In addition, the underlying Halloysite layer has been drained in front of adjacent residences to the east (numbers 26 & 27) and west (numbers 21, 20) by the installation of perforated PVC pipes in socks, penetrating this layer for up to 18m back from the slip. This seems effective at providing drainage and preventing further slipping, where it has been installed. **It was unfortunately not installed in front of the submitters’ residences.**

**Rock Wall installation.**
WBOPDC has progressively built a rock wall ‘bund’ to stop basal cliff erosion by wave action just past these residences. The cost of this is reportedly $3000 per lineal metre, and is much appreciated. But it only prevents one source of erosion - wave erosion - and is ineffective against climatic rainfall events, such as recently experienced. It has been overtopped in places by the debris from recent land slip erosion in this area. This is shown in Figures 1-3 where the rock wall has been covered in front of 23 and 24 Ruamoana Place.

**Reducing overburden height**
Efforts have been made in 2016 to reduce the overburden height at the top of the scarp face to reduce the load and form more ‘natural’ angles. However this was not completed and the slip started in the area not done.

**Figure 2: Landslip on Omokoroa Walkway showing so far unaffected land at the higher end**

Source: Drone footage Sunlive Saturday 15 Apr, 2017
Comments on Policy and Implementation.

This land stability problem has been in evidence for over 40 years, since the late 1970’s and the original subdivision of this land, first being evidenced by the large slips in Bramley Drive around that time. It has been the subject of numerous reports, investigations, and monitoring. Many advances have been made in understanding the root causes and possible remedies.

But Policy without subsequent commitment to action and an adequate budget to remedy the problem is just puffery - a sad excuse for ongoing but well-planned prevarication and inaction and ultimately disaster. The latest event has happened at the beginning of winter. What started as a slip outside 23 quickly spread with further rain. Action needs to be taken now to stop the current slips spreading further and taking out further parts of the popular Omokoroa Walkway and affecting adjacent properties. The beach in front of 26 Ruamoana Place is extremely popular, with an adjacent public access and regularly used by residents as far away as Margaret Place as well as people walking the walkway. The path access to this beach (see Figure 1) - the only access for kayakers - is now unsafe and the alternative steps are behind the current safety barrier.

In the case of 23-25 Ruamoana Place the time has now come for urgent action to stop the further erosion of WBOPDC reserve land, walkway assets, and their subsequent and consequential destruction of privately owned land. The time for Policy, Discussion, and any further inaction has now run out.
'Best Practice’ land stability and remediation must now be urgently undertaken to prevent further losses. Furthermore, the above submitters are prepared to make significant ad-hoc monetary contributions in support of WBOPDC activities to urgently bring this about.

Our submission is that ‘best engineering’ practice be identified, planned, implemented, jointly funded with the affected landowners, and brought urgently into reality to solve this problem permanently.

Such a solution would involve all elements of ‘best practice’ as far as is known, all used in conjunction to bring about a ‘best possible’ result in the immediate future:

- Extensive PVC drainage of the Halloysite layer extending back from the slip face
- Reduction of overburden height at the top of the scarp face to reduce the load and form more ‘natural’ angles
- An engineered solution such as benched rock walls to hold the scarp for as much of their height as is desirable and possible. This would also allow access for installing the PVC drainage. We envisage a high rock-wall type structure on a suitable engineering angle (possibly 30-45 degrees) to hold back the upper slopes from further slip erosion, starting at a base such as the rock wall already installed by WBOPDC in this area
- Ongoing maintenance of the sea-wall rock wall to prevent wave action erosion at the toe of the slope.
- Fencing off dangerous slopes to allow safe access along the present cliff-top round the peninsula walkway.

**Amenity value of the Area**

The Omokoroa Walkway is extremely popular used by both local residents and visitors. It is the most highly used walkway in the Western Bay of Plenty and used as an ‘icon’ in the current promotion of Omokoroa as a place to live. Access to the public is readily available between 26 and 27 Ruamoana Place. With the increased population levels expected in Omokoroa, all access to walkways and beaches is vitally important to take the pressure off the Esplanade area. There must also be an increasing rating base at both District and Regional Council level to fund this type of amenity in this area.

The beach in front of 26 Ruamoana Place has good swimming and has been a popular launch place for kayakers and small boats. Any extension of the current slip across the front of 25 Ruamoana Place will put this area in jeopardy. The path access to this beach (see
Figure 1) - the only access for kayakers - is now unsafe and the alternative steps (only suitable for swimmers) are behind the current safety barrier.

The Inner Harbour Coastal Erosion Management Policy 2017 Section 7.3 states that Council recognises it has responsibilities under other legislation:

- The Resource Management Act 1991 requires ‘the maintenance and enhancement of public access to and along the coastal marine area’.
- The Local Government Act 2002 requires ‘managing the effects of erosion on Council assets . . . . to meet the current and future needs of good quality local infrastructure in a way that is efficient and most cost-effective’.

The population growth expected in Omokoroa and the wider Tauranga region means there will be increasing usage of Council assets in this area and they need to be built up and maintained.

**Conclusion.**

Landslip instability has been recognised in the Omokoroa area since 1962. The most extreme example was in 1979 in Bramley Drive, and slips have been ongoing periodically in times of heavy rainfall since that time. This is a period of over 40 years since the original subdivision (Garae, 2015).

Time for prevarication has now run out. The next such event will likely see the loss of more private property in the submitters’ ownership, as a result of further loss of WBOPDC Reserve Land fronting the harbour from known and preventable causes. **An urgent plan of action is needed to address this issue and if possible prevent it happening. It is both a moral and statutory requirement for WBOPDC to mitigate such future events.**

We believe it is in both the WBOPDC and the submitters’ interests to put forward a proposal to do a best practice action plan **now**, jointly funded, and for immediate implementation, to prevent further losses.

The area in front of 23, 24 and 25 Ruamoana Place is probably one of the most fixable with the highest public usage and gain as

- The bottom of the slip has already been rocked.
- The slip face is only up to 17.5 metres high compared to much greater heights in Bramley Drive and O’Donnell St.
- Its position on the iconic Omokoroa Walkway and its proximity to a highly used beach where usage is threatened by the current slip.
- The residents’ commitment and willingness to make substantial ad hoc contributions towards a permanent solution.
References


Signed 25th April, 2017

*The Residents & Ratepayers,

23 to 25 Ruamona Place, Omokoroa 3114
References


Signed 25th April, 2017

*The Residents & Ratepayers,

23 to 25 Ruamona Place, Omokoroa 3114
Submission to Proposed Inner Harbour & Coastal Erosion Management Policy 2017

Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Tim

Last name: Lander

Email address: telander@clear.net.nz

Postal address: 6 Kowai Grove Omokoroa 3114

Which suburb do you live in: Omokoroa

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 10th May 2017.
Yes / No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)
Yes / No

Questions
Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?
Support / Support in part / Somewhat disagree / Disagree
Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1: What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?

- I believe the proposed policy is not sufficiently comprehensive

- The policy states ‘avoidance’ of hard engineering protection works for any development (4.1). This includes an enormous range of activities, to me basically meaning ‘everything’ (including maintaining an existing strategic asset such as public walkway, and all other infrastructure’ private development etc.)

- The policy and stated approach I believe could be applied poorly, particularly to the Omokoroa Peninsula land erosion situation

- The policy lacks cognisance of the significant geological and groundwater factors attributable to erosion. While the action of inner harbour tidal effects do erode land, this is not the sole factor in play (as new rock revetments recently buried by landslip at Omokoroa currently illustrate)

- Addressing the geological and groundwater over-saturation issues at Omokoroa should not become restricted by limitations of this policy eg. ‘hard’ or ‘soft’ engineering preferences – attention to the root causes of erosion are the priorities in my opinion, that the policy must support
Council owned land - see Section 4.1: In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

- Somewhat disagree

- The ‘General Approach’ aspects I believe cannot be restricted solely to ‘Council owned land’

- How would Council apply their precautionary approach (with consequent ‘avoidance of protection’) for situations where public infrastructure crosses private land and vulnerable to damage by erosion on Council land?

  eg: existing water/sewer collection pipework crossing private property, that succumbs to erosion/landslip on adjacent Reserve;
  - Council ‘avoiding protection structures’ and/or ‘doing nothing’ to the adjacent eroded Reserve;
  - the collector becoming consequently abandoned by Council.
  Under this scenario there could be significant cost implication directly to existing residents to maintain or reconnect to services under the proposed policy.

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of: - Do nothing - Adaptive erosion - Holding the line? See Sections 5-6.

- Somewhat disagree

- These 3 approaches are insufficient to address the Omokoroa erosion situation (ie. the influence of groundwater on land subsidence, distinct from inner-harbour wave action or sea-level rise). The Omokoroa land erosion issues are distinctly different than open-coast beach accretion

- The distinction of Reserve land as ‘undeveloped’ (4.2 Do Nothing approach) precludes how these same areas of Reserve land function as protection buffers in themselves.

- A simple ‘do nothing’ approach is unacceptable. I believe it a head-in-the-sand approach that is not relevant to either Council or non-council land, especially at Omokoroa
Please provide any other feedback on the draft policy

- Public infrastructure contributes enormously to the fabric of urban areas. Omokoroa for example is clearly identified as a Western Bay growing town in its peninsula setting, specifically including public harbourside walkways and Reserves. As a desirable place to both live, grow and visit, all the forms of infrastructure from walkway access to sewer pipes need to be treated as strategic assets of high value.

- The proposed policy preamble on Community Values sets a contextual flavour of ‘individualised benefit’ vs wider values. While some of these situations may occur around the district (a minority I would suggest), this background poorly represents all of the Western Bay communities’ concern and commitment to where we live.

- Council policy should include a well-informed and strong forward direction, tailored where necessary to the communities the Council serves.

- I do not believe the proposed policy is comprehensive enough or satisfactory to fall back on for managing the effects of inner-harbour erosion, coupled with Community values and aspirations (particularly at Omokoroa).

Thank you
Tim Lander
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Lorna

Last name: Bryson

Email address: Wendob@ihug.co.nz

Postal address: 31 Ruamoana Place

Which suburb do you live in e.g. Maketu, Katikati? Omokoroa

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 10th May 2017.

No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)

/ No

Questions
Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?
Somewhat disagree /

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1: What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues? Erosion has been known about for many years and council has still spent money on subdivisions and infrastructure in the at risk areas, too late now to get cold feet.
Council owned land - see Section 4.1: In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?
In Omokora I disagree as the walkway and esplanade are significant attractions of the area

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of: - Do nothing - Adaptive erosion - Holding the line? See Sections 5-6.

Hold the line

Please provide any other feedback on the draft policy
Western Bay of Plenty District Council  
Inner Harbour and Coastal Erosion Management Policy (2017)  

28 April 2017  

Submission from Christopher HECTOR  
60 Hamurana Road, Omokoroa 3114  
Email : chector@waikato.ac.nz  

This submission is personal - I am not affiliated with any group.  

Overall support:  
Basically there is little in this policy document to object to, but I find it much too vague.  
Objective 2.1 says it is intended “to provide certainty to the Community…” This document does nothing to provide certainty.  

The three options outlined in 4.1, 4.2 and 4.3 are obvious, but section 5.2 suggests that ‘holding the line’ is Council’s least favoured option. This is probably sensible in rural areas and on the exposed ocean beaches. However increasing numbers of residents are living close to the water’s edge in developments such as Omokoroa, and the waterfront is an important amenity.  

Coastal walkways on Council land are a feature of the district, and are important for health and recreation. Large numbers of residents like to walk around Omokoroa, and walking on the Council reserves is much more pleasant and satisfying that walking along suburban streets.  

It would be a serious loss to the community if walkways were to be arbitrarily abandoned when erosion causes problems, though I appreciate that this might occasionally be the only viable option.  

I would encourage Council to adopt a zoning approach to the options in section 4, so that residents have at least some sense of which lengths of coast are most likely to be abandoned to natural forces, and which are more likely to be considered favourably for remedial action when erosion strikes.  

In areas of relatively dense population I believe that maintaining attractive coastal walkways and facilities should be a priority for Council, unless erosion and slippage are so serious as to make this impractical.  

Thank you.
Hi Marc

I understand you are still accepting submissions on the draft policy.

Please take my previous submission on your website during the haveyoursay process (living with the tides), submitted under Shane, as my submission on the draft plan.

If possible I do wish to be heard in person.

Regards

Shane Adams
13 Kowai Grove
Omokoroa
021 751 971
Omokoroa peninsula has been designated an urban growth node for the wider region. I understand this is a decision made by all 3 councils: WBOPDC, Tauranga City and EBOP the regional council. Designated urban growth nodes allow the population to grow, and infrastructure to be developed, while avoiding the unplanned spread of housing and sections into the surrounding productive hinterland.

For this reason I believe it is important that Omokoroa receives the proper investment from the wider regional rating base, to allow the infrastructure in the peninsula to reflect the needs of the local population but also the growth needs of the wider region.

Coastal erosion is a problem in many areas of Tauranga harbour. The soil is basically a volcanic ash pile that falls into the harbour unless properly retained. There are serious visible slips at Omokoroa, Pahoia, Maungatapu and other locations. However, the slips at Omokoroa are the worst and are the closest to high density housing. While sea level rise is definitely a concern, I believe it is too great an issue to consult on meaningfully. Whole cities will have to shift if some of the projections are accurate. Hence the current focus should be on more tangible and immediate issues such as existing coastal erosion trends.

My own property is not affected by slips, but I believe the whole community shares the risk that slips will degrade our living environment unless substantial remedial investment is made.

At present we have slips at Omokoroa that are very serious (eg top of Bramley Drive and main walkway along the clifftop), that are a massive eyesore and potentially dangerous. These slips are a very bad look for a proposed urban growth area.

While I accept that not much can be done to remediate the slips, I do note that Council has completed a substantial amount of work in rockwalls below certain parts of the cliff edge.

My belief is that the rockwalling is a visually attractive compromise between the costs of stabilising the cliffs and the need to keep a shoreline that is protected from further erosion.

Hence my suggestion is that the rockwall concept be extended considerably, as follows:

- Build a rock-based walkway (ie promenade, 3-4 m wide) right around the tip of the peninsula (approx from Waterview Terrace to the Domain). Build in stages over a 10 year timeframe.
- The walkway could eventually replace the disjointed and street-bound elements of the current walkway, allowing a complete circuit of the peninsula for pedestrians, without having to navigate from one section to another through residential streets. It would also avoid the issue of having to maintain the clifftop path in those places where erosion will inevitably prevent access at some future point.
- Where the walkway is below an erosion-prone cliff, it should be built some 5-10m on the seaward side of the high tide mark, with culverts to allow the tide through. This would keep the walkway clear of any future debris from slips; in fact, debris falling would effectively back-fill the shoreline and could be planted out accordingly.
- The cost should be met by the region-wide rating base because of the Smart Growth plan for Omokoroa. Sections of the walkway might be sponsored by local businesses etc to assist in funding.
Dear Charlotte

We have a property at 20 Waterview Terrace Omokoroa. We understand there is a meeting for the residents who border the walkway. We only returned back today and wish to attend the meeting on 10th May. My partner Dr Jonathan Hope BVSc wishes to speak at the meeting also. Please add him to your agenda. He also requires a white board if you could organise one please. We look forward to the meeting as we are very interested in the outcome of the slips near our property. Regards Jenny Sutherland. Ph 0274694711 if there is a query thankyou.

Sent from my Samsung Galaxy smartphone.
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Linda

Last name: Linda

Email address: linda.fried@inf.net.co.nz

Postal address: 12 Karaka Ave Onokoroa 3114

Which suburb do you live in e.g. Maketu, Katikati?

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 4th May 2017.

Yes / No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)

Yes / No

Questions

Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?

Support / Support in part / Somewhat disagree / Disagree

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:

What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?
Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

I do agree with this approach although doing nothing is not very assured. Question is a bit ambiguous.

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

Raising the line would be the best solution from our perspective.

Please provide any other feedback on the draft policy.
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Beverly

Last name: TEEBOON

Email address: bteeboon@hotmail.co.nz

Postal address: 11 Omokoroa Road Omokoroa Tauranga 3114

Which suburb do you live in e.g. Maketu, Katikati?

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 4th May 2017.

Yes/ No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)

Yes / No

Questions

Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?

Support / Support in part / Somewhat disagree / Disagree

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:
What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?
Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

Please provide any other feedback on the draft policy.
Hello, thanks for taking the time to have your say on this draft policy!

Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: (Required)

Tammy

Last name: (Required)

Bruce

Email address:

tammybruce@gmail.com

Postal address:

30 Margaret Dr
Omokoroa
Tauranga

Which suburb do you live in e.g. Maketu, Katikati? (Required)

Omokoroa
Living with the Changing Tides
Have Your Say Western Bay of Plenty

Postcode:

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at a number of venues across the District, during the week commencing 10 April 2017. (Choose any one option) (Required)

- Yes
- No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf) (Choose any one option) (Required)

- Yes
- No

Answer this question only if you have chosen "Yes" for "Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)"

If 'yes', what is the name of your organisation?

Questions
Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy? (Choose any one option) (Required)

- Support
- Somewhat support
- Neutral
- Somewhat do not support
- Do not support
Living with the Changing Tides
Have Your Say Western Bay of Plenty

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:
What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?

I agree. It is essential on your part!

Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

I think its a good approach & necessary on a case by case basis.
I hope public usage will be taken into consideration also.
i.e. high usage walkways, cycleways & reserves.

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

Yes I think its a good approach - potentially. But if the "do nothing" option is likely to be adopted - I would hope for public opinion so its not used as a cop out to not maintain reserves, strip, public walkway, etc...
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Liz
Last name: Farrell
Email address: liz.farrell@xtra.co.nz
Postal address: 476 Omokoroa Road RD2 Tauranga 3172

Which suburb do you live in e.g. Maketu, Katikati?
Omokoroa

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 4th May 2017.

Yes / No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)
Yes / No

Questions

Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?

Support / Support in part / Somewhat disagree / Disagree

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:
What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?
If an area is a known risk area: slip/flooding, etc it should not be approved for building etc. It is financially and socially irresponsible.

Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

All areas should be assessed on a case by case basis and consultation would be required for each proposal to enable local residents to ‘have their say’.

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

All dependent on each case. Most people will disagree with a ‘do nothing’ approach but for too long we’ve allowed people to build ridiculously and nature will always win!

Please provide any other feedback on the draft policy.

Communication and consultation is important with cost variables for each so informed debate can be had.
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name: Peter

Last name: Goad

Email address: pandmgoad@gmail.com

Postal address: 33, McDoaned St, Owo Koroa

Which suburb do you live in e.g. Maketu, Katikati?

Owo Koroa

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 4th May 2017.

Yes / No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)

Yes / No

Questions

Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?

- Support / Support in part / Somewhat disagree / Disagree

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:
What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?

Fully support & agree
Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

Agree in general – see below.

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

The 'adaptive' approach is rather vague.

How much investment is the council prepared to make in any given situation?
I.e. 'soft planting' to mitigate against erosion on reserves adjacent to vulnerable properties.

Please provide any other feedback on the draft policy.

Would the council consider actively encouraging land owners adjacent to reserve strips to undertake planting on the reserve and give advice on any other measures they could take. This would surely be cost effective as most land owners would be prepared to invest time and money in protecting their major asset.
Your contact details

Your name and feedback will be publicly available in Western Bay of Plenty District Council reports and online. All other personal details will be kept private. Please provide either an email address or postal address.

First name:  
MARGARET

Last name:  
GOAD

Email address:  
Pandm goad @ gmail.com

Postal address:  
33 McDonnell St., Omokoroa.

Which suburb do you live in e.g. Maketu, Katikati?  
Omokoroa

Would you like to speak with the Elected Members about your views? If you ticked 'yes' we will be in touch to arrange a date and time. Depending on the number and location of submitters, roundtable discussions will be held at Barkes Corner on 4th May 2017.

Yes / No

Is your feedback on behalf of an organisation? (If 'yes', this confirms you have authority to submit on the organisation's behalf)

Yes / No

Questions

Please answer the following questions about the Draft Inner Harbour and Coastal Erosion Policy.

Overall do you support the proposed draft policy?

Support / Support in part / Somewhat disagree / Disagree

Inner Harbour and Coastal Erosion Protection, Future Subdivisions and Intensification - see Section 4.1:

What do you think about the proposed precautionary approach of ensuring any new subdivision and land development is designed to mitigate future erosion issues?

Definitely agree with this approach.
Council owned land - see Section 4.1:
In general, what do you think about the proposed assessment approach on land owned by Council such as reserves and strips?

Agree with this

Regarding the above question, what do you think about the following proposed management options to mitigate erosion on land owned by Council of:
- Do nothing
- Adaptive erosion
- Holding the line?
See Sections 5-6.

Adaptive erosion is the obvious approach to take.

Please provide any other feedback on the draft policy.

I would have appreciated advice from Council as to measures we should/could be taking to preserve our property and the likelihood of being able to remain in it - especially given our location in the same street as evacuated residents! We are investigating planting & drainage we can do on our property - maybe Council could encourage others with some useful positive information.
Dear Charlotte

Thank you for allowing me to submit my thoughts late. I would like to stress that I know those reading this will know most, if not all of the information already, but part of the writing process was to organise my own thoughts and keep them ordered and in one place for possible later reference. I believe I have made it clear and easy to read tho', for those for whom this is case and want to skim over it.

- Attached is a Pdf titled: "Erosion Control Thoughts for Council April 2017"

- I have also attached a word document titled: "Skate Park doc" which is referred to in the Pdf

- Although this is not about the Play Ground Design, as mentioned in the Pdf, I believe it could be integrated into it as community participation and education and so have also attached the Design Considerations I sent to the Play Ground Committee. I am sending these as they have information pertinent not only to community participation but also information referred to in the Pdf - "Erosion Control Thoughts for Council April 2017"

Attachments are titled: "Overview DC" & "Design Consideration Starter Ideas - INVITATIONS TO"

Below is a link to a private FB page to accompany the Play Ground Pdfs, these contain further links to details regarding biochar, and other soil rehabilitation system ideas.

This is the information I recently put together for the Play Ground Committee.

* Private Pinterest
Group: https://nz.pinterest.com/cherishourcommu/ Password: peaceiscommunityx000+

Thank you again for the invite to share.

Regards

Lia

Lia Tuerlings // 0204 1039 631
WHY

We manage the conservative use of fishing to protect the sea, and it's ecosystem why not manage the use of land, with restricted, permitted soil use only. If this is being done already, then maybe it needs revisiting and strengthening to maintain a system that is sustainable.

***

I know from work on the Skate path (see attached word doc) that Omokoroa has a history of:
- stripped vegetation
- long-term soil compaction from cattle and pigs
- disturbed soil-water balance
- chemical applications and possibly lead from paints
- increased overland flow
- rising water tables or salt seepages
- overgrazing
- orchards and agriculture on a broad scale
- episodes of high winds or rains
- severe disturbance caused by animal tracks, reading and ill-advised earthworks.
- early disposal of large amounts of wastewater into soak holes
- further development of land in the area and so an increase in hard surface runoff.

It would be interesting to do an historic analysis of the water table levels in Omokoroa as I suspect the level has risen substantially.

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As a complete beginner and not an expert at all, even I suspect a rising water table as I see it in periods of heavy rain both in my own back yard as well as throughout the area on the sides of the road.

· Rising Water Tables cause soil swelling
· These are all gradual causes of soil erosion so it is no surprise that this is happening.

(Bill Mollison, Permaculture a Designer's Manual)

Again, we manage other areas of our natural landscape why not our soil as it is the foundation of all else.

· ... loss of soil will bring any society down more surely and permanently than war itself." pg 17 Bill Mollison, Permaculture a Designer's Manual.

WHAT

As all else depends on a stable and productive soil- SOIL EROSION AND REPAIR need to be A PRIORITY

LAND/SOIL STABILITY & SOIL CREATION = Air, Space & Structure made up of organic matter

"Soil organisms are a major soil factor, and have myriad perceptible and profound effects on pH, mineral content and availability, soil structure, and erosion."
pg 183, Bill Mollison, Permaculture A Designer's Manual
Sometimes the solution is more obvious than we think, and **GOING BACK TO BASICS**, as simple as it may seem, could be the answer.

Instead of covering the problem and hoping it goes away, i.e. with more permanent concrete, or other systems of retention, we could try learning from nature and the many natural sustainable systems, untouched by man that have lasted lifetimes.

Working on our foundations will not only be the solution to continued erosion, but strengthen the whole system from the bottom up

### Basics to remember:
- Organic Matter encourages worms and other soil microbes which bond the soil

- Worms will re-create loose soils through aeration, castings, essential nutrients, balanced distribution of space if we leave them to it (see accompanying slide show)

- Worms need air, moisture and food

- Biochar stores copious amounts of water and could be a possible addition to alleviate swelling, and water retention

- Fungi have also been proven to be an amazing resource in rehabilitating soils

- Establishment of deep rooted plants

  - Windbreaks

  - Permanent and Tree Crops

  - Terracing, Forestry

- Diverting, Infiltrating and Spreading Water Flow i.e. zero run off (See cited references for more starter info on all of these topics)

### HOW

**Thoughts and Humble Ideas**

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I believe rehabilitation of the soil at different levels in different stages through well-planned design, over a period of time and variety of situations is a viable sustainable solution.

If Air, Space, Structure and Organic Matter equal Stable Soil, then we need to consider introducing methods to create these conditions at each layer of the soil, right down to where the problems seem to be at its worst.
Please remember that all these notes and ideas are from a very beginner, purely interest and observation knowledge base.

***

**TOP LAYER - CLAY ??**

*As can be seen from the various subdivisions around the peninsula as well as from personal experience in a variety of sections including my own, the top layer of the "soil" appears to the untrained eye, to be a very deep layer of nearly pure, heavy clay. In any case, it gets saturated very quickly, with a water-laden surface underfoot aerobic right through, and on digging seems to be only clay which forms tight balls when squeezed and could easily be formed into a shape to be fired in a pottery kiln. As seen from Wim Rijkse article, there are many different types of top soil around the BOP, but from a beginners viewpoint, and observation, I have seen it resembling a heavy clay type structure. Any work would, therefore, of course, need to be preceded by soil analysis to know what we are working with.

*This means- no air, no space, no structure and no organic matter. However, it could potentially be full of nutrients as well as unfortunately possibly harmful chemicals from the past and present, trapped inside.

*This means it gets very heavy when wet and it becomes saturated very quickly, holding extreme amounts of water, with further water sitting on the top with nowhere to go but overland causing more erosion as well as aerobic conditions throughout.

- I believe that the water table in Omokoroa has risen substantially and this can be seen in low lying- mid or at the base of slopes type areas when the clay top layer becomes saturated in no time. After a number of years of observation, I can’t help but wonder if the quick saturation point is because the water from above runs down- underground- forming a higher water table and not giving the water from the sky a chance to penetrate much at all.

- This has been especially noticeable in new subdivisions where the land has been stripped and compacted over and over again to be later simply covered by more concrete and build up with houses at all layers sitting on these types of foundations.

‘Again, from a very beginner and pure interest and observation knowledge base I wonder if it is possible that it is this top layer when it becomes saturated and extremely heavy that is one of the causes of the slips /erosion, as the weight can’t be held up and eventually gives.

- I also wonder if this is linked to the lack of unstable structure in the lower layers- made up of different ash formations over time - Tephra- which means the weight the saturated top layer is just too much.

•IDEA: If we could condition the soil from above, through the use of Chise / Plough type systems, then we are creating environments for compost worms
to recreate the soil as well as over time creating the right environment for them to thrive providing much needed aerated soil which stays warmer in winter and cooler in summer. Which means worms are more inclined to stay.

In my limited understanding, Chisel Plough systems usually run along the soil but what if we combined the use to include a similar system at differing depths in individual spaces to create a type of growing spaces fort he right types of vegetation and alongside them create vertical trenches to add worms to the mix. This way we are aerating the clay through both systems as well as adding worms to the soil to create aggregates and hold it all together. Plus the possible addition of biochar and fungi to further facilitate a natural stabilising process.

Types of plants that could be used to aerate the soil and add nutrients are radish (this also alkalizes the soil), chicory, comfrey, which are all deeJ rooted and add green manure. As well as Tree or Shrub legumes which would put more organic matter in place through leaf fall.

"We can use rehabilitative technology on a large scale, followed by the organic or root method, by pulling a shank and steel shoe through the soil at depths of from 18cm (usual and often sufficient) to 30or even 80cm (heroic but seldom necessary unless caliche or compacted earth is all we have left as "soil") "pg 216, bill Mollison Permaculture a Designer's Manual".

***

**UNDER LAYERS- TEPHRA (different ash, lapilli etc)**

- Again from a beginner perspective, is it possible that this layer, then, has too much air, no structure and acts like a big slippery void unable to hold the weight from above?

- This could also be a contributing reason to the more than unfortunate lack of earthworm populations.

- So, if lower ash layers are aerated but lacking in organic matter and structure and the top layer is over saturated lacking in air and space, it seems logical to rehabilitate both layers to re-create the strong structure needed.

- On that note tho', is it possible that this is a situation where the problem is the solution and the ash layers could be used as a 'biochar' alternative, or in fact on further investigation, they may be just that. Again just an idea, and I haven't looked into it further, but this is an invite to do so.

**IDEAS:** Could we not seriously consider possibly building soil structure at the source? Would it be possible to find out what layer the soil changes without digging in each place and then intervene with the right strategy at each layer?? I have seen pipes underground used for water infrastructure so wondered how possible it would be to take this idea and use it to see where the layers change, or even taking this idea and extending it to introducing ecosystems in situ.
• Possibly even using some form of deep underground worm farm system to introduce the organic matter as well as the ‘worms’ to re-create structurally sound ecosystems in the lower layers. I have searched to see if I can find evidence of it being done already, but can’t find anything. It could be because of different wording. So I’m not sure the idea is clear. I mean a type of underground worm farm, with of course the right worms and creating the seeds of the right ecosystem for them to thrive even at this layer. An underground worm nursery??

* Including the introduction and further research into the use of Biochar as a means of retaining nutrients and extra water, and/or understanding the existing tephra layers to see whether they are in fact a form of biochar.

• Including the introduction and further research into the use of Fungi to aid soil rehabilitation

• Setting up an education programme offering a series of ongoing seminars and practical workshops to not only help the community understand the importance of feeding and creating sound soil from the top down as well as from the bottom up wherever possible, but also with some form of encouragement to participate and come on board.

* Bringing Permablitz BOP on board to help with this

• I would love the upcoming Play Ground Design project to be part of this community education in an overall sense and have stated as much in the work I have recently passed onto Scott. In fact, it could be part of any upcoming playground projects, WBOP wide as well as if successful, Nation Wide as it is a nationwide problem we face.

When I went along to the first Skate Path meetings, I sincerely wanted to have worked further in this area and had plans to work much deeper into ways of incorporating the skate path design as the beginnings of a larger community project where sustainability was at its core. Personal circumstances have meant I was unable to put in as much time as I would have liked, but the belief is still strong. This is an exert from the summary I provided in the beginnings of the Skate Path project which mainly looked into the historical context of the area, but presented more extended ideas:

"I would like to see the skate park design as the first step towards incorporating better community management of our water supply through:
1st- creating a long-term plan for the revitalising of the soil health by the use of correct vegetation and soil management.
2nd- conserving, cleaning and recycling by harvesting as much rainwater as
possible, so that we keep the water on site but away from the ground until the ground is healthy enough to handle it. This way the rain water becomes once again, our primary water source, grey water our secondary source and municipal water need only be used as a supplemental source used in times of need.

This is a large task, but I believe that not only can we do it with proper planning and integrated design, but we have a responsibility to our families and children to do so. After all, this skate park is for our children and consequent playground planning is for everyone as babies become toddlers, who become children, who become teenagers, who become adults, who become seniors; all with varying wants and needs."

**IDEAS IN CONCLUSION:**

A Top Down and Bottom Up System where we introduce all the things that will create stable soil as well as mitigate further water swelling and retention at each level of the problem, as opposed to just at the top. ie. organic matter, worms, biochar, fungi, appropriate plantings, space, biochar, fungi and all the appropriate elements into a well designed interconnected network of systems we can work towards the restoration of our soil and fix what has been destroyed.

As Bill Mollison says: "Our largest job is the restoration of soils and forests for the sake of a healthy earth itself. It is most definitely not to clear, deforest, or ruin any more land but first to put in order what we have destroyed, at the same time attending to the modest area that we need for our survival and full nutrition." pg183

We manage the conservative use of fishing to protect the sea, why not manage the use of land, restricted use of soil only permitted, as it too, ends up in the sea and has far reaching dire consequences overall. Improving systems that encourage conservation of our land following careful analysis of slope, soil stability and good soil husbandry need to be a priority.

In order for this to be sustainable and maintained, ongoing infrastructure and plans in education and implementation need to take place to prevent the problem re-occurring and the same mistakes happening again.

I believe that the control of erosion needs to happen both in large scale projects as well as individual encouragement of sustainable gardening systems to build both from the top down as well as the bottom up. Meeting in the middle with equally strong structurally and microbe sound soil.

"...the importance of conserving topsoil (,) ..................maintaining adequate vegetation cover and the addition of organic matter to soils to reduce their susceptibility to erosion cannot be overemphasised"

pg 11& 26, Soils of the Bay of Plenty vol 1. WBOP