**). I have been in this position since July 2013. I was previously employed at Western Bay of Plenty District Council as the Utilities Asset Manager from 2008 and before that in a number of consultant and management roles in New Zealand and Germany.
- 1.2 I hold an Engineering degree (Diplom Ingenieur) from University of Applied Sciences - Wiesbaden. I have 28 years' experience in Civil Engineering. I am a member of IPENZ, IPWEA and Water NZ. I am a Chartered Professional Engineer (CPEng).
- 1.3 My experience includes investigations, issues and options studies, and the design and construction of several wastewater and stormwater pump stations, reticulation and collection systems. I have managed the design of stormwater and wastewater systems in Germany and New Zealand.
- 1.4 My current role at QLDC involves asset management (three waters and solid waste), contract management, procurement, strategic planning, and management of road works. The Chief Engineer has responsibility for delivering the Approved Annual Plan of infrastructure work for QLDC, including three waters, transport, solid waste and other capital works. As Engineer to QLDC's Contract I also have responsibility for the ongoing operation and maintenance of infrastructure assets. This involves co-ordination of the high level work programme for the infrastructure team, and managing staff and contractors to deliver projects and services within approved timeframe and cost limits.
- 1.5 In relation to the Proposed District Plan (**PDP**) I have provided written evidence on behalf of the Council on the Strategic Direction chapters. I have now been asked to provide evidence in relation to infrastructure matters for four of the residential chapters, being Chapters 7 (Low Density Residential), 8 (Medium Density Residential), 9 (High Density Residential) and 11 (Large Lot Residential) of the PDP.

- 1.6** Although this is a Council hearing I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.
- 1.7** The QLDC, as my employer, has agreed to me giving expert evidence on its behalf in accordance with my duties under the Code of Conduct.
- 1.8** The key documents I have used, or referred to, in forming my view while preparing this brief of evidence are:
- (a) QLDC Operative District Plan (**ODP**);
  - (b) The Council's section 42A Reports for the Low, Medium and High Density Residential and Large Lot Residential zones;
  - (c) Queenstown Lakes District Council 2015-2045 Infrastructure Strategy;
  - (d) Three Waters Strategic Direction Working Document 2011 and Beyond;
  - (e) Wakatipu Transportation Strategy, November 2007;
  - (f) Wanaka Transportation and Parking Strategy, March 2008;
  - (g) Queenstown Lakes District Council, Three Waters Asset Management Plan 2015-2030, February 2015;
  - (h) Queenstown Lakes District Council, Community Transport Asset Management Plan 2015-2030, February 2015;
  - (i) Queenstown Lakes District Council, Long Term Plan 2015-2025;
  - (j) Draft Queenstown Town Centre Transport Strategy, December 2015;
  - (k) Wanaka Transport Strategy Review, Strategic Case, February 2015;
  - (l) Queenstown Lakes District Ratepayers and Residents Survey 2015;
  - (m) Land Development and Subdivision Code of Practice 2015; and

(n) My evidence of the Hearing Streams 1A and 1B – Introduction and Strategic chapters.

1.9 My evidence will address infrastructure questions raised by submitters in relation to the low, medium and high density residential chapters, and the large lot residential chapter of the PDP.

## **2. EXECUTIVE SUMMARY**

2.1 The key findings from my evidence are that:

- (a) there is capacity in the infrastructure network to accommodate the additional growth proposed through the notified PDP;
- (b) the Long Term Plan 2015-25 and Annual Plan 2016/17 are already covering major upgrades and renewals to cater for increased densities; and
- (c) if additional upgrades are necessary they will be addressed through a Long Term Plan or an Annual Plan review process.

## **3. LOW DENSITY RESIDENTIAL ZONE (LDRZ)**

3.1 The Kelvin Peninsula Community Association (72), supported by Kawarau Village Holdings Limited (FS1352), questions whether existing infrastructure (in particular sewerage) is adequate to sustain planned and zoned growth in Kelvin Heights.

3.2 There is capacity in the Kelvin Heights sewerage system for the planned and zoned growth. Additional sewerage scheme upgrades are also planned over time as identified within the current Long Term Plan.

3.3 John Harrington (309) questions whether stormwater in Arrowtown would become an issue as a result of the proposed increased density. Of relevance to this question is notified Rule 7.5.7: Landscaped Permeable Surface Coverage that requires a minimum of 30% site area to be permeable landscaped surface in the LDRZ. This will still allow for the disposal of stormwater to ground.

**3.4** Most of Arrowtown relies on a ground soakage stormwater system similar to other towns in the District and New Zealand. This approach relies on ground conditions and can vary from site to site. My understanding is that under the ODP the current permeable surface coverage of a minimum of 30% will change only slightly to at least 25% in the PDP. This change may have an effect on stormwater runoff, which could trigger an upgrade of the existing infrastructure.

**3.5** The Kelvin Peninsula Community Association (72) has queried whether Council's infrastructure has sufficient capacity to cope with the anticipated demands from the increased densities. Notified Policy 7.2.7.2 (redrafted 7.2.5.2) states:

*Ensure development is designed consistent with the capacity of existing infrastructure networks and seeks low impact approaches to stormwater management and efficient use of potable water supply.*

**3.6** The Council's computer models for wastewater and water supply, which were calibrated in 2016, have identified that there is general capacity across the network for the development anticipated by the PDP. Additional upgrades to services are also planned to be delivered over time as identified within the current Long Term Plan. I am confident that planned residential growth will not be constrained by water or wastewater capacity issues.

#### **4. MEDIUM DENSITY RESIDENTIAL ZONE (MDRZ)**

**4.1** C Douglas (199), S Clark (306) and P Winstone (264) considers that a key aspect of Arrowtown's character is the basic roading design, open stormwater drains and lack of footpaths. They are concerned that increased density will result in increased traffic, on-street parking and increased stormwater runoff, which may necessitate more urban street formation. Similar issues are raised by David Clarke (26), N MacDonald (154), J Newson (319) and S Zuschlag (304).

**4.2** Most of Arrowtown relies on a ground soakage stormwater system similar to other towns in the District and New Zealand. This approach relies on ground conditions and can vary from site to site. My

understanding is that the current permeable surface coverage of a minimum of 30% will change only slightly to at least 25% in the PDP. This change may have an effect on stormwater runoff which could trigger an upgrade of the existing infrastructure. In general the stormwater system in Arrowtown is coping pretty well during heavy rainfall events. There have been no significant flooding issues in the past. If the basic road design will change to more urban street design with kerb and channel, then the stormwater network will require upgrades. The community will be consulted if a decision needs to be made about such upgrades.

- 4.3** The increase in the use of private cars is an issue that the whole country faces. New Zealand households have progressively moved from being a single car family to often having more than one car. It is a requirement of the ODP to provide in the low density zone a minimum of two carparks per residential unit and between 1 and 2 in the high density zone.
- 4.4** QLDC is working with the NZ Transport Agency and the Otago Regional Council (**ORC**) to review and refine an appropriate suite of alternative travel options across the District. This work is being led by the ORC as part of the Wakatipu Integrated Transport Strategy. This is to reduce reliance on private vehicles.
- 4.5** Philip Winstone (264) questions whether the provision of 400 new houses via the MRDZ will result in efficient use of existing infrastructure and whether there will be a big cost to upgrade the existing services. J Newson (319) and K Milne (578) seek clear evidence that Arrowtown water and sewerage can cope with the additional demand that the MDRZ will provide.
- 4.6** The Arrowtown water system has capacity to supply the planned additional demand from the PDP based on current computer modelling. In addition, the Council has a planned programme of renewals (replacement of aged and outward leaking pipes) combined with upgrades and extensions to services, delivered over time. This is identified within the current Long Term Plan. Necessary upgrades will be addressed through an Annual Plan or Long Term Plan

process. In relation to current developments a new bore is planned and will be brought into the next annual plan review process.

**4.7** Increased demand from new developments on infrastructure will largely be paid for by the developer. All new assets would be vested in the Council.

**4.8** Universal Developments Limited (177), Otago Foundation Trust Board (408) and Hansen Family Partnership (FS1270) have all submitted in relation to notified Policy 8.2.11.1 seeking its deletion or amendment to state that water supply is available to the Frankton MDRZ (Hansen Road). This policy as notified states:

*Intensification does not occur until adequate water supply services are available to service the development.*

**4.9** There is capacity for planned development within the existing water supply systems. In addition a new borefield at Shotover Country with a potential rising main into Frankton Flats is currently under design. A new reservoir at Quail Rise has also been identified in the Long Term Plan for year 2020/2021. The Council is also in the process of reviewing the levels of service ahead of the 2018 Long Term Plan consultation to enable district wide application of the Code of Practice for Fire Flow. As noted earlier, the Council has a planned programme of renewals to replace ageing pipes, as identified within the current Long Term Plan.

**4.10** Otago Foundation Trust Board (408), Hansen Family Partnership (FS1270) and Universal Developments Limited (177) have submitted in relation to notified Policies 8.2.7.5 and 8.2.11.2, both of which promote on-site stormwater treatment, storage and disposal. These submissions are in relation to the proposed Frankton MDRZ. They question whether the promotion of on-site stormwater treatment is due to there being no capacity within the Council's stormwater network in this area.

**4.11** Sustainable urban design principles seeks to minimise the effects of development on the natural environment. On-site stormwater

detention, and/or soakage systems are recognised internationally as a cost effective method of reducing impacts on the environment. The Council is seeking to strike the best balance of sizing and providing new community infrastructure and managing the demand for services at its source.

- 4.12** The notified MDRZ includes a 5 year deadline for increased density incentivised via compliance with Homestar rating. Many submitters, including D Tan Chin Nam (61), Hurtell Proprietary Ltd, Landeena Holdings Ltd, Shellmint Proprietary Ltd (97), NZIA (238), Reddy Group Ltd (699) (supported by FS1271, FS1260, FS1331), P Thoreau (362) have sought deletion of this rule (8.5.5) on the basis that the land is suitable for a higher density of development and that there is no good resource management reason for imposing the time limit.
- 4.13** A five year deadline does not improve the efficiency of planning for infrastructure. Infrastructure is planned for on a maximum probable development basis – the time at which that capacity is taken up is not of great consequence as infrastructure generally has a design life of at least 60 years. A timeframe for development could potentially create an artificial supply / demand imbalance, which may cost home owners more in the short term in the building of their houses. Consequently, I recommend deletion of notified Policy 8.2.3.2 and deletion of the five year time period set out within notified Rule 8.5.5.
- 4.14** G Girvan (173) opposes the Wanaka MDRZ on the basis that the infrastructure in Wanaka will not cope, and the roading is not suitable for the expected increase in traffic.
- 4.15** The Wanaka water system has capacity to supply the planned additional demand based on current computer modelling. In addition, the Council has a planned programme of renewals (replacement of aged and outward leaking pipes) combined with upgrades and extensions to services, delivered over time, as identified within the current Long Term Plan. The Wanaka sewerage system also has capacity to service the planned additional demand. Likewise the Council has a planned programme of renewals (replacement of aged

and inward leaking pipes) combined with upgrades and extensions to services, to be delivered over time, as identified within the current Long Term Plan. Necessary upgrades will be addressed through an Annual Plan or Long Term Plan process.

## **5. HIGH DENSITY RESIDENTIAL ZONE (HDRZ)**

- 5.1** The PDP contains more enabling height rules for the HDRZ. The PDP potentially allows for buildings up to 15m on flat sites, and 10m on sloping sites as a Restricted Discretionary activity; and 12m for flat sites and 7m for sloping sites as a permitted activity. There is no maximum site density control, although there are rules for setbacks, recession planes and permeable open space. Although there are no specific submissions on infrastructure capacity, I address generally whether existing infrastructure is adequate to sustain the proposed intensity of development in the HDRZ.
- 5.2** In general the water system has capacity to supply the planned additional demand. The Council's point of supply is the boundary kit (this is the point where the private pipe connects into the public network) with a level of service of 30 metres head pressure minimum, if a building height is increased a reduction of pressure could occur. In addition, the Council has a planned programme of renewals (replacement of aged and outward leaking pipes) combined with upgrades and extensions to services, delivered over time, as identified within the current Long Term Plan.
- 5.3** The sewerage network also has capacity to service the planned additional demand. Likewise the Council has a planned programme of renewals (replacement of aged and inward leaking pipes) for the sewerage network combined with upgrades and extensions to services, to be delivered over time, as identified within the current Long Term Plan. Necessary upgrades will be addressed through an Annual Plan or Long Term Plan process.
- 5.4** There should not be a material increase in stormwater run-off compared to the status quo.

## 6. LARGE LOT RESIDENTIAL ZONE (LLRZ)

**6.1** This zone is for larger lots within the Urban Growth Boundaries. The proposed density is 4000m<sup>2</sup>, however one area of 2000m<sup>2</sup> is proposed between Studholme Road and Meadowstone Drive. I note that there are many submissions<sup>1</sup> proposing that the remainder of the LLR zone be reduced to 2000m<sup>2</sup>. In her s42A report, reporting officer Ms Amanda Leith has identified the following three additional areas of LLRZ which could also have a minimum net site area of 2000m<sup>2</sup>:

- (a) LLRZ around the intersection of Anderson Road and Aubrey Road;
- (b) LLRZ located on Golf Course Road and Ballantyne Road; and
- (c) a discrete pocket within Albert Town.

**6.2** In terms of infrastructure capacity, I consider that, with the planned upgrades for wastewater and water supply in the area, there is capacity in the network to increase density from 4000m<sup>2</sup> to 2000m<sup>2</sup> lot size. Stormwater should be addressed through low impact design as per the Land Development and Subdivision Code of Practice.

**6.3** Ms Leith has also requested information as to whether all of the LLRZ areas (in Wanaka) are serviced by Council water, wastewater and stormwater reticulation.

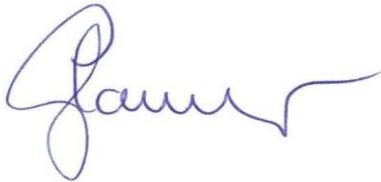
**6.4** Most of the LLRZ sites in Wanaka can be serviced with water supply and wastewater. Some of them need to be serviced with an onsite wastewater pump station in relation to the topography. Stormwater treatment and runoff should be addressed through low impact design. This needs to be addressed case by case depending on ground conditions and permeability for soakage. If soakage is not viable, upgrades to the stormwater network will be necessary.

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<sup>1</sup> M Blennerhassett (322) supported by FS1110, FS1126, FS1140, FS1198, FS1207 and FS1332, L Cleugh (687), supported by FS1111 and FS1207, Aurum Survey Consultants (166) supported by FS1110, FS1111, FS1126, FS1140, FS1198, FS1207 and FS1332, M Fraser (293), supports by FS1110, FS1111, FS1126, FS1140, FS1198, FS1207, FS1332, B Leith (299), N Blennerhassett (335), A Seyb (812) supported by FS1110, FS1111, FS1126, FS1140, FS1198, FS1207, FS1332.

## 7. CONCLUSION

- 7.1 For the anticipated development enabled by the notified PDP the impact on the existing infrastructure is only minor based on currently reviewed and calibrated models. Further Council has identified in the Long Term Plan a programme for renewals, upgrades and network extensions. Unforeseen events will be addressed through the annual plan and long term plan processes.

A handwritten signature in blue ink, appearing to read 'Glasner', with a long horizontal flourish extending to the right.

**Ulrich Wilhelm Glasner**  
**14 September 2016**