

Memo

28 May 2021

To: Commissioner McGarry

From Leif Pigott

RM190876 and ors Pōhara flood mitigation works hearing

This memo addresses the following questions

1. Kohikiko Wetland hydrology
2. Kohikiko Wetland and rule 31.1.6.1
3. Wetland mapping
4. Probability with other wetlands
5. Global stormwater consent
6. Boyle Street Culverts and consent in the CMA.

For simplicity, I have called the wetland between the Four Winds Pump Station and Kohikiko Place the Kohikiko wetland.

Summary

The placing of a stop bank on the Kohikiko wetland is unlikely to cause an adverse effect on its hydrology and it could have positive benefits in reducing large scale silting events. I consider that rule 31.1.6.1 of the TRMP does not apply to the proposed works.

All the mapped wetlands are away from the proposed works.

The coastal marine area¹ (CMA) boundary is mapped at Boyle Street. The CMA works downstream of the Boyle Street culverts are not an issue as they benefit from a permitted activity rule under the TRMP.

There is significant scope in the application to get a significant net gain in wetland extent and quality, and this will satisfy the policy directions provided in NZCPS 2010 and the NPS FM 2020.

¹ Section 2, Resource Management Act 1991

coastal marine area means the foreshore, seabed, and coastal water, and the air space above the water—

(a) of which the seaward boundary is the outer limits of the territorial sea:

(b) of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of—

(i) 1 kilometre upstream from the mouth of the river; or

(ii) the point upstream that is calculated by multiplying the width of the river mouth by 5

1. Kohikiko Wetland Hydrology



Figure 1: Aerial image – current (Council GIS) - 3m contour is highlighted in the above picture.

The area above is a low level depression typically found behind dunes. It is drained in two directions to the east and west, the levels of these drainage systems are just above RL 3 (as built from 4 wind pump station RL 3.2 and the subdivision to the east RL 3.15). So water cannot flow from the area until the flooding exceeds the blue contour.

The water shown in the picture above corresponds with the likely groundwater level in this area. A geotech bore was drilled as part of the pump station to the west and this found groundwater at a level 1 m below the ground level with wet soils above this. Communications with Joseph Thomas (Senior Resource Scientist - Water & Special Projects, Environment & Planning) suggested that the expected groundwater in this area would be very shallow say in the order of 0.5 m deep.



Figure 2: Aerial image – 2004 (Council GIS) - Prior to subdivision to the east.



Figure 3: Aerial image – 2007 (Council GIS). Shows the blocking of the drain. As built plans suggest the outlet was raised to an RL of 3.15 m

The formation of the subdivision in the 2000's looks like it has resulted in the drain running down behind the houses being blocked and increased the ponding in this area.



Figure 4: Aerial image – 2011 (Council GIS).

Figure 4 was taken a few days after 2011 flood event. There seems to have been no over flow over most of the drain. Material seems to have come from the lower left corner of the above image.



Figure 5: Aerial image – current (Council GIS).

Figure 5 shows the contours and the Four Winds Pump Station to the left of the wetland. The drain around the pump station embankment has an RL of 3.2 m

Maintenance (drain clearance) of Elise Creek has resulted in a low bund being placed between the wetland and the creek (contours are from 2016 LIDAR).

Conclusion

The above evidence supports the conclusion that the hydrology of for this wetland is a combination of groundwater and localised overland flows from this area. The works over the past 20 years have reduced the ability of this land to drain away from this site and provided more opportunity for water to pond in the area where a natural wetland existed.

A low bund, formed by clearing of the drain, already exists in the approximate location of the proposed stop bank. Figure 4 taken after the 2011 event does not show signs of water flowing over most of the proposed stop bank.

It is considered unlikely that placing the proposed bund will significantly change the hydrology of the wetland. A bund will stop larger flood events filling this area, but these are considered relatively rare events.

2. Kohikiko Wetland and rule 31.1.6.1

Key issue: Does the stop bank potentially change the hydrology of the identified wetland and need a discretionary activity consent under rule 31.1.6.1?

The wetland report found by T&T was not mapped as a wetland by TDC staff as part of the wetland project. The relevant rule is 31.1.6. of the TRMP, Diversion and Take of Water (including by infilling) from Naturally Occurring Wetlands.

31.1.6.1 Discretionary Activities (Diversion and Take of Water (including by infilling) from Naturally Occurring Wetlands)

The diversion and take of water from a naturally occurring wetland including the diversion of water by the infilling of a wetland, is a discretionary activity.

A wetland subject to this rule includes permanently or intermittently wet areas, shallow water and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions, and:

- (a) wetlands which are part of river, stream and lake margins;*
- (b) natural ponds, swamps, marshes, fens, bogs, seeps, brackish areas, mountain wetlands, and other naturally wet areas that support vegetation adapted to living in wet conditions, and provide a habitat for wildlife;*
- (c) coastal wetlands;*

but excludes:

- (d) wet pasture or where water temporarily ponds after rain, or pasture containing patches of rushes (juncus species);*
- (e) oxidation ponds;*
- (f) artificial wetlands used for wastewater or stormwater treatment;*
- (g) artificial farm dams and detention dams;*
- (h) land drainage ditches and farm drains;*
- (i) reservoirs for firefighting, domestic or community water supply;*
- (j) temporarily ponded rainfall.*

Conclusion

It is considered that rule 31.1.6.1 does not apply due to exclusion (d), ie the area is a pasture containing patches of rushes. Pre NES F the Council would not have considered that a consent for the *Diversion and Take of Water (including by infilling) from Naturally Occurring Wetlands* was required.

3. Wetland Mapping

I have asked the Council wetland mapping experts to comment on the mapping of the wetland by Tonkin & Taylor (T&T). The responses from Trevor James (Senior Resource Scientist - Environmental) and Jeroen Lurling (Contractor – Wetland Ecology) are detailed below.

They responded to the following questions:

1. Would you consider the wetland in this report would meet Council's criteria for mapping as a wetland
2. Could it be classified "as wet pasture or where water temporarily ponds after rain, or pasture containing patches of rushes (juncus species)"
3. Do you have any other comments

The wetland identified was not found by TDC staff as part of the Council's regional wetland mapping project being done. Wetland mapping is currently evolving with guidance notes from MfE due out shortly, and while an exposure draft was circulated in April this has not been finalised.

I have attached the comments from TDC staff below.

Jeroen Lurling comment reviewing the T&T report and raw data:

From: Jeroen Lurling <Jeroen.Lurling@tasman.govt.nz>
Sent: Thursday, 27 May 2021 8:01 pm
To: Leif Pigott <Leif.Pigott@tasman.govt.nz>; Trevor James <Trevor.James@tasman.govt.nz>
Subject: RE: Pohara conditions

Hi Leif

This report uses the mfe protocol used nationally and based on Landcare Research developed methods. However, I have a few comments and questions about its application, as mentioned below.

Plots P3 and P4 failed all wetland vegetation tests and showed no clear evidence of hydric soils or wetland hydrology. They are very unlikely to be wetland, and I would not class them as such.

I agree P2 classes as wetland under MfE wetland delineation protocol and Clarkson et al vegetation tool, and does not qualify for the boggy pasture exclusion if the GWRC pasture species list is used. Note that mfe has not developed a 'boggy pasture' or unmanaged pasture definition or species list. When asked, they pointed to the GWRC has a list of NZ pasture species (which I believe comes from NZ grasslands trust). It's unclear if plots P2 and P1 are taken in the ditch itself, or next to it. I cannot find GPS points for plot locations in the report. Within Council's wetlands program, we would not take plots in man-made ditches as they do not represent natural wetland under the TRMP. Under the recent NPS-FW, constructed wetlands are included if restoring a former wetland, but one could argue restoration wasn't the intention in excavating the ditch, and the ensuing wetland is likely different in nature to the historic wetland. In the past we would generally only map it as wetland if reversion/regeneration is reasonably advanced (not just pioneering herbaceous species) or if rare native species are present.

For plots P1, P5 and P6 some species have been grouped as 'Rank grass (including Trifolium repens / Trifolium pratense, Plantago lanceolata)', rather than listed as individual species, each with their own coverage. Prevalence Index is considered undependable if 20% or more of the total cover in a Sample Plot cannot be identified to the level of species (pers. comm. Within Clarkson 2013 vegetation tool). As far as I'm aware, grouping species is also not compatible with the dominance test. Without the detail on percent cover of individual species I can't comment on the wetland status of these plots other than to say P6 is likely to come out as wetland regardless, and P1 and P5 are more marginal and could go either way.

I agree with the landform analysis to show this area is likely to have historically been wetland, or on the margin of wet and dry land. 1940's imagery suggests there were wet swales in the paddock. This area would make a great wetland restoration as dune swales

are a rare wetland form. But in council's mapping program, present state determines wetland status.

Regards

Jeroen

Jeroen Lurling | Environment & Planning

Contractor – Wetland Ecology

From: Trevor James <Trevor.James@tasman.govt.nz>

Sent: Sunday, 16 May 2021 5:39 pm

To: Leif Pigott <Leif.Pigott@tasman.govt.nz>

Subject: FW: Please comment on this T&T report

This is from Jeroen Lurling....

Hi Leif

I have read the evidence by Selene Conn/Patrick Lees. Generally the mfe wetland mapping protocol seem to have been followed. As Trevor says, one aspect which needs to be looked into is whether the site falls under the wet pasture exclusion. I was unable to find the detailed wording on the pasture exclusion on the mfe website or in the legislation, and have sent an enquiry.

For this statement:

7.9 (d) 2014: evidence that the entirety of the site has moved away from managed pasture, with the colonisation of most of the site by rushes.

I'm not sure if the latter part of the sentence is the sole justification for the former, or if dominance of pasture species supports this. Again, further clarity on the definition of 'managed pasture' is required from mfe.

I'd also need to see the plot sheets with species percentage cover to comment. I note several species were found in the veg plots which are listed as pasture species by the NZ grasslands association. Their effect on wetland status depends on their percentage coverage. I have not visited the site.

Cheers, Jeroen

Jeroen Lurling | Environment & Planning

Contractor – Wetland Ecology

Trevor James | Environment & Planning

Senior Resource Scientist - Environmental

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Trevor James comment:

From: Trevor James <Trevor.James@tasman.govt.nz>

Sent: Friday, 14 May 2021 3:26 pm

To: Leif Pigott <Leif.Pigott@tasman.govt.nz>

RM190876 Memo to Commissioner – from L Pigott, Reporting Planner – Wetland -

Cc: Jeroen Lurling <Jeroen.Lurling@tasman.govt.nz>

Subject: RE: Please comment on this T&T report

Hi Leif,

I have read the evidence by Selene Conn/Patrick Lees and don't feel I have enough of the field data to answer the questions that you pose. I would like to see all the workings of the dominance and prevalence tests. At this stage we don't have any data on % composition of each of the species concerned. I see that they have not looked at the "pasture grass" coverage specifically. If this pasture grass covers more than 50% then it is not a wetland. It does all come down to the vegetation. A lot also depends on the number of plots (sample sites) that Mr Lees collected data from. You can easily skew the final ruling with slight reconfiguring of where you put the sample plots. I have not been onto the site, so I cannot comment from general observation either.

It looks like we couldn't call this an "induced wetland" as Ms Conn presents a reasonable case (particularly the history and soils) that this was a dune slack system.

I have asked Jeroen to comment on the report, but I imagine that without the raw data, he is not going to be able to comment either.

Can we request the raw data from T+T?

Cheers,

Trevor

Trevor James | Environment & Planning

Senior Resource Scientist - Environmental

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From: Leif Pigott <Leif.Pigott@tasman.govt.nz>

Sent: Friday, 14 May 2021 10:28 am

To: Trevor James <Trevor.James@tasman.govt.nz>

Subject: Please comment on this T&T report

Hi Trevor,

Sorry this is relatively urgent I would like your comments on the attached report that identified a wetland in Pohara.

- 1. Would you consider the wetland in this report would meet our criteria for mapping as a wetland*
- 2. Could it be classified "as wet pasture or where water temporarily ponds after rain, or pasture containing patches of rushes (juncus species)"*
- 3. Do you have any other comments*

Please charge RM190876

Thanks

Leif

Leif Pigott | Environment & Planning

Team Leader - Natural Resources Consents

3. Probability of other wetlands downstream of the main road

The current water course is still in a similar place to the 1940's image. It runs along the back of the dunes.

Houses were typically built in the higher areas to avoid flooding, the ground behind the properties drops relatively quickly to the flood plain. Most of the wetlands in the 1940's image see to be to the South of the drain/waterbody.

Council has mapped this area for wetland as shown on the image below. These are to the south of the proposed works.



Figure 6: Aerial image 1940 (Council GIS)



Figure 7 TDC wetland mapping of the area (Council GIS)

Conclusion

It is possible that very small remnant wetland exist in the alignment of the proposed flood protection works however these have not been mapped as TDC wetland mapping

4. Global stormwater consent – where are we at?

The bundle of consent for the urban drainage areas across Tasman is was granted and the decision was issued on 27 May 2021.

Link to the decision and consent documentation: [Tasman District Council's ShareFile](#).

The following is a summary of proposal resource consent numbers RM191015-16, 191018-19

The Tasman District Council currently operates a stormwater discharge network including pipes, culverts, manholes, sumps, detention dams, open drains, soak pits, inlets, and outlets. This network is used to manage stormwater flows from 15 Urban Drainage Areas (UDAs) across the district. The on-going discharge of stormwater and associated contaminants from these networks is currently unconsented and thus technically illegal.

This application represents a strategy for the Council going forward. It is part of a district-wide programme of works to improve the outcomes from the existing and future stormwater network, with specific focus of these works on improving the quality of stormwater – and thus minimising the impact of stormwater to receiving environments – throughout the district.

The applicant seeks a “global” consent for the 15 UDAs to include land use consent to maintain and construct the stormwater network including in the CMA; discharge permit for temporary water and contaminant discharges associated with maintenance or construction of the stormwater network; discharge permit for on-going stormwater and contaminant discharges.

The application proposes a series of bottom line standards (enforceable by way of volunteered conditions) that are applicable across the district. However, each UDA has unique characteristics and needs that will require custom strategies for stormwater management. Catchment-specific management approaches are proposed to be developed through individual Catchment Management Plans (CMPs).

An unlimited consent term is sought for the land use consent application (RM191015), whereas consent is sought for a period of 20 years for all other consents (RM191016, RM191018, RM191019). 20 years was agreed with iwi and is a key part of their support of these consents as it provides an appropriate time interval allowing for improvements to be realised but also for re-evaluation of effects of the overall strategy.

This consent does not include land drains or river systems that are used to convey stormwater as these are covered under TDC’s global river works consents (RM100851-100857).

The full documents in relation to this consent can be found at the following location on the Council’s webpage (and / or keyword search term “global stormwater”).

[TDC Global stormwater discharge | Tasman District Council](#)



Figure 8 Urban drainage area - intersects with the proposed works to the west of Able Tasman Drive

5. Boyle Street Culverts

The CMA boundary is defined for specific locations only in the district. For specific proposals or projects the Council starts with the planning maps and then may get MHWS surveyed on site. In this case the planning maps show the CMA to be downstream of the road, noting that the ortho rectification is often not great in rural areas.

The works in the CMA are permitted by rule 25.1.5.5 (see rule below) and the applicant has applied for a consent for works outside the CMA ie above MHWS. The commissioner has scope and authority to issue a consent for the works landward of the CMA boundary.



Figure 9 Coastal marine area boundary – dark blue line (Council GIS)

25.1.5.5 Permitted Activities (Disturbance or Occupation of the Coastal Marine Area)

Any disturbance or occupation in the coastal marine area resulting from the maintenance, repair, replacement or reconstruction of any structure or work that is:

- (i) for the purpose of avoiding or mitigating effects of erosion or inundation; or
- (ii) part of a road, including any bridge, culvert or protection work;

is a permitted activity that may be undertaken without a resource consent, if it complies with the following conditions:

- (a) The activity does not contravene any other applicable rule of this Plan.
- (b) The activity relates to an authorised structure or work.
- (c) There is no alternative location from which the activity can be carried out.
- (d) Disturbance is confined to the smallest practicable area and does not cause significant habitat damage.

- (e) The activity avoids further restriction to tidal flushing and fish passage.
- (f) Vehicle movement in the coastal marine area is avoided wherever practicable and otherwise:
 - (i) avoids unnecessary disturbance;
 - (ii) traverses hard substrate wherever practicable;
 - (iii) avoids indigenous vegetation wherever practicable.
- (g) Within seven days of the work being completed, the natural levels of the foreshore and seabed are reinstated as close as practicable to those which existed prior to the activity commencing.

6 State of the Environment Monitoring

Council has no specific State of the Environment monitoring for water quality in this catchment.

Fish monitoring has been undertaken in this catchment