

BEFORE THE HEARING PANEL

IN THE MATTER of the Resource Management
Act 1991

AND

IN THE MATTER of applications for consents
(APP-2005011178.01) by the TARARUA
DISTRICT COUNCIL to the HORIZONS
REGIONAL COUNCIL for resource consents
associated with the operation of the Eketahuna
Wastewater Treatment Plant, including a
discharge into the Makakahi River, a discharge
to air, and a discharge to land via pond seepage,
Bridge St, Eketahuna

REPORT TO THE COMMISSIONERS
DR. BRENT COWIE (CHAIR), MR. REGINALD PROFFITT, MR. PETER CALLENDER

STATEMENT OF EVIDENCE - BLAIR PHILLIP KING, CHIEF EXECUTIVE, TARARUA DISTRICT
COUNCIL

20 MARCH 2017

A. INTRODUCTION

- 1) My name is Blair Phillip King. I am the Chief Executive at the Tararua District Council (TDC). I have held this role since November 2008. Prior to this role, I was the General Manager of a Queenstown Lakes District Council owned Consultancy responsible for that Council's three waters maintenance and roading for 12 months, and before that, the Assets Manager at Kaipara District Council for five years. In my current position I am responsible for ensuring all of the district's functions, activities and infrastructure assets are prudently managed and delivered. TDC operates reticulated wastewater services in seven communities, ranging from Norsewood to Dannevirke in scale.
- 2) I hold Bachelor and Master Degrees in Engineering (Civil) from the University of Auckland, am a Member of the Institution of Professional Engineers New Zealand, and am currently renewing my Chartered Professional Engineer status (to be considered by the Registration Board in April 2017).

B. PURPOSE AND SCOPE

- 3) The purpose of this evidence is to provide comment about Council's commitment to improving the quality of its discharge of treated effluent from the wastewater treatment plant serving the township of Eketahuna and to discuss the context of this particular discharge consent application within the overall district.
- 4) Specifically my evidence will provide details of Council's commitment to meeting its obligations under the legislation and the Manawatu River Leaders Accord, and its responsibility for fiscal prudence within the context of the local, regional and national environment in which the Council functions. I will also outline my approach in regard to involving Iwi in the decision making.
- 5) In addition I will provide some details about the operating environment relative to water and wastewater, that impact on resourcing. This includes dealing with the impacts of the large Eketahuna Earthquake early in 2014 that resulted in a substantial insurance settlement for the replacement of the majority of the wastewater reticulation, and loss of

secure bore status for Pahiatua Water, in the same time period as the Havelock North water crisis.

- 6) Finally, I will make some comments with regard to submitter evidence provided by Mr. Greg Carlyon, on behalf of Kahungunu ki Tamaki nui-a-rua Trust, and a recent meeting between Officers from TDC and Mr. Morry Black from the Trust.

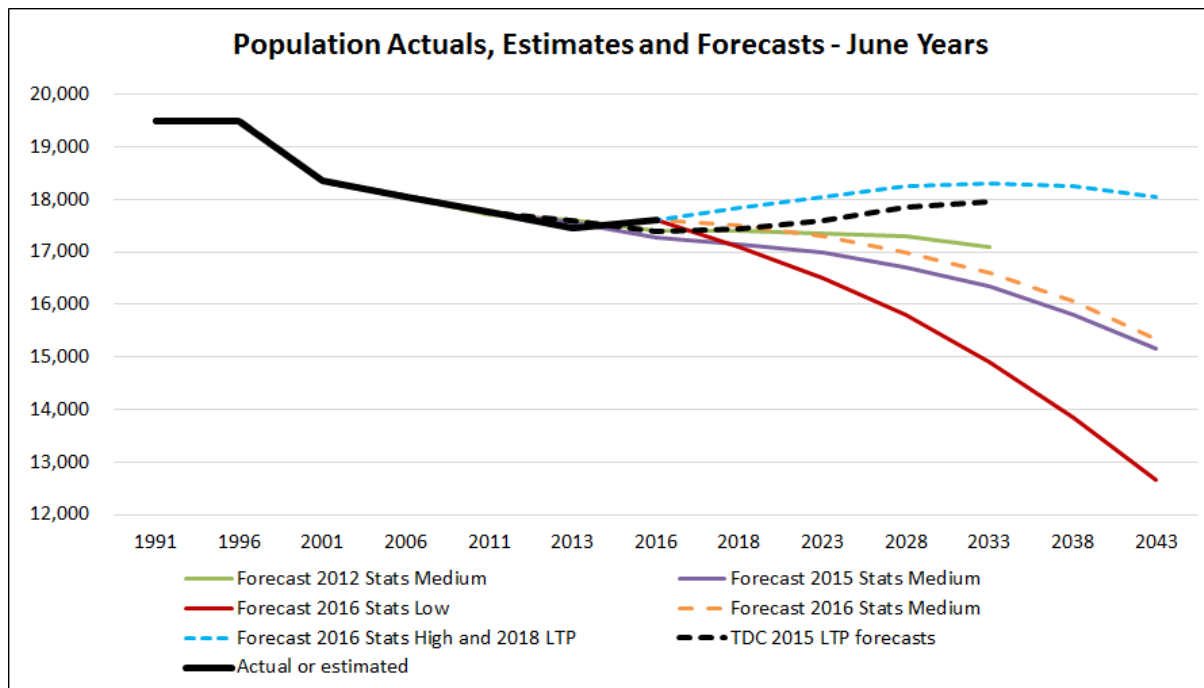
C. CONTEXT

- 7) The time taken to renew these consents is both a function of the ability to accurately demonstrate the effects, or lack of, on the receiving environment, and Councils significant investment over the last 6 years into water and wastewater infrastructure upgrades. I can assure the Panel that TDC is committed to its responsibilities for meeting its River Leaders Accord obligations and legislative requirements. While the process for renewal of these consents has been more prolonged than any of us participating in this hearing would have liked, I consider it to be important to present to the Commissioners a view of the overall context in which the District is operating so that, in undertaking your deliberations following the hearing, you will do so fully cognisant of the wider contextual issues that affect the district.
- 8) The District covers a land area of some 4,360 km² and in the 2013 Census recorded a population of 16,854 residents. During the twelve year period to 2014 the district's population declined at a rate of approximately 0.5 % per annum. With the decline due primarily to younger persons leaving the district the population is aging which, in the long term, means less disposable income to meet essential costs such as rates.

D MAJOR DRIVERS OF POPULATION CHANGE

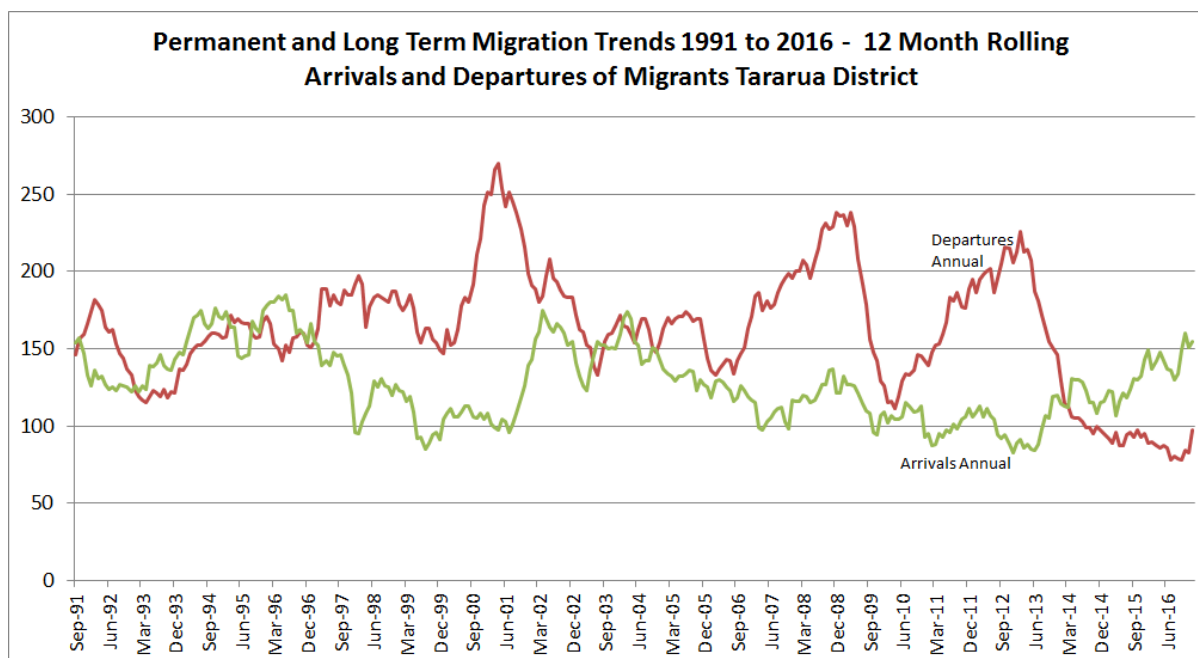
- 9) The TDC has adopted a growth scenario looking forward which suggests that population will slowly increase, with persons leaving the district being replaced by incoming migrants and overseas expatriates returning to New Zealand. However the population of Eketahuna is expected to remain reasonably static.
- 10) The major change in the makeup of the 2013 Census and forecast population is the decline in younger people and the increase in older people. While the increase in the aging population is forecast to occur across the country the decline in younger people is not.

The median age of residents in the Tararua District is forecast to increase from 41 years old in 2013 to 45 years old in 2028 and 48 years old in 2048 (high growth Statistics NZ series).



11) Population change is the result of natural increase (births less deaths), plus or minus the results of residents moving between different areas (in and out movements to / from New Zealand and overseas). Tararua has a net gain from natural increase, and until 2013/14 had a significant loss from long term immigration and a domestic drift to Palmerston North, Manawatu, Hastings and other NZ areas. With migration numbers improving the natural increase will start to have a positive impact.

12) The migration trends have changed rapidly since 2014 with the net balance from immigration (international movements) now positive on an annual basis. The annual gains over 2016/17 have been the highest ever recorded since the series began in 1990.



13) School pupil numbers are now increasing (modestly) after many years of decline, and the number of people on superannuation benefit in Tararua increased from 3,082 in October 2015 to 3,188 in October 2016. This is an increase of 106 or 3.4%. For Eketahuna, the primary school numbers have continued to rise, as have those in Pahiatua.

Eketahuna Area Schools

As at 1 July	2010	2011	2012	2013	2014	2015	2016
Eketahuna School	98	92	91	95	96	103	108
Alfredton School	31	36	40	41	50	54	62
Total	129	128	131	136	146	157	170
Increase/(-Decrease) from Prior Year		-0.8%	2.3%	3.8%	7.4%	7.5%	8.3%

Pahiatua Area Schools

As at 1 July	2010	2011	2012	2013	2014	2015	2016
Mangatainoka	45	53	59	56	67	62	58
Pahiatua School	224	223	236	280	289	342	374
Hillcrest	40	48	49	34	30	33	29
St Anthony's School (Pahiatua)	112	128	138	125	127	117	116
Makuri	8	7	7	11	6	11	13
Total	429	459	489	506	519	565	590
Increase/(-Decrease) from Prior Year		7.0%	6.5%	3.5%	2.6%	8.9%	4.4%

- 14) Annual Council revenue from rates is of the order of \$21m. That means expenditure on any one item of \$210,000 represents a 1% increase in rates. However, for Eketahuna connected users \$210,000 represents \$954 per connection.
- 15) The extent of assets associated with each of the district's seven wastewater schemes is tabulated below (2014 Wastewater Asset Management Plan):

Location	Property Connections	Pipe length (km)	No of pump stations	Treatment plant	Gross replacement cost (\$) June 2014
Dannevirke	2,661	37.5	7	3 ponds, 9.2 ha	23.844m
Pahiatua	1,123	17.8	3	3 ponds, 4.1ha	10.476m
Woodville	675	13.1	1	2 ponds, 2.9 ha	8.799m
Eketahuna	220	6.5	2	2 ponds, 0.4 ha	3.752m
Norsewood	70	3.2	2	2 ponds, 0.06 ha	1.090m
Pongaroa	69	3.4	2	2 ponds, 0.32 ha	1.093m
Ormondville	39	3.5	3	2 ponds, 0.22 ha	0.925m
Total	4,857	85	20	16 ponds	\$49,980,925

- 16) I acknowledge that the District cannot be treated differently to others both within the Horizons region and spread across the country. However the need to renew a growing legacy of old infrastructure assets, such as water and wastewater schemes with a limited and, at best, static rating base presents particular challenges for small district Councils such as TDC. The problem is exacerbated by dis-economies of scale applying to the district's seven separate wastewater schemes with a combined gross renewal cost (2014 Wastewater Asset Management Plan) of almost \$50m, which is nearly 2.5 times the annual rate take across the entire district of \$21m.
- 17) TDC charges a Targeted Rate to each property connected to one of its wastewater schemes. In an attempt to spread the costs uniformly, and on the basis that each connected property receives the same level of service, an equalisation policy applies whereby the Targeted Rate is the same for each connected property irrespective of which scheme it is connected to. Thus any increases in capital or operating expenditure have a direct impact only on that group of ratepayers connected to one of the wastewater schemes, but are not an impost on general rates.

- 18) In other words the owner of each ratepayer of a property connected to the wastewater system can be considered to effectively “own” a share of the wastewater system with an equivalent replacement value of \$10,290 plus GST. Currently, ratepayers connected to the wastewater system pay an annual sum as a Targeted Rate to TDC for the maintenance, operation and development costs for his/her share of the system of approximately \$385 plus GST.
- 19) All of the wastewater schemes now managed by the district were developed at different times by the various borough or county council jurisdictions that existed prior to local government amalgamation in 1989. Thus, while the district did not construct or have control over the design of any of the schemes it does now have an obligation to manage, maintain, operate and renew the assets while meeting increasing environmental legislative standards.

E. BACKGROUND

- 20) The population of Eketahuna, as stated in the Council’s 2014 wastewater asset management plan is 441 persons. The town is served by a reticulated wastewater network of 6.1 kms of pipes of various sizes. Wastewater collected in the reticulation system is conveyed to the wastewater treatment plant located on land adjacent to the Eketahuna Golf Club. There are 220 connections to the wastewater system.
- 21) Wastewater currently passes through two ponds prior to its discharge to the Makakahi River.
- 22) On 20 January 2014, a M6.2 earthquake occurred at 33 kms depth approximately 15 km east of Eketahuna. Subsequent CCTV (closed circuit television) surveys revealed substantial damage to the then existing wastewater network.
- 23) The damage caused two primary negative effects on the wastewater system. Firstly, a number of pipes dipped which compromised the ability of the system to satisfactorily convey wastewater away from many areas to the treatment plant. Secondly, and of more relevance to this consent hearing, is that a number of pipe joints became displaced – particularly at the point where house connections join the main pipe in the road reserve.
- 24) A consequence of pipe joint displacement is that groundwater, when it rises above the level of the pipe invert, is easily able to enter the system, thereby increasing the amount

of flow conveyed in the network and which eventually arrives at the wastewater treatment plant.

- 25) Moreover historical building controls were not as effective as they are currently. As a consequence, Council has undertaken a programme using ex-building officials to go house-house checking for house roof stormwater connections or low gulley traps, that allows the direct flow of stormwater into the wastewater system – known as inflow.
- 26) Typically wastewater systems are designed for an average dry weather flow with a peaking factor applied to allow for diurnal variations, as well as recognition that over its design life (100 years), pipes will probably deteriorate to the extent that infiltration occurs through leaking joints.
- 27) Also, the designer of a pipe, should make allowance for the illegal direct connection of stormwater downpipes from roofs etc. to the wastewater system. Typically the designer will assume a peaking factor of 4 to account for diurnal flow variations, and the effects of inflow/infiltration that might occur over the life of the system.
- 28) No specific flow measurements are available for the Eketahuna wastewater treatment plant during the period during the immediate aftermath of the earthquake. Based on the experience from the Christchurch earthquakes in 2011 it is likely that significant ingress of groundwater into the wastewater system would have occurred following the Eketahuna event in 2014. As indicated earlier, underground CCTV surveys showed substantial damage to the system.
- 29) The damage inflicted by the ground movement associated with the Eketahuna earthquake that was observed in the CCTV inspections led TDC to embark on an accelerated programme of repairs to the wastewater reticulation system.
- 30) The works, completed at a cost of \$1.4m, comprised the following:
- Relining of 4.4 kms of pipeline (72 % of the total network length); and
 - Repairs and replacement of 21 manholes
 - Replacement of 166 private lateral junctions (out of a total of 220 connections)
- 31) While a reasonable proportion of the costs of the wastewater renewal works were met by insurance, the earthquake incident caused Council to divert a large amount of time to

responding to matters related to the earthquake. This diverted the attention of already stretched resources onto non-core activities such as earthquake recovery and restoration work.

- 32) The second event that has diverted resources was the contamination of the Pahiatua water supply, which occurred in 2015. Prior to the earthquake, the water source for Pahiatua, which was previously via an intake gallery in the Mangatainoka River, had recently been changed to an underground bore located in the township. The objective in changing the water source was to enable conversion of the previously used infiltration gallery from the Mangatainoka River to be transitioned for use as a discharge point for treated wastewater from Pahiatua.
- 33) The contamination incident and high summer demands has required that the system be re-configured to reutilise the intake gallery in the Mangatainoka River as the primary water source for Pahiatua. Re-configuration back to using the river source rather than the bore as the source of Pahiatua's water supply required the application of further resources and has now added a level of further complexity to the wastewater consent application for Pahiatua scheduled to be heard by yourselves in May 2017.
- 34) Thus, while TDC can be perceived as having been slow to renew this consent it is important that the Commissioners understand the above context in which the Council has been operating and the added difficulty arising out of both the earthquake in 2014, and the water contamination incident a year later.

F PLANT UPGRADING

- 35) TDC has included the sum of \$810,000 in its 10 year plan for the construction of a number of additional process elements at the Eketahuna wastewater treatment plant aimed at further improvements to effluent quality.
- 36) One of the learnings that we have taken from the installation of mechanised wastewater process equipment at Pahiatua is the need for the entire treatment process to be designed as a "system" to optimise the benefits from the upgrade. As you will hear from Mr. Crawford providing engineering evidence for TDC, it is essential that each plant item is designed in such a manner that it reduces the particular contaminant in the effluent that is being targeted. Accordingly we will, once the consents for Eketahuna are granted

(assuming they are granted), be embarking on a design build procurement process where specific process items will be selected and designed as a process chain to deliver the effluent quality required under the new consent. Accordingly we have offered a condition which sets specific milestones that we will need to meet during the design, construction and then commissioning and monitoring of the upgrades.

37) I believe that, given our limited resources, our efforts should be focused on those constituents in the effluent discharge that are exerting the greatest effects on the receiving environment. We note that some water quality parameters in the Makakahi River are not meeting One Plan targets, but the difficulty lies in attribution of the various contributions of contaminants to the river from the Eketahuna discharge and upstream activities. At present the evidence appears to indicate there are too many external influences on the river water in the vicinity of the Eketahuna discharge to draw any meaningful conclusions about the impact on water quality from the wastewater treatment plant discharge.

38) I therefore support efforts to re-locate the point of discharge to a position that facilitates improved monitoring. Likewise, I am fully committed to finding a solution to meeting Policy 5-11 and evidence is being presented to this hearing about the possibility of constructing a wetland, which we believe may satisfy that policy.

39) Again, I believe it is important that the Commissioners understand the local context in which the treatment plant exists. The Eketahuna wastewater treatment plant was constructed many years ago (by a former Council with a more limited jurisdiction) adjacent to the Eketahuna Golf Club on a terrace above the Makakahi River. The decision to site the plant in that location would have been made in light of the circumstances that applied at the time. Adjacent to the plant, the river itself is deeply incised into a gorge so any relocation of the discharge point to facilitate improved monitoring, or the transfer of treated wastewater from the end of the current treatment process to a proposed new wetland will present topographical challenges. That is simply a result of the particular location of the plant.

40) In addition, TDC does not own the land on which it is suggesting the new discharge point and/or the wetland be situated. The land is owned by the Eketahuna Golf Club. Positive discussions have been held with the Golf Club administration about securing the land, but at this time no formal agreement has been reached. Ngati Kahungunu representatives also recently met onsite to review the options and were encouraging in regard to land based

options being considered. A site meeting is also shortly to be arranged with Rangitane Iwi representatives who Council has a memorandum of partnership with.

- 41) It is relevant to acknowledge the particular challenges that TDC will face in undertaking the two activities of: i) physically relocating the point of discharge to improve and allow more accurate monitoring, and ii) in achieving compliance with Policy 5-11. Accordingly, I support Ms. Manderson's contention that consent should be granted for seven years to provide a sufficient term to enable implementation and commissioning of treatment process improvements, monitoring of the effects of the upgrade, time to carry out consultation and then to implement a system that complies with Policy 5-11.
- 42) My obligation is to expend TDC's ratepayers' funds in the most effective manner that is possible. Thus, my Council is committed to: upgrade its treatment processes, seriously explore the acquisition of land to enable re-location of the discharge point and to construct a wetland to achieve compliance with Policy 5-11 on the basis that all of the above measures should, in combination, achieve better water quality in the river and will go some way in meeting iwi cultural concerns.
- 43) I am not however supportive of the need to drain, de-sludge and line the existing ponds, despite our previous stated intention to do so. From the relining we have undertaken at Dannevirke and Woodville as part of the Manawatu River Accord, cost is significant, and during the upgrade, it is not possible to cater for storm events within the limited volume. There is no evidence at present that the ponds are leaking and if there is leakage the s42A reports suggest that effects would appear to be very minor. Likewise there is no evidence to suggest that the ponds do not meet the permeability standards in the One Plan.
- 44) I am not a groundwater specialist, but common sense tells me that given that the ponds are located adjacent to and above the level of the river any leakage from the base that is occurring is likely to be flowing in the direction of the river. Thus, the effects of leakage, if any, will be part of the existing cumulative effects already detectable in the river.
- 45) Mr. Crawford, Council's engineering expert has estimated the cost to reline the ponds as being \$320,000. He has also highlighted the difficulty of maintaining treatment capacity while re-lining is taking place, through the need to construct a bund wall to separate the ponds into two cells, one of which then needs to be emptied to enable re-lining to take place. Given our Council's previous experience of lining ponds, construction practices of

the past tend to cause unexpected challenges in lining often leading to and significant additional cost , making the per connected user cost even more unaffordable.

46) Based on my obligation for prudent financial oversight I cannot support a condition requiring relining of the ponds on the unsubstantiated basis that there may be leakage and that the effects of any leakage are speculated to be more than minor. However, I do support a practical condition that in dry weather, pond inflows and outflows be measured over a 24 hour period in each month, to determine fluctuations in pond level. It is not cost-effective nor conclusive to undertake daily monitoring continuously as for a 0.4 hectare pond, even a 10m³/day loss would be 2-3mm, wave action alone is greater than this.

47) There has been ongoing discussion about the ability to measure inflows to and outflows from the plant. There are two meters already in place – one on the inflow pipeline and one recording outflow from the ponds. The inflow meter has not been installed in the correct place to enable an accurate measurement of flows. The outflow meter is recording correctly and we have recently analysed the outflow data in producing some of our evidence.

G SUBMITTER EVIDENCE – MR. GREG CARLYON

48) Further to my paragraph 39 I have attached to my evidence an email from Mr. Morry Black from the Kahungunu ki Tamaki nui-a-rua Trust following a meeting held with a TDC Officer with regard to the notion of constructing a wetland downstream of the current discharge point in an endeavour to satisfy the requirements of Policy 5-11.

49) Compliance with Policy 5-11, in my view, requires a customised solution in all cases based on consultation with iwi, while taking into account the various topographical and land ownership issues and potential life cycle cost factors that might be applicable to any one site. In other words a “one size fits all” approach is not appropriate, in my view.

50) In consultation with iwi we are suggesting an approach whereby we install three different types of systems aimed at meeting Policy 5-11 across the treatment plant systems at Dannevirke, Eketahuna and at Pahiatua.

51) In further collaboration with iwi, we propose to review the performance of each of the three systems over time to determine the extent to which iwi cultural values are addressed

by each system. Motoring of influent and effluent quality from each of the three systems will also assist in informing effects on downstream water quality of the respective discharges. Consequently, we should be in a position to judge which system best meets iwi cultural concerns and the relative impacts, if any, of each system on downstream receiving water quality.

52) Our approach is as follows:

- A tephra system has already been installed at the Dannevirke wastewater treatment plant;
- As will be presented to the Panel at the forthcoming consent hearing in May, it is our intention, subject to securing land agreements, to undertake detailed design of a wetland that, in all likelihood will be lined, at the Pahiatua wastewater treatment plant.
- Again subject to securing land and having regard to the topographical constraints of the site at the Eketahuna discharge site we propose to install a form of unlined wetland that will be more influenced by iwi considerations.

G CONCLUDING COMMENTS

53) In conclusion I re-iterate my Council's commitment to meeting its obligations under the Manawatu River Leaders Accord through using the Best Practicable Option for upgrading of the Ekethauna Wastewater Treatment Plant.

54) I note that the evidence on actual effects on water quality in the Makakahi River downstream of the discharge cannot be easily attributed. Where the monitoring does show tangible effects, the extent to which those can be attributed to the discharge appear to be uncertain. Our proposal to relocate the discharge downstream will, hopefully enable assessment of the effects of the discharge relative to other point and non-point upstream discharges to be determined.

55) We are unable to yet provide a definitive location for the relocated discharge as it depends on the success or otherwise with negotiations with the adjoining landowner and

determining a location that enables meaningful monitoring of effects of the discharge downstream of its location.

56) As indicated in my evidence, TDC is committed to and has made financial provision for upgrading its wastewater treatment plant at Eketahuna. There has been some discussion prior to the hearing as to what treatment plant items will be installed and the impact on the effluent quality that the upgrades will have. Indeed the Panel has sought in Minute No2, details of the proposed treatment plant items that will be installed. If it can be accepted that wastewater pond treatment plants are more biological reactions to what can be a variable influent, than mechanical and chemical treatment of consistent inflows, plant designers need long term commissioning to determine effluent effects. Mr. Crawford will discuss this further in his supplementary evidence.

57) We appreciate this Panel are able to set conditions that reflect the scale of the activity and what limits on effects on the receiving environment shall be. It then falls to TDC as consent holder to design, install and operate such treatment steps as are required to meet the effluent and in stream standards that have been set. Consequently I see this consent hearing as being important is defining the regulatory expectations on TDC within the context that I have described earlier.

Blair King
March 2017