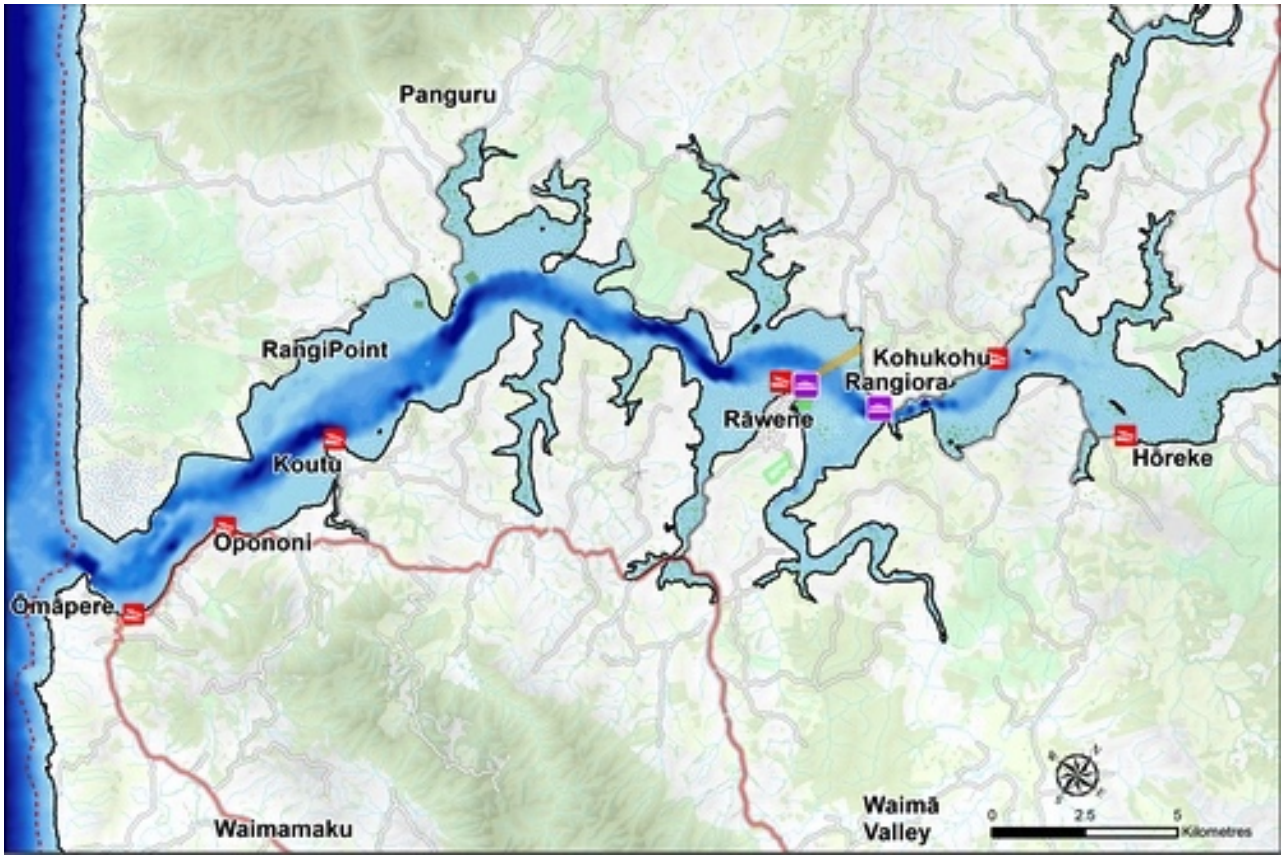
HISTORY
OF
SEWAGE SYSTEMS
IN HOKIANGA



Janine McVeagh

Rawene, February 2019

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Executive Summary

This report covers the story of the four wastewater systems whose treated effluent has flowed into the Hokianga Harbour from 1970 (Kaikohe), the early 1980s (Opononi-Omapere and Rawene) and 1991 (Kohukohu).

The four schemes were initiated by the Kaikohe Borough Council and the Hokianga County Council before the two Councils were merged into the Far North District Council in 1989, and before the Resource Management Act was enacted in 1991. Consents have been renewed for all of them since then.

From the beginning, local people, Maori and Pakeha, have opposed, submitted, spoken at hearings, researched and even taken the FNDC to the Environment Court about these schemes.

Minor changes have been made to the systems, but little else has changed, including attitudes towards Sections 6, 7 and 8 of the RMA.

All four systems continue to emit streams of semi-treated effluent into the Harbour. Each system has a different set of standards of compliance, eg median of 3,000 and 90 percentile of 5,500 fc/100ml at Opononi-Omapere, 1,500 at Rawene, 5,000 at Kohukohu and 260 at Kaikohe. On at least two occasions (Rawene and Kohukohu) these have been reset to enable the system to comply most of the time.

However, such tests as have been done for individual plants show varying levels of compliance, with high spikes of pollution. In a recent overall study of effects on shellfish gathering across the Far North District, all these four systems are rated as Fails.

No systematic hydrological study of the Harbour has been carried out, although it has been asked for consistently over the decades since the first hearing.

Consequently, there is little knowledge of where this effluent actually goes and no-one has properly considered the cumulative effect of it in the Harbour.

Times have changed, technology has developed, in most parts of the country there is acceptance that Maori cultural values are important to the health of our environment.

It is time that our local bodies accept that we cannot continue to flout the cultural and environmental standards we need to set for the health of the community and the environment on which we depend. Because of the cost of this to a small number of ratepayers, at this point, it looks as though central government may need to be asked to step in and enable us to save this national taonga, our Hokianga Harbour.

Wastewater Treatment in Hokianga

Introduction

The Hokianga Harbour is a long, tidal, drowned rift valley, fed by eleven rivers. There are half a dozen small settlements along the Harbour's banks, as well as individual houses and farms. Most of the rivers have settlements and farms along their banks as well. It is one of the largest harbours in New Zealand in terms of volume of water and of geographical spread.

However, the Hokianga is much more than a body of water: it is a place of great significance both historically and culturally. It was the site of the first human contact in Aotearoa and remains a predominantly Maori community.

Hokianga Harbour is a national taonga. As much as we who live here belong to it, the Harbour belongs to the whole country. What happens to Hokianga happens to Aotearoa.

Historical and cultural significance

History and culture are entwined in this place. Every rock, cove, island, promontory has a story to tell of those who came before, from Kupe to the most recent arrivals. The full name of the Harbour is Hokianga-Nui-a-Kupe: the place where Kupe came and to where he returned bringing his people. History and culture are condensed in that name.

Another name is Te Puna o te Ao Marama: The spring of the world of Light.

As Hokianga is the birthplace of Ngapuhi, the Harbour is not merely a place, but an ancestor.

In its earliest days, the Harbour teemed with fish and shellfish, there were sandy beaches as well as mangrove areas. Whales regularly entered the Harbour.

This Harbour has been changed enormously by the actions of those who came over the centuries since Kupe: from the destruction of the great kauri forests, to the reclamations and development of farms and settlements along its banks. There has been almost no industrial development, but in recent years, the visitor industry has become increasingly significant, in terms of both its economic and environmental impact.

Economically, visitors contribute a great deal to local livelihoods and have become an important part of the local economy. Environmentally, however, the sudden influx of people over the summer puts a great strain on infrastructure, especially water and sewage. Opononi and Omapere in particular suffer from water shortages.

Geophysical

Relevant characteristics of the physical structure of the Harbour are the bar, the tides, the relatively narrow distances between banks in some places. No full hydrological study has yet been done to discover exactly how the water moves around inside the Harbour and where effluent might travel.

Environmental issues for the Harbour

There are two major constant sources of pollution in the Harbour.

Siltation from reclamation has been a problem and runoff from farms can contain animal faeces, sprays, manures as well as silt. The silt itself settles on the harbour floor and smothers sea-life there. It slowly clogs up part of the Harbour making navigation more difficult. The contaminants can affect

humans through swimming and the eating of shellfish. Phosphates and nitrates contribute to eutrophication of the marine ecosystem.

Pollution from human effluent includes e. coli (faecal coliforms), viruses, phosphates, nitrates, hormones, heavy metals and other contaminants from sewage treatment systems and leaking septic tanks. These affect human health through pathogens and contribute to adverse effects on the marine ecosystem as well, such as toxic algal bloom and eutrophication.

Sometimes algal blooms are caused by 'overfeeding'. This happens when nutrients (mainly phosphorus, nitrogen and carbon) build up at a rate that 'overfeeds' the environment's algae. Nutrient pollution from human activities can lead to blooms occurring more often.

Algal blooms can kill fish and other marine animal. They do this in three ways:

- They produce toxins which kill animals.
- The bloom uses up all oxygen in the water, creating a dead zone.
- The bloom damages or clogs the gills, killing the fish.

Eutrophication can happen when too much phosphate enters the water. It causes, among other things, algal bloom and can reduce the amount of oxygen available to marine life. One of the measures of pollution is the amount of phosphates, nitrates and carbon.

The number of faecal coliforms (e coli) present in water is the common quick measure of pollution from sewage systems, but it is not an accurate one for several reasons: not all faecal coliforms will be from humans; birds and animals contribute these as well. Also, while the number of e coli indicates the possible or probable presence of pathogens, it doesn’t show what kind of pathogens are present, nor does it show viral or bacterial contamination or the extent of these.

One ecological study has been done of the Harbour, Davidson and Kerr (2001), which comments that “Surface sediments from most of the estuary were relatively aerobic” and did not identify any large-scale point source of nutrients. It goes on to recommend: “Estuaries and harbours tend to accumulate contaminants (Knox 1986). It is therefore recommended that any potential sources of contamination to the estuary be managed to minimise or terminate contamination”.

The Sewage Schemes

Opononi-Omapere

In the early 1980s it became apparent that leakage from septic tank systems as townships grew along the south-western shore was affecting water quality. The then Hokianga County Council decided to invest in a municipal sewage scheme, partly to control the existing pollution and partly to enable a large sub-division around Fairlie Crescent. There was at the time a government subsidy available for municipal sewage treatment schemes.

The consent for the proposed Opononi-Omapere scheme was applied for in 1982 under the Soil and Water Act, 1967. Over the following year, environmental groups and hapu met to discuss alternatives to the proposed scheme. The objection was not to reticulation per se, but to the proposal to send relatively untreated sewage out into the Harbour through a long pipe.

Alongside the cultural perspectives, expert technical opinions were expected to persuade councillors to consider alternative possibilities. One family offered the use of their forested land to treat the effluent for a peppercorn lease.

Evidence was given that such systems existed in other places and that partially-treated sewage would have long-term and unforeseen effects on marine life as well as human health.

In the end, the HCC went for the pond and pipe system, largely because, under the existing law (prior to the RMA and the Environment Court), they could.

Verbal assurances were given, by people who were unlikely to be a in a position to be held to them, that alternatives would be researched over the 15-year span of the consent. Alterations to the design were that an extra pond was added to the design, the pipe was made longer and there was a tidal clock added to ensure that the effluent was released on the outgoing tide, in the hopes it would be flushed away out of the Harbour.

The pipe was to go out to 400 metres into the channel, be not less than 11 metres deep and have three ports on the final 12 metres for better diffusion.

Consent was given to the Hokianga County Council by the Northland Catchment Commission and Regional Water Board on 8th June, 1983. That right expired on 31st August, 1997 and replacement consents were issued to the Far North District Council on 27th April, 1998.

Meanwhile, in about 1996, some 40m or 50m of the pipe broke off and disappeared. That was not replaced, but the wastewater was to set to discharge through a section of flexible reinforced rubber piping attached to a buoy and a pile to prevent it being buried by the shifting sands. The point of discharge was now some 6.5m below mean sea level.

The discharge pipeline has never been consented under the Resource Management Act 1991 and the pipe has not been scheduled in the Coastal Plan for Northland as a permitted structure.

This consent again came up for renewal on 31st August, 2007.

The existing consent allowed for 434 cubic metres a day of treated wastewater to be discharged into the Harbour, limited to between 1 and 4 hours after high tide.

This new application was for 685 cubic metres a day as well as discretion to discharge contaminants to air (odour), wastewater to ground by way of seepage and the occupation of space use of the existing pipeline in the Marine 2 (Conservation) Management Area under the Coastal Plan. There

were a number of submissions against the consent, mostly from local hapu and iwi and the Director-General of Conservation.

The hearing took place in November, 2008, and the consent was granted in January, 2009, despite contravening a number of sections (6,7,8,15) in the RMA. However, the trustees of Waiwhatawhata Marae and Te Runanga o te Rarawa appealed the decision, with Haami Piripi, the chairperson, putting it this way: “the dissemination of human excrement into food gathering sites and recreational activities goes to the heart of cultural dissonance”. However, the runanga was prepared to allow the plant to continue for another 10 years “on certain conditions”.

The result was that the appeal was allowed though the conditions were modified. One of those conditions was that the FNDC should undertake an investigation into alternative land areas for the discharge of treated wastewater to land.

This consent also designated a Community Liaison Group, which included representatives from the marae who had appealed, Te Rarawa and “a duly appointed representative from each of the Omapere and Opononi communities”. The FNDC was to hold a meeting with this group at least once a year “to discuss matters related to these consents”. Also, until the investigation into alternative land disposal areas was complete, they would meet quarterly to discuss progress. The FNDC was to organise these meetings and invite the CLG.

The next consent expires on 31st August, 2019.

It is not clear whether all the reports required about the plant from the CLG were in fact filed, or whether the monitoring was done as per schedule or not. The CLG meetings were not public. All the marae cited were represented by two people: John Klaricich and Alan Hessell.

Recent monitoring reports show that the plant is non-compliant, with e coli levels in particular hugely exceeding the consented limits. One abatement notice was issued to the FNDC on 20th April, 2016. The modified pipeline was checked in 2009, 2012, 2013, 2015 and 2018.

In 2011 VK Consulting prepared a desktop report on the possibility of land-based treatment which concluded that the existing system was the only viable or affordable option.

The current situation is that the FNDC wishes to apply for a continuation of the consent.

Rawene

Rawene, which was the seat of government in Hokianga at the time these consents were originally proposed, is a small, fairly densely-populated town on a hilly peninsula. The Waima River bounds the town on the east and the Omanaia to the west. There is no available land close to the town for a sewage treatment system of any kind, but, given the effect of leaky septic tanks on the water surrounding the town, a system was necessary. The hospital, which sits on top of the hill just before you get to the town, operated its own sewage pond about 500 metres further down the hill.

As with Opononi-Omapere, there was government subsidy available for the capital costs of the scheme.

In December 1982 the HCC applied for a consent to reticulate the households of the township of Rawene and to pump the wastewater over the hill to a similar pond scheme as Opononi-Omapere down among the mangroves. Again, there were objections from the South Hokianga Maori Executive Committee, Tai Tokerau District Maori Council, South Hokianga Values Party, R A and J R Graham, C

C and K M Joiner, Mrs J C Royal, the Department of Maori Affairs, the Commissioner for the Environment and the Ministry of Agriculture and Fisheries.

Three months later the HCC allowed the system to go ahead. Another pond and a cultivated wetland were added as a result of the objections and a bund was built around the system to keep the tide from overwhelming it. This system actually sits below the waterline. The outlet goes into a freshwater stream on the Pink farm where it meanders through the paddocks emerging into the mangroves bordering the Omanaia River. In times of heavy rain, these paddocks and the ponds are flooded and become a lake. June, July and August are the wettest months, but torrential downpours can happen in any month.

Such data as was collected over a period of years show very high peaks of faecal coliforms (the general, if unreliable, measure of pollution levels) usually coinciding with these rain events.

Rawene does not have the volume of summer visitor traffic that Opononi and Omapere do, but there are increasing numbers of visitors passing through. As well, there is the hospital, the school, the County Council offices until 1990 and, until 2017, the Northtec campus all adding more numbers to the base population throughout the year. In addition to these, septage from around the Hokianga and further north is deposited into the wastewater system.

The original consent expired also in 1998, apparently without anyone noticing as it seems to have been renewed without discussion.

However, when the next consent application for a period of 25 years came up in August 2008, despite the short time frame of four weeks and a delay in getting a copy of the application to the Rawene office, there were 135 submissions, 126 of which opposed the consent. These objections represented groups and individuals numbering in the several hundreds.

This huge response was set off by several people bringing the application to the community's attention and calling a public meeting to discuss and formulate a strategy for community action and a common response.

Over the next few months, a community working party on sewerage was set up and several meetings were held to inform themselves of the issues, the concerns, particularly around Treaty issues and possible alternatives.

This group sent a letter of recommendation to the FNDC in October of 2009.

As a result, the Council in turn set up community consultation in the form of Waiora Hokianga, whose meetings were held in Kaikohe during working hours. Waiora Hokianga set up a Land-Based Working Group to look at sewage systems, but the FNDC set the terms of reference which did not require Council to examine land-based solutions per se, but to address only the treated wastewater, which included septage from time to time. The community group came up with possible designs as well as a movie showing a successful land-based septage treatment system in Port Albert. These suggestions were dismissed as not conforming to the terms of reference.

Further meetings were held over the next eleven months until the hearing at the Copthorne Hotel in Omapere over the 5th to the 7th October in 2010. So many of the objectors wished to be heard that three days were set aside for the hearing.

Many of the objectors thought that the plea for a short term and a reduced term with determination to find a culturally acceptable and environmentally sustainable alternative was being heard and would be acted on.

The Commission came back with a consent for 20 years with some conditions to extend the wetland, but no mandate to change the system itself.

In November 2009, a group of submitters formed an incorporated society named Te Mauri o Te Wai in order to appeal the decision.

Te Mauri o te Wai lodged their appeal in November 2010. A hard copy of this appeal had to be sent to NRC, FNDC and all submitters. The FNDC immediately opposed the group's right to appeal on the grounds that the organisation had not been part of the original objection. The Environment Court ruled that, since it was composed of people who had submitted, the appeal was admissible. It charged the FNDC to pay Te Mauri o te Wai compensation.

The appeal was placed on hold to allow Te Mauri o te Wai and FNDC to discuss and resolve their differences. A meeting was held between the two parties in May 2011 and another in March, 2012.

In August 2012, in order to avoid an Environment Court hearing, the FNDC wrote to Te Mauri o te Wai offering to set up a community group similar to the one for the Opononi-Omapere community liaison group, outlining membership, terms of reference and meeting times.

Te Mauri o te Wai chose to go ahead with mediation in the Environment Court for several reasons: it wanted to set the terms of reference, the membership, place and times of meeting and, crucially, the stages and processes of that relationship. In other words, it wished to work consistently with the FNDC on a partnership basis to arrive at a solution acceptable to both, not to be subordinate to Council's agenda.

Two Environment Court hearings took place in October and November, 2012. Te Mauri o te Wai engaged two technical experts: Andreas Kurmann and Gareth Williams, as well as cultural expert Dr. Patu Hohepa.

The FNDC engaged a lawyer and NRC sent one person. Steve Cooper, FNDC's engineer, spoke, but neither council offered any expertise on cultural perspectives.

The Environment Court decided that the expiry date would be amended from 2030 to 31st October, 2023, ten years from the date of the Environment Court hearing. Furthermore, it accepted Te Mauri o te Wai's amendments to the conditions of the Resource Consent.

On the 8th April, 2013 Te Mauri o te Wai as the Community Liaison Group and the General Manager Infrastructure and Asset Management, David Penney, signed the Agreement.

Representatives of six hapu (Ngati Kaharau, Ngati Wai, Te Mahurehure, Te Hikutu, Ngati Korokoro and Ngai Tupoto) as well as representatives from the Health Trust, Rawene town, Ratepayers and interested individuals were as of right deemed to be members of the Community Liaison Group, which subsequently agreed that it would take the name of Te Mauri o te Wai.

Steve Cooper left and Ruben Wylie became the Council's liaison person with Te Mauri o te Wai.

As well as regular monthly meetings (or fewer depending on Te Mauri o te Wai) at Te Piiti marae, Te Mauri o te Wai and the FNDC were required to hold an annual public hui to report back on what had been done. In 2014, 2015 and 2016, these were huge affairs held in the Rawene Town Hall, with children's art works, tables for participants to record their questions and thoughts and, significantly, presentations by experts on the Public Health Risk Assessment (PHRA) as well as possible alternative approaches that were being researched.

The PHRA, though written in by the FNDC as a required event, took much longer than anyone had expected and was not completed until late 2016. Te Mauri o te Wai had insisted that cultural health should be included, that such a survey was meaningless without it, and offered expert advice on that. The Council's preferred group for this was NIWA, who sent their assessor, Rebecca Stott, to meet Te Mauri o te Wai and discuss and agree upon the terms of reference.

Despite everyone's best efforts, including taking Rebecca Stott around the system and giving her information about cultural and spiritual values, the resulting document was a quantitative assessment with no accompanying qualitative assessment. Although Te Mauri o te Wai received the document, they were not happy with it and felt it had not achieved its purpose.

This procedure held things up for a long time. In 2017, Te Mauri o Te Wai were keen to get moving on what the group saw as its real purpose: looking for a different system to deal with sewage. Ruben put forward a proposal about setting the terms of reference for the next stage: a feasibility study for alternative systems.

The 2017 annual hui was a small affair with few people present, mainly from Kohukohu with their concerns about their plant.

This was also the year that saw Ruben leave and a temporary replacement consent officer, Brigitte DeRonde, work with Te Mauri o te Wai for a few months.

Major alterations were being carried out at Te Piiti marae, meaning that meetings had to be held at other venues, mainly in Rawene.

The Terms of Reference for the feasibility study were discussed and some minor amendments made.

Brigitte left in early 2018 and Jessica Crawford and Melissa Parlane joined the discussions for the FNDC. Further time was spent bringing the new people up to speed with Te Mauri o te Wai, its formation and its purpose as the group saw it.

However, in 2018, the Terms of Reference for the feasibility study were circulated to a very small group of engineers (not including Andreas Kurmann, despite his inclusion being part of the original agreement with Ruben Wylie) and of these, the FNDC officers offered two to Te Mauri o te Wai to choose between.

After some discussion, it was agreed to interview Kate Simmonds and John Crawford of CH2M Beca Ltd at Te Piiti and see if they would be suitable for what Te Mauri o te Wai had in mind. That interview went well and they have been engaged to undertake the feasibility study, the first part of which is a public hui scheduled to take place on the 25th February, 2019 at Te Piiti Marae. The following day is a field visit to the site and looking at nearby land as well.

The purpose of the hui and the feasibility study is to find a solution to the present unsatisfactory system.

Kohukohu

The original application for this scheme was made in 1991 for similar reasons to the others – leaking septic tanks. Kohukohu's scheme is slightly different from the Opononi-Omapere and Rawene systems in that the wastewater first goes into individual septic tanks and is pumped from these to the oxidation pond (0.1h area) situated near the transfer station and from there to a constructed surface flow wetland (0.12h). The treated effluent discharges into "an unnamed, tidally influenced tributary of the Hokianga Harbour".

Tidal of course means that the effluent will travel either up or down the Harbour depending on the tide. There is no mention of it being borne out into the main current or finding its way out of the Harbour altogether. The main treatment is dilution.

The estimated average dry weather flow was 34 cubic metres in 2001 and 40 cubic metres per day in 2016. However, there is little information about the extent of infiltration into the reticulation system and this could influence the flow by a factor of two, that is, up to 80 cubic metres a day. The permit is for 50 cubic metres.

The quality of effluent has been monitored by the NRC from the oxidation pond, the wetland, the catchment drain below the wetland and the tributary upstream of the transfer station. “Monitoring results show the system is performing well in all areas except for nutrient removal”.

Performing well does not mean there is no contamination; it means the median is mostly compliant with the standards set, except when it is not. Nutrients, as has been noted above, can be the cause of eutrophication and algal bloom.

The consent for this system expired in 2001. It came up again in 2016. It has not been renewed as of 2019. The reason given is that iwi consultation has not yet happened.

Kaikohe

The Kaikohe oxidation pond was commissioned in about 1958 and the treatment wetlands were added at a later stage. It now consists of an anaerobic lagoon of approximately 1,500 cubic metres volume, an oxidation pond of approximately 4.8 hectares and an artificial treatment wetland consisting of a number of separate cells with a total area of approximately 0.5 hectares.

The first application to the Northland Catchment Commission from the Kaikohe Borough Council for a discharge of sewage from the Kaikohe ponds into the Wairoro Stream was in October 1970. The Wairoro stream flows into the Punakitere Stream, which in turn flows into the Waima River, one of the major tributaries to the Hokianga Harbour.

The consent for 4 May 1990 to March 2000 was for 1,362 cubic metres of treated effluent.

Improvements to water level control within the treatment wetlands and planting of the wetlands were undertaken in late 2002.

In 2004, the FNDC re-applied for a consent for up to 2,900 cubic metres per day and requested an expiry date of 2021. The reason given for the apparent delay in applying for a renewed consent was “the Regional Water and Soil Plan for Northland (RSWP) was not operative, and therefore the Northland Regional Council was … required to take into account the provisions of the Transitional Regional Plan for Northland (TRP)”. The RSWP became operative in August 2004.

There were four submissions: from the Director-General of Conservation who opposed it, Northland Branch of the Green Party who requested that consent be given for a maximum of three years because water-based disposal is no longer acceptable, K O’Connor who opposed it on the grounds that the existing discharge “does not have particular regard to Maori” and M J O’Connor who also requested that consent be given for three years only. All were heard.

Consent was granted until 2021. However, there were a number of conditions attached, including additional tertiary treatment, regular dredging of accumulated sludge and a comprehensive monitoring and reporting schedule.

On a possible land-based system, the report says “It is accepted in the case of the Kaikohe WTS effluent disposal that this option would be much more expensive, and “Additional considerations are that land is not available or suitable for such a disposal option”.

On concerns of tangata whenua: “the applicant has said that it provided an outline of the applications to the six local iwi identified by the NRC and invited the local iwi groups to make contact if they wished to discuss issues, or obtain further information”.

On Maori Cultural and Spiritual Values, the report says: “while it is necessary to recognise the cultural and spiritual values of Tangata Whenua, those values are not given any greater weight than any other matter which the Northland Regional Council needs to consider when making a decision”. And: “Through the consultation process outlined above, the applicant and the Northland Regional Council have met their responsibilities under Section 8 of the Resource Management Act”.

While the FNDC originally applied for only a 10-year consent, it then requested 16 years to bring it into line with expiry dates of other systems. Section 37.5 of the RWSP recommends that new discharge permits generally be granted for five years or *in line with the expiry date of other resource consents in the same catchment area.*

As we have seen, the other dates that were yet to come up were Omapere-Opononi in 2007 and Rawene in 2008, with Kohukohu in 2016. Five years for Kaikohe would have brought their date to 2009, so there was clearly an assumption that the next two to come up were going to get at least 15 or more years’ consent.

In 2011, a non-notified change was requested to delete condition 6, which required an upgrade to the treatment system and condition 2 of the Monitoring Programme which required “influent and discharge monitoring for viral indicators”. This was granted.

This consent comes up for renewal in 2021.

Timelines

Opononi-Omapere

1982:

February: Hokianga County Council advertised that it was applying for a consent to reticulate sewage from the townships of Opononi and Omapere and discharge the semi-treated effluent into the Hokianga Harbour.

11th May: Fraser Thomas engaged as engineers to make the application.

14th May: Fraser Thomas wrote to the HCC saying they had very little time to prepare the data to meet the deadline for advertising. Accompanying this are four pages of roughly-scrawled handwritten calculations "showing dilution of effluent after discharge". These, as several objectors later noted, are assumptions only. No base data are offered and every stage of the calculations begins with "assumed to be" or "say". The one reference cited is for "Vertical velocity in still water from Proceedings of Int. Symposium, London, 1974". In the letter they also note that they have had discussions with local people "and it would appear that some of them feel that we should treat the effluent to a higher standard", so they propose adding a seven-day detention pond and suggest that "a conciliatory solution would be to initially build, while flows are low, only the aerated lagoon and monitor the outfall but agree at a later stage to add the tertiary treatment".

17th June: the Northland Catchment Commission and the Regional Water Board notified the application of HCC to discharge treated sewage effluent "at a maximum rate of 352 cubic metres per day". Written objections were to be made to the Board by the 16th July.

24th and 25th June: dye tests were carried out by Mark Poynter for the District Maori Council – see objection below.

Objections received:

1: Anne Gambrill (Master of the High Court): The power supply is inadequate and unreliable; an aerated lagoon on its own does not really provide secondary treatment because it must be followed by either a clarifier or a sedimentation basin. Mrs Gambrill was advised that "certain assumptions have been made in respect of tidal currents and these assumptions are significant and could be criticised … .Variations that could be applied to the sums done could result in the answers being incorrect by one order of magnitude, i.e. by ten times and that for example the concentration of coliforms after dilution through the plume could be ten times greater than the numbers adopted". She goes on to question the calculations about onshore winds, the plume, harbour flushing capacities and circulation patterns for surface waters.

2: Ten individuals: Derek John Bettesworth, Christine Anwyl Bettesworth, Alan Dawn, Gay Dawn, Anthony Wallace Knight, Lene Knight, John Mole, Robert Moss, Janine McVeagh, Hazel Sargeant, and the South Hokianga Branch of the Values Party combined to object on those issues raised by Anne Gambrill as well as other grounds, including: the impact on marine wildlife, recreational fishing and shell-fishing, as well as the impact on potential employment in tourism and shellfish farming. Concerns were raised about tides and weather and their effect on the pipeline as well: "It thus appears possible that the proposed outfall pipe could be broken".

Further issues raised by this group were: that shellfish accumulate bacteria and viruses, even if present in low concentrations, and that this and the nutrients released would affect the water

quality. This group also questioned the engineers' assumptions about plume flow and dilution. Extensive references were given and an alternative scheme asked for.

3: Tai Tokerau District Maori Council: Mark Poynter, marine biologist, wrote in evidence that he had conducted dye tests to collect base information about the tides and the effect of the winds on the surface waters. These were carried out on the 24th and 25th June. In summary, the dyes were forced into the southern Omapere beach area. "Results show that surface water movement is significantly affected by wind, even under conditions of a strong ebb current". He goes on to comment that "Dilution levels are predicted to be considerable in areas away from the discharge point. However, it should be kept in mind that faecal coliform counts are only indicators of pollution and a recent publication warns of their limitations in defining public health standards."

4: Allan James Thompson: Noted that the Harbour "is the first place in New Zealand settled by Maori population. Notwithstanding the hundreds of years which have elapsed since the Maoris (sic) first settled at Hokianga the seas of the Hokianga Harbour continue to provide an almost endless supply of fish and seafoods of all types". He outlines the importance of the relationship between local Maori and the harbour and concludes: "The area in which it is proposed to construct the outfall is sacred to the Maori people, and, as a Maori and a New Zealander, I deeply resent the Commission's proposal and regard it as a most irresponsible way in which to treat such an important resource and such a fundamental part of this country's history".

5: Native Forest Action Council, represented by Drew Brownson: In addition to most of the same issues being raised by others, he asks for "a full harbour study to be carried out by those whose responsibility it is to look after the harbour and its associated systems". He also questions the will and ability of the Northland Catchment Commission to exercise control over it. On water quality standards he says that we must talk about the harbour "being given a high water quality classification".

3rd November: The Northland Catchment Commission and Regional Water Board convened the hearing for Water Right Application 2868 lodged by the Hokianga County Council.

Appellants:

Anne Gambrill on her own behalf.

A W Knight on behalf of D J Bettesworth and nine other persons (see above) and the South Hokianga Branch of the Values Party. Evidence was given by Mr B Morunga, Mr J Klaricich, Mrs J Donnelly and Mrs C Pettus. Mrs Pettus' evidence was on the microbiology of pathogens and their behaviour in water and on land.

The South Hokianga Maori Executive Committee, Opononi/Kokohuia Maori Committee, Waimamaku Maori Committee, Whirinaki Maori Committee, Omanaia Maori Committee: this group reiterates most of the other objections, particularly around shellfish and crayfish, to which it adds that "there is no guarantee that bacteria will not affect kutai and toheroa outside the harbour entrance, should the treated effluent reach the Tasman Sea", and "there is no guarantee that the effluent will not mix with and affect the natural shellfish food, plankton, which is deposited heavily on the coastline close to the harbour entrance".

It also comments that "There have been no enquiries made of local residents who have lived, fished and gathered shellfish in the area for most of their lives". They also note that there is insufficient data on wind and current, while "Local knowledge of tides and currents indicates that effluent may remain within the harbour area".

Evidence was given by Mr J Leef, Mr M Poynter and Mr J Griggs.

Jeff Griggs for Ministry of Works and Development gave evidence on land disposal of wastewater effluent in Northland. This is a highly technical presentation which acknowledges that an engineering assessment would be needed for the site and research into methods. He attaches a sketched design of a possible evapotranspiration system.

The Commissioner for the Environment, Ken Piddington, in a letter to Mr I McBain, the Public Health Engineer for the Ministry of Works and Development, says "The Commission is generally opposed to sea outfalls as a method of sewage disposal in sensitive areas. Experience shows eventually pollution problems occur especially where a discharge is into an inner harbour and there are shellfish and Maori food-gathering reefs in the vicinity". And "every endeavour should be used to explore alternative methods of discharge". He notes that the Water and Soil legislation "affords no protection to the spiritual and cultural values of the Maori peoples" but that "under the Town and Country Planning Act 1977….the relationship of the Maori people and their culture and traditions with their ancestral land" is recognised. "It would indeed be unfortunate at this historical point in time when evidence of Maori concerns is increasingly documented and damaging statistics on the pollution of the Waitara beaches is available, that a local authority is considering discharge of human and animal wastes into the Hokianga".

Submissions were also received from:
Native Forests Action Council pp Drew Brownson
Northland Harbour Board
H and C E Baxter
J and J Dancaster
Ministry of Agriculture and Fisheries
South Hokianga Residents and Environment Group
A J Thompson.

November: Report of the Tribunal

Among the Statements and Findings of Facts, the report says: "that the waters of the Hokianga Harbour are not classified and there is therefore no minimum standard of water quality which must be maintained".

And: "That evidence was given on behalf of the Maori people explaining the traditional concepts adopted by them in avoiding the contamination of food sources by human wastes. The Tribunal acknowledges the validity of these concepts, even in our modern society, and whilst the Regional Water Board is not bound by the legislation to take them into account and could not always follow the letter of the traditional concepts as originally implemented, its policies incorporate these principles through its insistence on the biological conversion of wastes…"

Further down, the report acknowledges that the dye test showed the plume would drift toward the shore, but said that this would be well away from the source.

Finally: "the Board's responsibilities are to the receiving waters and the consequences to these waters of discharge of wastes to them. It is therefore not directly concerned with the methods of treatment of wastes".

It granted the right with an expiry date of 31st August, 1997 with the conditions of pipe length and depth and the median value faecal coliform count not exceeding 8 x 10/4 per 100 mils* on not

fewer than five samples taken over not more than a 30 day period – that is at least 5 tests per month.

*This may be a misprint as that total would be 80,000 fcus. It seems to be intended to be 8,000, still very high.

1983:

Appeal:

The South Hokianga Maori Executive Committee asked that consent be declined or, if not, expiration date should be seven years and discharge should be restricted to periods when no on-shore wind prevails.

The appeal was not upheld.

1985: the plant is commissioned.

1991: The Resource Management Act comes into being. The constructed wetland is installed: six cells: four are surface flow, one a root system, the last a holding pond.

1996: about 40 or 50 metres of the pipe breaks off in a storm. A rubber sleeve is attached with three ports for diffusion.

1997: consent expires 31st August. Application for a continuation of consent was notified, but no submissions were received.

1998: the Far North District Council approves the renewal of consent with an expiry date of August 2007.

2007:

12th April: The FNDC applies for a renewal of consent through VK Consulting. Hokianga Harbour is now classified under the Marine 2 (Conservation) Management Area.

10th May: submissions close. Six were received, with Te Rarawa one day late (see Summary table of submitters and concerns). Although two supported (Gordon Banfield and Northland Health) these were with strong conditions. Three marae (Pakanae, Kokohuia and Waiwhatawhata representing Ngatikorokoro, Ngatiwharara and Te Pouka hapu of Ngapuhi) put in a combined submission opposing consent, as did Nga Ngaru o Hokianga, the Runanga o Te Rarawa and the Department of Conservation, represented by Andrew Riddell.

The Maori objectors considered it culturally unacceptable to continue or to increase the quantity of the discharge. They cited both the RMA and the Regional Coastal Plan and asked for a ten-year period to investigate a land-based system.

Mr Klaricich referred to the strong Maori interest in the application emphasising the high cultural and historic significance of the area that holds oral traditions, history and sites which record Ngapuhi beginnings, and that Maori have always been opposed to the discharge of sewage and wastewater into its taonga.

Mr Riddell in his evidence questioned the performance of the existing treatment system due to the limited monitoring that had been undertaken e.g. 10 occasions (24 samples) from 1997 to 2005. This monitoring was undertaken in the plume of the discharge and the staff report did not include sampling results upstream to check for any changes, if any, the discharge is making to the harbour.

He asked for a term of three years while better options were considered.

2008:

November: hearing

2009:

January: The Commission gave the consent for a period of 10 years with a Community Liaison Group to work with FNDC to investigate alternative systems of wastewater disposal. The group was designated by the Commission and meetings included FNDC staff and local Community Board members. These members are currently (2019) Louis Toorenburg and Alan Hessell, who also represents several marae on the CLG. John Klaricich represents the other marae, with Peter Oldham as chair of the Ratepayers' Association, along with Graeme Tucker, Ian Leigh-MacKenzie and John Askew. Te Rarawa representative is listed as Abe Witana.

2011: VK consulting prepare report on land-based options. The study found that overall, land disposal in the Opononi/Omapere area, although being technically feasible, could incur high capital and operational costs. The two key technical factors limiting effective land application were identified as land slope and soil structure.

2014: Mott McDonald report on the VK report: this report goes more seriously into the land-based options, commenting that, if you were to pursue it, you would need to go and do a proper geophysical investigation. They also comment on the current system: Pathogen removal at the Opononi/Omapere WWTP plant is currently accomplished by the use of a maturation pond followed by a wetland. Maturation ponds can theoretically provide adequate pathogen removal provided the retention time in the pond is adequate and that loads to the system are reasonably consistent and within the design limits. However, disinfection can be inconsistent as the pond system relies on good weather. The retention time in the maturation pond can also decrease over time as the pond accumulates sludge, and the pond's disinfection process can be disrupted if shock loading occurs.

2019:

January: the Omapere-Opononi Ratepayers' Association (OORA) calls a public meeting in Rawene to set up a Harbour Alliance to ask for a full study of the Harbour. About 50 people attended. Two decisions were made: to demand that the upcoming consent for the O-O system be notified and that, instead of forming a new group, that all the existing groups around the Harbour create a Forum, to be called the Hokianga Environmental Forum. A letter was written from this group to the NRC and FNDC to request notification and ask for any reports. A second letter was written from the group to several MPs asking for assistance to upgrade all sewage treatment schemes around the Harbour to ones that will be environmentally sustainable and culturally acceptable.

February: FNDC due to apply for renewal of consent.

May: FNDC must put in the application for consent by the 31st.

August 31st: consent expires.

Rawene

1982:

August: Hokianga County Council applies to the Northland Catchment Commission and Regional Water Board for consent to "discharge domestic sewage effluent … to the Omanaia River tidal estuary of the Hokianga Harbour at the rate of 122 cubic metres per day".

Objectors were: J McVeagh appearing for the South Hokianga Values Party, evidence given by Mrs C Pettus; Mr A W Knight on behalf of R A and J R Graham and Hokianga Mussel Farm, evidence given by Mr M Pinkney, Mr R Graham and Mr J Leef; Mr R P Wells appeared on behalf of the South Hokianga Maori Executive, evidence given by Mr J Leef; Mr C Joiner. Mrs J Royal did not appear but sent a written objection. Submissions were also received from the Ministry of Agriculture and Fisheries, Tai Tokerau District Maori Council Advisory Service and the Commission for the Environment.

The Values Party submission was concerned with loss of nutrients to land, effect on shellfish and the unacceptably high health risk from hospital wastes. It asked for an overall plan for the Harbour. Candace Pettus' evidence was on the effect of pollution on shellfish which are filter feeders that "concentrate and retain in their tissues chemical impurities, bacteria, viruses and parasites". She also commented on the use of coliforms as an unreliable indicator of pathogen levels.

The Commissioner's letter echoed the one that he wrote concerning the Opononi-Omapere consent.

December 16: The Commission granted the water right. Objectors paid $30 each.

Again, it noted the waters of the Hokianga "are not classified and there is therefore no minimum standard of water quality which must be maintained".

Despite concerns about the hospital waste, which was already discharged from an oxidation pond, the Commission stated that "the waste from the Rawene Hospital at present treated in an oxidation pond and discharged to the Omanaia River adjacent to the pond will be included in the waste to be treated in the new treatment system". This was because: "the water quality monitoring … shows that the existing environmental sanitation system could constitute a significant danger to public health".

Further comments: it again comments on Maori traditional concepts, acknowledging their validity "even in our modern society" but considers these principles are incorporated and no harm will come to food resources or to people using the waters.

"In this particular application, alternatives are not an issue because the chosen alternative is acceptable in terms of impacts on water and soil values."

"The appropriate value for faecal coliform bacteria specified at the outlet of the marsh system is a median value of not more than 150 per 100ml."*

*This figure has never been achieved and the compliance was later changed to 1,500.

1983:

Consent given with the expiry date of 1998.

1998:

21 September: Resource consent renewed.

2008:

February 29: application was made to renew the consent and the FNDC through VK Consulting Ltd sent letters to five local organisations: Hauora Hokianga, Te Piiti Marae, Hokianga Harbour Care, Nga Ngaru o Hokianga and Te Runanga a Iwi o Ngapuhi; three neighbouring landowners: Robert Pink, Davies Farms Ltd and Renewable Resource Superannuation Ltd, as well as the Department of Conservation and the Department of Health. These letters advised of the application and offered an opportunity to contact VK Consulting.

May 17: representatives from the FNDC and VK met at Omanaia Marae to present information and hold a question and answer session.

August 13: the application was notified.

September 9: submissions closed. One hundred and thirty-five submissions were received (129 opposing, 4 supporting with conditions and 2 not stating). Sixty-five submitters wished to be heard.

September 10: the Western Community Board recommended to Council that a Hokianga Working Party be set up "to find ways in which the water quality in the Hokianga Harbour can be improved".

December 4: the first meeting held. The name is Waiora Hokianga.

2009:

February 19: Patu Hohepa elected chairperson of Waiora Hokianga. Terms of reference were set. Four project groups were formed, one of which was the Land Disposal Project Group. This group was to address the need for a full and complete investigation into land disposal at Rawene.

March 16: Land Disposal meeting.

March 31: Meeting

April: Upgrades to the plant to deal with odours. They made the receiving pond smaller to allow a crust to form and put in a mechanical step screen. $150,000 was spent.

April 21: Meeting

The objectives of the group were:

- Recommend viable sustainable and affordable options for the disposal of wastewater from Rawene catchment.
- Meet the cultural and environmental objectives of the community of the Hokianga Harbour catchment.
- Identify measures to ensure the existing system operates at acceptable standards in the period of transition to the recommended option.

May 7: Mr Kreegher from VK Consulting provided technical expertise on land disposal. It was resolved to look for suitable land.

June 4: Members suggested disposal options. Possible options were discussed and came down to 6:

1. Current plant.
2. Subdivided land across the road from the plant.
3. Rawene golf course.
4. Pink property (neighbouring).
5. Constructed wetland on Pink property.
6. A new high-level treatment plant.

August 14: Added 7. Discharge to the pine forest across the road.

September 25: Mr Kreegher presented his findings to the Project Group.

October 9: Abe Witana (Te runanga o Te Rarawa) gave progress report. Group resolved: *that Council recognises the Rawene Land Disposal Project Groups preferred options (4 and 5) but investigates further options with the intention of achieving zero discharge into the Harbour.* Abe Witana/Patu Hohepa.

October 29: final meeting of Land Disposal Group. Recommendations:

1. *100% land disposal is not possible at this time. All options investigated have some discharge to water. If 100% land-based disposal is desired then further investigation would be required.*
2. *A combination of options 5 and 7 would provide a natural wetland system and increase the land buffer. Improvements could be made to the existing wetland with planting and swales. The community could be involved with planting.*
3. *Monitoring is very important. The type of monitoring conditions requested by Waiora Hokianga have to be consistent with what can be achieved using a natural system.*
4. *Time frame for the consent ten years?*
5. *Consider a dilution study to find out what quantity and quality of effluent is safe for shellfish after reasonable mixing. Which project group would run this as it is outside the scope of the land-based disposal group.*

December 3: Recommend that Option 5 – Wetland be recommended to the Council.

2010:

March 25: Recommendation taken to Council. Council received it and resolved:

That the current operation of the plant be maintained as it meets the operational standards required, however, should local residents wish to collectively fund an upgrade then Option 5 be progressed as the basis for the Resource Consent with the Northland Regional Council for the disposal of treated effluent from the Rawene Wastewater Treatment Plant. It was then left to lie on the table so the local community could consider the proposals outlined in the report.

May 20: Council's resolution presented to Waiora Hokianga and robust discussions were held.

There was general consensus that Waiora Hokianga still thought the standards were too low, particularly culturally and spiritually, that because sewage also went into the system it wasn't fair for Rawene ratepayers to pay for it and that they still wanted a land-based system.

The Council decided to do nothing but continue as at present.

November 5: NRC sends out notices of their decision to allow the resource consent with a period of 20 years, ending in 2030.

November 12: NRC makes a "minor" correction to the contaminant concentrations: the faecal coliforms allowable are now 1,500 per 100mls median and 5,000 90 percentile concentration. The BOD rises from 20 to 30 grams per cubic metre.

November 26: Te Mauri o te Wai Inc lodges an appeal against the decision to grant the resource consent.

December 7: The Ministry of Justice sends notice that the appeal has been placed on the standard track and that Te Mauri o te Wai must lodge with the court and serve on all parties, on or before 18th February 2011, a memorandum detailing what steps have been taken, what outcome is desired, an estimate of time and whether the matter is considered suitable for a hearing before a judge or a commissioner.

December 13: The FNDC through their lawyer, Trish Fordyce, serves a notice to Te Mauri o te Wai that they have applied for an order to strike out the appeal.

December 15: The Ministry of Justice writes to FNDC and Te Mauri o te Wai detailing what each must do, in the case of the FNDC to serve the application to the members and the respondent by 23rd December. That Te Mauri o te Wai must lodge their opposition to the strikeout, supported by affidavits, by 28th January 2011. FNDC can then respond (file and serve) in writing by February 11, 2011. Meanwhile, the appeal is suspended.

2011:

January 24: Te Mauri o te Wai lodges its opposition to the application seeking an order to strike out the appeal. This entails printing 16 pages of evidence for each of the 135 objectors as well as the FNDC and the NRC.

March 21: Judge J A Smith determines that Te Mauri o te Wai Inc is classed as a successor under Section 2a of the Act and that the strike-out application is declined.

May: Te Mauri o te Wai and FNDC meet to see if they can reconcile their differences. This is not achieved.

2012:

March: Again, Te Mauri o te Wai and FNDC meet and again the issue is not resolved.

August 16: FNDC proposes amendments to the Resource Consent conditions. This is similar to what was offered to the Opononi-Omapere objectors in that it determines the membership of the Community Liaison Group, the number of meetings, and, "The final terms of reference *shall be finalised by the consent holder and shall incorporate, the extent practicable, relevant matters raised* by the Community Liaison Group." Te Mauri o te Wai could not accept these conditions as it effectively put the control of events into the hands of the FNDC. They replied to this effect.

September 6: members of TMOTW held a group phone meeting with Gordon Jackman, who had extensive experience working with local bodies to achieve better outcomes for sewage. He suggested some processes and emphasised that TMOTW needed to get commitment from FNDC, not just words, but specifically staged achievements and objectives.

October 9: Mediation session is held at the Copthorne Hotel, Omapere between Te Mauri o te Wai and the FNDC and the NRC. Progress is made, but no final resolution.

November 1: A further letter is sent from Ruben Wylie for FNDC proposing further amendments: acknowledging that TMOTW wants greater participation; that TMOTW wants certainty that the FNDC will follow through and commit to a real investigation into alternative systems; that the money for the extended wetland would be held over until consent is reached.

TMOTW responded that they wanted the right to form the liaison group, it should be hapu-based, not marae-based, to work in partnership with FNDC on a staged process and that regular testing must take place

November 29: a second mediation is held. This time agreement is reached that TMOTW's conditions must be met and that the FNDC should draw up an appropriate document.

2013:

April 8: Te Mauri o te Wai signs the Memorandum of Agreement with FNDC. The consent term is 10 years, ending in September, 2023. A side agreement covering matters not in the Consent document is also signed.

2014:

April 3: Special general meeting TMOTW to finalise and agree changes to the constitution.

Dallas Williams elected convenor, Janine McVeagh secretary, Aporo Pomare, Janine McVeagh, Judith Reinken account signatories.

Regular monthly meetings discuss management of PHRA and cultural perspectives, operation of current system, storm water and other aspects including monitoring.

First community hui planned for June. Presentations from Andrea Kurmann, FNDC (Ruben Wylie) and Te Mauri o te Wai. Public invited to write questions and comments to be collected for future reference.

June 6: first public hui. Large number of attendees and excellent response to request for comments and questions.

October: Dallas to work on website; FNDC to work on maintenance and compliance of system.

2015:

January 9: Ruben Wylie: "It seems to me the main stumbling block with this project has been establishing the extent to which NIWA is capable of assessing the effects of the discharge on cultural values. To ensure FNDC meets the completion deadline in the resource consent I believe the best path forward is to commission the cultural assessment component under separate cover… and commission NIWA to only undertake work necessary to meet the consent conditions."

January 28: still trying to get PHRA going. Discussion on engaging engineer for feasibility while PHRA still going.

Monthly meetings from February to July to be held at RAD meeting room as Te Piiti is undergoing renovations.

Request FNDC to work with Andreas Kurmann with the initial focus on the proposals put forth at the annual hui.

NIWA delayed in doing PHRA, acknowledges importance of getting iwi and community input.

February: Email from Rebecca Stott noting that "without hydrological modelling of the Harbour area, a detailed QMRA involving site specific data for dilution and dispersion of microorganisms from the discharged wastewater cannot be done".

March 19: requested FNDC for hydrological study

May 28: AGM TMOTW

October 14: Annual hui. Andreas to bring three new options for consideration, and others including historical and the default one, and extended wetland.

2016:

September 3: Annual Hui at Rawene Town Hall. Event included children's art exhibition, bag-making, presentation of alternative wastewater systems (Andreas Kurmann).

2017:

March 2: draft Terms of Reference tabled by Ruben Wylie. Accepted with two amendments: "affordable" to be removed and the meetings to be held at Te Piiti marae. Noted that Andreas Kurmann to be invited to these hui.

August 9: PHRA finally delivered: it is a quantitative survey only, sheds little new light on the situation. The cultural perspective is more important. Ruben Wylie is leaving. Brigitte De Ronde new temporary liaison person.

August 16: workshop on taking the Terms of Reference forward. This included preparing a one-page invitation to be worked on by Te Mauri o te Wai, printed and circulated by FNDC.

December 5: Annual hui is a much smaller affair. Originally intended to be held in the RAD meeting room, it had to be moved to the Rawene Library. Several people from Tauteihihi Marae attend, wanting to talk about the Kohukohu system. It is opposite the marae and they are not happy about it.

2018:

February: Jessica Crawford and Melissa Parlane now working with Te Mauri o te Wai. Hydrological study mooted.

PHRA: science-based, but needs to be science-informed with Ngapuhi matauranga.

TOR: up for discussion.

July: process of TOR discussed.

August: meeting with John Crawford and Kate Simmonds (**CH2M BECA LTD)**

November 20: Annual hui and AGM at Te Piiti marae

2019:

February 25th: first of the public hui to discuss alternatives to the current system. John Crawford and Kate Simmonds to hold workshop with attendees.

Kohukohu

1984:

Wetland constructed**.**

1991:

July 30: Water Right 3839 is granted allowing the FNDC "the right to discharge up to 50 cubic metres of treated domestic sewage per day from Kohukohu township after treatment in septic tanks followed by a community oxidation pond and cultivated marsh system to an unnamed tributary of Hokianga Harbour" subject to conditions of maintenance, dissolved oxygen content and "the geometric mean concentration of faecal coliform bacteria in the effluent shall not exceed 1,000 per 100ml" with a compliance of not fewer than 5 samples of effluent taken at the outlet of the marsh over any thirty day period.

2001

February 15: VK requested Iwi contacts for the purpose of consultation. These were supplied on the 21st February. Of the four, one was in Kohukohu, one at Motuti, two in Kaitaia.

February 23: Renewal of resource consent is applied for by FNDC via VK Consulting.

"There has been consultation with the tangata whenua in accordance with tikanga Maori and due weight has been given to Sections 6, 7 and 8 of the Act." No further detail is given. No alternatives are suggested or investigated.

Monitoring for the period 1990 to 2000 shows variable results with spikes of faecal coliforms (15 of 49 samples exceeded the consent limit) and nutrient loads higher than allowed.

The application acknowledges that the system does not comply with the Proposed Air Quality Plan for Northland "therefore a discharge to air permit is required".

Dissolved oxygen: "DO levels are an important indicator of pond health and performance." The existing consent requires that the dissolved oxygen in the vicinity of the outlet "shall not fall below 6 milligrams per litre between the hours of noon and 2pm". 29 of the 46 samples show the mean DO level is below but were not recorded between the hours of noon and 2pm. VK recommend that the level of consent be changed to 1mg per litre and comment that the DO levels have fallen below that on some occasions "without significant odours occurring". They also note that DO levels are particularly dependent on weather conditions. "DO levels increase with wind and sunlight intensity which stimulate the algae in the pond." So, if it rains or there is little wind, the oxygen decreases.

Ammonium and phosphate levels are high, but are dismissed as "relatively minor".

They recommend some changes in the conditions: DO of less than 1mg per litre, median concentration of 5000 cfu/100ml and additional monitoring if it exceeds 30,000 per 100ml. They note that this is similar to the Rawene system.

Letters were sent to: J Brown with an address in Brisbane, The Maori Owners, with an address in Auckland, the Maori Owners in Kohukohu and A and M Tolich in Okaihau, inviting them to ring Vivian Kloosterman "to discuss any aspects or require further information".

March 15: public notification. No written submissions were received.

November: NRC staff report on the application. “The Applicant provided no information on the final outcome of the consultation process.” Since no submissions were received “It is therefore considered that there are few public concerns regarding this application, if any.”

The requested change of DO levels from above 6mg/l to above 1mg/l is accepted, as is the requested change from 1,000 fcu/100ml to 5,000fcu/100ml which “will ensure the treatment system continues to perform effectively over the long-term period”. The maximum of 30,000fcu/100ml is considered to be too high and a maximum of 15,000fcu/100ml is considered more appropriate.

Ammonia levels are high, so the allowable levels are adjusted to a total concentration of 30mg/l at site 323.

2002:

June 19: Consent issued until 31 August, 2016. The level of fcus at site 323 is 5000/100ml with a maximum of 15,000. The concentration of ammoniacal nitrogen must not exceed 40gms per cubic metre. Dissolved oxygen must be above 1gm per cubic metre in the oxidation pond at all times.

At site 231 the standards are: fcus 14/100ml and the 90 percentile 43/100ml. A chart in the consent document shows the concentration of total ammoniacal nitrogen.

Other conditions of maintenance are listed.

2016:

August 31: consent expires. FNDC made a replacement application for the Kohukohu WWTP discharges in 2016 and requested that the application be put on hold to allow it to undertake consultation with Iwi. This application is still on hold for this purpose. The FNDC is allowed under section 124 of the RMA to continue to operate the Kohukohu WWTP under its expired consent until such time as the outcome of the replacement consent process has been determined.

2019:

The system has no current consent.

Kaikohe

1958:

The Kaikohe oxidation pond is commissioned.

Treated wetlands were added “at a later date”.

1970:

Consent is given to discharge into the Wairoro Stream.

1999:

September 29: Application to the Regional Council for replacement consents. This is six months before the expiry date, so they are allowed to continue to exercise the current consents until a decision is made.

Requested: 2900 cubic metres per day of treated wastewater, contaminants to ground and contaminants to air.

November 9: public notification.

December 7: Four submissions received from Director General of Conservation, Northland Branch of the Green Party of Aotearoa, K O’Connor and M J O’Connor.

2000:

March 15: Submitters invited to a pre-hearing meeting with NRC. The submitters identified a number of issues and suggested a number of improvements.

March 28: A section 92 request for further information was sent to the FNDC. The information requested included a detailed assessment of alternatives including land disposal, a management plan and an outline of the proposed upgrades. Four reports were received from VK Consulting.

December: Assessment of Effects on Bathing water Quality (VKCEE).

Proposed Upgrades to Minimise Environmental Effects (VKCEE).

2001:

February: Discharge of Sewage Sludge to Land (VKCEE).

Investigation into Land Disposal Options (VKCEE).

March 15: Amendments to the reports provided to NRC

April 2: reports provided to submitters.

August 20: A second pre-hearing meeting was held with submitters.

August 27: NRC wrote to FNDC to say the processing of the application would be delayed to allow further investigation into alternative treatment options and negotiations with submitters.

Late 2001- 2004:

FNDC did not provide any more information, but about the middle of 2004 requested that the NRC provide draft consent conditions so the upgrades could be determined to meet the requirements.

October: Draft resource consent conditions prepared and sent. FNDC committed to a number of upgrades. Draft conditions provided to the submitters.

2005:

April 15: Third pre-hearing meeting. "Submitters again expressed concerns about the discharge of the final effluent to the Wairoro Stream and the effects on stream quality and the downstream river quality to the Hokianga Harbour; expressed dissatisfaction with the assessments of land disposal options, the variable quality of the effluent, and the degree of monitoring."

There were also comments about the ecology of the Wairoro Stream, one person noting that "there was much more weed growth present in the Wairoro downstream of the discharge than there was present upstream of the discharge".

"As there were some matters with which a number of submitters were not satisfied, it was determined that a hearing should be held."

Viruses are described as a concern but "are not normal flora in the intestinal tract of humans and are excreted only by infected individuals, mostly infants and young children. Viruses are usually excreted in concentrations that are several orders of magnitude less than those of coliform bacteria". It was agreed that they would include a tertiary disinfection system "which will achieve a specified high degree of viral reduction". It was agreed however that a disinfection system would be added to the plant within two years of the consent.

Nitrogen and phosphorus were a concern, and it was agreed that "a nutrient reduction plan be required as part of an overall management plan for the WTS".

Cost and lack of land suitability and availability were cited as reasons for not pursuing land-based options.

May 23: Consent hearing held in Kaikohe. No submitters were present, but Andrew Riddell for the Department of Conservation sent a written submission. Consent was granted with a number of conditions, particularly monitoring and reporting as well as the viral disinfection system.

2011:

April 18: Non-notified change to the consent conditions: "to delete Condition 6 of the consent which required the upgrade of the treatment system so that it could achieve a 4 log reduction in F-specific bacteriophage (a viral indicator organism), and all other references to this upgrade within the conditions of the consent. The deletion of the reference to the upgrade requires the modification of Condition 8(j) and changes to the monitoring programme for the consent. There are also consequential changes to consent conditions and cross references as a result of changes."

Expiry Date: 30 November, 2021.

RULES GOVERNING WASTEWATER SYSTEMS

Resource Management Act, 1991 (updated to 2018)

Section 6 of the RMA has as two of the issues of National Importance:

- *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- *the protection of protected customary rights*:

Section 7 of the Act says:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

- kaitiakitanga:
- the ethic of stewardship
- intrinsic values of ecosystems
- maintenance and enhancement of the quality of the environment

Section 8 :

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

15 Discharge of contaminants into environment
(1) No person may discharge any—
(a) contaminant or water into water; or
(b) contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or
(c) contaminant from any industrial or trade premises into air; or
(d) contaminant from any industrial or trade premises onto or into land—
unless the discharge is expressly allowed by a national environmental standard or other regulations, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.
(2) No person may discharge a contaminant into the air, or into or onto land, from a place or any other source, whether moveable or not, in a manner that contravenes a national environmental standard unless the discharge—
(a) is expressly allowed by other regulations; or
(b) is expressly allowed by a resource consent; or
(c) is an activity allowed by section 20A.
Part 3 s 15 **Resource Management Act 1991**
Reprinted as at
19 December 2018

The Northland Coastal Plan

The Northland Coastal Plan was notified in 1994 and made operative in July, 2004. The Waiarohia Stream, into which any seepage from the plant goes, is also classified under the Plan.

This classification brings with it the requirement to preserve ecological, cultural and amenity values.

11.2 ISSUES (The following issues are as they have been expressed by Maori in submissions to this Plan, with some minor word changes for the purpose of clarity)

1. The lack of formal recognition of iwi as the traditional kaitiaki (guardians) of the coastal resources within their rohe (traditional territory).

2. The coastal tendering provisions of the Resource Management Act which are seen to breach the terms of the Treaty of Waitangi.

3. The preservation and, where necessary, restoration of the habitats of fish, shellfish and other seafood, and waters, particularly where these are relied upon by Maori communities as a source of food.

4: The protection of traditional Maori fisheries, and waters classified for cultural purposes, from the adverse effects of activities such as sewage discharges, marine farming, sand extraction, and dredging.

5. The protection of waahi tapu and other sites of significance to Maori from the adverse effects of human activities and from coastal erosion.

6. The protection of traditional Maori accessways to fishing grounds, waahi tapu, and other sites of significance to Maori.

7. The need to avoid all discharges of waste to the sea whether treated or otherwise.

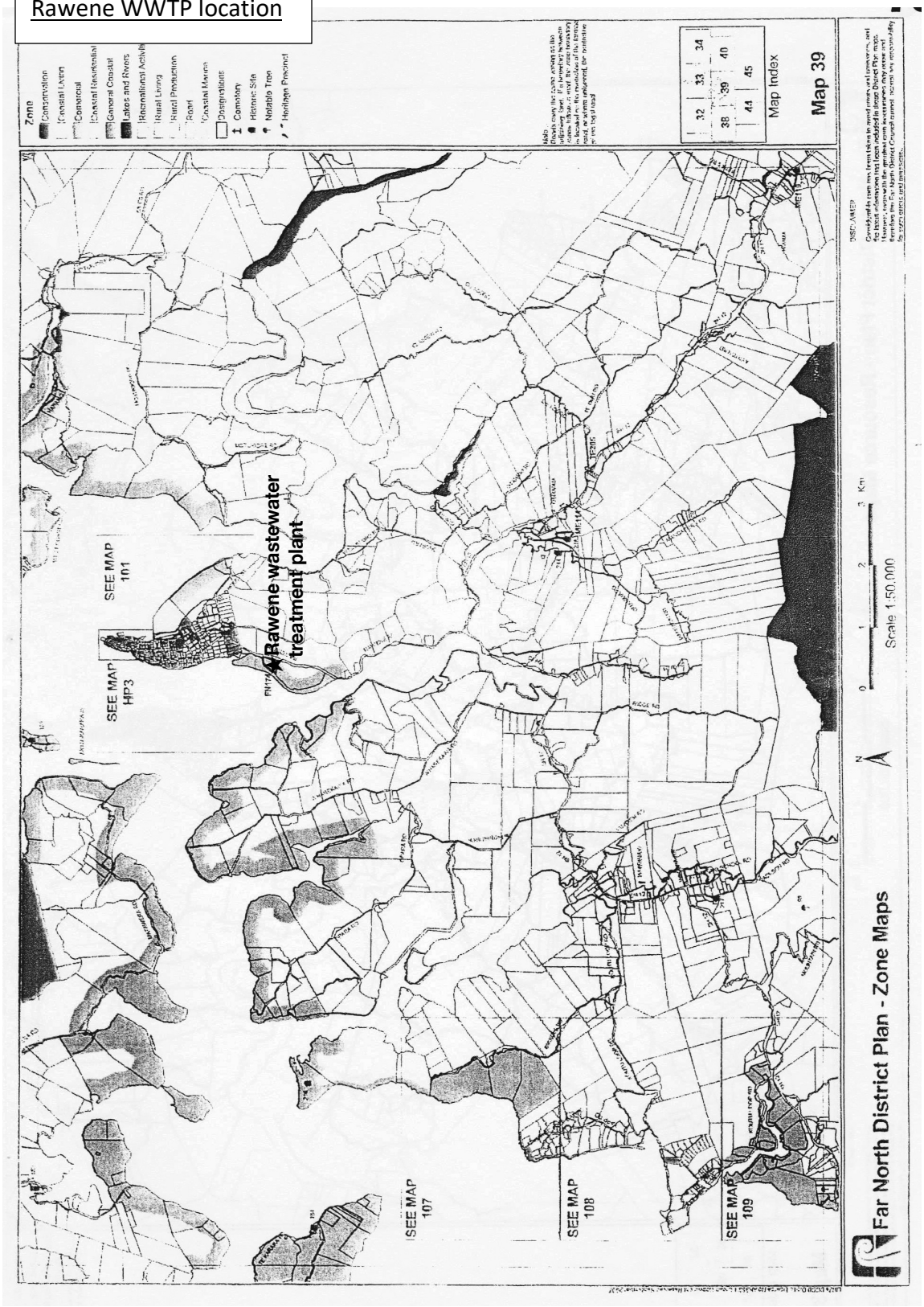
8. The need to halt the practice of sprinkling human ashes on the sea.

9. The need to ensure that resource consents are properly monitored to ensure compliance with conditions requested by iwi.

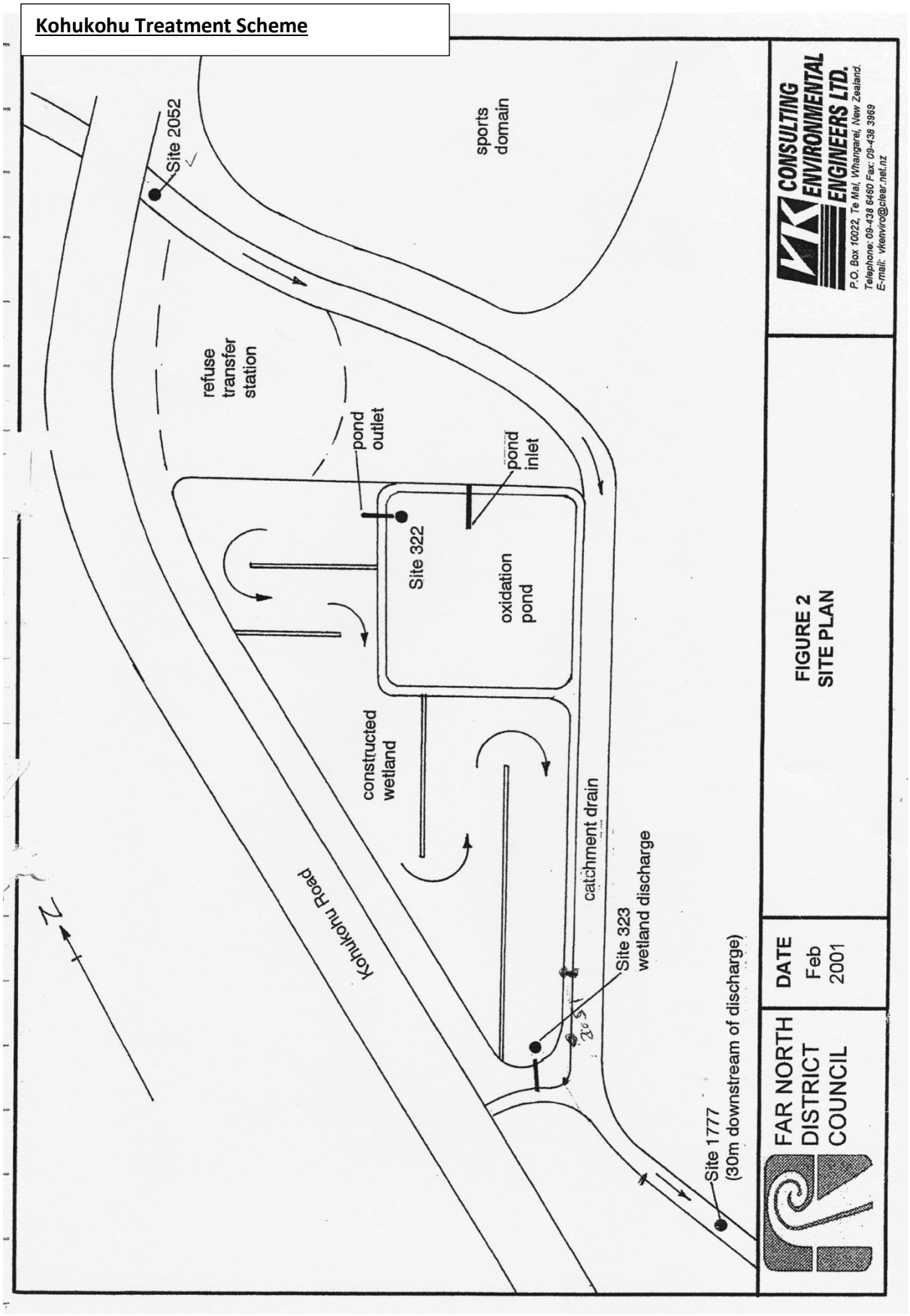
10. The desire to develop new marine farms and other aquaculture ventures, particularly in the Far North harbours.

11. The degree of involvement of tangata whenua in resource management decision making, policy formulation, monitoring and implementation particularly as they affect their taonga.

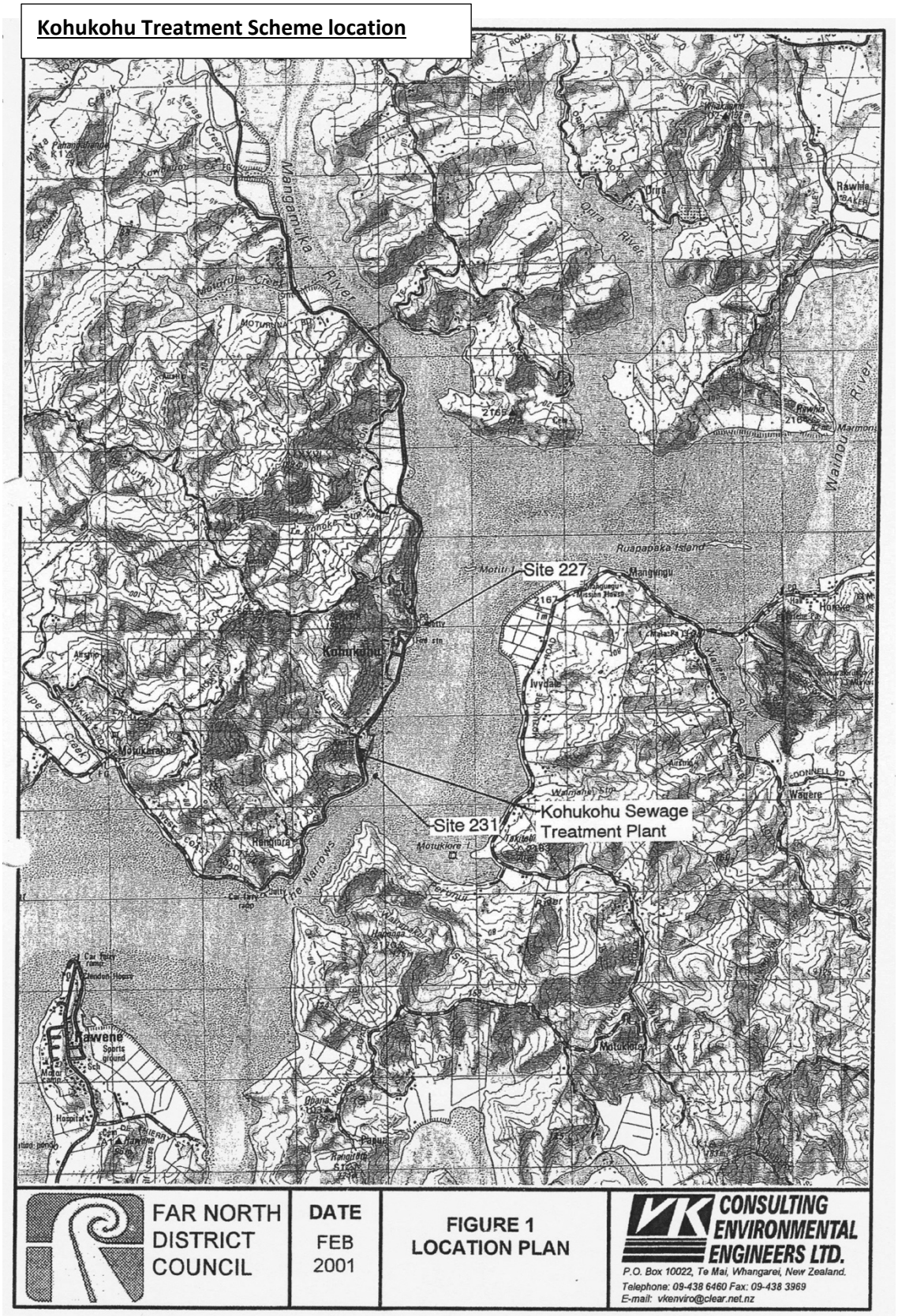
Rawene WWTP location



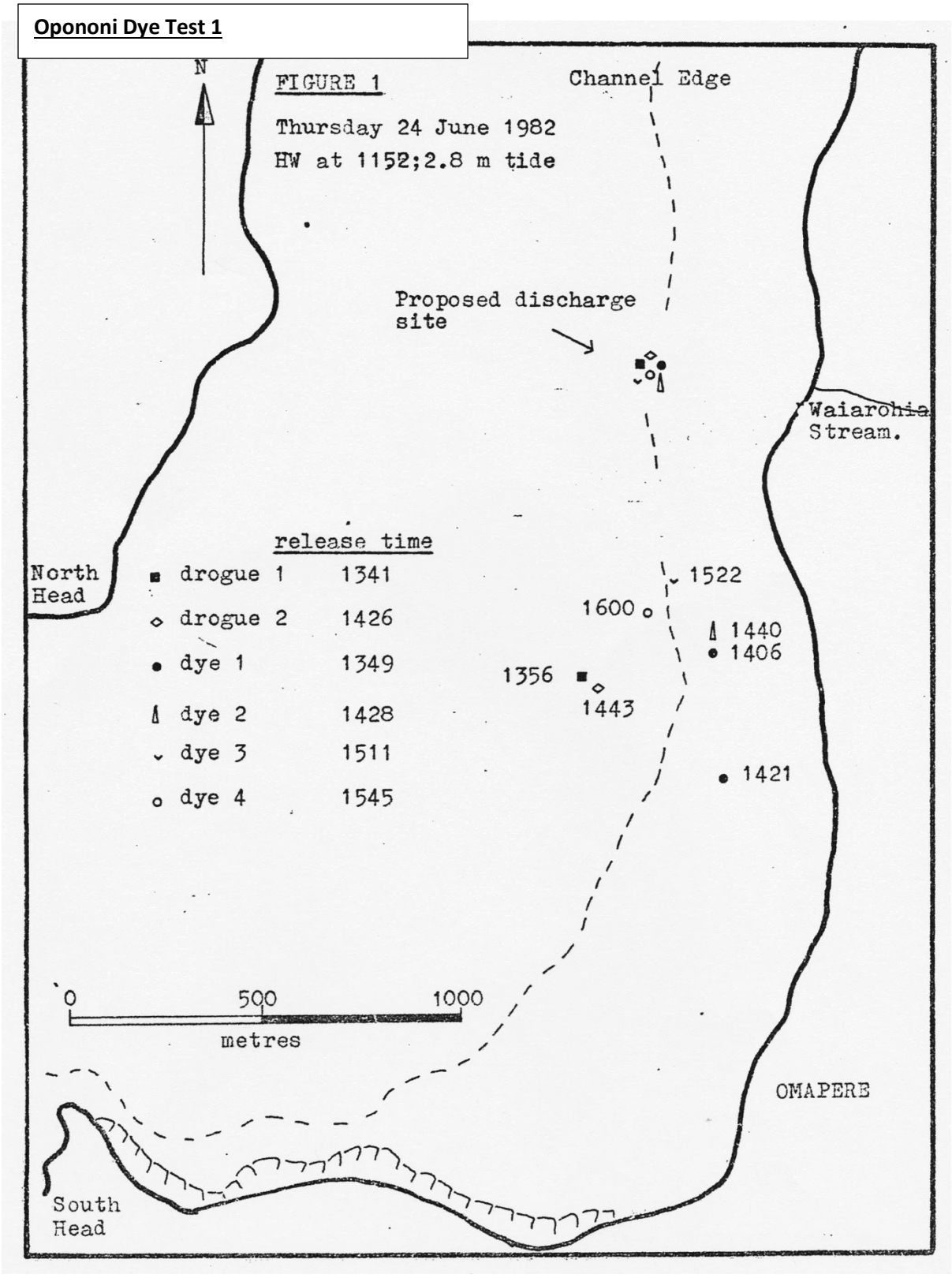
Kohukohu Treatment Scheme



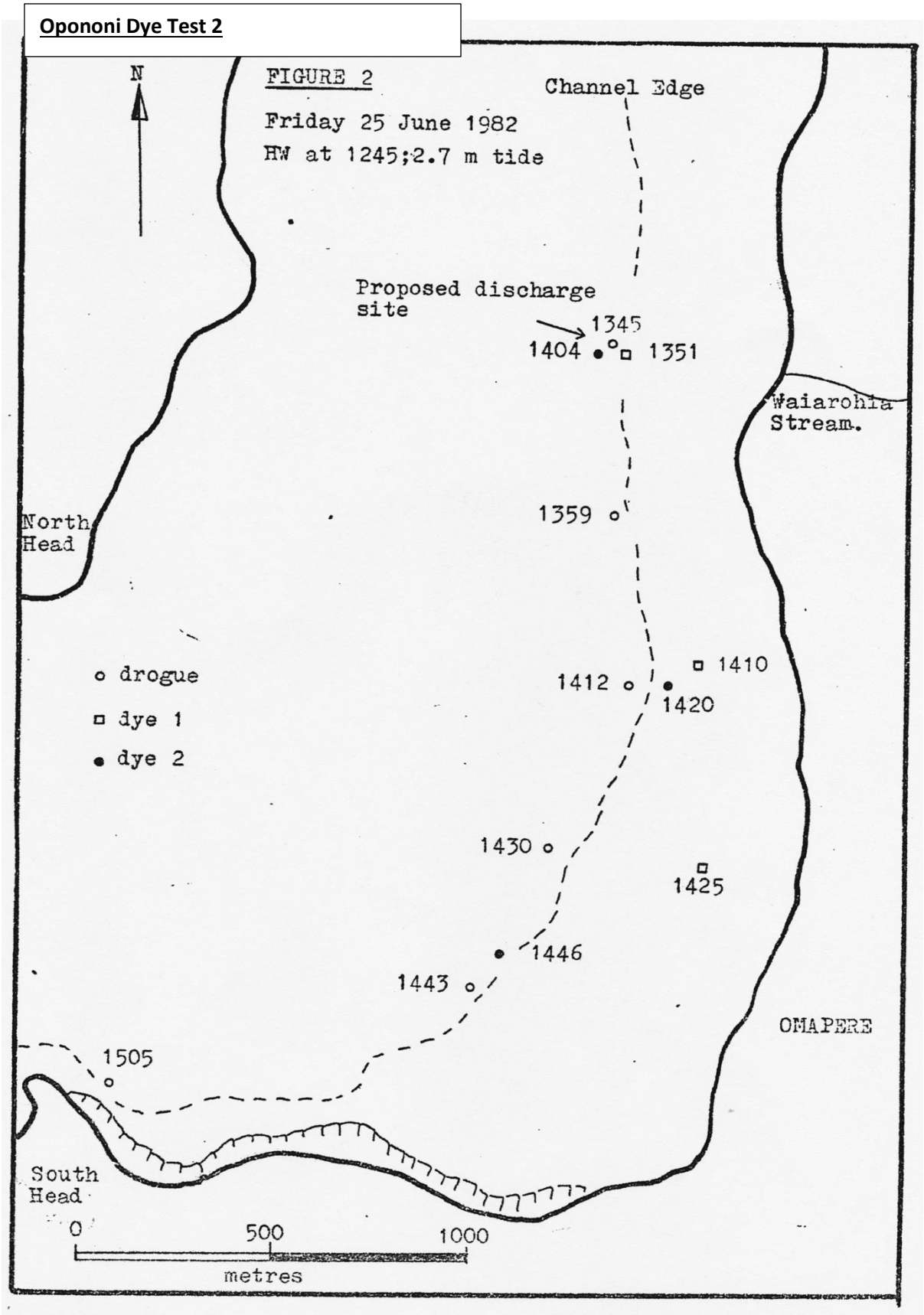
Kohukohu Treatment Scheme location



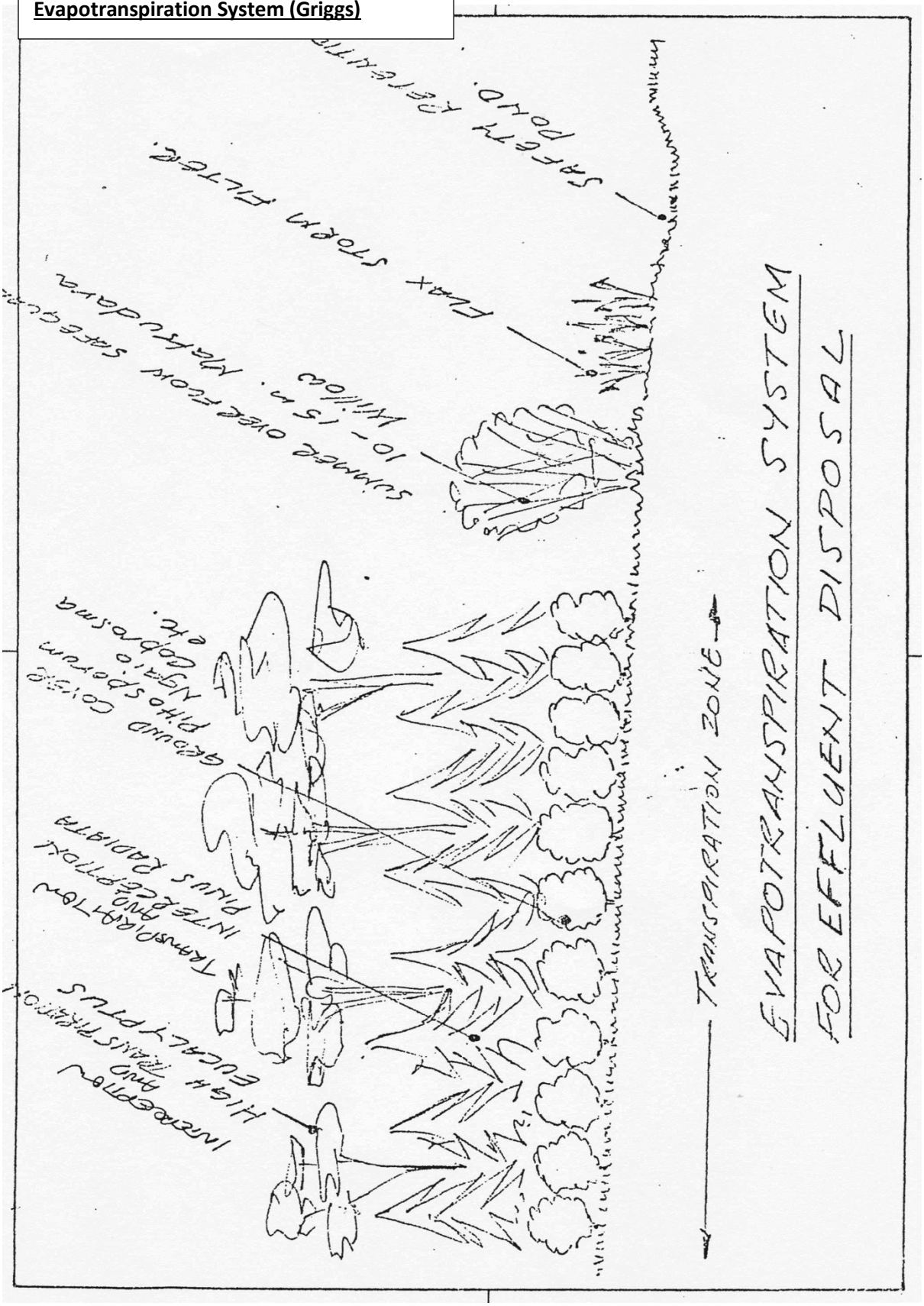
Opononi Dye Test 1



Opononi Dye Test 2



Evapotranspiration System (Griggs)



References

General

Resource Management Act, 1991, reprinted as at 19 December, 2018

The Northland Coastal Plan

FNDC Wastewater treatment plant compliance Summary 8/5/2017 – 12/2/2018

Tangata Whenua Values and Perspectives, publication of the Far North District Council District Plan, 2004

Davidson R J, Kerr V C, Habitats and Ecological Values of the Hokianga, A report to Northland Conservancy, Department of Conservation, Sept, 2001

Opononi-Omapere

Water Quality calculation showing dilution of effluent after discharge: handwritten paper from Fraser Thomas Partners, 11th February, 1982

Fraser Thomas Partners to Northland Catchment Commission: Application for Right to discharge waste to natural water, 14th May, 1982

Northland Catchment Commission and Regional Water Board public notice for Application for Right in Respect of Natural Water, Hokianga County Council, 16th July, 1982

Submission by Anne Gertrude Gambrill, solicitor, 1982

Evidence from Jeff Griggs, Ministry of Works and Development, 29 October, 1982

Submission from List of Objectors: Derek John Bettesworth, Christine Anwyl Bettesworth, Alan Dawn, Gay Dawn, Anthony Wallace Knight, Lene Knight, John Mole, Robert Moss, Janine McVeagh, Hazel Sargeant, and the South Hokianga Branch of the Values Party

Letter from the Commission for the Environment, 11th October, 1982

Submission from the Tai Tokerau District Maori Council Advisory Service, undated

Submission from Allan James Thompson, July 12, 1982

Submission from Native Forests Action Council, pp Drew Brownson, July 1982

Submission from the South Hokianga Maori Executive, undated

Report of the Northland Catchment Commission and Regional Water Board, November, 1982

Resource Consent application for Opononi Omapere Wastewater Treatment Plant from VK Consulting on behalf of the Far North District Council, February 27, 2007

Ngati Korokoro Hapu Environmental Management Plan, 2008

Report and Decision of the Northland Regional Council through its Hearings Committee meeting held 25th November, 2008.

Decision of the Environment Court in the matter of appeals under s120 of the Resource Management Act between Te Runanga o te Rarawa and Adams (Trustee) and others Appellants and the Northland Regional Council, 18th November, 2009.

VK Consulting, Analysis of Land Disposal options for Omapere-Opononi, 2011.

Mott McDonald, Treatment Upgrade and Land Disposal Options, December 2014
Far North District Council (FNDC).

In the Waitangi Tribunal of New Zealand, Wai 2003, Second statement of evidence of John Klaricich 18th March 2014.

Abatement Notice under Section 324 of the Resource Management Act, 199, Northland Regional Council, 20th April, 2016.

Omapere Sewage Outfall Inspection of Underwater Elements, 14th June, 2018.

He Ara Tamata: Creating Great Places, Far North District Council: Wastewater Treatment for Opononi-Omapere, November 2018.

Rawene

Submission of South Hokianga Values Party, via Diane E Kerr, 12th September, 1982.

Submission of Candace Pettus, 4th November, 1982.

Submission of R A and J R Graham, Oyster Farm and Hokianga Mussel Farm,13th September, 1982.

Letter from the Commissioner for the Environment, Ken Piddington, to Mr I McBain, Public Health Engineer, Ministry of Works and Development, 11th October, 1982,

Report of the Northland Catchment Commission and Regional Water Board, November, 1982.

Decision of the Northland Catchment Commission and Regional Water Board, 16th December, 1982.

Application from the Far North District Council per VK Consulting Ltd for Resource Consent 2557 for the Rawene Wastewater Treatment Plant, 2008.

135 submissions to the Northland Regional Council.

Decision of the Northland Regional Council.

Proposed Amendments to Rawene Wastewater Treatment Plant Resource Consent Conditions, per Ruben Wylie for Far North District Council, 16th August, 2012.

The Environment Court of New Zealand Notice of Mediation, 12th September, 2012.

The Environment Court of New Zealand, Notice of Mediation, 17th October, 2012.

Letter re Proposed Amendments to Rawene Wastewater Treatment Plant Resource Consent Conditions, per Ruben Wylie for Far North District Council, 1st November, 2012.

Memorandum of agreement between Far North District Council and Te Mauri o te Wai.

Side Agreement between Far North District Council and Te Mauri o te Wai, 8th April, 2013.

Long series of emails with Rebecca Stott re PHRA.

Public Health Risk Assessment, NIWA per Rebecca Stott.

Numerous letters, emails, minutes between various parties and Te Mauri o te Wai 2009-2019.

Kohukohu

Application by VK Consulting Environmental Engineers Ltd to the Consents Manager, Northland Regional Council, on behalf of the Far North District Council, 23, February, 2001 for renewal of Resource Consent No. 3839 for Kohukohu Wastewater Treatment System.

Staff Report for Permit Application 200138390103 prepared by Stuart Savill, June 19, 2002.

Kaikohe

Northland Regional Council staff report by Michael Larcombe on Application No. CON19990241701, 2005. Includes a chart showing objectors and summary of objections.

Northland Regional Council, Report and Decision on Application no: CON19990241701, 23 May, 2005.

Application by Far North District Council for non-notified Change to Consent no: CON19990241701, 2011.

Emails from Stuart Savill, NRC to Janine McVeagh:18/1/19; 22/1/19; 24/1/19; 8/2/19; 10/2/19; 11/2/19.
