



23 August 2019

Environment
C/- Helen Caley
Aurecon
Via email: Helen.Caley@aurecongroup.com

Dear Helen

RE: REQUEST FOR INFORMATION CRC1948585

In response to your request for information dated 2 July 2019

- 1. Please confirm whether the “urban stormwater catchment” and “stormwater management area” referred to in the application documents cover the same area.*

The urban stormwater catchment is the same area as the stormwater management area.

- 2. There appears to be a disparity between the ‘rural/park/open space’ category shown in Table 1 and Figure 3 of the AEE. Figure 3 appears to show much less than the 44.4% figure quoted in Table 1. Please confirm the amount of ‘rural/park/open space’ in the SMA*

The correct break-down is as per Section 2 of the CLM report

- 3. Section 2.4 of the Stormwater Management Plan provided with the application states that “the discharge is limited to acceptance of” redevelopment of existing sites up to 4 hectares in area, and new development sites up to 4 hectares in area. Please confirm:*

a. Does the application intend to include or exclude stormwater from new and redeveloped areas greater than 4 hectares in area?

b. If the intention is to exclude new developments and redevelopments greater than 4 hectares in area, please provide further information regarding the rationale for this exclusion

- Correct, it is intended to exclude developments greater than four hectares of land from this consent
- A four-hectare development is a significant size development for Geraldine, and examination of the cadastral plans shows that there are very limited land blocks of this size within the SMA. Therefore, it is proposed that these will be excluded from the SWMP to permit full and early involvement from ECan.

4. *Please provide clarification for the rationale for excluding HAIL and Schedule 3 sites from the application. Please note that Environment Canterbury's policy direction for stormwater management is that stormwater networks should aim to manage all sites within the reticulated network area if possible.*

As this work includes specialist involvement to assess higher risk stormwater discharges, and requirements are outside permitted activity requirements for individual stormwater discharges. TDC would value ECan's input for these consents. As we note from recent decisions, there may well be an alternative process to achieve this that needs to be explored between ECan and TDC prior to finalising this requirement.

An alternative is for TDC to manage all consents through a local by-law. Whilst this is possible, and is in accordance with Environment Canterbury Policy, this would be subject to a public process to adopt the change to the by-law, and there would not be complete certainty that the change would be adopted.

Provision is already made through the LWRP for consenting of such sites through Environment Canterbury. Therefore, in the short term at least we seek to maintain the exist processes for such sites, until agreed otherwise.

We would also note that the SWMP includes all reasonable steps from TDC within their current authorities and jurisdiction to ensure that the existing HAIL and Schedule 3 sites are managed appropriately with involvement with the proposed site audits of the high-risk sites.

5. *Please clarify:*

- a. *Why there is such a large difference in the capacity requirement between sites that discharge into land (0.5%AEP) and surface water (50-10% AEP);*
- b. *What level of retention would be considered sufficient to provide "partial retention" for large sites discharging into land (proposed Condition 12b).*

- a) The minimum levels of service are 5% AEP (Residential) and 10% Industrial Commercial as specified in the AMP. Other requirements to be met are the District Plan (0.5% AEP for floor levels, and the Building Act (minimum 2% AEP for floor levels, 10% for nuisance to property). TDC is already obliged to ensure these regulatory requirements are abided by outside the consent requirements, and it is not recommended to duplicate these responsibilities in this consent. This does differ from the Condition 12, which specifies the level of partial retention (which needs to be differentiated from capacity). Discharges to Land are to include *partial retention up to 0.5% AEP* to match provisions in the Timaru District Plan. The discharges to the waterways are required to meet a lower standard as there is more understood about the capacity of the receiving waterways.
- b) These levels of retention will provide water quality benefits as well as limit the capacity improvements required. The extent of "partial" requirements shall be retained at the discretion of the Council depending on water quality and quantity requirements and activities on a case by case basis and to match the capacity of the downstream waterway.

It is noted that TDC are also intending to include Low Impact Design (LID) requirements in their District Plan review, which will require similar or greater requirements for new

developments to abide by. However, this measure is going through a public process and is not able to be incorporated into the SWMP and this consent with any level of certainty.

Flooding

- 6 *Environment Canterbury are aware that there is approximately 35 years of flow records available for the Waihi River. Please clarify why the data from only 4 years has been used in the assessment of climate and flooding in the AEEs*

Section 3.6.3 provides a description of the receiving environment. It is not intended as a full assessment of the nature of the Waihi River, but provides a description of the recent flow history of the Waihi River. We consider that this is enough to identify the nature of flows in the Waihi River relevant to stormwater discharges:

The pertinent points include:

- ∴ Minimum flows in the Waihi River are considerably less than the magnitude of stormwater discharges. Hence, at low flows say with summer thunderstorms, limited dilution occurs in the receiving waterways. Hence, we have not attempted to justify dilution effects of discharges at “average” flow conditions as such assessment would be meaningless and incorrect, and minimal dilution will occur. The implications of this, is that concentrations of stormwater contaminants in the waterway are expected to be similar to the concentration at the point of discharge. Owing to this characteristic we have focused the effect of the discharges on the ecological conditions of the receiving waterway.
- ∴ When the Waihi River is in flood the effect of stormwater discharges on flooding are very limited, both on effect on flooding and water quality owing to the upstream catchment size and the level of dilution anticipated.

Waihi River flooding details are included in Section 3.10 and contain considerably more than 4 years of records.

- 7 *Please clarify how stream channel blockages/obstructions have been modelled in the flood modelling of Serpentine Creek*

Stream channel blockages / obstructions have yet to be modelled with the current ICM hydraulic model. The SWMP provides for future updates of the network model as required in the consent to undertake this scenario.

- 8 *In 2018 NIWA released HIRDS version 4, which contains updated rainfall data and climate change projections, including different climate change scenarios. Please provide an assessment of how the Opus rainfall study used to support the application compares to the rainfall data from HIRDS version 4 (including the appropriate climate change scenario(s))*

TDC have completed their own hydrological assessment of rainfall statistics https://www.timaru.govt.nz/_data/assets/pdf_file/0020/52670/1241999-High-Intensity-Rainfall-Design-for-Timaru-District-V3.pdf. These estimates are still based on MFE(2008) to 2090 Climate Change scenarios, and comparison of the three design rainfalls are shown below.

The OPUS work is a specific study using South Canterbury sites that may not have been historically used by NIWA for HIRDS. Comparison shows similar rainfall depths especially

for durations 30mins to 6 hours, 50-year ARI, noting that the HIRDS estimates are to 2100. The two sets of design rainfalls compare more than favourably.

The SWMP include the requirement for TDC to maintain and update a hydraulic model, no less than every twenty years for them to assist them to make good decisions to maintain their stormwater network.

While there are differences between OPUS’s recommended rainfall intensities and those in HIRDS, requirements to update and maintain the hydraulic model should provide sufficient assurance to ECan that adaptive measures may be undertaken as they are identified.

A comparison between OPUS(2015), and HIRDSV4 is presented below

OPUS(2015) -

ARI	10-min	20-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr	48-hr	72-hr
Dist	PE3	PE3	PE3	PE3	PE3	PE3	PE3	PE3	PE3	PE3
2.33	6	7	9	14	20	36	50	68	84	90
5	7	10	14	21	27	50	68	92	117	126
10	10	14	17	26	37	62	84	115	147	158
20	12	16	22	32	44	75	100	136	176	188
50	14	21	27	42	55	94	122	165	211	227
100	16	23	31	48	63	106	137	186	237	254

HIRDSV4 (RCP8.5)

ARI	10m	20m	30m	1h	2h	6h	12h	24h
5	8.32	11.4	13.9	20.1	29.1	51.1	71.2	95.8
10	10.5	14.3	17.4	25	36	63.0	87.5	117
50	16.5 (14)	22.3 (21)	27.1 (27)	38.6 (42)	55.2 (55)	95.5 (94)	131 (122)	174 (165)
OPUS (2015)								
100	19.6	26.5	32.1	45.5	64.9	112.0	153	203

- 9 *Please provide more detail on how the overland and secondary flow paths through the Geraldine Township will be managed to maintain flood capacity, including detail on how these flow paths will be identified, how their locations will be communicated to residents, and how development will be controlled to ensure that these flow paths are maintained.*

The SWMP has provided OLFP mapping for TDC staff to consider when considering development proposals. This will be available for LIM reports and Building and Resource Consent Applications. TDC is seeking to make this information on publicly available maps, once the status and requirements are formalised and incorporated in the District Plan.

TDC places great importance on the management of overland flow paths and is seeking to require protection of OLFP’s in the updated District Plan. This is a current public process with the final requirements to be determined through the required process.

Notwithstanding this, there are also a number of common law requirements that dictate that flow paths are not to be cut-off or diverted from up-gradient properties and cause nuisance to down gradient properties.

- 10 *Section 12.2.2 of the AEE states that “no flooding of buildings is anticipated” as a result of stormwater discharges to Serpentine Creek. Environment Canterbury hold data of flooding that has occurred near or through houses and buildings in the past. Please provide further information to clarify how this assessment has been made and confirm that this statement is correct. If your assessment identifies that flooding of buildings may occur as a result of the proposal, please provide an assessment of potential flooding effects on houses and buildings.*

This is the best information available at the time. The SWMP provides for on-going improvements in the understanding around Geraldine, with review of flooding reports, improvement of asset data and maintenance of a hydraulic model for Serpentine Creek.

All the sites identified and flooding locations by ECan have been identified in the SWMP and are known to TDC.

- ∴ It is understood that Templer Street and Main North Road flooding is a diversion of runoff from the State Highway and does not form part of the network or management area. As noted, this has included filling in of a swale across private land as well as diversion of runoff from the State Highway towards Templer Street. We have not found evidence of any authorisation by the relevant Regulatory Authority for these diversions
- ∴ Serpentine Creek flooding incidents (ie South Terrace, Kennedy Road and Majors Road) have been investigated by OPUS in their flood model (refer to OPUS (2016) included with the application). No indication of flooding of buildings has been identified by OPUS or PDP. As provided by the Geraldine Model Update Memorandum dated September 2016, increases to rainfall by 400% with “unrestricted stormwater discharges to the receiving waterway” did not identify any breakouts from Serpentine Creek, and the problems were identified as local drainage problems rather than receiving water way capacity issues.
- ∴ It is identified in the SWMP, that the stormwater network in Geraldine south is limited and upgrades may well be required for intensification (both to mitigate water quality effects and network capacity)

- 11 *The “Preliminary Infrastructure Capacity Assessment” report states that inconsistencies between upstream and downstream pipe sizes have been ignored. Please clarify why this approach has been taken*

This was made as an initial assumption to provide a high-level assessment of the network capacity. As noted, TDC’s asset data programme is ongoing, and this assessment may be updated should the assumed details note be confirmed.

The SWMP requires the applicant to maintain and update a hydraulic model or assessment for the duration of the consent to assist them make good decisions.

- 12 *Section 6.1.3 of the Stormwater Management Plan provided with the application states that “TDC will maintain an active interest in the condition of the downstream floodways to ensure that the floodplain management completed by Environment Canterbury is appropriate to the adjacent land use and the performance of the stormwater system”. Environment Canterbury have advised that the properties are rated only for works on the Waihi River, and Environment Canterbury do not have any funds for managing maintenance of Serpentine Creek or other urban channels. Considering that Serpentine*

Creek appears to be sensitive to blockages of the stream channel, please confirm that TDC do not anticipate that Environment Canterbury will undertake maintenance of Serpentine Creek and other urban waterways in the Geraldine Area.

The comment in the application refers specifically to the downstream waterways which are rural, not urban, that are not part of the stormwater network and outside the scope of the SWMP. Management and maintenance of blockage risks are considered to be most likely related to in-channel vegetation, structures and activities not related to discharges from the stormwater network. Timaru District Council does anticipate that Environment Canterbury will continue to be responsible for these rural waterways.

13 *Please provide further clarification of the maintenance regime that is proposed to maintain the flow capacity of waterways in the Stormwater Management Area, including Serpentine Creek*

Issues on the Serpentine Creek occur due a variety of causes including:

- ∴ Vegetation growth on private property within the waterway
- ∴ Fences and other structures installed in the waterway
- ∴ Runoff from rural and urban land that has drained to the waterway for a considerable number of years
- ∴ Dumping of foreign materials in the waterway

The Applicant considers that ECan has the ability to action all of these matters under their Rivers and Drainage By-Law (2013) and Rivers and Soil Conservation Act as updated by the Resource Management Act.

As outlined in the application, the stream channel is located in private property. In the first instance, the applicant will need to advise the property owner of the potential (flood or fire) hazard that the landowner is creating through their activities. If agreement can not be reached for the property owner to undertake the works, then the issue may need to be referred to the relevant regulatory body that is responsible for managing the hazards associated with the waterway.

The downstream rural waterways are not part of the stormwater network or under the responsibility of the Applicant as outlined above. The applicant has demonstrated that reasonable capacity is available in the receiving waterway.

14 *Please provide a more detailed assessment of how the proposed maintenance regime will protect cultural values*

See above. This will be a matter for the individual property owner to address with their resource consent application to undertake works within a waterway

15 *Section 12.2.4 of the AEE states that new developments will not impede overland flow paths. Please provide further information to demonstrate how these overland flow paths will be identified and managed over the duration of the consent*

This has been outlined above in response to Question 9.

It is also noted that E1 of the Building Regulations requires that runoff from new development be safely discharged without causing nuisance to other properties in a 10%

AEP rainfall event to ensure that residential flood levels shall not be flooded in a 2% rainfall event. District Plan Requirements also require all floor levels to be above 0.5% AEP flood levels. These requirements are separate responsibilities outside the consent, we see no need to duplicate requirements.

Flooding reports will also be reviewed and reported as part of the SWMP.

Groundwater

- 16 *Please confirm the intention of proposed groundwater monitoring wells G005-G007. Our understanding is that there is little discharge of stormwater into land west of the Waihi River, and therefore we would like further information to understand the rationale for the placement of these wells, which is west of most of the discharge into land*

As outlined in the application, this area of Geraldine has limited drainage infrastructure in the southern extents of Geraldine. Soakage Drainage is located throughout this area of Geraldine including the recent development at 264-266 Talbot Street. As outlined in the SWMP, it is recommended to discharge to land as much as possible to minimise surface water effects.

Very limited information is also known about groundwater levels in this area, but it is known that river levels will be above ground levels over a lot of this area in large floods in the Waihi River. Therefore, groundwater monitoring is proposed to improve this spatial information gap over the area where soakage to ground occurs so TDC can better manage their SMA.

Notwithstanding, TDC is happy to consider reducing the scope of testing with ECan.

- 17 *The application states that wells within the Geraldine SMA with domestic or community use listed as their primary or secondary use “have access to reticulated drinking water supply connections with the remaining bores being located in rural areas”. Please either:*
- a. confirm whether all wells used for community or domestic supply within the Geraldine SMA and immediately down-gradient are connected to community reticulated water supply; or*
 - b. provide further assessment of the location of any discharge into land with regards to these well locations, or other information to confirm whether there are potential effects on drinking water supplies from the stormwater discharge*

The groundwater assessment provided (OPUS 2014), identified three groundwater active domestic supply wells within 500m of TDC soakpits. All of these sites were identified as connected to the town water supply reticulation or had the potential to be connected if required.

Current discharges to land are largely limited to individual soak pits from road and roof drainage.

As the surrounding waterways, (Waihi River, lower sections of Serpentine Creek and Rakaupuka Stream) are directly connected to the groundwater, they are considered to be a higher risk to groundwater contamination than individual road sumps and roof drainage. This risk is reflected in the groundwater protection zone for K38/0487, which extends to the Waihi River.

Comparison of assessments and separation distances for recently granted consents CRC186263 and CRC190445 require separation distances 200-400m and up to 500m from the point of discharge. It is noted that both these consents only considered requirements of discharges from large disposal basins rather than individual soakaway sites as included in the Geraldine SMA, which will have much less significant effects.

Notwithstanding the available buffers compared to these two recent decision and proximity to other aquifer contamination risks, the SWMP also provides for monitoring of effects of stormwater to land.

- 18 *The assessment in the application does not appear to assess effects on community supply well K38/0487 and its community supply protection zone. Please provide an assessment of the potential effects of the discharge of stormwater on this well.*

This "well" is located over 2km downstream of any discharge to groundwater from the SMA and is not used for public drinking water supply. There is also no connecting watermain from this well to the Temuka Water Supply. Therefore, will be no public health risk from this designated water supply source. Should, this bore be used in the future, it will need to incorporate in a water safety plan, which will include the latest define protection zone, which includes influences from the Waihi River bed.

- 19 *Please confirm whether at least 1 m of separation will be maintained between the base of soakage devices and the highest groundwater levels. If the separation is less than 1m, please provide an assessment of the effects of this on groundwater mounding, and the potential for more stormwater to discharge to surface water*

This is as shown in the report by OPUS(2014), which is the most comprehensive investigation into groundwater levels in Geraldine that we are aware of. However, notwithstanding, it is noted that this is based on discrete measurements and it is known that adjacent flood levels are at or above ground level. Therefore, it is sought to improve this knowledge with the proposed groundwater monitoring. Should this show higher GWL levels than previous assessments, the effects may need to be re-assessed.

- 20 *Please clarify how the level 3 (target) objectives for copper, zinc and lead have been derived*

Level 3 objectives have been derived from LWRP Schedule 5 Surface water criteria, to ensure springs also discharge the same quality water.

- a. *There is a significant difference between the level 3 and level 2 objectives for copper and zinc. Please advise what action will be taken if measured levels fall between these two levels.*

If background levels related to stormwater discharges in the groundwater are above Level 3 concentrations, then we would recommend confirming if these contaminants are also being discharged to surface waters at harmful levels. As metals are a significant stormwater contaminant, we have recommended this trigger level to positively confirm any effects.

- b. *The level 3 (target) objective for total lead is the MAV from the New Zealand Drinking Water Standards. Please clarify how this meets the requirements of Schedule 8 of the*

Land and Water Regional Plan which requires that groundwater contaminant concentrations not exceed half the MAV

Noting the Level 3 for Pb is a typo that needs adjusting to Schedule5/ANZECC value for adjacent surface water as discussed above

Surface Water Quality

- 21 *Please confirm whether vehicle movement data has been used to classify SH79 (1,000-5,000 vehicle movements) in the contaminant load modelling.*

We confirm that the CLM was produced utilising Traffic Counts provided by TDC.

- 22 *Over the 2018/2019 summer Environment Canterbury monitored a site on the Waihi River near the Wilson Street footbridge (SQ36296) which is a popular swimming spot. Early in the summer following persistent rain this site had high faecal coliform contamination, and warnings against swimming had to be put in place. In light of this information, please provide further assessment of the potential effects of the stormwater discharge on water quality and recreation in the Waihi River, and in particular how the discharge will meet the National Policy Statement for Freshwater Management requirements regarding suitability for swimming.*

Thank you, this is new information for TDC's Stormwater section. We do not believe it should change the most practical and effective way to manage and improve the levels of faecal coliform contamination from stormwater discharges in the receiving waterways as required by the NPS Freshwater.

In the first instance we make the following comments about the faecal coliform levels observed by ECan and the possible stormwater effects on these observations.

- ∴ The presence of faecal coliform observed following persistent heavy rainfall is not exclusive to first flush discharges of contaminants from a stormwater network. Review of the water quality records Waihi Gorge site 12 km upstream also shows a persistent history of FC exceedances following heavy rainfall, and given the land use between this site and Geraldine, we do not consider it is surprising at all that the Waihi River at Geraldine is contaminated following heavy rainfall.
- ∴ Our review of the Waihi River flow records shows all exceedances occurred with more than 30mm of rainfall over 3 days previous to the exceedance, with a noticeable increase in flow at the Waihi Recorder site. For the levels recorded, it is expected that if the FC levels had originated from the SW network, the concentration in the Stormwater Discharges would need to be well in-excess of $10^3 - 10^4$ given the likely dilution following persistent heavy rainfall. Such levels are considered very high for most urban stormwater discharges.
- ∴ Therefore, we consider that the most likely source of FC following persistent heavy rainfall is considered to be from upstream agricultural land, or domestic animals and avian life within the floodway (ie not from the stormwater network). We would note that the Stormwater Network discharging the to Waihi River is largely from the main street, where domestic animal inputs would be expected to be limited.
- ∴ Based on both the recent and historical sampling upstream, we would consider it prudent for both ECan and TDC to provide public warnings to avoid swimming in the river following persistent heavy rainfall.

Given, that we consider that this information is not considered surprising for the above reasons, and we do not consider it necessary to change the recommended approach. It is acknowledged that the applicant is required to maintain and improve the water quality to the standard included in the NPS Freshwater. The following considerations are provided in the plan:

- ∴ Any stormwater treatment measures are only likely to provide 0.5 to 1.0 log reduction in bacteria levels and are unlikely to render the waterway compliant even if the stormwater is the only source of FC (unlikely). This is unlikely to improve the surface water quality in the Waihi River after rainfall
- ∴ Therefore, as included in the SWMP, public education is proposed as the most effective measure to limit FC discharges in stormwater. It is in TDC and ECan's interest to work co-operatively to clearly identify sources together to improve and maintain the water quality in the Waihi River in this respect. Once this is identified, then sources may be cost effectively and sustainably targeted as required.
- ∴ Given the potential sources and prominent location, TDC and ECan could provide a combined education programme near the foot bridge, advising water quality test results, sources of bacteria and measures that the public can take to minimise discharge and effects. In the event high levels of faecal coliforms are recorded in the Waihi River within the Geraldine SWMP in the future, it is recommended that ECan consider further testing if the discharge is likely to be discharged from the stormwater network, or if the stormwater network is discharging any water at the time of high EC count.
- ∴ The plan includes trigger, if TDC notices that any of their outfalls are abnormally flowing in dry weather when it is not raining. In this event, a sample should be taken for testing, and upstream investigations to determine the likely source should be taken to locate the source.

23 *In light of Request 22 and your response to that, please provide justification for not providing a trigger value for Escherichia coli in the water quality targets, particularly for the Waihi River*

In light of the NPS Freshwater, there probably is justification for having water quality triggers and targets for the receiving water ways. E-Coli have been included as groundwater triggers and targets (i.e. NPS Drinking Water) in the SWMP.

We do not see any need for any specific additional field testing by TDC in addition to the bathing water quality sampling completed by ECan and the proposed sampling plan. In the event of future exceedances of the NPS limits, we would recommend ECan undertakes Faecal Source Tracking testing to confirm the source of the bacterial contaminant, if they are harmful to humans or the aquatic environment and if the contaminant is likely to be discharged through the stormwater system.

In the first instance, this is considered a catchment issue but the above approach will allow both ECan and TDC to target the microbial contaminant sources with much greater certainty.

- 24 *We agree with including water quality monitoring for pH, temperature and dissolved oxygen. However, no triggers appear to have been provided for these parameters (table C1 of the SMP). Please clarify what the proposed triggers are for these parameters.*

Pass/fail Trigger and Target levels are included in table C1. No level 2 trigger included.

- 25 *We recognise that a comprehensive monitoring programme has been proposed, however we are concerned that only undertaking surface water quality monitoring during base flow conditions (or at least three days after rain) as described in the application may bias the sampling and fail to identify stormwater effects. Please provide justification for this proposed timing of surface water quality sampling.*

The water quality testing is provided to define baseline condition of the waterway. The water quality characteristics of stormwater discharges are considered to be well known to be widely variable, and individual samples are not considered useful for ECan or the applicant as a compliance measure.

The application and SWMP is a non-complying application based on effects on the waterways, to be demonstrated largely through ecological condition and sediments accumulated in the receiving water way. As outlined in the treatment strategy, the concentration of stormwater related contaminants is well known and highly variable and we do not consider that such sampling will demonstrate anything additional to what is known based national and international studies.

If ECan considered there is value collecting such data to improve knowledge, we consider that they may achieve these objectives more cost effectively, if the sampling is completed as part of regionally funded study, where a statistically valid sample size may be able to be obtained. Notwithstanding, as outlined in the application and the SWMP other comprehensive studies e.g. Brough et al, sediments size, all show that such studies are not always very definitive with wide variations in contaminant levels present. Therefore, the proposed management plan is based on effects, with reduced emphasis on discrete water quality performance sampling.

Wet weather inspections and sampling could be considered in the event of effects being noted in the receiving water bodies, or if a trigger included in the plan is raised.

There may be benefits of wet weather sampling to test the performance of installed treatment devices to provide confidence and demonstrate improvements. It is envisaged that such requirements will be best incorporated into TDC's Stormwater Treatment Design Guidelines and form the basis of acceptance of Treatment measures accepted by TDC. This will improve the confidence in the treatment measures installed as well as improve the knowledge of the discharges.

- 26 *The proposed consent conditions set out in the stormwater management plan set out minimum stormwater design requirements for "small" and "large" sites. The requirements for new small sites require only a submerged outlet sump or sediment removal for "small" sites. There appears to be no differentiation between small residential and commercial/industrial sites. Please provide further information to:*

- a. *clarify the rationale for not requiring best practise treatment for these small sites; and*

b. confirm that the water quality improvements targeted are achievable without requiring water quality treatment for small development sites, particularly small commercial/industrial sites.

a. The proposed approach is considered best practice to simplify the requirements and responsibilities of the private property owners and for Council. It is also intended to promote best value provision of the stormwater treatment controls for the community.

This will reduce requirements for the council to administer a large number of privately-owned advanced stormwater treatment devices, on every property, and simplifies the maintenance requirements for landowners.

Small sites are limited to providing hydrocarbon removal and 75% sediment removal. Removal of 75% of sediments and hydrocarbon removal, will still provide for removal of significant quantities of contaminants.

As shown in the treatment strategy report, it is more cost effective for the community to implement such measures at the pipe outfall. Therefore, responsibility is left with the Council to implement and maintain more advanced levels of stormwater treatment devices. While this may potentially put more demand on TDC to provide additional treatment on outfall to the receiving environment, it will be more cost effective to the community and provide more sustainable privately controlled stormwater treatment devices. However, there are significant opportunities on the Waihi River to provide riparian enhancement and filtering within the floodway. Small commercial sites that are not HAIL sites or contain Schedule 3 activities, are not expected to contain significantly high-risk contaminants.

b. This option will still permit implementation of end of pipe solutions if required as outlined in the treatment strategy and permit similar solutions for private property that are easier to manage, and cost-effective treatment solutions implemented.

Note TDC is also looking to adopt changes in the District Plan to require more significant Low Impact Design solutions for stormwater on an individual property basis.

27 Section 4.8 of the Stormwater Management Plan describes audits that were undertaken of industrial sites and identifies that further interactions are needed to control/limit effects of stormwater discharges. Please advise what measures will be put in place to facilitate further inspections/interactions on an ongoing basis

The site audits undertaken to date indicate the potential for such measures to make a measurable difference to site practices and behaviours.

The applicant anticipates that these will be implemented as agreed with Environment Canterbury for Washdyke catchment.

This will include working collaboratively with ECan Pollution Control Section with combined training for staff of ECan and TDC. TDC understands that these audits will be undertaken with Pollution Control staff to an agreed programme.

We trust this answers your questions satisfactory. As discussed, we are happy to meet to discuss as suggested.

Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

Prepared by

Approved by



Bill Noell

Eoghan O'Neill

Water Infrastructure Service Leader

Technical Director – Water Infrastructure