

Queenstown Lakes District Council (QLDC)
Private Bag 50072
Queenstown 9348

Attn Mr Ulrich Glasner / Richard Powell

Dear Ulrich,

Re. // QLDC Scheme Boundary Adjustment (Watersupply & Wastewater)

Further to the meeting held at QLDC's Church Street offices on the 29th May 2019, this letter formalises our request for QLDC to extend their wastewater and watersupply scheme boundaries to incorporate additional land parcels as illustrated in the attached drawings. This request was originally sought by Guy Taylor on the 20th March, as per the attached letter.

The EIC, Willow Pond and Driving Range land parcels have assumed DUE allocations which are required to be included in the respective QLDC scheme plan. All our documentation consented to date has reflected this assumption

The following DUE's apply to the below land parcels:

- EIC : 300 DUE's (Wastewater & Water Supply)
- Driving Range: 450 DUE's (Wastewater only)
- Willow Pond: 100 DUE's (Wastewater & Water Supply)

Watersupply

The water supply system for a new development must comply with QLDC's Code of Practice (CoP) and the New Zealand Fire Service Firefighting Water Supplies Code of Practice.

The following levels of service are applicable:

- Residual pressure during the Peak Hour Flow shall be at least 300kPa.
- Class FW2 fire flow is available to meet the required Queenstown Lakes District Council standards.
- Pressures during 2/3 of Peak Annual Flow plus Fire Fighting is at least 100kPa for FW2 fire flows

QLDC's CoP specifies that demand calculations for domestic water supply are based on demand criteria for residential units of 700 litres per person per day, with occupancy of 3 persons per lot for the Average Daily Flow (ADF) in litres per second, and Peaking Factors of up to 6.6 for instantaneous demand. This is overly conservative for the type and scale of domestic dwellings and lower assumptions for demand agreed previously with QLDC for Hanley's Farm can be expected to apply.

The criteria at Hanley’s Farm used in previous modelling and design are:

- Demand of 1000 litres per lot per day for the Average Daily Flow (ADF). QLDC undertook a flow metering study to arrive at this flow rate and found it more representative of actual flows.
- The Peak Daily Flow (PDF) in litres per second is calculated by multiplying the ADF by a peaking factor of 2.0
- The Peak Hour Flow (PHF) in litres per second is calculated by multiplying the ADF by a peaking factor of 4.0

The calculations tabled below outline the estimated domestic and firefighting demands associated with EIC and Willow Pond.

Table 1: EIC Watersupply Demands

Estimate Watersupply Demands - EIC	
Domestic Demands	
Dwelling Units Equivalent	300 DUE's
Average Daily Flow	1000 (L/lot/day)
Average Daily Flow	3.5 (L/sec)
Peak Daily Flow	6.9 (L/sec)
Peak Hourly Flow	13.9 (L/sec)
Firefighting Flow	
Firefighting Flow	25 FW2 (L/sec)
Peak Annual Demand	22 (L/sec)
2/3rd Peak Annual Demand	15 (L/sec)
Firefighting Flow + Domestic Demand	39.612 (L/sec)

Table 2: Willow Pond Watersupply Demands

Estimate Watersupply Demands - Willow Pond	
Domestic Demands	
Dwelling Units Equivalent	100 DUE's
Average Daily Flow	1000 (L/lot/day)
Average Daily Flow	1.2 (L/sec)
Peak Daily Flow	2.3 (L/sec)
Peak Hourly Flow	4.6 (L/sec)
Firefighting Flow	
Firefighting Flow	25 FW2 (L/sec)
Peak Annual Demand	11 (L/sec)
2/3rd Peak Annual Demand	7 (L/sec)
Firefighting Flow + Domestic Demand	32.297 (L/sec)

Wastewater

The following design parameters for residential subdivisions are specified in QLDC’s Land Development and Subdivision CoP for wastewater systems:

- An occupancy of 3 persons
- A wastewater generation of 250 litres per person per day
- A dry weather diurnal peak flow factor of 2.5
- A dilution/infiltration factor of 2 for wet weather.
- 8 hours of emergency storage

Based on the QLDC Code of Practice requirements as listed above, the following peak flows for each land parcel are assumed below:

Table 3: Estimated Peak Wastewater Flows

Estimate Peak Wastewater Flows		
EIC		
Dwelling Units Equivalent	300	DUE's
Average Dry Weather Flow	225	(m ³ /Day)
Average Dry Weather Flow	2.604	(L/sec)
Peak Dry Weather Flow (self cleansing)	6.510	(L/sec)
Peak Wet Weather Flow	13.021	(L/sec)
Driving Range		
Dwelling Units Equivalent	450	DUE's
Average Dry Weather Flow	337.5	(m ³ /Day)
Average Dry Weather Flow	3.906	(L/sec)
Peak Dry Weather Flow (self cleansing)	9.766	(L/sec)
Peak Wet Weather Flow	19.531	(L/sec)
Willow Pond		
Dwelling Units Equivalent	100	DUE's
Average Dry Weather Flow	75	(m ³ /Day)
Average Dry Weather Flow	0.868	(L/sec)
Peak Dry Weather Flow (self cleansing)	2.170	(L/sec)
Peak Wet Weather Flow	4.340	(L/sec)

I trust the above provides QLDC with sufficient information to progress this application for the scheme boundary adjustment.

Yours faithfully,

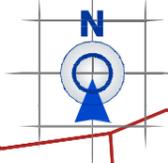
Richard Parnell



Senior Associate – Civil Engineering
 AR & Associates Ltd

APPENDICES:

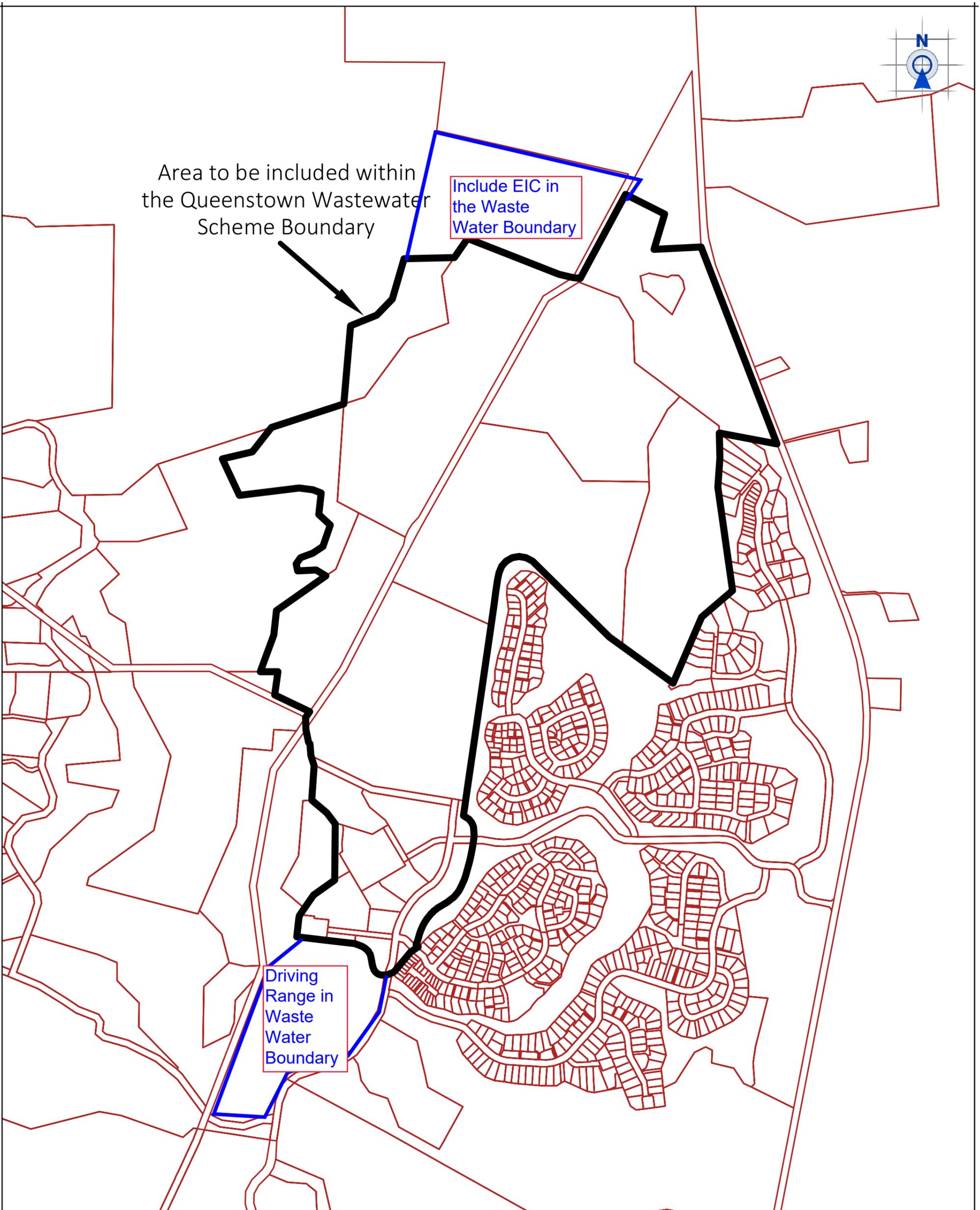
1. Original request package (29th May 2019)
2. Adjusted Wastewater Scheme
3. Adjusted Watersupply Scheme



Area to be included within the Queenstown Wastewater Scheme Boundary

Include EIC in the Waste Water Boundary

Driving Range in Waste Water Boundary



QUEENSTOWN:
Terrace Junction,
1092 Frankton Road.
PO Box 2645,
Queenstown 9349.
T 03 441 4715
E queenstown@ppgroup.co.nz

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Client/Location:
RCL Henley Downs Limited
Hanley's Farm
Kingston Road, Queenstown

Purpose/Drawing Title:
Area to be included within the Queenstown Wastewater Scheme Boundary

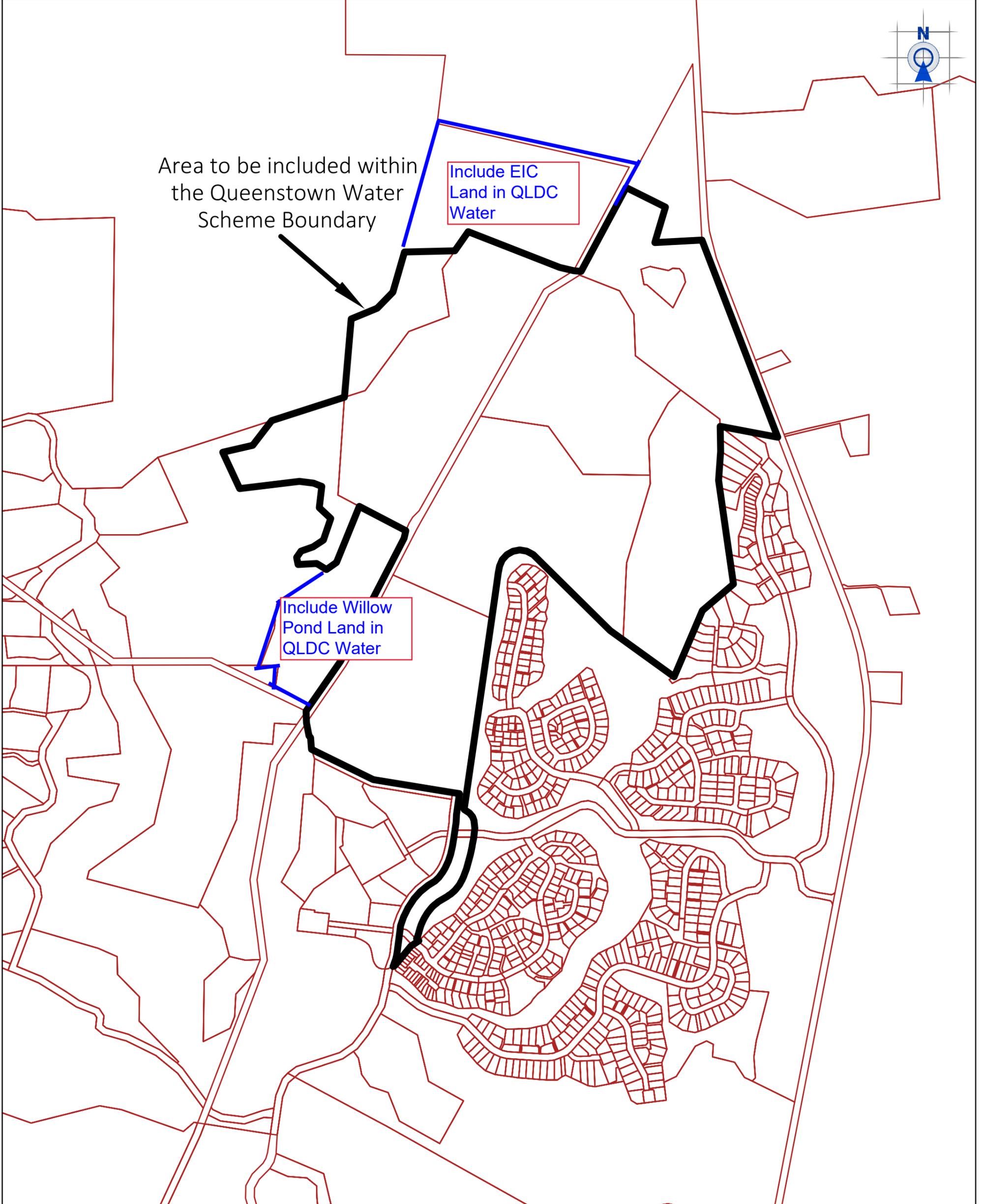
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				12/10/2017



Area to be included within the Queenstown Water Scheme Boundary

Include EIC Land in QLDC Water

Include Willow Pond Land in QLDC Water



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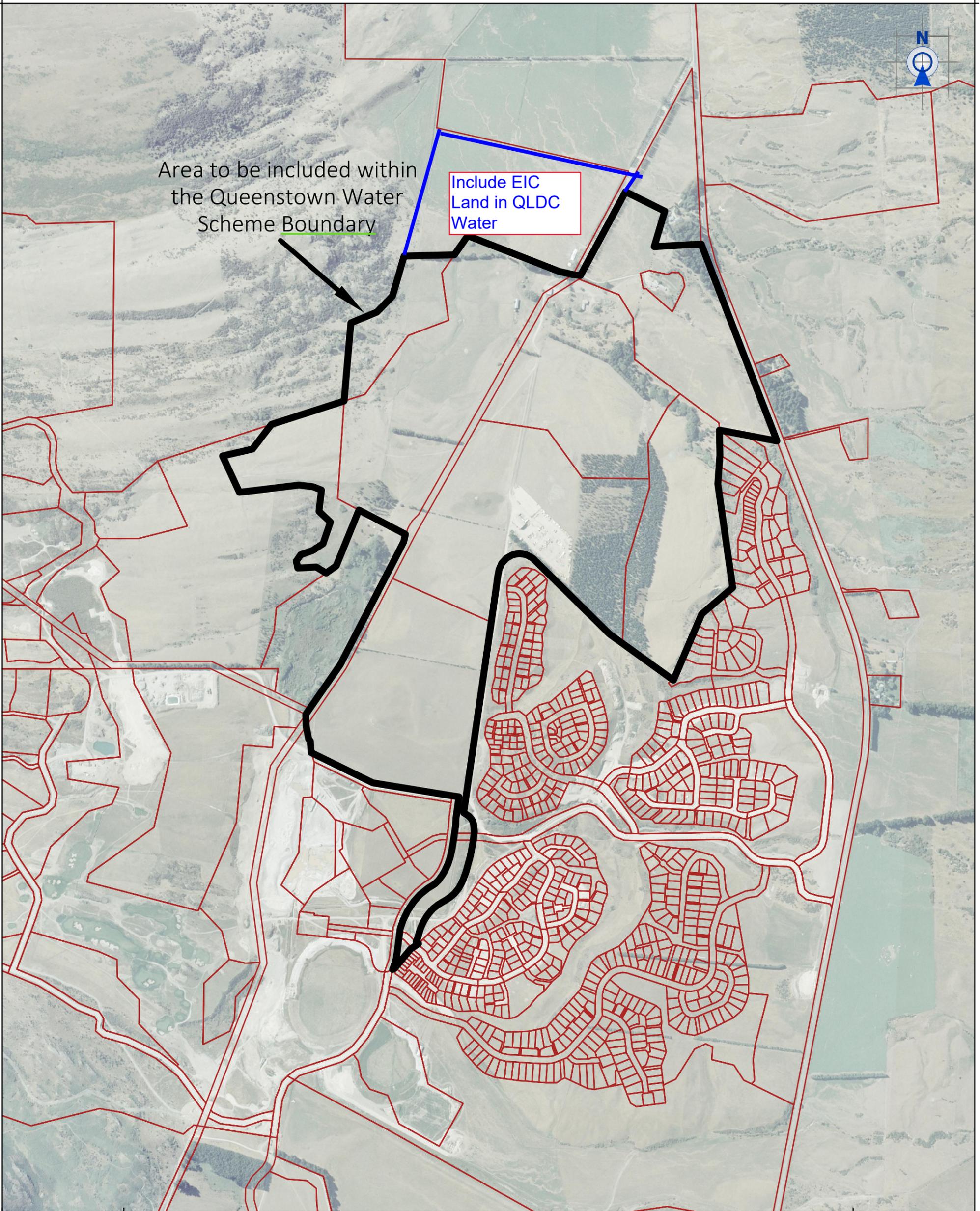
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Checked by:	DB Nov 2017			
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1092 Frankton Road.
PO Box 2645,
Queenstown 9349.
T 03 441 4715
E queenstown@ppgroup.co.nz

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Client/Location:
**RCL Henley Downs Limited
Hanley's Farm
Kingston Road, Queenstown**

Purpose/Drawing Title:
**Area to be included within the
Queenstown Water Scheme
Boundary**

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Checked by:	DB Nov 2017				
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Job Ref:	Q6205 - 14	Sheet No:	12	Revision No:	A
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