BEFORE THE HEARINGS PANEL
FOR THE WELLINGTON CITY COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 83 to the Wellington City District Plan

---

STATEMENT OF EVIDENCE OF DAVID CAMERON

20 November 2018

---

1 INTRODUCTION

1.1 My name is David James Cameron.

1.2 I hold a degree of Bachelor of Science (Hons) in Zoology from Victoria University of Wellington. I am a member of the New Zealand Freshwater Sciences Society (NZFSS) and the Environment Institute of Australia and New Zealand (EIANZ).

1.3 I am a Senior Environmental Scientist at Stantec New Zealand Limited (formerly MWH New Zealand Limited), where I have been employed for the last 24 years. My principal role at Stantec is to advise on the effects of infrastructure projects on natural water quality and aquatic ecology.

1.4 Projects I am currently involved with include: a global consent application by Wellington Water Ltd for urban stormwater discharges to watercourses in the Porirua and Wellington Harbour catchments; a consent application by Greater Wellington Regional Council (GWRC), Flood Protection, to undertake routine flood protection activities in the Otaki, Waikanae, Hutt, Wainuiomata and Ruamahanga river systems; an NZTA roading project to upgrade State Highway 58 between the Hutt Valley and Pauatahanui Inlet; and assisting the Water and Power Development Authority of Pakistan with preparation of biodiversity management plans for a large hydroelectric power development project on the upper Indus River.

1.5 My involvement with Wellington City Council's (WCC) Kiwi Point Quarry ("the Quarry") includes preparation of consent applications and assessment of effects reports in 2010 and 2017 for a range of activities associated with Quarry including water abstraction and stormwater discharges.

1.6 My involvement with Plan Change 83 began with attendance at the Quarry alternatives workshop run by WCC on November 2016. Following the workshop, I prepared a short options assessment report for WCC which described the existing water quality / aquatic ecology baseline, identified potential effects of four expansion options, identified mitigation requirements and allocated scores to each option (Stantec, 2016). That process eventually led to the selection by WCC of a

preferred option for the Quarry expansion. During early 2018 WCC commissioned Stantec to assess the potential effects of the preferred option on the water quality and aquatic ecology of Waitohi Stream[1] (Stantec, 2018). The 2018 report focused on the option titled 'Area 2B Maximum Expansion'.

1.7 I visited the Quarry site on three occasions in 2016 during preparation of Regional (GWRC) resource consent applications for the continued operation, development and rehabilitation of the Quarry, and once in 2018, again in relation to the Regional consent. Because of these visits I am familiar the area affected by Plan Change 83 and its relationship to adjacent watercourses.

1.8 While I understand that the present hearing is not a matter to which the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note (2014) applies, I confirm that I have approached the preparation of this evidence in the same manner as I would for Environment Court proceedings and have complied with the requirements of the Code. I confirm that the issues addressed in this evidence are within my area of expertise and the opinions I have expressed are my own except where I have stated that I have relied on the evidence of other people. I have not omitted material facts known to me that might alter or detract from my evidence.

[1] The Waitohi Stream is the old name of the watercourse which is commonly known as Ngauranga Stream. Originally Ngauranga referred to the canoe landing place at the mouth of the Waitohi Stream, but Ngauranga was adopted by surveyors and other officials as the name for the entire stream. The interpretation used in my evidence is that Waitohi Stream is the true left branch of the stream which flows through the quarry site. Tyers Stream refers to the true right branch of Waitohi Stream which flows through the Tyers Stream Reserve.

2 SCOPE OF EVIDENCE

2.1 I have been asked by WCC to prepare evidence on its behalf in support of Proposed Plan Change 83.

2.2 The evidence I was asked to prepare specifically relates to the implications of Proposed Plan Change 83 for the water quality and aquatic ecology of adjacent water courses. While consideration of freshwater streams lies outside of the jurisdiction of Council, the issue of the ecological health of the streams was raised by GWRC in their submission as a matter requiring consideration; and was further commented on in the s42A report. My evidence responds to the issues raised.

2.3 My evidence will address the following points:

(3) Executive summary

(4) Existing environment of Waitohi Stream and tributaries

(5) Potential effects of Plan Change 83 on the aquatic ecology of adjacent watercourses

(6) Mitigation

(7) Issues Raised in Submissions

(8) Comment on Officers Report

(9) Conclusion

2.4 The key documents and information that I have referred to and relied on in preparing my evidence include:

(a) Kiwi Point Quarry Resource Consent Applications & Assessment of Effects on the Environment (Stantec, 2017);

(b) Proposed Expansion of Kiwi Point Quarry: Assessment of Effects on Ngauranga Stream (Stantec, 2018)

3 EXECUTIVE SUMMARY

3.1 Although consideration of freshwater issues is outside of the jurisdiction of Council, several freshwater issues have been raised through the Plan Change process. This statement of evidence was prepared in response to those concerns, and to provide additional context for consideration by the panel.

3.2 Urbanisation of the Ngauranga catchment has resulted in widespread habitat loss and reduced ecological function in the Waitohi Stream. Nevertheless, in the vicinity of the Quarry, some areas of open channel aquatic habit remain, and, in my assessment, the lower Waitohi Stream has retained 'Moderate' ecological value. Tyers Stream, the main tributary of the Waitohi, has retained a significant area of good quality habitat and has 'High' ecological value.

3.3 Proposed Plan Change 83 does not have any direct impact on freshwater streams, although it does have the potential to cause several indirect effects on Waitohi Stream. In my assessment these indirect effects are adequately addressed by existing conditions of the GWRC consent WGN170175, held by WCC. The residual level of ecological effect is low and, when considered in isolation, would not require mitigation.

3.4 Taking a wider view, outside the scope of Proposed Plan Change 83, it is evident that the historical development of the Quarry has adversely affected the habitat of stream invertebrates and fish due a range of factors including the channelizing and piping of sections of the stream. This is recognised in the GWRC decision on consent WGN170175, in August 2017, which requires stream remediation as part of an overall rehabilitation package for the Quarry site, to be submitted to GWRC for approval by 1 July 2027.

3.5 At a prehearing meeting on 9 October 2018 the s42A Report authors, expert advisors to the Council, and Council officers agreed that in order to achieve an effective and integrated mitigation design some stream mitigation should be identified as part of the overall mitigation package for Plan Change 83.

4 EXISTING ENVIRONMENT OF WAITOHI STREAM

Waitohi Stream Catchment

4.1 Waitohi Stream, including the Tyers Stream tributary, drains a catchment of approximately 9.23 km^2 which includes Ngauranga Gorge as well as parts of Khandallah, Johnsonville and Newlands (Figure 1). Most of the catchment is in areas of urban land use, including large areas of impervious surfaces (roads, carparks, roofs, etc). Except for Tyers Stream, the great majority of the watercourse is piped under roads and residential developments (Figure 2).

Figure 1: Waitohi Stream catchment

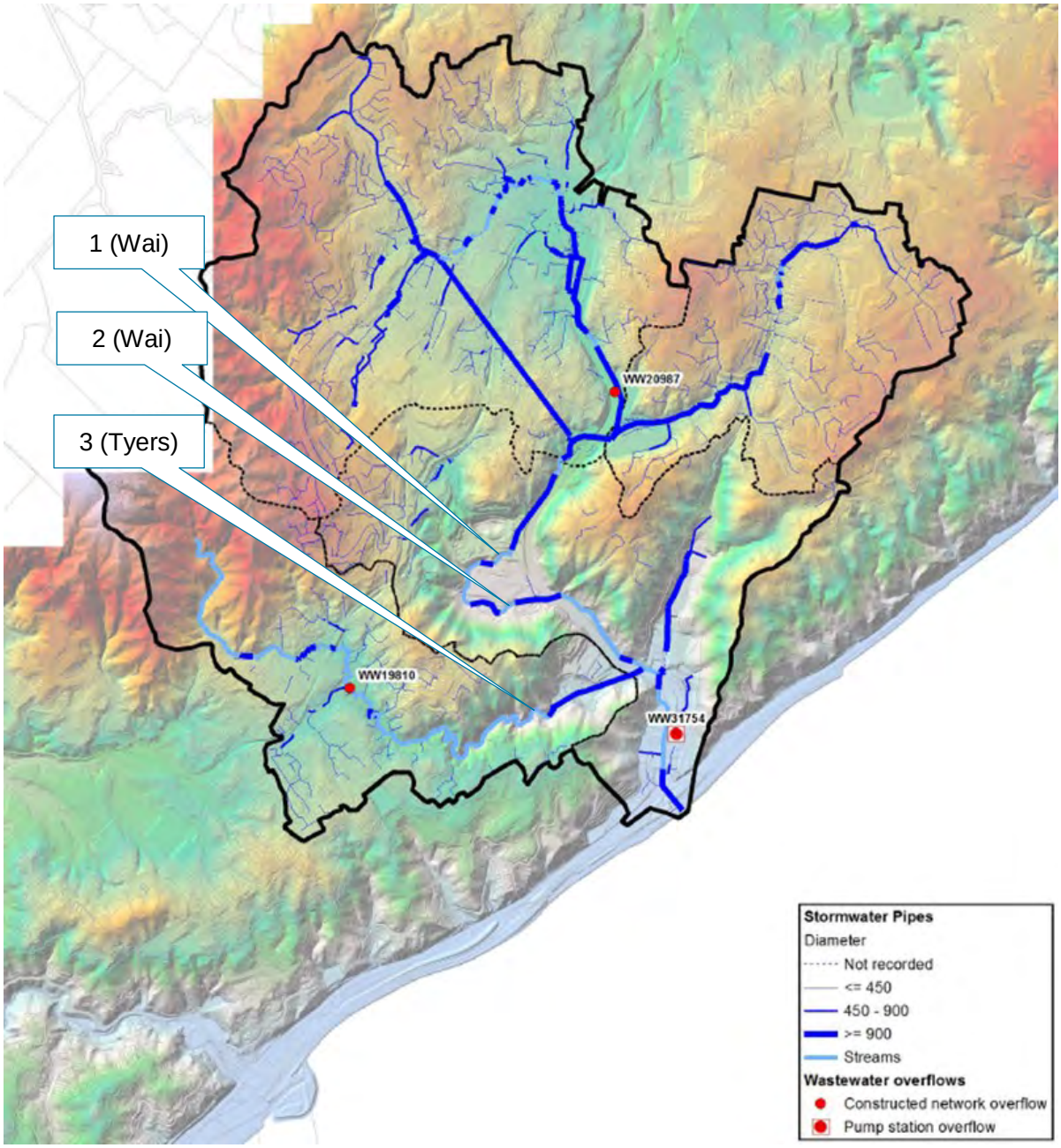


Figure 2: Waitohi Stream open channel (light blue), piped reaches (dark blue), and ecological monitoring sites (1, 2 and 3)

4.2 A continuous flow record is not available for Waitohi Stream, however the estimated two-year average recurrence interval (ARI) storm flow, mean flow and mean annual low flow (MALF) at the Quarry are 17,000 L/s, 92 L/s and 14 L/s, respectively (Stantec, 2018). This is a relatively minor watercourse which, due the high proportion of impervious surface in the catchment, is likely to respond rapidly to rainfall events, with high runoff rates, reduced infiltration into the ground and reduced groundwater recharge.

Waitohi Stream water quality

4.3 WCC collects water quality data from Waitohi Stream for two distinct purposes:

- Regularly monthly monitoring of indicator bacteria at six locations in Waitohi Stream catchment as part of its small stream microbiological monitoring programme, and
- WCC, as holder of the Kiwi Point Quarry discharge consent, is required to conduct regular monthly monitoring and targeted wet weather monitoring of total suspended solids (TSS) and pH in Waitohi Stream immediately upstream of the Quarry.

4.4 The *E. coli* results summarised in Table 1 show consistently elevated indicator bacteria levels throughout the catchment, with occasional severe faecal contamination, probably caused by wastewater network overflows during heavy rain. Locations of wastewater network overflow structures are shown in Figure 2.

4.5 TSS monitoring results for the five-year period from November 2010 to November 2015 are summarised in Tables 2 and 3. TSS values are relatively low under the normal conditions but increase10-fold during sustained period of wet weather. Water pH values are typically close to neutral in both wet and dry weather conditions.

Table 1: Summary statistics from regular fortnightly monitoring of *E. coli* (cfu/100ml) at six sites in the Waitohi Stream catchment between March 2001 and March 2017 (data provided by Wellington Water)

Site name	N samples	minimum	median	95-percentile	maximum
Johnsonville Gorge 1	457	<4	900	10,650	95,000
Johnsonville Gorge 2	454	<4	940	11,000	800,000
Johnsonville Gorge 3	450	<4	1,200	12,000	1,400,000
Newlands at Gorge	451	<4	1,100	15,000	150,000
Ngauranga Stream near harbour	463	<4	750	10,000	170,000
Tyers Road tributary	453	<4	600	10,000	470,000

Table 2: Summary statistics from regular monthly monitoring in Waitohi Stream at site Kiwi Point Quarry-NS (upstream reference site) between November 2010 and September 2016.

Attribute	Units	N samples	minimum	median	95-percentile	maximum
TSS	mg/L	60	0.1	2.2	15.8	338
pH	pH	59	6.1	7.5	7.9	8.2

Table 4: Summary statistics from wet weather monitoring* in Waitohi Stream at site Kiwi Point Quarry-NS (upstream reference site) between July 2013 and September 2016.

Attribute	Units	N samples	minimum	median	95-percentile	maximum
TSS	mg/L	31	0.4	23.6	81	136
pH	pH	31	6.4	7.4	7.8	8.2

*Wet weather sampling is undertaken when more than 15mm of rain or more has fallen at the Seton Nossiter Park rain gauge in the preceding 24-hour period.

Aquatic ecology survey 2016

4.6 An aquatic ecology survey was conducted by Stantec in watercourses adjacent to the Quarry on December 7, 2016. Three monitoring sites were established (shown in Figure 2):

1. An open reach of Waitohi Stream located 60 m downstream of the existing stormwater discharge (SW1) from the northern quarry area (shown in Attachment A);
2. An open reach of Waitohi Stream close to the downstream extent of the quarry site (roughly 600 m downstream of site SW1 and 400m downstream of the northern pit discharge site, SW2); and
3. A reference site on the lower reaches of Tyers Stream, which is unaffected by either the Quarry or the urban areas of Johnsonville, Newlands or SH1, but does receive stormwater runoff from urban Khandallah.

4.7 The Quarry stormwater discharge (SW1) is located near the upstream extent of the open channel of Waitohi Stream. Upstream of SW1 Waitohi Stream is almost entirely contained within stormwater pipes or exists as concrete lined gutters or drains within urban Johnsonville and Newlands. For that reason, it was not possible to establish a relevant reference site upstream of SW1.

4.8 During the December 2016 survey the following ecological components were assessed:

(a) Habitat quality,
(b) Benthic macroinvertebrates,
(c) Fish communities, and
(d) Connectivity for fish migrations.

Habitat Quality

4.9 The two Waitohi Stream sites have moderately degraded habitat quality. Both are adversely affected by a high proportion of impervious surfaces in the upstream catchment. Roads, roofs, car-parks, etc., increase the rate of stormwater runoff, causing higher peak flows and lower base flows. Nevertheless, both reaches are shaded by steep, stable banks and well-established overhanging riparian vegetation, and both have a moderately steep bed gradient with a moderate degree of hydraulic complexity. At the time of the

site visit the lower Waitohi Stream site was affected by freshly deposited brown rock which covered much of the stream bed, and which was traced back to several slips that occurred near the southern and western edges of the Quarry during the earthquakes and storm events of November 2016.

4.10 The reference site on Tyers Stream was also impacted by the November 2016 flood event. Nevertheless, upstream of the deposition zone the streambed was in good condition with significantly better habitat quality than at the Waitohi Stream sites.

Macroinvertebrate Communities

4.11 A total of 15 macroinvertebrate taxa were identified across the three sites, all of which were in the Diptera, Crustacea or Mollusca groups. No taxa from the sensitive Ephemeroptera, Plecoptera or Trichoptera (EPT) groups were recorded at any site.

4.12 At Waitohi Stream Site 1 only three invertebrate taxa were identified, comprising 130 individuals. The invertebrate community at this location was dominated by Orthoclad midges. The metrics shown in Table 4 indicate a poor quality invertebrate community which is likely to have been adversely affected by stormwater runoff from the heavily urbanised areas of Johnsonville and Newlands, and by the absence of open stream habitat in these areas. The latter will contribute to the degraded condition of the invertebrate community because of the lack of opportunity for recruitment or re-colonisation by downstream invertebrate drift.

4.13 The effect of infrequent stormwater/wash-water discharges from the Quarry is expected to be minor by comparison with intense urban development of the wider catchment, but nevertheless will contribute to the poor quality of the invertebrate community adjacent to the Quarry.

4.14 At Waitohi Stream Site 2 a total of 12 invertebrate taxa were identified comprising 512 individuals, and Orthoclad midges were dominant. The biotic index scores indicate a poor quality invertebrate community which is evidently impacted by urban stormwater run-off and the effects of several large slips triggered by the November 2016 flood event and earthquake.

4.15 At Tyers Stream, Site 3, a total of 10 invertebrate taxa were identified, comprising of 630 individual invertebrates, and Orthoclad midges were again dominant. The biotic index scores in Table 4 indicate a poor quality invertebrate community which is impacted by stormwater run-off from an urban catchment.

Table 4: Scores for a range of invertebrate metrics at three survey sites (8/12/2016)

Indices	Waitohi 1	Waitohi 2	Tyers 3
Number of individuals	130	512	630
Number of taxa	3	12	10
Number of EPT taxa	0	0	0
%EPT taxa	0	0	0
%EPT individuals	0	0	0
MCI	67	77	72
QMCI	2.0	2.1	2.1
Dominant taxa	Orthocladiinae	Orthocladiinae	Orthocladiinae

Fish Communities

4.16 Fish community surveys have previously been undertaken in Tyers Stream in March 2009 (GWRC) and June 2016 (unspecified individual). A third survey was conducted by Stantec in December 2016 at Tyers Stream and Waitohi Stream, as part of the Regional consent application by Kiwi Point Quarry/WCC (Stantec, 2017).

4.17 Based on the combined records from these surveys a total of four indigenous fish species have been recorded in the Waitohi Stream system. These are longfin eel ('at risk – declining'), shortfin eel, banded kokopu and koaro ('at risk - declining'). The freshwater crayfish is common in Tyers Stream, but is also classified as 'at risk – declining'.

4.18 Predictions of fish species occurrence from the FENZ database (Leathwick, *et al.*, 2010), based on geographical locations and physical attributes, indicate that inanga are also likely to be present in the lower reaches of Waitohi Stream.

4.19 The FENZ predictions show a moderate probability of longfin eel and banded kōkopu being present in the main branch upstream of the Quarry, which carries stormwater from Johnsonville and Newlands in the northern part of the catchment. Our observation is that aquatic habitat is extremely limited upstream of the Quarry and that if these species are present their abundance will be low.

Table 5: Fish records for Waitohi Stream and Tyers Stream

Scientific name	Common name	%Occurrence				Threat status (Goodman, et al., 2014); (Grainger, et al., 2014)
		Recorded: Tyers Stream (n=5)	Recorded: Waitohi Stream at KPQ (n=2)	Predicted: Tyers Stream (FENZ)	Predicted: Waitohi Stream (FENZ)	
Anguilla australis	Shortfin eel	20	50	20-30	50-60	Not threatened
Anguilla dieffenbachii	Longfin eel	40	0	90-100	90-100	At risk (declining)
Galaxias brevipinnis	Koaro	100	100	20-30	0-10	At risk (declining)
Galaxias fasciatus	Banded kokopu	40	0	90-100	50-60	Not threatened
Galaxias maculatus	Inanga	0	0	0-10	80-90	At risk (declining)
Paranephrops spp.	Koura	40	0	-	-	At risk (declining)

Connectivity for fish migrations

4.20 Fish migrating upstream from Wellington Harbour into the Waitohi Stream catchment can access the stream via a concrete box culvert which begins at the stream mouth and extends 240m under a railway line and road intersection at the bottom of the Ngauranga Gorge (Figure 2). Above the culvert the stream runs in an open channel on the western side of Centennial Highway for nearly 390m before passing under SH1 near the railway bridge.

4.21 A minor tributary stream piped under Glover Street joins the Waitohi Stream in this vicinity but little if any open stream habitat remains in that branch. The relatively large Tyers Stream tributary also joins the mainstream in this reach. Tyers Stream is piped beneath the SH1 and the Tyers Road industrial area for a distance of 430 m. Upstream of the culvert the tributary runs in an incised gully through a large area of regenerating indigenous vegetation within the Tyers Bush Reserve. Upstream fish migration is constrained by a disused water supply dam located 500m upstream of the Waitohi confluence. A waterfall beside the dam is evidently passable to juveniles of climbing species such as longfin eel, shortfin eel, koaro and banded kokopu, all of which have all been recorded further upstream in Khandallah. Nevertheless, this structure will prevent access for non-climbing fish species such as inanga and bullies. Notwithstanding this constraint, Tyers Stream provides the only remaining substantial area of high-quality habitat for fish and invertebrate communities in the Waitohi Stream system.

4.22 Within the main stem of Waitohi Stream, migrating fish would travel a further 450 m upstream before again passing again under SH1, this time entering the basin within which the Taylor Preston Abattoir and

the Quarry are located. A waterfall at the uppermost section of Waitohi Stream within the Quarry boundary marks the upstream extent of the open channel. The watercourse upstream of that point consists almost entirely of a piped stormwater network which drains the urban catchments of Johnsonville and Newlands (Figure 2).

4.23 The few isolated lengths of open stream that remain are either very short or consist of first order intermittent headwater streams which flow in response to rain. So, while climbing fish species such as eel, koaro and banded kokopu may be able to move upstream past the waterfall, in practice there is little viable habitat for them upstream of the Quarry.

Ecological Significance

4.24 Neither Waitohi (Ngauranga) Stream nor its tributaries are identified in Schedule F of the proposed Natural Resources Plan as including 'aquatic ecosystems or habitats with significant biodiversity values'. Urbanisation of the catchment has resulted in widespread habitat loss and reduced ecological function, including alteration of natural flow regime, loss of connection to its floodplain, loss of connectivity to groundwater, barriers to fish migrations, and loss of riparian vegetation. Despite these modifications, two fish species (including the 'at risk - declining' kōaro) have been recorded in the main stem of Waitohi Stream. On that basis the ecological value of the mainstem is assessed as 'Moderate'.[2]

4.25 Tyers Stream, however, has retained significant areas of good quality habitat and continues to support four fish species including the longfin eel and kōaro which have an 'at risk (declining)' threat classification. Tyers Stream also supports koura which are classified as at risk (declining). On that basis the ecological value of the Tyers Stream is assessed as 'High'.

Table 6: Ecological Values

	Invertebrates	Indigenous fish	Combined
Waitohi Stream	Low	High	Moderate
Tyers Stream	Moderate	High	High

[2] Note, this differs from the ecological significance value given in the technical report (Stantec 2018) which incorrectly gave a 'Low' rating

5 POTENTIAL ADVERSE EFFECTS OF PLAN CHANGE 83

5.1 The "Area 2B Maximum Expansion" of Kiwi Point Quarry is described in the evidence of Mr Ormiston. It would involve stripping of vegetation and overburden from approximately 12 hectares of steep land at the south of the Quarry site. Although this area does not include any water courses, the proposal raises several issues with respect to adjacent watercourses which will need to be managed. These are:

- Stormwater runoff from areas of disturbed soil would potentially increase the sediment load discharged to Waitohi Stream in the short to medium term; and

- Changes to stormwater drainage boundaries would divert a small proportion of flow from the lower Tyers Stream into the Waitohi Stream.

5.2 Both of these freshwater issues fall outside of Council's jurisdiction but have been addressed by GWRC consent WGN170175 granted to WCC in August 2017, and a s127 application by WCC to change specified conditions of that consent to align with the Proposed Plan Change 83 boundary. The s127 Application is currently being processed by GWRC (Attachment B).

5.3 To provide context for the panel I have included a summary of those issues in my evidence.

Increased sediment loads

5.4 A primary concern during the operation of the expanded quarry is the erosion of disturbed soils and transport of fine sediment to the stream environment. Deposited fine sediment occurs naturally in the beds of rivers and streams because of terrestrial weathering processes, bank erosion, and in-stream fluvial processes, and is transported longitudinally through the river network (Clapcott J., *et al*., 2011). However, quarrying activities can result in an accelerated delivery of sediment and increased proportion of finer sediment. Excess in-stream sediment is recognised as having adverse effects on stream health, by clogging interstitial spaces used as refugia by benthic

invertebrates and fish, altering food resources and by removing sites used for egg laying.

5.5 The primary sediment sources on site are the open quarry face and crushing plant but also include haul roads and any activity that involved vegetation removal and/or soil disturbance. In my opinion the risk of increased sediment transport to the stream is appropriately addressed by the existing suite of conditions of consent WGN170175. These include a requirement for an annual work plan (conditions 11 to 13), an erosion and sediment control plan (conditions 14 to 19), stormwater discharge compliance limits (conditions 40 to 42), and condition 43 which specifies a receiving water standard for Waitohi Stream. The latter states:

> "*During extended dry, dry weather and wet weather the site's combined discharges from activities undertaken in accordance with the consent, including but not limited to discharges from SW1, SW2 and SW3 shall not cause water clarity to decrease by any more than approximately 33% when measured at the downstream extent of the zone of reasonable mixing for SW3 when compared with background water quality measured at NW1 as defined in section 3 of the Kiwi Point Quarry Discharge & Abstraction Management Plan"*.

5.6 While the expanded quarry work area in proposed Plan Change 83 would potentially result in a higher sediment load in stormwater runoff from the site, this would need to be managed by KPQ/WCC using a range of measures in order meet the existing discharge and receiving environment standards of the consent, including condition 43.

5.7 In summary, provided the Regional consent conditions are complied with, the likely magnitude of adverse effect resulting from the transport of fine sediment to Waitohi Stream is 'Low'. A 'Low' magnitude of effect in combination with 'Moderate' ecological significance (from paragraph 4.23) indicates that the likely overall level of effect of sediment discharge on the aquatic ecology of Waitohi Stream is 'Low'.

Changes to flow regime

5.8 The proposal to control all stormwater runoff from the quarry working area will result in the diversion of runoff from a 4-hectare area, which currently discharges into the Tyers Stream, into the Waitohi Stream

catchment. The discharge into Waitohi Stream would be via the pit storage area and/or sediment retention ponds. The affected land area amounts to approximately 2% of the Tyers Stream catchment and would potentially result in a slight decrease in Tyers Stream flows during wet weather and a slight increase in Waitohi Stream flows. In practice this diversion is unlikely to have any effect on the ecological functions of Tyers Stream because the affected stormwater runoff does not currently contribute to the flow regime, except in the lower 400 m reach of the stream which is contained within a culvert.

5.9 In summary, the likely magnitude of adverse effect resulting from changes to the flow regime of Tyers Stream is 'Low'. A 'Low' magnitude of effect in combination with 'High' ecological significance for Tyers Stream (from paragraph 4.24) indicates that the likely overall level of effect on the aquatic ecology of Tyers Stream is 'Low'.

6 MITIGATION

6.1 Proposed Plan Change 83 does not have any direct impact on freshwater streams, although it does have the potential to cause several indirect effects on adjacent watercourses due to increased run-off from work faces and haul roads. These indirect effects are, in my opinion, mostly addressed by existing conditions of the GWRC discharge consent. Providing the discharge and receiving water consent standards are achieved, the residual level of ecological effect is low and would not require mitigation. (And as noted already, these issues are outside the Council jurisdiction and fall under the ambit of GWRC.)

6.2 Regional consent WGN170175 recognises that historical Quarry development has had direct adverse effects on adjacent watercourses and that stream remediation is required as part of the overall site rehabilitation package. Condition 67 of that consent states that:

"By the 1 July 2027 the consent holder shall submit for approval to the satisfaction of the Manager a Stream Rehabilitation Plan (SRP). The SRP shall be designed by a suitably qualified person such as a freshwater ecologist in consultation with Ngati Toa Rangatira and Port Nicholson Block Settlement Trust and may include (but not limited to):

- *Riparian planting plans;*
- *Enhancement for cultural values;*
- *Rehabilitation of concrete lined/highly modified sections;*
- *Provision of fish habitat features (e.g. water, pools and cover); and ensuring fish passage;*
- *Timeframes for the completion of rehabilitation activities*

The SRP must, at a minimum, provide for rehabilitation activities on an equivalent length of stream contained within the site (including the Ngauranga Stream and tributaries). Remediation may be undertaken within the site or downstream of the site.

Alternatively, the SRP may provide for activities to be undertaken on Tyers Stream (tributary to Ngauranga Stream) if it is recommended by a suitably qualified person such as an ecologist that the benefit is of greater ecological value than undertaking remediation on the Ngauranga Stream within the site.

No stream remediation shall take place until the consent holder has received written notice that the SRP is approved to the satisfaction of the Manager".

6.3 At a prehearing meeting on 9 October the s42A report authors, expert advisors to the Council and Council officers agreed with a statement of Mr Fuller in the s42A report that an integrated design of freshwater and terrestrial mitigation results in better environmental outcomes than treating it in a silo. For that reason, the mitigation options report prepared by Wildlands (2018) has been expanded to include freshwater mitigation, noting that it would need to be aligned with conditions 67 and 68 of resource consent, and with the Quarry Management Plan (Wellington City Council 2014, and subsequent versions).

6.4 I have read the mitigation options report and agree with the recommendations relating to the Fraser Avenue tributary – Northern Quarry (section 3.1.1), Waitohi Stream near Taylor Preston Plant (Section 3.1.2), Waitohi Stream between Taylors Preston and State Highway 1 (Section 3.1.3) and Legal protection of the riparian area (Section 3.1.4).

6.5 While the quarry is operational it will be particularly important that the existing extent of riparian vegetation is at least maintained, and if opportunities arise, extended, and that if a haul road is to be constructed near Waitohi Stream, it should not encroach into the stream channel any further than the current track margin or existing fence.

7 RESPONSE TO ISSUES RAISED IN SUBMISSIONS

7.1 In their submission GWRC requested that a survey of freshwater fish be completed prior to WCC making a decision on the Plan Change. As discussed in my evidence, a survey of fish communities in watercourses adjacent to the quarry was completed in 2016 and is reported in Stantec (2018).

7.2 GWRC also identified issues relating to "*safeguarding freshwater quality, quantity and ecological health*" as relevant to this plan change. There are no watercourses within the footprint of the plan change and only indirect effects are likely in respect of adjacent watercourses. In my opinion those effects are adequately addressed by existing consent conditions in combination with the mitigation proposed for Waitohi Stream as part of the plan change.

7.3 Finally, GWRC identified connectivity for fish passage in Waitohi Stream as relevant to this plan change. I note that "*ensuring fish passage*" is required to be included in a Stream Rehabilitation Plan pursuant to conditions 67 and 68 of the Regional consent.

7.4 Brad and Nicola Young raised a general concern about the discharge of contaminants from the quarry but didn't specifically refer to impacts on water quality or aquatic ecology. Erosion and sediment transport are significant issues for the Quarry but, as discussed in my evidence, these issues are adequately covered by conditions of the GWRC consent.

7.5 None of the other submission raised concerns about potential effects on watercourses adjacent the Quarry.

8 COMMENT ON OFFICERS REPORT

8.1 Appendix 6 of the s42A report, prepared by Mr Fuller (dated 19 November 2018), addresses the ecological reports and includes comment on freshwater streams. At paragraph 4.6 Mr Fuller notes that consideration of freshwater issues is outside Council's jurisdiction, and that GWRC has already granted consents and permits for soil disturbance, discharges to land, air and water and structures in waterways at the Quarry (Consent No. WGN170175).

8.2 At paragraphs 5.1 to 5.7 Mr Fuller notes that the issues of "ecological health of Waitohi Stream" and "connectivity for fish migration" were raised by GWRC in their submission as matters requiring consideration. He goes on to state that these are issues that can be addressed through future consents. In my opinion these issues have already been adequately addressed by conditions of the existing Regional consent.

8.3 Finally, I note that at paragraph 5.21 Mr Fuller confirms that he is supportive of the mitigation plan proposed for the stream.

9 CONCLUSION

9.1 Proposed Plan Change 83 does not have any direct impact on freshwater streams, although it does have the potential to cause several indirect effects on Waitohi Stream. In my assessment these indirect effects are adequately addressed by existing conditions of the GWRC consent and additional protection that will be provided to the stream by the mitigation package for Plan Change 83.

David Cameron

20 November 2018

References

Clapcott, J., Young, R., Harding, J., Matthael, C., Quinn, J., & Death, R. (2011). *Sediment Assessment Methods. Protocols and guidelines for assessing the effects of deposited fine sediment on in-stream values.*

Goodman, J., Dunn, N., Ravenscroft, P., Allibone, R., Boubee, J., David, B., . . . Rolfe, J. (2014). *Conservation Status of New Zealand freshwater fish, 2013.* New Zealand Department of Conservation.

Grainger, N., Collier, K., Hitchmough, R., Harding, J., Smith, B., & Sutherland, D. (2014). *Conservation status of New Zealand freshwater invertebrates, 2013.* Department of Conservation.

Leathwick, J. R., West, D., Gerbeaux, P., Kelly, D., Robertson, H., Brown, D., . . . Ausseil, A. G. (2010). *Freshwater Ecosystems of New Zealand (FENZ) Geodatabase - User Guide.*

Stantec. (2016). *Kiwi Point Quarry Expansion Alternatives Assessment: Water Quality.* Report prepared by David Cameron for Welliington City Council.

Stantec. (2017). *Kiwi Point Quarry: resource consent applications and assessment of effects on the environment.* Report prepared by Boddy, Young and Cameron for Wellington City Council.

Stantec. (2018). *Proposed Expansion of Kiwi Point Quarry; Assessment of Effects on Ngauranga Stream.* Prepared by David Cameron for Welligton City Council.

Wildlands. (2017). *Assessment of ecological effects for proposed expansion of the Kiwi Point Quarry, Ngauranga Gorge, Wellington.*

Wildlands. (2018). *Mitigation Options for the Potential Loss of Indigenous Vegetation and Habitat at the Proposed Kiwi Point Quarry, Wellington.* Report prepared by Astric van Meeuwen-Dijkgraaf for Wellington City Council.

ATTACHMENT A: Consent Certificate

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Resource Consent

RESOURCE MANAGEMENT ACT 1991

Consent No. WGN170175 [34508], [34510], [34512], [34513], [34514] and [34515]
Category: Land use, discharge permit and water permit

Pursuant to sections 104B, 104C, 105,107 and 108, and subject to all the relevant provisions of the Resource Management Act 1991 and any regulations made thereunder, a consent in respect of a natural resource is hereby granted to:

Name	Wellington City Council	
Address	PO Box 2199, Wellington 6140	
Duration of consent	Granted: 7 August 2017	Expires: 7 August 2042
Purpose for which right is granted	**[34508]:** Land use consent to undertake soil disturbance and vegetation clearance on erosion prone land. **[34510]:** Water permit to divert and take water from the Ngauranga Stream for the purpose of dust suppression and aggregate washing. **[34512]:** Discharge permit to discharge treated sediment laden stormwater and washwater to the Ngauranga Stream. **[34513]:** Discharge permit for the discharge of contaminants (cleanfill) to land associated with the operation of a cleanfill. **[34514]:** Discharge permit to discharge contaminates (dust) to air in association with the operation of a cleanfill. **[34515]:** Land use consent to construct and maintain an intake structure in the bed of the Ngauranga Stream.	
Location	Kiwi Point Quarry, Ngauranga Gorge, State Highway 1 at or about map reference NZTM 1751125.5433433	
Legal description of land	Lot 1 DP 72995, Lot 2 DP 72995, Lot 4 DP 72996, Lot 5 DP 72996, Lot 1 DP 34815 and Lot 6 DP 72996	
Conditions	1-68 as attached	

For and on behalf of
WELLINGTON REGIONAL COUNCIL

.....
Team Leader, Environmental Regulation

Date: 7 August 2017

Summary of your rights and responsibilities

(Not part of the resource consent)

This resource consent gives you the right to use a public resource (e.g. water, air, the coastal marine area) in the manner specified in the consent.

You may exercise the resource consent as you see fit provided that you comply with all the conditions of your resource consent and all other laws of the land.

If you wish to change the way you operate under this resource consent or if you wish to change or cancel any consent conditions, please contact the Greater Wellington Regional Council (GWRC) prior to making the changes. You may need a formal change to your resource consent conditions.

You may transfer your coastal, discharge, or water permit to any other person. If you sell your operation please contact GWRC and we will arrange the transfer for you (at no cost) once you've completed a 'Transfer of Permit' form including the signatures of the old and new owners.

If your resource consent application contained inaccurate or misleading information, GWRC may cancel or alter the resource consent.

Your resource consent does not:

- provide any warranty of any structure or process;
- provide any guarantee that the resource will be available at all times;
- provide any right of access through or over public or private land;
- negate the need for any approvals necessary under other legislation.

You as the holder(s) of this resource consent and your agents (including contractors and employees), are jointly and severally liable for compliance with the conditions of this consent. It is important that anyone operating on your behalf fully understands and complies with the conditions of the resource consent.

You are required to pay any relevant charges that are associated with the processing and monitoring of your consent under section 36 of the Resource Management Act 1991. Charges may be reviewed every year. If you would like a copy of our current Resource Management Charging Policy please ask us.

You have the right to object to the decision on your consent and/or any additional charges (over and above fixed charges) under section 357A and 357B of the Resource Management Act 1991. Such an objection should be made in writing, setting out the reasons, and be received by us within 15 working days of any decision on your consent and/or additional charges being notified to you.

You are required to allow GWRC Enforcement Officers access to your site and operation at any reasonable time so that we can inspect your operation and confirm that it is complying with your resource consent.

Your resource consent will lapse if you do not give effect to it within five years of the date it was granted (unless otherwise specified in the resource consent conditions). If you wish to apply for an extension of this lapse date please contact GWRC before the lapse date.

If you stop using your resource consent for a continuous five-year period, GWRC may cancel your resource consent. We will advise you in advance if we propose to cancel your consent. You have the right to object to your consent being cancelled.

This consent is issued without prejudice to any claim that is lodged with the Waitangi Tribunal in relation to the customary ownership of natural resources, whether it be a claim that is awaiting hearing or awaiting settlement by the Crown.

Conditions to Resource Consent WGN170175 [34508], [34510], [34512], [34513], [34514] and [34515]

INTERPRETATION

Wherever used in the conditions below, the following terms shall have the prescribed meaning:

The Manager means the Manager, Environmental Regulation, Wellington Regional Council.

The Quarry Site means Lot 1 DP 72995, Lot 2 DP 72995, Lot 4 DP 72996, Lot 5 DP 72996, Lot 1 DP 34815 and Lot 6 DP 72996.

Stabilised means inherently resistant to erosion or rendered resistant, such as by using indurated rock or by the application of basecourse, colluvium, hydroseeding, grassing, mulch, or another method to the reasonable satisfaction of the Manager, Environmental Regulation, Wellington Regional Council and as specified in Wellington Regional Council's Erosion and Sediment Control Guidelines for the Wellington Region, September 2002. Where seeding or grassing is used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once, on reasonable visual inspection by the Manager, Environmental Regulation, Wellington Regional Council, an 80% vegetative cover has been established.

Discharges and Abstraction Management Plan (DAMP) was provided as further information to the application received 14 July 2017. It is attached as Appendix 1 to the consent and shows locations of abstractions, discharges and the zones of reasonable mixing. It also provides information regarding the triggers for restricted water abstraction and ceasing the water take as well as triggers for restricted discharge rates which are triggered by flows in the Porirua Stream. Consent conditions 58 and 59 require the ***DAMP*** to be updated every three years. The consent should be read in conjunction with the most up to date revision of the ***DAMP***.

Quarterly period is defined as the three month periods beginning 1st January, April, July and October.

Quarterly means, by the 10th working day following the end of the preceding quarter.
Annual period is defined as 31 August 1 September.

Annually means by the 10th working day following the end of the preceding annual period.

5 year average return interval rainfall event is when 70mm of rainfall has been recorded at the Seton Nossiter Park rain gauge, over a 12 hour period.

Wet weather is when between 5mm and 70mm of rainfall has been recorded at the Seton Nossiter Park rain gauge, over a 12 hour period.

Dry weather is when less than 5mm of rain has been recorded at the Seton Nossiter Park rain gauge, over a 12 hour period.

Extended dry weather is when the flow in the Ngauranga Stream is less than approximately 20L/s. 20 L/s in Ngauranga Stream correlates with a trigger flow in section 3.3 of the ***DAMP*** attached as appendix one to this consent.

7 August 2017

General conditions [34508], [34510], [34512], [34513], [34514] and [34515]

General conditions

1. The location, design, implementation and operation of the activity shall be in general accordance with the consent application and its associated plans and documents lodged with the Wellington Regional Council on 2 February 2017 and further information received on:

   - 24 May 2017 (agreement to provide for the discharge quality standards in up to a 1 in 5 year 12 hour duration rain event);
   - 16 June 2017 (maximum yearly allocation, visual monitoring for dust discharges to the Wellington Water Ltd (WWL) pump station, details to be provided in the Dust Management Plan, possible future use of flocculent).
   - 23 June 2017 (draft Cleanfill Management Plan)
   - 14 July 2017 (final Discharges and Abstraction Management Plan).

   Where there may be contradiction or inconsistencies between the application and further information provided by the applicant, the most recent information applies.

   In addition, where there may be inconsistencies between information provided by the applicant and conditions of the consent, the conditions apply.

   Note: Any change from the location, design concepts and parameters, implementation and/or operation may require a new resource consent or a change of consent conditions pursuant to section 127 of the Resource Management Act 1991.

2. The consent holder shall provide a copy of this permit and any documents referred to in this consent to each operator or contractor undertaking works authorised by this permit, before that operator or contractor starts any works.

3. The consent holder shall ensure that a copy of this consent and all documents and plans referred to in this consent, are kept on site at all times and presented to any Wellington Regional Council Officer on request.

4. All works shall be undertaken to the satisfaction of the ***Manager.***

Incident notification

5. The consent holder shall keep a permanent record of any incidents(s) related to this consent that results, or could result, in an adverse effect on the environment beyond the boundary of the consent holder's site.

   The consent holder shall notify the Manager of any such incident within 24 hours of the incident being brought to the attention of the consent holder or the next working day.

   The consent holder shall forward an incident report to the Manager (if requested) within seven (7) working days of the incident occurring, unless otherwise agreed with the Manager. The report shall describe the reasons for the incident, measures taken to mitigate the incident, and measures to prevent recurrence.

   Note: The Wellington Regional Council may also investigate any incidents to determine if a breach of this consent or the Resource Management Act 1991 has occurred and may also undertake enforcement action depending on the circumstances.

Complaints

6. The consent holder shall maintain a permanent record of any complaints received, relating to any alleged adverse effects from or related to the exercise of this consent. The record shall include the following; where practicable:

   a) The name and address of the complainant, if supplied;

b) Date, time and details of the alleged event;

c) Weather conditions at the time of the alleged event;

d) Investigations undertaken by the consent holder in regards to the complaint and any measures adopted to remedy the effects of the incident/complaint; and

e) Measures put in place to prevent occurrence of a similar incident, if necessary.

The consent holder shall provide the record to any Wellington Regional Council Compliance Officer on request.

The consent holder shall notify the Manager of any complaints received, which relate to the exercise of this permit, within 24 hours of a complaint being received.

Iwi liaison

7. The consent holder shall offer a site visits to the Trustees of the Port Nicholson Block Settlement Trust and to representatives of Te Runanga o Toa Rangitira, on reasonable terms acceptable to them during each ***annual period.***

Note: Should any group choose not to take up the offer that does not constitute a non-compliance of this consent condition.

8. Results of water quality monitoring required by WGN170175 [34512] shall be compiled and provided to the Port Nicholson Block Settlement Trust and Te Runanga o Toa Rangitira ***annually***.

9. The consent holder shall undertake consultation with the Trustees of the Port Nicholson Block Settlement Trust and the representatives of Te Runanga o Toa Rangitira regarding the review and update of the Quarry Management Plan whenever this is undertaken.

Consultation shall be undertaken to the satisfaction of the ***Manager.***

Note: Should any group choose not to take up the offer that does not constitute a non-compliance of this consent condition.

Accidental discoveries

10. If koiwi, taonga, waahi tapu or other archaeological material is discovered in any area during the works, work shall immediately cease and the consent holder shall notify Greater Wellington Regional Council, Port Nicholson Block Settlement Trust, Te Rūnanga o Toa Rangatira Inc and Heritage New Zealand as soon as possible but within twenty-four hours. If human remains are found, the New Zealand Police shall also be contacted. The consent holder shall allow the above parties to inspect the site and in consultation with them, identify what needs to occur before work can resume.

No works may resume on site until the consent holder has received written notification that consultation with the parties identified above has been undertaken to the satisfaction of the ***Manager.***

Note 1: Notification should be emailed to;

- Greater Wellington Regional Council, notifications@gw.govt.nz
- Heritage New Zealand, information@heritage.org.nz
- Port Nicholson Block Settlement Trust, taiao@portnicholson.org.nz
- Te Rūnanga o Toa Rangatira Inc,resourcemanagement@ngatitoa.iwi.nz

Heritage New Zealand should be contacted by phone on 04 472 4341 (National Office).

Note 2: Evidence of archaeological material may include burnt stones, charcoal, rubbish heaps, shell, bone, old building foundations, artefacts and human burials.

7 August 2017

Soil Disturbance [34508], Discharges to Water [34512] and Discharges to Land [34513]

Annual work plans and reporting

Note 1: Soil disturbance and vegetation removal will be undertaken in Areas C, D, G,E, F and H in Figure 2-1 of the consent application.

Note 2: Cleanfilling activities will be undertaken in areas A, B, C, D, E and F and H (cleanfilling in area H is subject to consent condition 27)

11. The consent holder shall compile and submit the results of records and monitoring undertaken in accordance with consent conditions and provide reports to the ***Manager*** at the following times;

    a) Conditions which require reporting ***annually;***
    - Condition 12 (Annual work programme)
    - Condition 27 (record of cleanfill accepted into the site);
    - Condition 37 (record of discharge rates in dry and extended dry weather); and
    - Condition 50 (record of water quality sampling);

    b) Conditions which require reporting ***quarterly;***
    - Condition 62 (record of water abstraction).

    Note: if the consent holder is using flocculation in accordance with consent condition 20, any monitoring and reporting requirements will be undertaken in accordance with the approved Flocculation Management Plan.

12. A work programme shall be provided to the ***Manager annually***. The work programme shall outline the general work in each area to be undertaken in the next ***annual period*** (including soil disturbance, vegetation removal and cleanfilling activities). The annual work programme shall include a sediment erosion control plan as outlined in condition 13 below.

13. The consent holder shall prepare an Erosion and Sediment Control Plan (ESCP) for each area where soil disturbance, vegetation removal or cleanfilling will be under taken in the next ***annual period***.

    a) The ESCP shall include the following:
    - Details of what erosion and sediment control measures are to be implemented, and design information regarding these;
    - Location of individual erosion and sediment control measures;
    - Catchment boundaries for the sediment controls, and stormwater flow directions;
    - A maintenance schedule for all sediment control measures, and a template checklist to be used for weekly/monthly compliance audits by the consent holder;
    - A staging programme for managing exposed areas, including progressive stabilisation; and
    - Identification of experienced staff to ensure the consent conditions and ESCP are adhered to including emergency contact phone numbers for those person(s).

    b) The ESCP shall be submitted annually in conjunction with information required under conditions 12 of this consent.

    c) No works may commence in any area until the consent holder has received written confirmation that the ESCP is to the satisfaction of the ***Manager.***

    d) Any amendments to the approved ESCP must be to the satisfaction of the ***Manager.***

Erosion sediment control

14. All works and measures detailed in each ESCP shall be operational prior to commencement of works within each area, and be maintained to perform at full operational capacity until each area has been adequately stabilised to the satisfaction of the ***Manager***.

15. The consent holder shall ensure that all sediment-laden runoff from the site is treated in accordance with any ESCP approved under condition 13.

16. All erosion and sediment control measures shall be installed, operated and maintained in accordance with the Erosion and Sediment Control Guidelines for the Wellington Region (September 2002) unless written approval has been obtained stating that the erosion sediment control measure(s) are to the satisfaction of the ***Manager.***

17. All 'clean water' runoff from stabilised and unexposed surfaces including catchment areas above each site shall, as far as in practicable be diverted away from exposed areas.

18. The consent holder shall take all practicable steps to minimise sedimentation and increased turbidity of surface water as a result of any soil disturbance, including:

- Installing and maintaining appropriate sediment control measures;
- Completing all works in the minimum time practicable;
- Avoiding working in extended wet periods; and
- Ensuring soil and excavated material is placed away from flowing water.

19. Stockpiles of soil shall not be placed adjacent to any watercourse or in any location where efficient treatment of sediment-laden runoff is impeded.

Flocculation Management Plan

20. If the site is regularly exceeding suspended solids limits, the use of flocculation maybe necessary to ensure compliance with this consent. If GWRC determines that flocculation is required then, the consent holder shall prepare, in consultation with a person suitably qualified and experienced in flocculent use, a Flocculation Management Plan (FMP). The FMP shall be submitted to the ***Manager*** for approval at least 10 working days prior to the use of flocculent.

    The FMP shall include at a minimum:

    a) Specific design details of the flocculation system (including type of flocculent to be used)

    b) Details of monitoring , maintenance (including post storm) including monitoring of contingency measures (batch dosing)

        Monitoring shall be undertaken for the following parameters:
        - pH
        - Temperature (°C)
        - Turbidity (NTU)
        - Dissolved aluminium (g/m3)
        - Total suspended solids (g/m3)

    c) Details on flocculation dosage (including assumptions);

    d) Details of any of any initial flocculation trials to be carried out and the results of these trials;

    e) A contingency plan (spill and batch dosing)

    f) A plan for removing flocculated sediment retention ponds.

    Note 1: The use of batch dosing must be an exception. If batch dosing is frequently used the consent holders should review their floc systems and its performance; and the sites erosion and sediment control management practises.

    Note 2: Use of flocculent on site shall not commence prior to receiving written confirmation that the FMP is to the satisfaction of the Manager.

21. Any amendments proposed to the approved FMP shall be confirmed in writing to the satisfaction of the ***Manager***, prior to the implementation of any amendments proposed.

Discharges to Land – Cleanfilling

22. The consent holder shall ensure that cleanfilling is undertaken in accordance with the publication *A Guide to the Management of Cleanfills by Ministry for the Environment (2002).*

    a) Only material such as clay, soil, rock, concrete, dry asphaltic concrete or brick that are free of combustible or putrescible components or hazardous substances or materials likely to create a hazardous leachate by means of biological breakdown, shall be deposited within the cleanfill site.

    b) Materials considered to meet the above definition are outlined in Table 4.1 of the publication *A Guide to the Management of Cleanfills by Ministry for the Environment (2002).*

23. Prior to accepting cleanfill material from off-site the consent holder shall submit for approval to the ***Manager*** a final Cleanfill Management Plan (CMP). The final CMP shall be based on the draft CMP received on 23 June 2017 and at a minimum shall include descriptions of;

    - Outline of the operation and how it will be managed;
    - Identification of responsible person's;
    - Cleanfill deposition, location and compaction;
    - Cleanfill acceptance and rejection procedures including a description of acceptable and unacceptable material;
    - Load inspections to ensure only acceptable material is accepted;
    - Details of monitoring proposed to ensure compliance with consent conditions (this may include but not necessarily be limited to water quality monitoring in the quarry pit); and

    No cleanfill material may be accepted from off site until the consent holder has received written notification that the CMP is to the satisfaction of the Manager.

    Any subsequent amendments to the CMP must be to the satisfaction of the ***Manager.***

    Note: If slurry is to be accepted onto the site, methods for ensuring this material complies with all conditions of consent must be explicitly covered in the final CMP.

24. Upon achieving the desired completion levels (as identified in the QMP Appendix A of the application) the consent holder shall ensure that all areas subject to cleanfilling are stabilised.

25. All cleanfill material shall be placed and compacted so as to avoid erosion and instability. Any erosion of soil including failure of cut and fill batters that is attributable to the works shall be contained, remedied and mitigated by the consent holder to the satisfaction of the ***Manager.***

26. The permit holder shall record details of each load of material that is deposited within the cleanfill, including:

    a) the date and time of receipt of the material at the cleanfill site;

    b) quantity;

    c) source;

    d) description of material deposited (e.g. soil, concrete, bricks);

    e) name of the contractor depositing the material;

    This information shall be forwarded to the Manager ***annually*** and shall be made available for inspection when requested.

27. Prior to commencement of cleanfilling activities in area H the applicant must submit to the ***Manager*** an Area H Cleanfill Management Plan (AHCP). The AHCP must include the following information at a minimum;

- Quantities of cleanfill proposed to be placed on the area; and
- Description of the final levels to be achieved.

No cleanfilling may commence in area H until the consent holder has received written confirmation that the AHCP is to the satisfaction of the ***Manager***.

Discharges to Air [34514]

28. Prior to undertaking dust generating activities associated with cleanfilling the consent holder shall prepare and adhere to a Dust Management Plan (DMP) to ensure dust emissions are minimised to ensure compliance with consent condition 29. The consent holder shall manage the discharge of dust to air in accordance with an approved DMP. The DMP shall at a minimum include the following information;

a) Identification of dust generating activities and methods to be used for minimising and suppressing dust;

b) Methods for monitoring and a response to atmospheric conditions which could result in an increased risk of a discharge of dust to the pump station located adjacent to area H;

c) Methods for monitoring and a response to atmospheric conditions which could result in an increased risk of a discharge of dust generally;

d) Procedures for receiving, recording and responding to complaints regarding the emission of dust.

e) Identification of key personnel responsible for ensuring compliance with consent conditions.

The DMP must be prepared to the satisfaction of the ***Manager.***

Note 1: The areas are shown on table 2-1 of the application document.

Note 2: Methods required under 28 (b) should be designed in consultation with Wellington Water Limited (WWL). When the DMP is submitted GWRC will undertake consultation with WWL regarding methods described under 28.

29. The consent holder shall ensure that there are no discharges to air resulting from the exercise of this consent that are noxious, dangerous, offensive or objectionable in the opinion of a Greater Wellington Regional Council Compliance Officer at or beyond the ***Quarry site boundary.***

Discharges to water [34512]

Note 1: General
The below conditions relate to discharges of water to water as summarised below. Where the conditions refer to it, the consent should be read in conjunction with the specified sections, figures or tables in the ***DAMP****.*

If there is greater than a ***5 year average return interval rainfall*** *event then discharge limits do not apply. After this design rainfall event it is accepted that the efficiency of the sediment retention measures will be reduced. Compliance with condition 13 and 16 is still required.*

Note 2: Treatment of water
Conditions 30 and 31 refer to the treatment of water on site.

Note 3: Discharge rates
Conditions 32-39 pertain to the rate of discharge.

Note 4: Water quality compliance limits and sampling requirements
Conditions 40 to 43 outline the compliance limits for water quality. Exceedance of limits as outlined by these conditions will result in a non-compliant rating for consent WGN170175 [34512]. Water quality sampling to test compliance with the limits is required under consent conditions 47-50.

Note 5: Water quality management triggers, actions and sampling requirements
Condition 44 sets Management Triggers. Any exceedance in limits prescribed by this condition requires the actions in Condition 45 to be undertaken. Exceedance of the Management Triggers requires an increased sampling regime as required by consent condition 47 (c).

30. All sediment laden stormwater and washwater from the quarry shall be conveyed to a sediment retention pond or alternative treatment system capable of achieving the discharge standards specified in conditions 40-44 of this consent.

31. The consent holder shall ensure that all aspects of the stormwater management system are maintained and operated to minimise any discharge to the Ngauranga Stream from the site. At a minimum this should include storing, treating and reusing water on site.

Discharge rate

32. During ***dry weather*** the rate of discharge shall not exceed 5 L/s (combined from all discharge points as shown in the DAMP).

    This condition is effective from the 1 December 2017.

33. During periods of ***extended dry weather*** the rate of discharge shall not exceed 2.5 L/s (combined from all discharge points as shown in the DAMP).

    This condition is effective from the 1 December 2017.

34. The consent holder shall provide a methodology for managing discharges during ***dry weather*** and ***extended dry weather*** to the satisfaction of the ***Manager*** by the 1 December 2017 which details methods for ensuring compliance with conditions 32 and 33 for discharges from SW1, SW2 and SW3 (when it is established) as shown on the ***DAMP.***

35. The consent holder shall operate discharges during ***dry weather*** and ***extended dry weather*** events in accordance with the final method approved under consent condition 34.

    Any revisions to this method must be to the satisfaction of the Manager.

37. The consent holder shall keep a permanent record of all dry and extended dry weather discharge events and provided to it to the ***Manager annually***. At a minimum the record shall include the;

    - Duration of discharge; and
    - Rate of discharge.

38. The consent holder shall install a flow logger at the discharge point for SW3 when it is constructed as shown on the ***DAMP*** and continuously monitor (15 minute intervals) the total discharge and duration of discharge to the Ngauranga Stream.

    This should be recorded as discharge rate and duration during;

    - Extended dry weather;
    - Dry weather; and
    - Wet weather.

    Information recorded under this condition must be supplied to any Regional Council Enforcement Officer on request.

39. The consent holder may make a request in writing to the ***Manager***, to remove the flow logger when stage two of the southern area is complete and the pit is available to provide additional storage capacity for stormwater /washwater discharges. The ***Manager*** may accept or decline the request at the ***Managers*** discretion.

At a minimum the request must include justification with supporting evidence for the removal of the flow logger.

*Note 1: The consent holder's compliance ratings for WGN170175 [34512] and the frequency of discharges from SW3 during the years preceding the request will be taken into account when the **Manager** is making a decision as to whether the flow logger may be removed.*

*Note 2: Stage two is considered to be complete when the pit is formed to an extent that it can provide sufficient storage capacity to ensure that the discharge of stormwater can meet the discharge standards outlined in conditions 40-44 in up to a **5 year average return interval rainfall event.***

Discharge quality - compliance with section 107 of the resource Management Act 1991

40. In addition to the discharge limits set under consent conditions 41, 42, 43 and 44 in up to a ***5 year average return interval rainfall event***, the discharge of stormwater and washwater shall not result in any of the following effects in the Ngauranga Stream after reasonable mixing downstream of the discharge points:

a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

b) Any conspicuous change in colour or visual clarity;

c) Any emission of objectionable odour;

d) Any significant adverse effects on aquatic life.

Note: The zones of reasonable mixing are defined in section 3.2 of the DAMP.

Discharge quality – compliance limits

Note: Consent conditions 41 and 42 set compliance limits. Compliance with these discharge limits is monitored using the monitoring regime under consent conditions 46, 47 and 48. Monitoring to ensure compliance with consent conditions 41 and 42 is required immediately upon the grant of this consent.

*Compliance with condition 43 is required immediately upon the grant of this consent. However, monitoring to ensure compliance with this consent condition under consent condition 49 will only be required if requested by the **Manager**. The **Manager** may require monitoring to be undertaken under consent condition 49 to ensure compliance with consent condition 43 if it is considered that discharges from the site are having a greater than anticipated environmental effect. It is anticipated that regular exceedance of discharge quality compliance limits and management triggers will be reason to consider that greater than anticipated environmental effects are occurring.*

41. During ***wet weather*** the suspended solids content of stormwater and/or washwater discharged to Ngauranga Stream from any discharge point shall not exceed 120 mg/L in more than 1 sample during an ***annual period***.

42. During ***dry weather*** and ***extended dry weather*** the suspended solids content of stormwater and/or washwater discharged to Ngauranga Stream from any discharge point shall not exceed 45 mg/L in more than 1 sample during an ***annual period***.

43. During ***extended dry, dry weather*** and ***wet weather*** the site's combined discharges from activities undertaken in accordance with this consent, including but not limited to discharges from SW1, SW2 and SW3 shall not cause water clarity to decrease by any more than approximately 33% when measured at the downstream extent of the zone of reasonable mixing for SW3 when compared with background water quality measured at NW1 as defined in section 3 of the ***DAMP.***

If required to do so by the Manager the consent holder shall undertake water quality sampling in accordance with consent condition 49 to ensure that this standard is achieved.

Discharge quality – management trigger

44. Any water quality sampling undertaken in accordance with consent conditions 47 (a) and 47 (b) must not exceed the following discharge management trigger limits at SW1, SW2 and SW3 during any single discharge event;

    a) During ***wet weather*** the total suspended solids content of stormwater and/or washwater discharged to Ngauranga Stream from any discharge point shall not exceed 120 mg/L; and

    b) During ***dry weather*** and extended dry weather the total suspended solids content of stormwater and/or washwater discharged to Ngauranga Stream from any discharge point shall not exceed 45mg/L.

Exceedance of management triggers

45. If results from water quality monitoring undertaken in accordance with conditions of this consent show that the management triggers specified in condition 44 are exceeded, the consent holder shall;

    a) Immediately undertake onsite investigations to determine the cause of the exceedance and identify what changes can be made to onsite management to prevent re-occurrence.

    b) Notify the ***Manager***, as soon as practicable but no later than 24 hours after the result is recorded that a discharge standard has been exceeded.

    c) Within 48 hours provide the ***Manager*** with a preliminary assessment outlining the reasons for the exceedance and what measures are being undertaken on site to prevent any further discharges which are in exceedance of the management triggers outlined in 44 (a) and 44(b).

    d) Within 5 working days provide the ***Manager*** with a summary report summarising the actions undertaken in accordance with (a)-(c) and any further action and/or monitoring which will be implemented on site to prevent future discharges which are in exceedance of the management triggers outlined in 44 (a) and 44(b).

    e) Undertake water quality sampling in accordance with consent condition 47 (c).

    All actions on site shall be undertaken to the satisfaction of the ***Manager.***

    Note: The Wellington Regional Council may also investigate any incidents to determine if a breach of this consent or the Resource Management Act 1991 has occurred and may also undertake enforcement action depending on the circumstances.

Monitoring locations

46. The consent holder shall establish discharge monitoring stations at or near sites SW1, SW2 and SW3 as shown in section 3 of the ***DAMP***. The exact locations of the monitoring points shall be in general accordance with the information provided in the ***DAMP*** and shall be established to the satisfaction of the ***Manager*** within the following time frames:

    - SW1 and SW2 by the **7th of November 2017**.
    - SW3 prior to works in area H and F commencing.

    Note: It is recognised that the nearest safe location for collection of samples may be upstream of the outlet (i.e. within the pipe).

Monitoring frequency and sampling requirements

47. The consent holder shall ensure that samples are collected at SW1, SW2 and SW3 (as shown in section 3 of the ***DAMP***) at the following times;

    a) **Scheduled sampling:** Once in each ***quarterly period*** during a ***dry weather*** or ***extended dry weather*** event

    b) **Event based sampling**: Once in each ***quarterly period*** when 15mm or more rainfall has been recorded at the Seton Nossiter Park rain gauge monitoring site in the preceding 24 hour period. The water quality sampling shall be undertaken within 3 hours of the rain event trigger being recorded.

    c) **Exceedance of management trigger sampling:** If a sample undertaken in accordance with (a) and (b) above, exceed the **management triggers** prescribed in consent condition 44. Sampling of water quality must be undertaken during every discharge event (wet, dry or extended dry) until the sample (s) show that TSS is within the limits outlined in condition 44.

    For (a), (b) and (c), if all discharges are in operation then a sample must be taken from each.

    For b and c, if the discharge occurs between the hours of 6pm**-** 8am no sample is required.

    *Note: If the discharge does not operate in any **quarterly period** then no samples will be collected in that **quarterly period**.*

48. The consent holder shall ensure that;

    a) All samples required under this consent shall be tested for total suspended solids contact (TSS) and turbidity.

    b) For all samples, rainfall measured the Seton Nossiter Park rain gauge station shall be recorded for the preceding 24 hour period.

49. If so required to do so in writing by the ***Manager***, the consent holder must establish a stream water quality monitoring point at the downstream end of the zone of reasonable mixing for discharge point SW3 and upstream of SW1 at NS1 (as defined in section 3 of the ***DAMP***). Stream water quality will be sampled at the following times;

    a) **Scheduled sampling:** Once in each ***quarterly period*** while any or all of the discharges are in operation during a ***dry weather, extended dry weather*** or ***wet weather event***.

    b) **Event based sampling**: Once in each ***quarterly period*** when 15mm or more rainfall has been recorded at the Seton Nossiter Park rain gauge monitoring site in the preceding 24 hour period. The water quality sampling shall be undertaken within 3 hours of the rain event trigger being recorded.

    Condition 49 (a) only applies if a discharge is in operation during that quarterly period. Condition 49 (b) applies whether or not any of the discharges are in operation.

    c) As required by the ***Manager.***

    Note 1: Wellington Regional Council acknowledge that there are external influences on the streams water clarity which could contribute to a decrease in water clarity between NS1 and SW3 such as run-off from Raroa Rd & Fraser Ave and bank erosion in the Fraser Avenue tributary. Any monitoring program developed will need to take into account external influences.

    *Note 2: If sampling undertaken in accordance with 49 (a) and 49 (b) provide evidence that shows that discharges from the site are or are likely to be causing a decrease in water clarity of more than 33% the **Manager** may require increased sampling requirements under condition 49 (c).*

50. The results of water quality sampling undertaken in accordance with conditions of this consent shall be kept as a permanent record and shall be submitted to the ***Manager annually.***

Water abstraction [34512]

Note 1: The below conditions relate to the abstraction of water as summarised below. Where the conditions refer to it, the consent should be read in conjunction with the specified sections, figures or tables in the ***DAMP****.*

Note 2: The stream flow data for the Porirua Stream can be accessed at Wellington Regional Councils website (www.gw.govt.nz). It is the consent holders responsibility to regularly check the website to ensure compliance with low flow conditions even if they receive electronic notifications.

Maximum rate and point of take

51. The rate at which water is taken from Ngauranga Stream at or about map references NZTM: 1751200.5433346 and NZTM 1750994.5433087 shall not exceed 48,720 m³/year, at 140m3/day at a maximum pumping rate of 5L/s (combined site wide abstraction).

This equates to approximately 8 hours/day, 348 days per year based on the maximum pumping rate for the site (5L/s).

Low flow abstraction rates

52. The consent holder shall ensure that the water abstraction never causes the Ngauranga Stream to fall below 90% of the 7-day mean annual low flow.

To achieve this, the consent holder must ensure that the abstraction rate is undertaken in accordance with the Table 2-2 of the ***DAMP***.

Water measuring devices

53. The consent holder shall install, maintain and operate water meters (water measuring devices) on the intake structures for WT North and WT South (as identified on figure 2-2 of the ***DAMP***) that measures all water authorised under this consent and meets the following requirements:

- Sealed and tamper proof
- Installed within 20 metres of the point of take unless an exception is granted by the ***Manager***, under section 10 of the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010
- Measures cumulative water abstraction in m^3
- Measures instantaneous water abstraction in litres/second
- Can measure the volume of water taken to within +/- 5% of the actual volume taken.
- Resistant to corrosion and fogging
- Capable of being fitted with an electronic datalogger, has a suitable output signal and has suitable data transfer ports
- Be installed in accordance with industry best practice based on the Water Measurement Accreditation Programme. Be installed and maintained by a suitably qualified person

The above requirements shall all be installed to the satisfaction of the ***Manager.***

Note: There is an existing water meter located at WT North. Water take structure located at WT south is proposed and so will require the installation of a water meter.

Accuracy and verification of the water measuring devices

54. The consent holder shall verify the accuracy of the water measuring device/system required under condition 53 by the **7th August 2018** and a minimum of every five years thereafter, and as directed by the ***Manager*** for the duration of this consent to determine if the actual volume of water taken is within +/- 5%.

Any verification of the water measuring device/system under this condition must be performed by a suitably qualified person, and to the satisfaction of the ***Manager.***

Within **one month** of any verification being undertaken on the water measuring device/system, the consent holder shall submit to the ***Manager*** a copy of the verification certificate/and or evidence documenting the calibration as completed by the person who undertook the verification.

*Note: Direction from the **Manager** to undertake additional verification may be given in the event reasonable grounds are established which highlight that the water measuring device/system may be inaccurate. Reasonable grounds includes (but is not limited to) the water measuring device/system not been installed to Irrigation New Zealand's best practice standards.*

55. If so requested in writing by the ***Manager*** the consent holder shall install a datalogger and telemetry unit on the water measuring devices that is compatible with Wellington Regional Council's Water Use Data Management System within a reasonable time frame specified by the Manager. The data logger and telemetry unit shall as a minimum record date and time stamped cumulative meter readings at a minimum of 15 minute intervals.

Note: This condition will be given effect to in the event of non-compliance of the rate of take, monitoring/reporting requirements of this consent, and/or any requirements of Greater Wellington Regional Council's Water Take Compliance Strategy.

Water abstraction report requirements

56. The consent holder shall record **weekly** readings (in m^3) of the water meters. These records shall be entered directly into the Wellington Regional Council's Water Use Data Management System or shall be submitted in a suitable electronic format to the satisfaction of the ***Manager***. Complete records shall be submitted on a ***quarterly*** basis for the duration of this consent.

If the Manager, Environmental Regulation, Wellington Regional Council directs the consent holder to install a telemetry system pursuant to condition 55, then records shall be submitted automatically to Wellington Regional Council's Water Use Data Management System.

In the event of non-compliance with the rate of take and/or monitoring/reporting requirements of this consent, the consent holder shall submit records at a greater frequency as directed by the ***Manager.***

Note: If you are not using your water permit, you must still keep and send Wellington Regional Council daily records specifying 'zero' when no water is taken.

Maintaining the correlation equation

*Note: Conditions 57, 58 and 59 pertain to the revision and maintenance of the correlation equation between the Porirua Stream and Ngauranga Steam. This is required to ensure that the abstraction and discharge rates contained in the **DAMP** which are based on flows in the Porirua Stream are based on the correct flow rate in the Porirua Stream as it is recognised that the relationship between the Porirua Stream and Ngauranga Steam may change over time.*

57. The consent holder shall undertake one spot gauging during each ***annual period*** for the duration of this consent during a low flow event in summer in the Ngauranga Stream catchment at the following location:

- At or about NZTM: 1751118.5433277

58. To maintain and revise the correlation equation between the Porirua and Ngauranga Stream catchments the consent holder must undertake a review of the correlation equation using information gathered in accordance with consent condition 57. A review of the correlation equation must be undertaken every three years for the life of this consent as follows;

- July 2020
- July 2023
- July 2026

- July 2029
- July 2032
- July 2035
- July 2038
- July 2041

Unless otherwise agreed with the ***Manager.***

59. The results of the review undertaken in accordance with consent condition 58 of this consent shall be supplied to the ***Manager*** within three months of the review being undertaken. Information provided shall include but not be limited to;

    a) A table outlining the results of monitoring undertaken in accordance with consent condition 57;

    b) The review of the correlation equation undertaken in accordance with consent condition 58; and

    c) An updated ***DAMP*** which reflects any revisions to the correlation equation.

    All information supplied and updates to the ***DAMP*** shall be to the satisfaction of the ***Manager.***

Intake structure [34515]

60. The consent holder shall provide a final Construction Methodology of the intake structure, which must include a final construction drawing that has been prepared by a suitably qualified person.

    The Final Construction Methodology shall be submitted to the ***Manager*** 10 working days prior to the works commencing to install the intake structure on the bank of the Ngauranga Stream at WT south (as shown on the ***DAMP***). No works shall commence until the consent holder has received written notification that the final Construction Methodology is to the satisfaction of the ***Manager.***

    Note: The final construction methodology can be emailed to notifications@gw.govt.nz. Please include the consent reference WGN170175 and the name and phone number of a contact person responsible for the proposed works.

61. The ***Manager*** shall be given a minimum of two working days (48 hours) notice prior to the works commencing.

    Note: Notifications ***must be*** *emailed to notifications@gw.govt.nz. Please include the consent reference WGN170175 and the name and phone number of a contact person responsible for the proposed works.*

62. Both intake structures must be screened with a mesh diameter of 3mm or smaller to prevent small fish, eggs and larvae from entering the intake.

63. The intake structures are the responsibility of the consent holder and shall be maintained to the satisfaction of the ***Manager.***

64. The pumps and associated equipment shall be well maintained at all times to prevent leakage or spill of oil or other chemicals into the Ngauranga Stream.

General conditions [34508], [34510], [34512], [34513], [34514] and [34515]

Review condition

65. Wellington Regional Council may review any or all conditions of this consent by giving notice of its intention to do so pursuant to section 128 of the Resource Management Act 1991, within one month of each anniversary of the commencement of this consent, for any of the following reasons:

    a) To review the adequacy of any plan and/or monitoring requirements, and if necessary, amend these requirements outlined in this consent.

b) To review the discharge standards and rates in light of water quality monitoring undertaken in accordance with conditions 43 and 49 of this consent (i.e. the discharge rates and concentrations are causing a decrease in water clarity of more than approximately 33%).

c) To deal with any adverse effects on the environment that may arise from the exercise of this consent; and which are appropriate to deal with at a later stage.

d) To require the implementation of best practicable options, in respect to new methodologies for the undertaking of the works to avoid, remedy or mitigate any adverse effect on the environment arising from the works.

e) To enable consistency with any relevant Regional Plans (including but not limited to) any new minimum flow and allocation requirements developed through the Whaitua for the Wellington/Hutt Valley) or any National Environmental Standards or Regulations.

f) To identify the cultural values of the Ngauranga Stream which have the potential to be impacted by the discharge of sediment to the stream and abstraction of water from the stream and to establish a program for monitoring effects to the identified values over time.

Conditions developed under 65 (f) should allow for cultural monitoring results to amend and update the Discharges and Abstraction Monitoring Plan (during its next 3 yearly review) and Quarry Management Plan (during its next 5 yearly review).

The review of conditions shall allow for the deletion or amendment of conditions of this consent (including but not limited to the stream remediation required under consent conditions 67 and 68); and the addition of such new conditions as are shown to be necessary to avoid, remedy or mitigate any significant adverse effects on the environment (including cultural values).

Note 1: For the purposes of this condition the "exercise of the consent" Is deemed to be once the works authorised by this consent have commenced.

Note 2: A review of consent conditions by the Wellington Regional Council to address reason (f) will only be considered if Port Nicholson Block Settlement Trust request in writing that the review take place.

Note 3: Tools used for identifying cultural values must be in accordance with the methods developed under Method 2 of the Proposed Natural Resource Plan.

Note 4: The ecological assessment provided with the application may help to inform the cultural assessment.

Site rehabilitation

Terrestrial rehabilitation

66. The consent holder shall undertake rehabilitation activities in accordance with Section 7 of the Quarry Management Plan dated 1 July 2014, or to the satisfaction of the ***Manager.***

Stream remediation

67. By the **1 July 2027** the consent holder shall submit for approval to the satisfaction of the ***Manager*** a Stream Rehabilitation Plan (SRP). The SRP shall be designed by a suitably qualified person such as a freshwater ecologist in consultation with Ngati Toa Rangatira and Port Nicholson Block Settlement Trust and may include (but not be limited to);

- Riparian planting plans;
- Enhancement for cultural values ;
- Rehabilitation of concrete lined/highly modified sections;
- Provision of fish habitat features (e.g. water, pools and cover); and
- Ensuring fish passage.
- Timeframes for the completion of rehabilitation activities.

The SRP must, at a minimum, provide for rehabilitation activities on an equivalent length of stream equal to that contained within the site (including the Ngauranga Stream and tributaries). Remediation may be undertaken within the site or downstream of the site.

Alternatively, the SRP may provide for activities to be undertaken on the Tyres Stream (tributary to the Ngauranga Stream) if it is recommended by a suitably qualified person such as an ecologist that the benefit (to the catchment) of undertaking the remediation on the Tyres Stream is of greater ecological value to than undertaking remediation on the Ngauranga Stream within the site.

No stream remediation shall take place until the consent holder has received written notice that the SRP is approved to the satisfaction of the ***Manager.***

68. The consent holder shall undertake progressive stream rehabilitation as the ***site*** is decommissioned and all works to achieve the final platforms are completed.

Stream rehabilitation must, at a minimum, be undertaken on an equivalent length of stream equal to that contained within the site (including the Ngauranga Stream and tributaries). Remediation may be undertaken within the site or downstream of the site.

Alternatively, rehabilitation activities may be undertaken on the Tyres Stream (tributary to the Ngauranga Stream) if it is recommended by a suitably qualified person such as an ecologist that the benefit (to the catchment) of undertaking the remediation on the Tyres Stream is of greater ecological value than undertaking remediation on the Ngauranga Stream within the site.

All stream remediation shall be undertaken in accordance with the approved Stream Rehabilitation Plan (condition 67) and to the satisfaction of the ***Manager.***

Note: Additional resource consents from your local council may be required to undertake this proposal. We advise you to contact the Wellington City Council prior to commencing works.

Kiwi Point Quarry: Discharge & Abstraction Management Plan

This report has been prepared for the benefit of Wellington City Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Checked By	Reviewed By
1	03/04/17	Draft plan	DC	LL	NH
2	27/04/17	Proposed plan	DC	LL	NH
3	20/07/17	Final	DC	LL	GT

1 Introduction

This Kiwi Point Quarry water take and discharge management plan details the following:

- Location of existing and proposed water takes from Ngauranga Stream;
- Water take limits and minimum stream flow;
- Location of existing and proposed stormwater and/or wash-water discharges to Ngauranga Stream;
- Locations of background water quality monitoring;
- Location of reasonable mixing zones;
- Maximum discharge rates during dry weather;

This management should be read in conjunction with consent WGN170175.

This plan must be updated at least once every 3 years as required by WGN170175. This plan was last updated on 20 July 2017.

2 Water Take from Ngauranga Stream

2.1 Locations

The locations of the existing and proposed water takes are set out in Table 2-1, Figure 2-1 and Figure 2-2.

Table 2-1: Location of water takes from Ngauranga Stream

Site	*Description*	*NZTM Reference*
WT-North	Northern water take (existing)	E1751200 N5433346
WT-South	Southern water take (proposed)	E1750994 N5433087

Figure 2-1: Location of the existing water take for the northern quarry face (WT-North)

Figure 2-2: Location of proposed water take for the southern expansion

2.2 Water take limits and minimum flow

Kiwi Point Quarry is authorised by resource consent WGN170175 to take water from Ngauranga Stream at either or both locations shown in Table 2-1 at a combined rate of up to 140 m^3/day, and up to 5 L/s (at both sites combined).

The consent stipulates that the water take shall not cause the flow in Ngauranga Stream to recede below 90% of the 7-day mean annual low flow (7-d MALF). In the absence of an established flow monitoring site in the Ngauranga Stream a derived relationship between flows in the Ngauranga and Porirua streams has been developed (PDP 2016, Appendix G of the application) and used to enable the monitored flow in the Porirua to act as a surrogate, such that:

- The Kiwi Point Quarry shall not take water from Ngauranga stream when the flow in the Porirua Stream at the GWRC Town Centre flow gauge is below 131 L/s, and
- The maximum water take shall not exceed 2.5 L/s (combined site take) when the flow in the Porirua Stream at the GWRC Town Centre flow gauge is below 150 L/s (Table 2-2).

The quarry operator shall make arrangements with GWRC to receive an electronic notification when the flow in Porirua Stream at Town Centre recedes below 180 L/s to provide advanced warning of an impending constraint on water abstraction.

Note: It is the quarry operator's responsibility to check the GWRC's website (gw.govt.nz) to ensure compliance with the low flow requirements.

Table 2-2: Maximum water take allocation at three flow bands in Porirua Stream

Flow in Porirua Stream @Town Centre (L/s)	*KPQ maximum water take (L/s)*
<131	no water take
>131 but <150	up to 2.5
>150	up to 5.0
<180	low flow notification

Note: When the pumps are first in operation from a dry start there may be a slight increase in the maximum pump rates as outlined above due to the operational need of the equipment but the rate must achieve an average of the listed take rates over the first two hours of the pumps operation.

3 Discharges to Ngauranga Stream

3.1 Locations of discharge points

The locations of stormwater/washwater and stream monitoring sites are set out in Table 3-1, and shown in Figures 3-1 and 3-2.

Table 3-1: Proposed water quality monitoring locations

Site	*Description*	*NZTM Reference*
SW1	Treated discharge at outflow from northern pond	E1751163 N5433351
SW2	Northern pit pumped discharge of excess stored stormwater	E1751136 N5433312
SW3	Treated discharge at outflow from southern sedimentation pond.	E1751217 N5433097
NS1	Ngauranga Stream upstream of stormwater discharge	E1751200 N5433346

Figure 3-1: Location stormwater monitoring sites SW1 & SW2 and Ngauranga Stream background NS1

Figure 3-2: Location of stormwater monitoring site SW3

3.2 Zones of reasonable mixing

The agreed zones of reasonable mixing are shown as yellow shading in Figures 3-3 and 3-4. They are approximately 90-100m long measured from the point of discharges SW1 and SW3.

The zones of reasonable mixing are combined for SW1 and SW2 as shown on Figure 3-3 below.

The zone of reasonable mixing for SW3 is shown on figure 3-4 below.

Figure 3-3: Zone of reasonable mixing shown in yellow for sites SW1 and SW2

Figure 3-4: Zone of reasonable mixing shown in yellow for site SW3

3.3 Maximum discharge rate during extended dry weather.

Kiwi Point Quarry is authorised by resource consent WGN170175 to discharge sediment laden stormwater and washwater to the Ngauranga stream during extended dry weather (defined as when the flow in the Ngauranga Stream is less than approximately 20L/s) at a rate of no more than 2.5 L/s (combined from all discharge points).

In the absence of an established flow monitoring site in the Ngauranga Stream a derived relationship between flows in the Ngauranga and Porirua streams has been developed (PDP 2016, Appendix G of the application) and used to enable the monitored flow in the Porirua Stream to act as a surrogate, such that:

- When the flow of the Porirua Stream recedes below 180 L/s the discharge to Ngauranga Stream must not exceed 2.5 L/s (combined from all discharge points).

The quarry operator shall make arrangements with GWRC to receive an electronic notification when the flow in Porirua Stream at Town Centre recedes below 180 L/s.

Note: It is the quarry operator's responsibility to check the GWRC's website (gw.govt.nz) to ensure compliance with the low flow requirements.

ATTACHMENT B: s127 Application to Change Consent Conditions

Kiwi Point Quarry - s127 Change of Consent Conditions

This report has been prepared for the benefit of Wellington City Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to Greater Wellington Regional Council and other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Checked By	Reviewed By	Approved By
1	17/10/18	Draft s127 report	AP	DC	RP	DC
2	18/10/18	Draft for client review	AP	DC	RP	DC
3	26/10/2018	Final	AP	DC	RP	DC

1 Introduction

Wellington City Council (WCC) is applying for a Change of Consent Conditions under s127 of the Resource Management Act 1991 (the Act) associated with the ongoing operation of the Kiwi Point Quarry, Ngauranga Gorge, State Highway 1.

It is proposed to amend several conditions, and add additional conditions to the existing resource consent, being Consent Nos WGN170175 [34508], [34510], [34512], [34513], [34514] and [34515] for the land use, discharge permit and water permit at Kiwi Point Quarry, Ngauranga Gorge, State Highway 1.

Since consent was approved by the Greater Wellington Regional Council (GWRC), two issues have arisen as related to the operation of Kiwi Point Quarry, which requires an application under s127 (change of consent conditions) to be applied for. This application is to ensure that the conditions of consent appropriately reflect the operational requirements which continue to be undertaken on the site.

2 Background

On the 7th August 2017, resource consent was granted by the GWRC to allow the undertaking of activities associated with quarrying and the operation of a cleanfill at Kiwi Point Quarry, Ngauranga Gorge, State Highway 1. The activities resource consent was granted for included:

- Soil disturbance and vegetation removal on erosion prone land;
- Discharging contaminants to air water and land as a result of cleanfilling;
- Taking water from the Ngauranga Stream; and
- Installing and operating an intake structure in the bed of the Ngauranga Stream.

The purpose for which resource consent was granted is identified in the following table:

Consent	Purpose
[34508]:	Land use consent to undertake soil disturbance and vegetation clearance on erosion prone land.
[34510]:	Water permit to divert and take water from the Ngauranga Stream for the purpose of dust suppression and aggregate washing.
[34512]:	Discharge permit to discharge to discharge treated sediment laden stormwater and washwater to the Ngauranga Stream.
[34513]:	Discharge permit for the discharge of contaminants (cleanfill) to land associated with the operation of a cleanfill.
[34514]:	Discharge permit to discharge contaminants (dust) to air in associated with the operation of a cleanfill.
[34515]:	Land use consent to construct and maintain an intake structure in the bed of the Ngauranga Stream.

3 Proposal

As stated above, it is proposed to amend several conditions to reflect the changing operations at Kiwi Point Quarry.

The two issues that have arisen as a result pf quarry operations include the following:

1. The rock resource in the area currently available for quarrying under the District Plan framework is reaching its limit due to site constraints. Expanding the quarry area in the Southern area of the resource would improve the economic viability and extend the life expectancy of the quarry by approximately 15 to 20 years. A Plan Change (Plan Change 83) has been lodged with the Wellington City Council which, if approved, would increase the potential quarry area by approximately 14 hectares in the southern resource. WCC is now applying to GWRC for a change of consent conditions to align its existing consents with the expanded quarry area and to reflect current quarry operations in the Northern Resource.

2. The existing consent provides for the discharge of stormwater from the Quarry to Ngauranga Stream. However, since the consent was granted it has become evident that inflows to the northern pit from minor surface water streams and shallow groundwater often exceed the rate at which water can be pumped out of the pit under current consent conditions. The pit appears to be capturing water that would previously have flowed into the Ngauranga Stream, and this effect has become more accentuated as the pit excavation has deepened over the last few years. During the 2018 winter, the water level in the pit increased to the point where it is constraining the ability to quarry, restricting access to the rock resource at depth. For this reason WCC is applying for a change of consent conditions to allow for dewatering of the pit (applied to both the Northern and proposed Southern resources) and back into the Ngauranga Stream, at a higher rate than is currently allowed for.

The conditions requested to be changed are discussed in more detail in the following sections. It is noted that the requested alterations are <u>underlined</u> and deletions are ~~struck through~~.

3.1 Condition 1

<u>General Conditions [34508], [34510], [34512], [34513], [34514] and [34515</u>

General Conditions

Condition 1

Condition 1 states:

> *The location, design, implementation and operation of the activity shall be in general accordance with the consent application and its associated plans and documents lodged with the Wellington Regional Council on 2 February 2017 and further information received on:*
>
> - *24 May 2017 (agreement to provide for the discharge quality standards in up to a 1 in 5 year 12 hour duration rain event);*
> - *16 June 2017 (maximum yearly allocation, visual monitoring for dust discharges to the Wellington Water Ltd (WWL) pump station, details to be provided in the Dust Management Plan, possible future use of flocculent).*
> - *23 June 2017 (draft Cleanfill Management Plan)*
> - *14 July 2017 (final Discharges and Abstraction Management Plan (DAMP)).*
>
> *Where there may be contradiction or inconsistences between the application and further information provided by the applicant, the most recent information applies.*
>
> *In addition, where there may be inconsistencies between information provided by the applicant and conditions of the consent, the conditions apply.*

As the extent of the proposed works will be extended to the south, and as the rate of discharge associated with pit dewatering will be increased, the proposal will no longer be in general accordance with the consent application. As such, Condition 1 should also include reference to the further information contained within this section 127 change of consent conditions application.

3.2 'Soil Disturbance' section

Soil Disturbance [34508, Discharges to Water [34512] and Discharges to Land [34513]

Annual work plans and reporting

Note 1 under the Soil Disturbance section, currently states:

Note 1: Soil disturbance and vegetation removal will be undertaken in Areas, C, D, G, E, F and H in Figure 2-1 of the consent application.

Due to the area of Area H increasing in size, Figure 2-1 is required to be updated to reflect the increased area of Area H. As such, a new figure titled 'Kiwi Point Quarry North and South Faces – October 2018' has been prepared and is attached in Appendix A of this report. Therefore Note 1 should read:

Note 1: Soil disturbance and vegetation removal will be undertaken in Areas, C, D, G, E, F and H in Figure ~~2.1~~ titled 'Kiwi Point Quarry North and South Faces – October 2018' of the consent application submitted to GWRC on 24 October 2018.

3.3 Condition 28

Discharges to Air [34514]

Condition 28, in particular Note 1 of condition 28, is required to be amended to reflect the amended Figure as a result of the extended area of Area H. Note 1 of Condition 28 currently reads:

28. Prior to undertaking dust generating activities….

Note 1: The areas are shown on table 2-1 of the application document.

Due to the area of Area H increasing in size, Figure 2-1 is required to be updated to reflect the increased area of Area H. As such, a new figure titled 'Kiwi Point Quarry North and South Faces – October 2018' has been prepared and is attached in Appendix A of this report. Therefore Note 1 of condition 28 should be amended to read:

Note 1: The areas are shown on ~~table 2-1~~ figure titled 'Kiwi Point Quarry North and South Faces – October 2018' of the application document, submitted to GWRC on 24 October 2018.

3.4 'Discharge Rate' section

A new note needs to be added before condition 32 to relate to dewatering. The note should read:

Note: Pit Dewatering can be undertaken in accordance with Conditions 39(a) and 39(b).

3.5 Conditions 32 and 33

As a result of new Conditions 39(a) and 39(b)) being added to the decision, conditions 32 and 33 need to be amended to ensure that pit dewatering is excluded from those limits. As such, Conditions 32 and 33 would be amended as follows:

3.5.1 Condition 32

Condition 32 currently reads:

32. *During **dry weather** the rate of discharge shall not exceed 5 L/s (combined from all the discharge points as shown in the DAMP).*

This condition is effective from 1 December 2017.

Condition 32 should be amended to exclude pit dewatering and to read as follows:

32. *During **dry weather** the rate of discharge shall not exceed 5 L/s (combined from all discharge points, except for pit dewatering, as indicated in the DAMP).*

3.5.2 Condition 33

Condition 33 currently reads:

> 33. *During periods of **extended dry weather** the rate of discharge shall not exceed 2.5 L/s (combined from all the discharge points as shown in the DAMP).*

Condition 33 should be amended to exclude pit dewatering and to read as follows:

> 33. *During periods of **extended dry weather** the rate of discharge shall not exceed 2.5 L/s (combined from all the discharge points, except for pit dewatering, as indicated in the DAMP).*

3.6 Condition 39

A new condition is proposed as condition 39(a) to provide pit dewatering discharge rates. A new heading above this condition should read 'Pit Dewatering'. The new condition should read:

> *39(a) During dry weather in the period 1 June and 30 November, the rate of pit water discharge shall not exceed 70 m3/ hour for a maximum of 90 days, and at all other times shall not exceed 30 m3/hour.*
>
> *Note 1: For the avoidance of doubt, this consent does no restrict the rate of water discharge in wet weather (when more than 5mm of rain has fallen in the preceding 12 hours).*

3.7 'Discharge Quality – Compliance Limits' section

An additional Note is required to be added at the start of the section titled 'discharge quality'. The additional note will clarify existing Condition 41, which relates to the suspended solids content of stormwater to be discharged to the Ngauranga Stream during wet weather. The Note would read:

> *Note 2: The requirements of Condition 41, also apply to pit dewatering.*

3.8 Condition 42

Discharge quality – compliance limits

As discussed in a meeting with Gwen Stewart (GWRC) on 24 September 2018, and in her subsequent email dated 26/09/2018, GWRC are comfortable with a maximum suspended solids content of 50 mg/L in pit water discharges. GWRC accept that level as it is in accordance with the permitted standard in the Regional Freshwater Plan and will be in accordance with the Proposed Natural Resources Plan. As a result, a new condition 42(b) is proposed which would state:

> *Pit dewatering discharge quality*
>
> *42(b) During dry weather the suspended solids content of pit water discharged to Ngauranga Stream from SW2 and SW3 shall not exceed 50 mg/L in more than 1 sample in any annual period.*

3.9 Condition 47

Monitoring frequency and sampling requirements

As a result of need to dewater the pit, a new consent condition is required to establish the monitoring frequency and sampling requirements for dewatering discharges. New conditions 47(a) and 47(b) are proposed as follows:

> *47(a) The consent holder shall collect a water sample from location SW2 and SW3 during the week prior to initiation of each dewatering event under condition 39(a) of the consent, and on at*

least one day each week while dewatering continues. All samples shall be tested for TSS (mg/L) and turbidity (NTU).

47(b) *In the event that any test result exceeds 50 mg/L, dewatering shall cease and shall not recommence until subsequent monitoring results have confirmed a TSS value of less than 50 mg/L.*

3.10 Discharge and Abstraction Management Plan

As a result of changing conditions of consent, the Kiwi Point Quarry: Discharge and Abstraction Management Plan (DAMP) has been amended where required, to reflect the changes made to the conditions. The updated DAMP is attached in Appendix C of this report.

4 Assessment of Environmental Effects

4.1 Expansion of the southern quarry area

The proposed Southern Resource expansion does not include the disturbance of any water courses, but the larger area of the quarry face will result in an increased volume of stormwater required to be treated prior to discharge to Ngauranga Stream[1]. In effect this would mean that a higher level of stormwater treatment might be required to achieve the discharge standards specified in conditions 40, 41, 42 and 43 of the consent. Because these standards will remain unchanged the risk of adverse effect on stream water quality will also remain unchanged.

The proposal to control all stormwater runoff from the quarry working area will result in the diversion of runoff from a 4-hectare area, which currently discharges into the Tyers Road tributary catchment, into the Ngauranga Stream catchment. The discharge into Ngauranga Stream would be via the pit storage area and/or sediment retention ponds. The affected land area (4 ha) amounts to approximately 2% of the Tyers Road tributary catchment and would potentially result in a slight decrease in Tyers Road tributary flows and a slight increase in Ngauranga Stream flows. In practice this diversion is unlikely to have any effect on the ecological functions of Tyers Road tributary because the affected stormwater runoff does not currently contribute to the flow regime of Tyers Road tributary, except in the lower 400 m reach of the stream which is contained within a culvert.

Overall, the proposed extension to the southern quarry face area is not expected to have any significant adverse effect on the water quality or aquatic ecology of Ngauranga Stream.

4.2 Pit dewatering

A detailed assessment of environmental effects associated with pit dewatering has been undertaken and is attached in Appendix B of this report.

The assessment of effects states:

"WCC is seeking to increase the rate at which pit water can be discharged to Ngauranga Stream in dry weather so that it can more effectively manage the water level within the pit. This assessment indicates that, provided the intake structure is *located in near-surface waters away from the banks, dewatering could occur subject to the following conditions.*

Pit dewatering discharge rate:

1. *During dry weather in the period 1 June and 30 November, the rate of pit water discharge shall not exceed 70 m3/ for a maximum of 90 days, and at all other times shall not exceed 30 m3/hour.*

Pit dewatering discharge quality

2. *During dry weather the suspended solids content of pit water discharged to Ngauranga Stream from SW2 and SW3 shall not exceed 50 mg/L in more than 1 sample in any annual period.*

[1] We now understand that the correct name for this watercourse is the Waitohi Stream, a tributary of the Ngauranga Stream, but to maintain consistency with terminology used in the consent and DAMP we have continues to call it Ngauranga Stream.

Monitoring

3. *The consent holder shall collect a water sample from location SW2 and SW3 during the week prior to initiation of each dewatering event under condition 39(a) of the consent, and on at least one day each week while dewatering continues. All samples shall be tested for TSS (mg/L) and turbidity (NTU).*

4. *In the event that any test result exceeds 50 mg/L, dewatering shall cease and shall not recommence until subsequent monitoring results have confirmed a TSS value of less than 50 mg/L.*

As the conditions above form part of the change of consent conditions application, it is considered that potential effects associated with the proposed change to the consent conditions listed in Section 3 of this report, will be no more than minor.

5 Statutory Considerations

5.1 Section 104 RMA

Before making a decision on a s127 change of consent conditions application, pursuant to Section 104B of the RMA, Council must consider the proposal in terms of Section 104 of the RMA. Section 104 of the RMA outlines the matters that the consent authority is required to have regard to when considering consent applications. The matters relevant to these applications are discussed in the following sections.

5.1.1 Section 104(1)(a) RMA: Actual and Potential Environmental Effects

The actual and potential adverse effects are assessed in Section 4.0 of this application. Provided improvements are made to the intake structure, dewatering could occur subject to a number of additional conditions. The proposed consent conditions contained in section 3.0 of this report will ensure that potential effects on the environment, resulting from the proposed changes to the conditions of consent, will be no more than minor.

5.1.2 Section 104(1)(b)(i) RMA: National Environmental Standard(s)

There are no national environmental standards that are relevant to this application.

5.1.3 Section 104(1)(b)(ii) RMA: Other Regulations

There are no other regulations relevant to this application.

5.1.4 Section 104(1)(b)(iii) RMA: National Policy Statement(s)

The National Policy Statement for Freshwater Management 2014 (NPSFM) sets out policies regarding the management of freshwater through a framework that considers and recognises Te Mana o te Wai as an integral part of freshwater management. Local authorities are required by the RMA to give effect to the NPSFM through their plans and policy statements. Resource consent decision makers must also have regard to relevant NPSFM.

The NPSFM objectives and policies of particular relevance to this application relate to water quality (Objectives A1, A2 and A4), freshwater takes and contaminants (Objective CC1) and tangata whenua roles and interests (Objective D1). These objectives generally seek to maintain the quality, and safe-guard the life-supporting capacity of freshwater ecosystems, as well as providing for the involvement of iwi and hapu to ensure that tangata whenua values and interests are identified and reflected in the management of freshwater.

The Assessment of Environmental Effects contained in Appendix B this report concludes that if improvements are made to the intake structure, dewatering could occur subject to a number of additional conditions. The proposed consent conditions will ensure that potential effects on the environment, resulting from the proposed changes to the conditions of consent, will be no more than minor on the freshwater resource.

It is also noted that due to the high quality of surface water, an increased discharge rate from the pit to Ngauranga Stream will not create any additional adverse effects on the stream. Indeed, there may be some environmental benefit resulting from an increased discharge rate from to the stream during periods of dry weather.

5.1.5 Section 104(1)(b)(v) RMA: Wellington Regional Policy Statement

The Wellington Regional Policy Statement (RPS) sets the regional priorities for the Wellington Region. The operative RPS has been given effect to in the provisions of the PNRP. In general, the proposed activities associated with the change in consent conditions application are considered to be consistent with the RPS.

5.1.6 Section 104(1)(b)(vi) RMA: Regional Freshwater Plan for the Wellington Region

The most relevant objectives and policies, including a commentary on how the activities fit in with these, are presented in Table 5-1.

Table 5-1: RFP Objectives and Policies

Objective/Policy	Wording	Commentary
General Objectives and Policies		
4.1.1	*The relationship of tangata whenua and their culture and traditions with fresh water, and with ancestral sites, waahi tapu and other taonga within the beds of rivers and lakes, is recognised and provided for.*	Consultation is being undertaken with iwi to ensure that the relationship of tangata whenua and their culture and traditions are acknowledged and provided for when undertaking works at Kiwi Point Quarry.
4.1.2	*The mauri of water bodies and river and lake beds is protected.*	
4.1.5	*The life-supporting capacity of water and aquatic ecosystems is safeguarded from the adverse effects of any subdivision, use and development.*	The change in consent conditions will not adversely affect the life-supporting capacity of water and aquatic ecosystems in the Ngauranga Stream.
4.2.11	*To avoid, remedy or mitigate the adverse effects of the use and development of water bodies and river and lake beds on aquatic habitats and freshwater ecosystems by having regard to:* *• the maintenance of biological and physical processes; and* *• the maintenance of habitat for feeding, breeding and sheltering aquatic life; and* *• the maintenance of the diversity of aquatic life; and* *• the maintenance of the ability of fish to disperse and migrate; and* *• the times which will least affect feeding, spawning, dispersal or migratory patterns of fish and other aquatic species; and* *• the prevention of irreversible adverse effects.*	The proposed change to consent conditions will ensure there will be no adverse effects on the Ngauranga Stream. As such any adverse effects on aquatic habitats and freshwater ecosystems will be avoided.
4.2.16	*To ensure there is no reduction in the quality of lawful public access along the beds of lakes and rivers unless exceptional circumstances arise that make restrictions necessary, including to:* *• protect any characteristic of any site or feature which gives a water body its special value or any conservation value; or* *• provide for public health and safety; or* *• provide for security on private property; or* *• protect the rights of property owners, including the protection of crops and stock.*	The is no lawful public access along the Ngauranga Stream through the Kiwi Point Quarry.
Water Quality and Discharges to Fresh Water		
5.1.2	*The quality of fresh water has the potential to meet the reasonably foreseeable needs of future generations.*	The quality of the Ngauranga Stream will be maintained.

In summary, and as demonstrated above, the proposal will be in accordance with the relevant objectives and policies of the RFP.

5.1.7 Section 104(1)(b)(vi) RMA: Proposed Natural Resources Plan

The most relevant objectives and policies, including a commentary on how the activities fit with these, are presented in Table 5-2.

Table 5-2: PNRP Objectives and Policies

Objective/Policy	Wording	Commentary
Objectives		
3.2 Beneficial use and development		
Objective O10	*Public access to and along the coastal marine area and rivers and lakes is maintained and enhanced.*	Not applicable as public access is not available through the Kiwi Point Quarry site.
Objective O12	*The social, economic, cultural and environmental benefits of regionally significant infrastructure and renewable energy generation activities are recognised.*	The benefit arising from the proposed change of consent conditions is to ensure that the conditions of consent appropriately reflect the operational requirements to continue to be undertaken on the Kiwi Point Quarry site.
3.3 Māori relationships		
Objective O14	*Māori relationships with air, land and water are recognised, maintained and improved.*	Consultation is being undertaken with iwi to ensure that the proposal will not result in any adverse effects on Maori relationships with water.
3.4 Natural character, form and function		
Objective O17	*The natural character of the coastal marine area, rivers, lakes and their margins and natural wetlands is preserved and protected from inappropriate use and development.*	The natural character of the Ngauranga Stream will be maintained. It is noted that the vast majority of the Stream is piped in this area.
3.5 Water quality		
Objective O23	*The quality of water in the region's rivers, lakes, natural wetlands, groundwater and the coastal marine area is maintained or improved.*	The proposed conditions of consent will ensure that the water quality of the Ngauranga Stream is maintained.

In summary, and as demonstrated above, the proposal will be in accordance with the relevant objectives and policies of the PNRP.

5.2 Part 2 Resource Management Act 1991

It is acknowledged in terms of decision making and in accordance with recent caselaw2, decision makers can no longer refer to matters under Part 2 of the RMA when considering resource consent applications. However, Schedule 4 clause 2(1)(f) requires that an application for a resource consent for an activity must include an assessment of the activity against the matters set out in Part 2 of the RMA.

Part 2 of the RMA sets out the purpose and principles of the RMA. The purpose is to promote the sustainable management of natural and physical resources. Part 2 also provides further direction on the matters of national importance (section 6), other matters (section 7) and the principles of the Treaty of Waitangi (section 8) which require consideration. The relevant matters under each section is discussed in detail in the following sections.

5.2.1 Section 6

The relevant matters under section 6 are as follows:

[2] R J Davidson Family Trust v Marlborough District Council [2017] NZHC 5

6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;

The proposed change of consent conditions will continue to ensure that the natural character of the Ngauranga Stream is maintained.

6(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers

The proposed change in consent conditions application will not change the existing situation on the site as public access along the Ngauranga Stream is not available through the Kiwi Point Quarry.

6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

Consultation is being undertaken with iwi to ensure that the relationship of tangata whenua and their culture and traditions are acknowledged and provided for when activities on the Kiwi Point Quarry are being undertaken.

5.2.2 Section 7

The relevant matters under section 7 are as follows:

7(a) kaitiakitanga;

Consultation is being undertaken with iwi to ensure the exercise of guardianship by tangata whenua of the area is maintained.

7(c) the maintenance and enhancement of amenity values

Through the implementation of sound construction methodology and mitigation measures and the temporary nature of the works, amenity values will be maintained.

7(f) maintenance and enhancement of the quality of the environment

The change in consent conditions will maintain the quality of the environment.

5.2.3 Section 8

The relevant matters under section 8 are as follows:

8 Treaty of Waitangi

Consultation is being undertaken with iwi to ensure that the principles of Te Tiriti on Waitangi are taken into account in relation to the proposed change of consent conditions.

5.2.4 Summary

In summary, based on any potential environmental effects being minor, it is considered that the proposal promotes sustainable management as set out in Part 2 of the RMA.

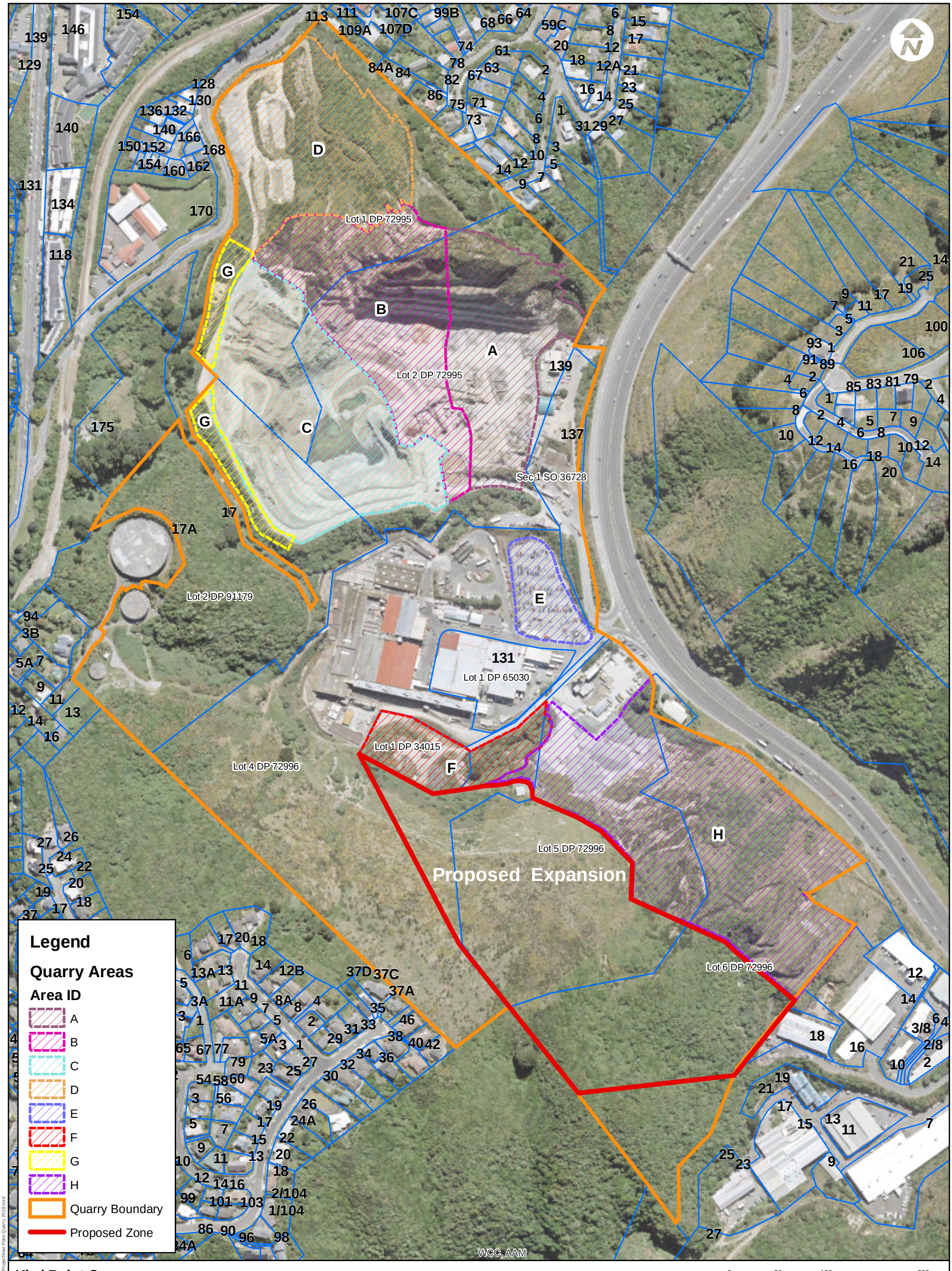
6 Conclusion

On behalf of the WCC it is proposed to change several consent conditions to to ensure that the conditions of consent reflect the operational requirements associated with the operation of the Kiwi Point Quarry.

The assessment of environmental effects concludes that, provided improvements are made to the intake structure, dewatering could occur subject to a number of additional conditions. The proposed consent conditions will ensure that potential effects on the environment, resulting from the proposed changes to the conditions of consent, will be no more than minor.

Accordingly, it is considered the Council can process and approve the Change of Consent Conditions under s127 the Act.

Appendix A: New Figure - *'Kiwi Point Quarry North and South Faces – October 2018'*



Kiwi Point Quarry

North and South Faces - October 2018

0 50 100 200
metres
scale 1:3,500

Property boundaries, 20m Contours, road names, rail line, address & title points sourced from Land Information NZ. Crown Copyright reserved. Property boundaries accuracy: +/-1m in urban areas, +/-30m in rural areas. Census data sourced from Statistics NZ. Postcodes sourced from NZ Post.
Assets, contours, water and drainage information shown is approximate and must not be used for detailed engineering design.
Other data has been compiled from a variety of sources and its accuracy may vary, but is generally +/- 1m.

MAP PRODUCED BY:
Wellington City Council
101 Wakefield Street
WELLINGTON, NZ

ORIGINAL MAP SIZE: A3
DATE: 17/10/2018
AUTHOR: catter2c
REFERENCE:

Absolutely Positively Wellington City Council
Me Heke Ki Pōneke

Filepath: K:\Roading_and_transport\Logen\Project\Kiwi Point Quarry 2018.mxd

Appendix B: Assessment of Environmental Effects

Kiwi Point Quarry: Assessment of effects of pit dewatering

This report has been prepared for the benefit of Wellington City council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Checked & reviewed By	Approved By
1	15/09/18	Draft report	D. Cameron	I. Rautenbach	P. Flint
2	26/09/18	Final	D. Cameron	I. Rautenbach	P. Flint

1 Introduction

Resource consent WGN170175[34512] held by Wellington City Council (WCC) limits the discharge of stormwater from the Kiwi Point Quarry site (the Quarry) to 5 L/s in dry weather (defined as <5mm of rain in 12 hours), reducing to 2.5 L/s in very dry weather (Ngauranga Stream flow < 20L/s). There is no limit on discharge rates in wet weather when more than 5mm of rain has fallen in the preceding 12 hours.

Since the consent was granted it has become evident that inflows to the northern pit from minor surface water streams and shallow groundwater often exceed the rate at which water can be pumped out of the pit under current consent conditions. The pit appears to be capturing water that would previously have flowed into the Ngauranga Stream, and this effect has become more accentuated as the pit excavation has progressed over the last few years. During the 2018 winter the water level in the pit increased to the point where it constrained quarrying activity, preventing access to some of the rock resource at depth. The management of the water level in the pit will also be an issue in the next few years when quarrying ceases and the process of backfilling begins.

The pit currently functions as a large sediment trap in which suspended sediment settles out of the water column under gravity, accumulating on the pit floor and leaving the upper levels of pit water relatively free of suspended material. Because of the high quality of surface water there is an opportunity increase the discharge rate from the pit to Ngauranga Stream without any adverse effects on the stream. Indeed, there may be some environmental benefit resulting from an increased discharge rate from to the stream during periods of dry weather.

For these reasons WCC is making an application to GWRC to include several new conditions in the resource consent which are specifically focused on the pit de-watering in dry weather. WCC is seeking the ability to discharge at up to 70 m^3/hour (19.4 L/s) during part of the winter period, and up to 30m^3/hour (8.3 L/s) at other times. The dry weather discharges are in addition to stormwater/pit water discharges from the site in wet weather which are already permitted.

Holcim have confirmed from dye tracing that the pipeline running from the pit to Ngauranga Stream (SW2) has it's outlet to Ngauranga Stream within a concrete culvert and that there is no risk of the discharge causing erosion in the bed of Ngauranga Stream.

2 Water Quality Monitoring

2.1 Sampling programme

Holcim has collected 29 paired water samples from Ngauranga Stream at KPQ-NS and the northern pit discharge at KPQ-SW2 between 20 October 2017 and 19 September 2018. All samples were analysed for total suspended solids (TSS) and turbidity. The locations of these monitoring sites are detailed in Table 2-1 and the SW2 sampling arrangement is shown in Figure 2-1.

Table 2-1: Water quality monitoring locations

Site	*Description*	*NZTM Reference*
NS	Ngauranga Stream upstream of stormwater discharge	E1751200 N5433346
SW2	Northern pit pumped discharge of excess stored stormwater	E1751136 N5433312

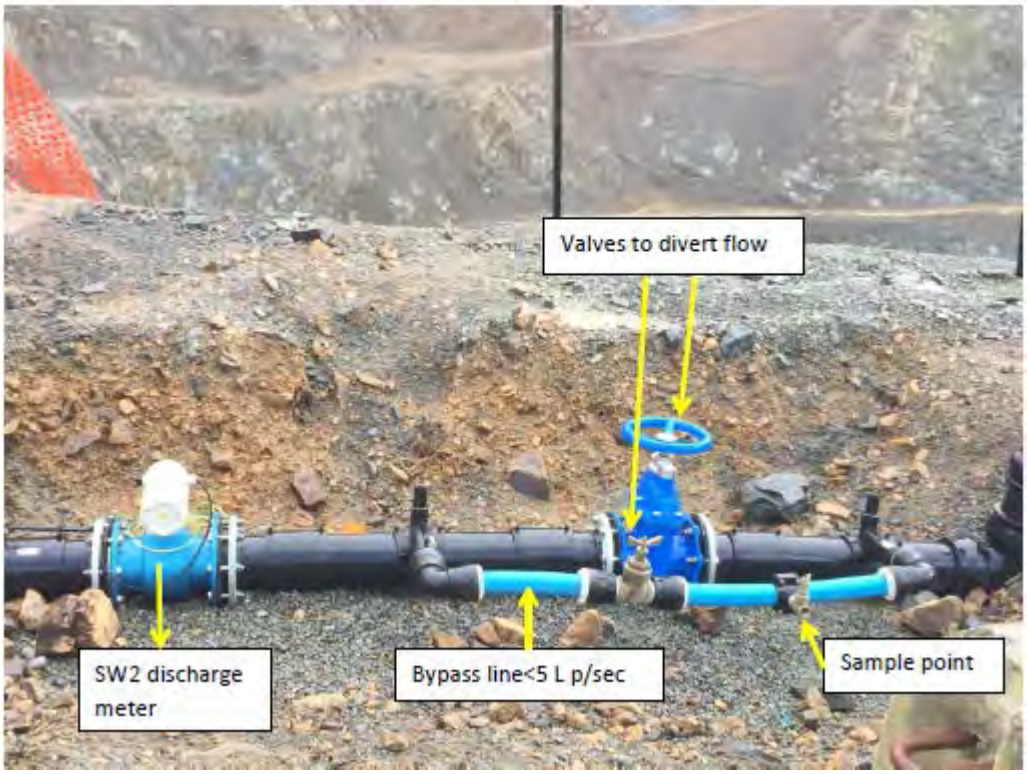


Figure 2-1: View of SW2 sampling location and flow meter

2.2 Water quality monitoring results

TSS and turbidity summary statistics are included in Tables 2-2 and 2-3, and the data distribution is shown as box plots in Figure 2-1. The full data set is included as Appendix A.

Ngauranga Stream consistently had lower TSS content than the pit water discharge, with median and 95-percentile values in the stream of 5 and 21 mg/L, compared with 11 and 50 mg/L in the discharge. While on most sampling occasions the difference was small, there were several instances when pit water TSS increased sharply to above than that of stream water, and one occasion when it exceeded the wet weather discharge limit of 120 mg/L. Occasional high values appear to have been caused by rock material slipping down into the pit, either because of heavy rain or vehicle operations on the sides of the pit, and exacerbated by the location of the intake pipe close to the bank. Our observation is that securing the intake pipe away from the side of the pit and close to the water surface would reduce this risk and achieve a more consistently low TSS content in water pumped out of the pit.

Table 2-2: Total suspended solids (mg/L) from 29 paired samples collected in both wet and dry conditions between October 2017 and September 2018

Site	Minimum	Median	75-percentile	95-percentile	Maximum
NS	1.0	5.0	10.0	21.0	21.0
SW2	1.3	10.7	17.3	50.1	166

Table 2-3: Turbidity (NTU) from 29 paired samples collected in both wet and dry conditions between October 2017 and September 2018

Site	Minimum	Median	75-percentile	95-percentile	Maximum
NS	1.6	7.8	13.7	23.1	45.0
SW2	0.6	10.0	22.3	72.4	118

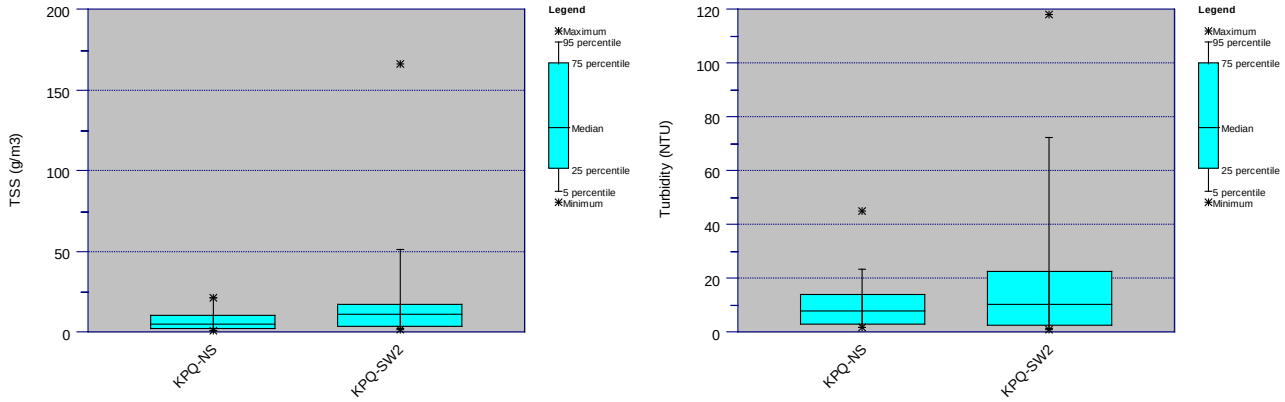


Figure 2-2: Box plots of TSS and turbidity results for sites KPQ-NS and KPQ-SW2 (from 29 paired samples collected in both wet and dry conditions)

2.3 Ngauranga Stream flow estimates

Ngauranga Stream flow estimates included in the AEE report (Stantec 2017) are summarised below in Table 2-4. The mean flow of 92 L/s is indicative of winter base flow conditions, while flows below 20 L/s occur during sustained periods of dry weather in summer.

Table 2-4: Flow estimates for Ngauranga Stream

	Catchment area (ha)	Estimated 2-year ARI (L/s)	Estimated mean flow (L/s)	Estimated 7-day MALF (L/s)
At stream outlet	923	26,049	140	23
At Kiwi Point Quarry	606	17,031	92	14

3 Assessment of effects of pit dewatering

3.1 Predicted TCC and water clarity changes

The following assessment is based the mass balance approach used in the 2017 AEE, adjusted for proposed pit water discharge rates and a proposed TSS content of 50 mg/L (the latter being the permitted activity discharge limit under the prosed Natural Resources Plan (pNRP).

Scenario 1 shown in Table 3-1 reflects winter conditions when the stream flow is close to the long-term average of 92 L/s and inflows to the pit are relatively high, resulting in the need to discharge pit water at the maximum pumping capacity of 19.4 L/s. At such times the pit water discharge is predicted to reduce the water clarity of Ngauranga Stream by approximately 4%, and up to 31% in the worst case. A discharge under these conditions is predicted to comply with condition 43 of the existing consent which specify a water clarity decrease of no more the 33%.

Table 3-1: Scenario 1: pit water TSS = 11 – 50 mg/L; stream flow = 92 L/s; pit water discharge = 19.4 L/s

Predicted Minimum Dilution	metric	Predicted suspended solids and visual clarity			
		Pit water discharge (median; max)	Ngauranga upstream (median)	Ngauranga downstream	% increase after full mixing
5.74-fold	TSS (mg/L)	11; 50	5.0	6.0 to 12.0	21 to 139%
5.74-fold	Clarity (m)	0.8; 0.28	1.0	0.958 to 0.711	-4.2 to -31%

Scenario 2 (Table 3-2) reflects dry summer conditions when the stream flow has receded to 20L/s and inflows to the pit are minimal. At such times there may not be any need to discharge pit water to the stream to manage water level but, if required, it would typically reduce water clarity by approximately 7%, and up to 43% in the worst case.

Scenario 2 is predicted to cause less that a 33% reduction in water clarity most of the time, except in the worst case.

Table 3-2: Scenario 1: pit water TSS = 11 – 50 mg/L; stream flow = 20 L/s; pit water discharge = 8.4 L/s

Predicted Minimum Dilution	metric	Predicted suspended solids and visual clarity			
		Pit water discharge (median; max)	Ngauranga upstream (median)	Ngauranga downstream	% increase after full mixing
3.38-fold	TSS (mg/L)	11; 50	5.0	6.77 to 18.31	35 -to 266%
3.38-fold	Clarity (m)	0.8; 0.28	1.0	0.931 to 0.568	-6.9 to -43%

The overall assessment is that pit water containing up to 50 mg TSS per litre could discharge at a rate of up to 19.4 L/s during periods of dry weather in winter and up to 8.4 L/s in the dryer summer months without causing an unacceptable decrease in water clarity.

.

3.2 Mitigation

The risk of occasional TSS spikes in the pit water discharge could be avoided or mitigated by improvements to the intake structure, which might include locating a floating intake system near the centre of the pit, away from the pit walls, and close to the water surface.

4 Conclusion

WCC is seeking to increase the rate at which pit water can be discharged to Ngauranga Stream in dry weather so that it can more effectively manage the water level within the pit. This assessment indicates that, provided improvements are made to the intake structure to ensure its location in near-surface waters, dewatering could occur subject to the following conditions.

Pit dewatering discharge rate:

1. *During dry weather in the period 1 June and 30 November, the rate of pit water discharge shall not exceed 70 m3/ hour for a maximum of 90 days, and at all other times shall not exceed 30 m3/hour.*

Pit dewatering discharge quality

2. During dry weather the suspended solids content of pit water discharged to Ngauranga Stream from SW2 and SW3 shall not exceed 50 mg/L in more than 1 sample in any calendar year.

Monitoring

3. The consent holder shall collect a water sample from location SW2 and SW3 during the week prior to initiation of each dewatering event under condition 39(a) of the consent, and on at least one day each week while dewatering continues. All samples shall be tested for TSS consent and turbidity.
4. In the event that any test result exceeds 50 mg/L, dewatering shall cease and shall not recommence until subsequent monitoring results have confirmed a TSS value of less than 50 mg/L.

Appendix A: Holicm/WCC monitoring results

Date	Rain (mm) In preceding 24-hours	TSS (mg/L)		Turbidity (NTU)	
		KPQ-NS	KPQ-SW2	KPQ-NS	KPQ-SW2
20-Oct-17	0	1	2.3	45.0	8.2
29-Nov-17	0	1	2	1.6	2.1
26-Mar-18	0	2.0	16.0	8.0	39.0
28-Mar-18	2.6	1.0	10.7	5.7	35.0
6-Apr-18	0	3.7	11.3	6.9	26.0
11-Apr-18	28.3	5.0	7.7	8.5	21.0
12-Apr-18	17.6	10.0	12.7	22.0	33.0
17-Apr-18	21	17.3	7.0	17.0	13.0
8-May-18	0	1.0	1.3	5.3	5.8
14-May-18	20.4	3.0	5.0	14.0	17.0
2-Jul-18	33.6	5.3	14.7	19.0	10.0
24-Jul-18	5.2	2.0	44.7	11.0	70.0
3-Aug-18	2.9	5.0	6.0	3.5	3.0
6-Aug-18	6.6	5.0	5.0	8.1	1.1
20-Aug-18	0	11.0	37.0	18.1	48.6
21-Aug-18	23.6	6	13	8.64	19.9
22-Aug-18	20.4	14	4	13.6	6.06
29-Aug-18	0	21	13	12.8	7.12
3-Sep-18	6.8	11	24	16	11.7
4-Sep-18	47.6	3	14	7.78	17.8
7-Sep-18	1.6	21	21	2.53	2.53
10-Sep-18	0	3	36	2.78	13.5
11-Sep-18	0	10	6	2.5	1.53
12-Sep-18	0	4	**166**	3.07	118
13-Sep-18	0	3	27	2.03	6.65
14-Sep-18	0	3	3	1.78	0.64
17-Sep-18	0	5	2	7.56	1.75
18-Sep-18	10.6	2	2	2.22	1.64
19-Sep-18	0.2	7	3	1.65	2.01

Appendix C: Updated Kiwi Point Quarry Discharge and Abstraction Management Plan

Kiwi Point Quarry: Discharge & Abstraction Management Plan

This report has been prepared for the benefit of Wellington City Council. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Checked By	Reviewed By
1	03/04/17	Draft plan	DC	LL	NH
2	27/04/17	Proposed plan	DC	LL	NH
3	20/07/17	Final	DC	LL	GT
4	16/10/18	Amendments			

1 Introduction

This Kiwi Point Quarry water take and discharge management plan details the following:

- Location of existing and proposed water takes from Ngauranga Stream;
- Water take limits and minimum stream flow;
- Location of existing and proposed stormwater and/or wash-water discharges to Ngauranga Stream;
- Locations of background water quality monitoring;
- Location of reasonable mixing zones;
- Maximum discharge rates during dry weather;

This management should be read in conjunction with consent WGN170175.

This plan must be updated at least once every 3 years as required by WGN170175. This plan was last updated on ~~20 July 2017~~16 October 2018.

2 Water Take from Ngauranga Stream

2.1 Locations

The locations of the existing and proposed water takes are set out in Table 2-1, Figure 2-1 and Figure 2-2.

Table 2-1: Location of water takes from Ngauranga Stream

Site	*Description*	*NZTM Reference*
WT-North	Northern water take (existing)	E1751200 N5433346
WT-South	Southern water take (proposed)	E1750994 N5433087

Figure 2-1: Location of the existing water take for the northern quarry face (WT-North)

Figure 2-2: Location of proposed water take for the southern expansion

2.2 Water take limits and minimum flow

Kiwi Point Quarry is authorised by resource consent WGN170175 to take water from Ngauranga Stream at either or both locations shown in Table 2-1 at a combined rate of up to 140 m^3/day, and up to 5 L/s (at both sites combined).

The consent stipulates that the water take shall not cause the flow in Ngauranga Stream to recede below 90% of the 7-day mean annual low flow (7-d MALF). In the absence of an established flow monitoring site in the Ngauranga Stream a derived relationship between flows in the Ngauranga and Porirua streams has been developed (PDP 2016, Appendix G of the application) and used to enable the monitored flow in the Porirua to act as a surrogate, such that:

- The Kiwi Point Quarry shall not take water from Ngauranga stream when the flow in the Porirua Stream at the GWRC Town Centre flow gauge is below 131 L/s, and
- The maximum water take shall not exceed 2.5 L/s (combined site take) when the flow in the Porirua Stream at the GWRC Town Centre flow gauge is below 150 L/s (Table 2-2).

The quarry operator shall make arrangements with GWRC to receive an electronic notification when the flow in Porirua Stream at Town Centre recedes below 180 L/s to provide advanced warning of an impending constraint on water abstraction.

Note: It is the quarry operator's responsibility to check the GWRC's website (gw.govt.nz) to ensure compliance with the low flow requirements.

Table 2-2: Maximum water take allocation at three flow bands in Porirua Stream

Flow in Porirua Stream @Town Centre (L/s)	*KPQ maximum water take (L/s)*
<131	no water take
>131 but <150	up to 2.5
>150	up to 5.0
<180	low flow notification

Note: When the pumps are first in operation from a dry start there may be a slight increase in the maximum pump rates as outlined above due to the operational need of the equipment but the rate must achieve an average of the listed take rates over the first two hours of the pumps operation.

3 Discharges to Ngauranga Stream

3.1 Locations of discharge points

The locations of stormwater/washwater and stream monitoring sites are set out in Table 3-1, and shown in Figures 3-1 and 3-2.

Table 3-1: Proposed water quality monitoring locations

Site	*Description*	*NZTM Reference*
SW1	Treated discharge at outflow from northern pond	E1751163 N5433351
SW2	Northern pit pumped discharge of excess stored stormwater	E1751136 N5433312
SW3	Treated discharge at outflow from southern sedimentation pond.	E1751217 N5433097
NS1	Ngauranga Stream upstream of stormwater discharge	E1751200 N5433346

Figure 3-1: Location stormwater monitoring sites SW1 & SW2 and Ngauranga Stream background NS1

Figure 3-2: Location of stormwater monitoring site SW3

3.2 Zones of reasonable mixing

The agreed zones of reasonable mixing are shown as yellow shading in Figures 3-3 and 3-4. They are approximately 90-100m long measured from the point of discharges SW1 and SW3.

The zones of reasonable mixing for SW1 and SW2 as shown on Figure 3-3 below.

The zone of reasonable mixing for SW3 is shown on figure 3-4 below.

Figure 3-3: Zone of reasonable mixing shown in yellow for sites SW1 and SW2

Figure 3-4: Zone of reasonable mixing shown in yellow for site SW3

3.3 Maximum stormwater/washwater discharge rate during extended dry weather.

Kiwi Point Quarry is authorised by resource consent WGN170175 to discharge sediment laden stormwater and washwater to the Ngauranga stream during extended dry weather (defined as when the flow in the Ngauranga Stream is less than approximately 20L/s) at a rate of no more than 2.5 L/s (combined from all discharge points, except for pit dewatering discharges at SW2 and SW3).

In the absence of an established flow monitoring site in the Ngauranga Stream a derived relationship between flows in the Ngauranga and Porirua streams has been developed (PDP 2016, Appendix G of the application) and used to enable the monitored flow in the Porirua Stream to act as a surrogate, such that:

- When the flow of the Porirua Stream recedes below 180 L/s the discharge to Ngauranga Stream must not exceed 2.5 L/s (combined from all discharge points).

The quarry operator shall make arrangements with GWRC to receive an electronic notification when the flow in Porirua Stream at Town Centre recedes below 180 L/s.

Note: It is the quarry operator's responsibility to check the GWRC's website (gw.govt.nz) to ensure compliance with the low flow requirements.