

Attachment B: Further Information – Road Exchange Process

From: Kristan Stalker [mailto:kristan@shotovercountry.com]
Sent: Thursday, 28 July 2016 7:26 PM
To: Anita Vanstone; Tony Avery; Blair Devlin
Cc: Chris Hansen
Subject: Fwd: Glenpanel Update and Meeting Request

Hi Anita, Tony, Blair
further to our discussion and in response to the point related to the use of a paper road, please refer Chris Hansen's detailed description below including the proposed exchange.
I expect this will allay the concerns raised this morning.

Regards

Kristan

=====
Hi Kristan,

Regarding the Road Legalisation; attached is the necessary form from QLDC's website.

We have also completed a legalisation concept showing the sections of road to be exchanged.

In simple terms the green sections are 'swapped' for the red sections. The exchange would be 'like for like' and in this instance we would exchange farm land for farm land. This process would occur for nil consideration between the parties.

The connections to the existing legal roads are left intact so no changes in the connectivity of the existing legal road. i.e. the roads are not severed in any way.

This process is followed under the provisions of PWA; not the LGA. The LGA deals with just road stopping and is a publicly notified process due to the disposal of public land.



QLDC in recent times get APL to complete this process on their behalf and is a straight forward process.

It does require a resolution of full council to proceed. These processes are often completed for road realignments or similar. (Shotover Country has completed 2 legalisations in the same fashion during the course of the subdivision.)

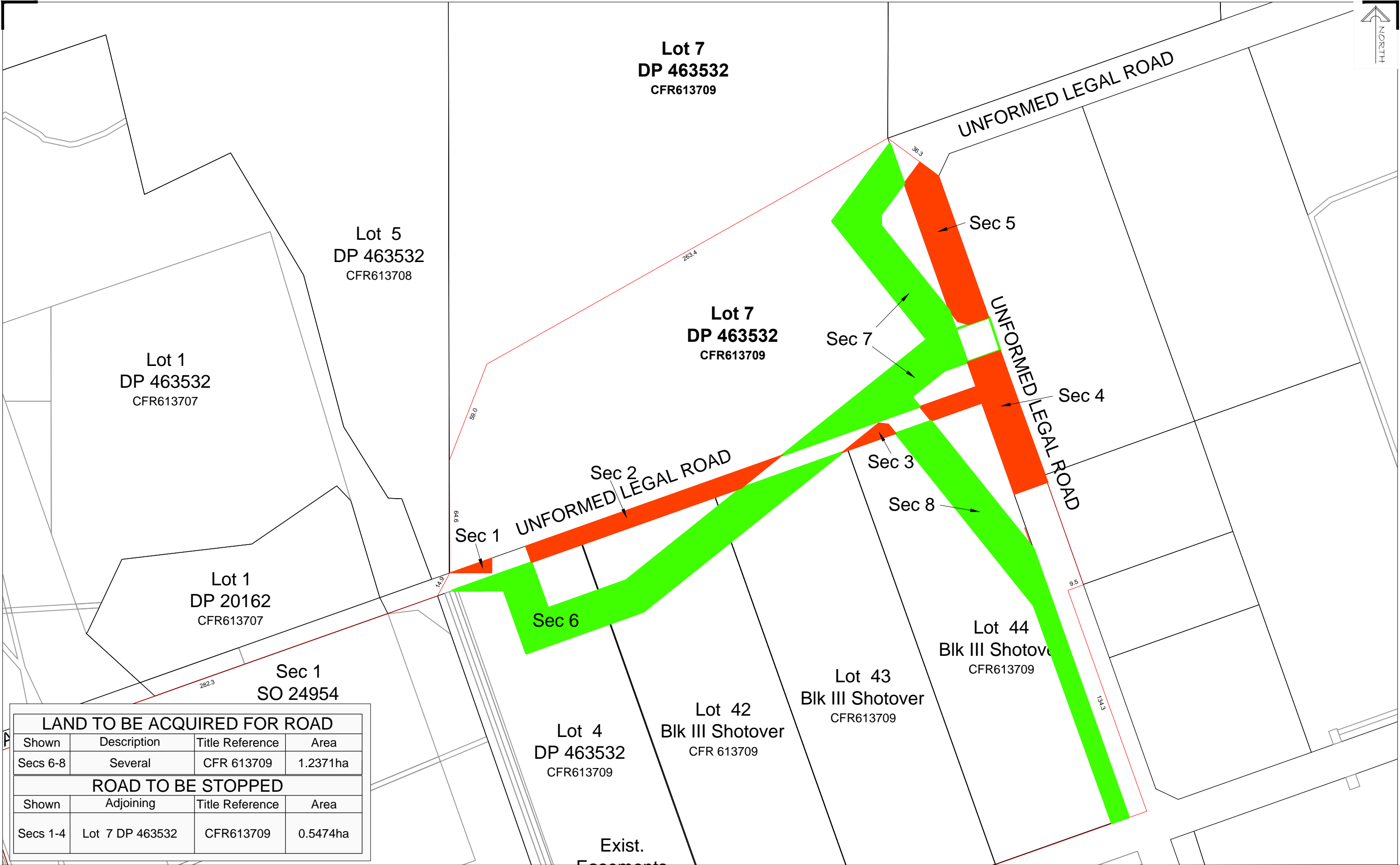
Generally, the process would take 2 – 3 months for the resolution (depending on timing of Council meetings) and a further 6 weeks until gazetted.

This process can easily be completed before the first stage of subdivision of the lots is deposited. Other roads required would be vested as part of the subdivision process.

Any queries or additional information; do not hesitate to call.

Regards,

Chris Hansen

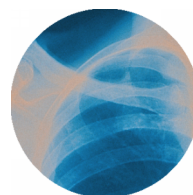




REPORT

STRUCTURAL AND CIVIL ENGINEERS

GLENPANEL SHA INFRASTRUCTURE
ASSESSMENT PEER REVIEW
PREPARED FOR
QUEENSTOWN LAKES DISTRICT COUNCIL
114562.02
28 JULY 2016





Glenpanel SHA Infrastructure Assessment Peer Review

Prepared For:
Queenstown Lakes District Council

Date: 28 July 2016
Project No: 114562.02
Revision No: 2

Prepared By:

A handwritten signature in blue ink, appearing to read 'Sarah Duncan'.

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A handwritten signature in blue ink, appearing to read 'Andrea Jarvis'.

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REPORT ISSUE REGISTER

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INTRODUCTION

Holmes Consulting Group LP have been engaged by Queenstown Lakes District Council (QLDC) to complete a peer review of the infrastructure assessments carried out by Clark Fortune MacDonald & Associates (CFM) for the Glenpanel Special Housing Area (Glenpanel).

SCOPE OF WORK

The scope of work for this project included the following:

1. Review existing reports from CFM and provide comment on the assessments undertaken.
2. Provide comments on external infrastructure effects and upgrades required.

LIMITATIONS

Findings presented as a part of this project are for the sole use of Queenstown Lakes District Council in its evaluation of the subject properties. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

Our assessments are based on a desk study only. Condition assessments of existing infrastructure have not been undertaken and it has been assumed that any deficiencies due to damaged or aged infrastructure will be addressed within existing renewals budgets.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.



BASIS OF ASSESSMENT

CFM have assessed the water supply and wastewater demands generated by the proposed development based on 3 people per dwelling unit as set out in the QLDC Land Development and Subdivision Code of Practice. Thus the population basis of the CFM assessments is considered to be conservative and in keeping with the QLDC requirements.

It is noted that there is a minor arithmetical error in Section 4 – Proposed Development Plan where the total number of dwelling units is stated as 240, but the actual total as given in the breakdown of residential types is 208. However, the value of 208 has been used in all calculations and so this error does not carry through to the bulk of the assessment.

WASTEWATER DEMANDS

The demands on the wastewater network have been assessed by CFM based on the population described above, at an average loading of 250 litres/person/day for domestic use. The applied dry weather diurnal peaking factor is 2.5, and a dilution/infiltration factor of 2 has also been applied.

These demands are generally in line with clause 5.3.5.1 of QLDC's Land Development and Subdivision Code of Practice.

It is therefore considered that the wastewater demands assessed by CFM are appropriate for this site.

WASTEWATER CAPACITY AND SOLUTION

The assessment by CFM states that the Glenpanel development would connect into the QLDC wastewater network via an existing 125 mm main as set out in their Figure 3.2 and would ultimately enter the 375 mm gravity main that crosses the Shotover River and discharges to the Shotover Wastewater Treatment Plant. Gravity sewer reticulation would be constructed internally for the development and a new wastewater pump station with appropriate standby generation and storage would be required. We agree with this assessment.

CFM has not assessed the capacity of the 125 mm main, however we agree that it appears to have sufficient capacity to receive the wastewater flows as calculated in their report. The capacity of the gravity main is stated to be 150 l/s (based upon calculations) but there is insufficient information within the report to confirm this.



The flow rates from neighbouring developments that enter the 375 mm gravity main are stated by CFM as:

- Lake Hayes Estate - 25 l/s
- Shotover Country - 25 l/s
- Queenstown Country Club - 12 l/s
- Glenpanel SHA - 9 l/s

The Shotover Country flow rate given is larger than that which we have been advised previously in relation to other work carried out for QLDC, and exceeds the current pump station's capacity. However we note that the full development of Shotover Country will require an upgrade to this pump station. The flow rates described for the Queenstown Country Club and Lake Hayes Estate are in keeping with what we have used for other assessments. However, flows from Bendemeer Pump Station and the Arrowtown-Lake Hayes Road Pump Station are not included in these calculations. As these have been assessed by us previously as being <15 l/s and 80 l/s respectively this would bring the total flow entering the falling main crossing the Shotover Bridge to 166 l/s which is in excess of the calculated 150 l/s capacity of the pipe as stated in the CFM report.

It is recommended that further modelling be undertaken to confirm the capacity of the falling main and the expected flows from the full development of Shotover Country. It is expected that there is sufficient capacity in this falling main, however at present there is insufficient information provided to confirm this.

WATER SUPPLY DEMANDS

CFM notes that QLDC's Land Development and Subdivision Code of Practice refers to daily consumption of 700 l/p/day for domestic situations, with 250 l/p/day acceptable when supported by alternative modelling/metering data. Although no modelling or metering data has been provided to support alternative flows, CFM states that recent metering of Shotover Country potentially shows that lower design flows are acceptable. Additionally, it is noted that the public irrigation demands are likely to be handled centrally within the development and could be supplied from the Arrow Irrigation Company's system rather than from the potable water demand. As such, the lower demand of 250 l/p/day (and associated peaking factor of 5.0) has been used in their calculations.

CFM states that a fire fighting demand classification of FW2 (non-sprinklered, reticulated, residential) will be used for the development.



No assessment of potable water, firefighting or irrigation demands have been carried out but it is stated by CFM that modelling by QLDC approved modellers will be necessary to confirm all assumptions and demands. The 250 l/p/day proposed by CFM (equivalent to 750 l/connection/day) is considered low compared to the average demand across the district, currently at 1,000 l/connection/day. It is recommended that this higher rate is adopted for modelling and detailed design purposes. Additional investigation into the public irrigation requirements to be met by a non-potable source may also be required.

WATER SUPPLY CAPACITY AND SOLUTION

As addressed by CFM, there are a number of upgrades underway to integrate the Lake Hayes Estate and Shotover Country water supplies. CFM conclude that, with the bore field upgrades underway and proposed, there is a sufficient quantity of water to supply the proposed Glenpanel development, subject to appropriate planning and design. We concur with this conclusion, however note that incremental upgrades of some infrastructure may be required, and recommend a robust developer agreement be put in place to cover any such incremental upgrades. Modelling of the network and the Glenpanel demands is recommended to inform these upgrades.

The water pressures required to service the Glenpanel land are not able to be achieved using the existing infrastructure without booster pumping. CFM note that this would be addressed by the use of a new reservoir and booster pump system. It is proposed to locate the reservoir on Slope Hill where the applicant owns appropriate land.

There are a number of developments in this area, including Bridesdale, Queenstown Country Club, the full Shotover Country Development and Glenpanel that are all relying on the bore field upgrades and the infrastructure projects linking the Shotover Country and Lake Hayes Estate water supplies. It is recommended that QLDC engage their water supply modeller to review the cumulative effect of these developments to ensure the overall network requirements are met.

STORMWATER

Preliminary stormwater calculations have been carried out by CFM using the Rational Method, based on average run-off coefficients. A run-off coefficient of 0.65 has been used for the High Density zone, with 0.60 applied for the Medium Density Zone and 0.55 for the Low Density zone. The NZ Building Code Clause E1 defines average C values of 0.65 for “Industrial, commercial, shopping areas and town house developments” and 0.55 for residential areas in which the impervious area is 36-50% of the gross area. CFM have then applied a slope correction of -0.05 due to the flat nature of the land.

This assessment is considered non-conservative. The Rational Method as defined in the NZIE document “Hydrological Design of Urban Stormwater Systems” only allows



for a slope correction to be applied to pervious land types – for example pasture, playgrounds, parks and reserves. Hard stand areas and roofs are not able to have this correction applied. Further, the total impervious area within each lot is not assessed, and when driveways and outdoor living spaces are included in both medium density and high density developments, the average rates may not provide for the total expected increased run off.

The stormwater philosophy put forward by CFM is to attenuate the 100 year storm event within detention ponds on site, potentially discharging at pre-development flows to the downstream network. The stormwater concept plans do not identify any downstream network able to accept these flows; it is assumed that this relates to the roadside swale/water table, however no discharge to this network is described in the concept.

CFM have also assumed that the cut off drains currently in place at the base of Slope Hill are appropriate to mitigate any effects on the subject site. The Geosolve report identifies past shallow debris and mudflows in the Slope Hill area. If such an event occurs again during a period of heavy rain, it is possible that breakout of water from these cut off drains may occur. The capacity of the cut off drains should be assessed and measures provided to mitigate the effects on the development, should these cut off drains fail.

The infiltration volumes shown in the CFM calculations appear to correlate to a soakage rate of 80 mm/hour. This is a rate of approximately 2×10^{-5} m/s which, in accordance with the Christchurch City Council Waterways, Wetlands and Drainage Guide, is approximately the maximum permeability expected in silt/loess soils, middle of the range for silty sand and conservative for either clean sand or clean gravel. The Geosolve report identifies the upper layer of the underlying soils in the area intended for the infiltration ponds as silts. This makes the infiltration rates non-conservative. No soakage test results are provided to support the proposed soakage rates.

This lack of conservatism in the infiltration rates, combined with the lack of conservatism in the run-off rates means the stormwater concept as a whole is reliant on the ponds working absolutely optimally. There is also no consideration of downstream effects, including whether infiltrating 510 m³/hour into the soils in a concentrated area would lead to possible seepage/breakout from downstream terraces. Some seepage has been identified in the Geosolve report within the subject site resulting from the upstream gullies; it is therefore considered possible that activity on this site could create similar effects elsewhere.

The CFM report also discusses stormwater treatment, and proposes that this will be provided via grass swales and pre-treatment before infiltration to ground. To mitigate the effects of sediments and other contaminants on infiltration rates, pre-treatment outside of the infiltration basins will be required.



It is recommended that soakage testing is carried out to support the proposal. It is also recommended that an investigation into the wider consideration of the effects of concentrated infiltration on the surrounding area is carried out.

CONCLUSIONS

In general, the solutions recommended by CFM are designed to have the least impact on QLDC's network of the potential options considered.

The wastewater network is effectively standalone, relying only on one falling main and the treatment plant. It is expected that headworks contributions would adequately cover any costs associated with any upgrades to this portion of the network, however the capacity of the falling main needs to be confirmed in relation to the cumulative effects of development in the area.

The water supply to supply Glenpanel is reliant on a number of upgrades to the Lake Hayes Estate and Shotover Country water supplies, some of which have not yet been completed. The pressures required to service the development are not able to be achieved by the current infrastructure, and booster pumping and a new reservoir will be required. It is recommended that the combined water networks are modelled, and a robust developer agreement is established to cover any incremental infrastructure upgrades required to supply the Glenpanel land, and the cost of the booster pump and reservoir solution.

The stormwater network proposed is stand alone and technically does not affect the surrounding infrastructure network. However, not enough information has been provided at this stage to demonstrate the feasibility of the proposal. Soakage testing at the site should be carried out to support the proposal and more information on overland flow paths within the site and from upslope of the site provided. The wider effects of the infiltration basins should also be investigated.

Jane Robertson

From: Warren Hanley <warren.hanley@orc.govt.nz>
Sent: Tuesday, 26 July 2016 4:34 PM
To: Anita Vanstone
Subject: Glenhaven SHA proposal - ORC comment on stormwater management

Categories: Red Category

Hi Anita,

Thanks for your time this morning discussing Special Housing Area matters.

Further to comments I forwarded about natural hazards matters, ORC would like to note the following in respect to storm water management for the Glenhaven proposal.

I could not see any reference to the developer having discussed stormwater matters with ORC nor any reference to ORC's relevant regulatory plans. While its appreciated the proposal is yet to finalise details on the stormwater catchment management plan (SCMP - as detailed in section 6.1 of the proposal) due to the size of the development, and the proximity of Lake Hayes in particular, this is of interest to ORC.

The Otago Regional Council's Regional Plan: Water contains objectives, policies and rules in respect to the discharge of stormwater. Therefore, in preparing a stormwater catchment management plan , it would be appropriate that any SCMP is discussed with ORC staff to confirm how the provisions of the plan will apply. The objectives and policies of the Regional Policy Statement and Proposed Regional Policy Statement should also be considered in respect to a SCMP.

It is not clear to what waterway(s) any discharge may occur (section 6.8 Table 2 Recommendations). Associated activities to the proposed management and discharge of stormwater may also require confirmation from ORC staff how ORC's plan provisions may apply.

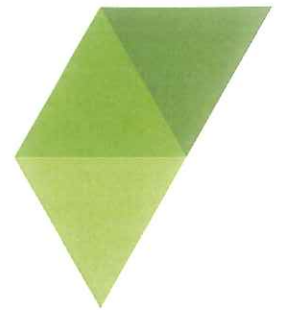
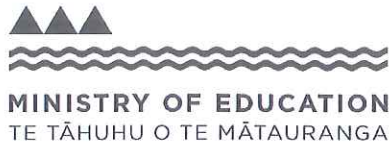
Regards

Warren.



Warren Hanley
Resource Planner - Liaison

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21 July 2016

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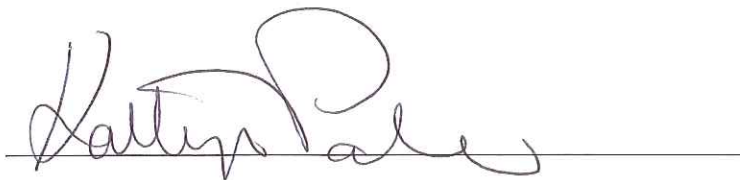
Expression of Interest – Glenpanel - Proposed Special Housing Area

Dear Anita

Thank you for your email of 7 July 2016 seeking the Ministry of Education's feedback on the proposed Glenpanel special housing area.

Having considered the proposal the Ministry expects that there could be up to 3-4 additional teaching spaces required at Shotover Primary School. While this growth could be accommodated within the current plan for stage 2 expansion of capacity at Shotover Primary School, the long term implications of ongoing growth within the catchment may necessitate the bringing forward of further expansion of at the school.

As with the proposed Waterfall Park SHA, it is noted that consideration of individual proposals that result in having a negligible direct impact may not account for the cumulative impact of incremental change through private plan changes and further SHA proposals, or changes to the operative District Plan. The Ministry will continue to monitor ongoing growth and how the planning context impacts this, and would like to establish regular and ongoing engagement with QLDC will to support this.



Kathryn Palmer
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17 July 2016

Chief Executive
Queenstown Lakes District Council
Private Bag 50072
QUEENSTOWN 9348

Attention: Anita Vanstone

Dear Anita

Glenpanel – Proposed Special Housing Area – Comments

Thank you for recently providing details of the above proposal to the NZ Transport Agency for comment. We understand that the proposal relates to a development as follows:

- 38 rural edge allotments (between 506m² to 906m²)
- 65 residential lots (between 450m² to 650m²)
- 104 lots (approximately 288m² for medium/high density)
- Landscaped areas

The development will be located on the northern side of Frankton–Ladies Mile Highway (SH 6), essentially opposite the Lake Hayes Estate and Shotover Country subdivisions and the proposed Sanderson development. Access to the site will be from SH6 opposite Howards Drive intersection.

We have considered the applicant's Transport Assessment of this proposal. In very general terms, the Transport Agency agrees with the conclusions reached, however we reaffirm the requirement for access to be provided at a forth leg to the existing Howards Drive intersection. To ensure an acceptable level of safety and efficiency is achieved at the new intersection we consider the best form of intersection treatment would be a roundabout. The Transport Agency has no current plans to undertake this work, based on the current level of service at this intersection, therefore it is appropriate that this work is undertaken by the applicant.

The Transport Agency also supports the provision of the following elements of the proposed development:

- Connectivity to adjoining land to the east and west of the subject site to enable these areas to be accessed from a new roundabout at Howards Drive intersection,
- Pedestrian access under SH6 to developments on the south side the highway, and in particular to the Shotover Primary School,
- The internal network of walking and cycling facilities and the connections to the existing Queenstown Trails network,
- The transport hub to allow for future provision of a public transport service into the development site. However, this will require that the internal road network is of sufficient standard to accommodate public transport,

Further, we note that we continue to have some concerns around the longer term operational capability of the State highway in this part of the Wakatipu Basin, particularly given the growing volume of

consented but unrealised residential development on the eastern side of the Shotover River. It may ultimately prove difficult in the short to medium term to reprioritise investment funding to deliver on any required capital assets such as a new State highway bridge to respond to what is unanticipated and/or unintentional residential growth on the eastern side of the Shotover River delta.

Please do not hesitate to contact me if you have any further queries or require further information.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Tony Sizemore', with a stylized, flowing script.

Tony Sizemore
Transport Planning Manager