

Minutes of the Kopeopeo Canal Remediation Project Community Liaison Group meeting held at Eastbay REAP, Pyne Street, Whakatane on 14 May 2019 commencing at 10:08am

Chair: John Pullar

Scribe: Cleo Hanlon (BOPRC)

Members present: Andrew Kohlrusch (Independent Monitor), Matt James (Independent Monitor Field Observer), Eula Toko (Cultural Monitor), Tani Wharewera (Iwi Representative, CS3 Rep), Cameron Huxley Toi te Ora Public Health), Sandy Lyons-Birley (Toi te Ora Public Health), Rene de Jong (Whakatane Harbour Care Group), Tui Edwards (CS2 representative), Hayden Power (Federated Farmers), Gary Searle (Whakatane District Council), Scottie McLeod (Whakatane-Tauranga Advisory Group Representative)

Others present: Brendon Love (BOPRC), Ken Tarboton (BOPRC), Bruce Crabbe (BOPRC), Abby Tozer (BOPRC), Dr Joanne Kelly (University of Waikato), Dr Chris Anderson (University of Waikato), Des McLeary (EnviroWaste), Tracey Godfery, Neil Larking, Jean McCauley, Robbie Martin (arrived 11.24am)

Apologies: Clint Savage (Department of Conservation), Brad Bluett (Department of Conservation), Neale Yeates (CS1 Rep)

Action summary

No.	Actions of 14 May 2019	Responsible	Status
1	Date for final CLG meeting to be set for mid-August	BOPRC	

Item 1: Welcome and karakia

- i. The Chair welcomed those present and thanked them for attending. Tani Wharewera opened the meeting with a karakia.

Item 2: Apologies

Apologies were received for Neal Yeates, Clint Savage and Brad Bluett.

Motion: Apologies approved	Crabbe/Power	CARRIED
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Item 3: Minutes of previous meeting

No.	Actions of 26 February 2019	Responsible	Status
1	Fortunes Rd drain water colour report to be circulated to CLG members	BOPRC	<i>Completed</i>
2	Possible nuisance dust to Keepa Rd Residents to be monitored and issues addressed if needed (could be addressed with water cart or polymer dust suppressant).	Contractor (ESL) BOPRC to help monitor	<i>Completed</i>

Motion: That the minutes of the Community Liaison Group meeting of 26 February 2019 be accepted as a true and correct record.

Motion: Minutes approved de Jong/Searle CARRIED

Item 4: Communications

During the presentation given by Abby Tozer (slides 3-4), the following points were commented on:

- i. A Media release was put out last week including the timelapse footage of the final dredge lift over the Keepa Rd bridge. This has mostly been picked up by technical publications, but yet to be published in the Beacon.
- ii. There has been coverage in the Beacon regarding contaminant soil being moved, and was clarified in the article that the source of the material was not from the Kopeopeo Canal.
- iii. The FAQ's have been updated on the website.
- iv. Consented discharge signage has been erected at Containment Site 3 (CS3) at the outfall sites, to alleviate any concerns from the public.

Item 5: Project Update

During the presentation given by Brendon Love and Ken Tarboton (slides 5-20), the following points were commented on:

- i. Brendon provided an overview of progress to date. Dredging of Section 6 has been completed. Validation sampling has been completed, except for the re-dredged area. The dredge lift over Keepa Rd bridge was successfully completed on the 6th May. There is approximately 1100m of Section 7 to be completed. Acoustic panelling has been erected, and noise monitoring is ongoing. Containment Site 1 (CS1) closure planning is ongoing.
- ii. An image of the final section of the canal to be dredged was shown. The Contractor is operating within close proximity to CS3, which is improving flow rates.

- iii. There are 5 geobags 90% filled at CS3. Sediment needs to be spread out between multiple bags. Bag rollout in the remainder of the cell is being prepared.
- iv. Slide 9 showed a photo of water coming off the bags into the sump, which is the discharged into the canal. This is a consented discharge, and signs have been erected at the discharge points.
- v. Twelve poles have been erected in CS3 to monitor settlement of the bags, as part of the investigation into the potential need for double-stacking of the bags, should storage availability become an issue.
- vi. On the 6 May 2019, the barge was lifted over the Keepa Rd Bridge. Photos of the bridge lift were presented, and a link to the timelapse video is on YouTube.
- vii. Dredging of Section 6 has been completed, and Section 7 dredging has commenced.
- viii. There is a sandbug dredge unit that also assists with the dredging. The smaller sandbug can reach under the bridge supports and gets around the abutments. This will be utilised should further re-dredging be required in Section 6.
- ix. The activities planned for the next few weeks include:
 - a. Flood Management planning and modifications to Flood Control Structure West
 - b. Vegetation removal in Section 7
 - c. Digital Terrain Model to be established for Section 7
 - d. Considerations for removal or beneficial reuse of Flood Control Structure East
 - e. Capping at CS1 to continue
 - f. Planning for the reinstatement of public access at CS3.
- x. Wood pellet has been injected into some bags at CS1, as part of the bioremediation phase of the project. Some access holes have been cut into the bags for this process, which will be utilised for introducing inoculant. The holes are immediately patched to avoid any discharges.
- xi. Jo Kelly gave an update on Bioremediation (slide 18-19), and explained the process of adding inoculant. Two fungi are being used, one is native to Whakatāne. There is also a bacterial and fungi consortium sourced from Christchurch. Willow and poplar species will be planted. Some mushroom

growth is present, as shown on Slide 19. These fungi will bury down in the bags looking for more organic matter, which is the wood pellet that has been mixed into the bags.

- xii. The Contractor will continue to dredge Section 7, and complete the design surface. Noise monitoring at CS3 and along Section 7 is ongoing.

Questions and comments that were raised during the presentation:

- a) Rene de Jong asked what sort of vegetation is present. Ken responded it is gorse and some old pines also need to be cleared, along with trees that have blown down from the wind over the weekend.
- b) Tani Wharewera asked how big the bags were, and how much of the fungi is being introduced. Jo responded that 80 holes are added to the bags, and the fungi would take approximately one year to grow over. Once the trees have been planted, they will take some water out, and will add oxygen.
- c) John Pullar asked if there was a risk of sediment escaping. Jo responded that there are many layers between the sediment and the trees (ie topsoil). Brendon added that a methodology will be developed to manage this minor, short term disturbance.
- d) Hayden Power asked how the topsoil will be added. Ken responded that access ways will be made between the bags for trucks and light vehicles to get into. The oversize bags will go into the deep valleys and be covered by topsoil.
- e) Gary Searle asked what the frequency of checking the bioremediation progress will be, and Jo responded this will likely be annually.
- f) Tani Wharewera asked if a lot of watering has been required. Jo responded that it hasn't been needed. Excess water will be added back to the top of the bags.
- g) John Pullar asked if the vegetation that is coming up is penetrating the liner. Brendon responded that it isn't, and that the trial has proved this.
- h) Neil Larking asked if there would be dredging of the saltmarsh area in S7. Brendon responded that it could be possible if a channel was cut in. These areas have been sampled and some are above the remediation target. The existing equipment can't dredge these areas, as it is too shallow. Alternatives are being investigated to remediate these areas. There are ecological benefits that need to be considered when selecting a remediation/management method for this area.

Item 7: Independent Monitor Tech Talk – “What do the numbers mean?”

Matt James and Andrew Kohlrusch led a Tech Talk (presentation “Kopeopeo Canal Remediation Project – What do the numbers mean?”), covering frequently asked questions from the community on the remedial target and validations results.

- i. Andrew explained there are five guidance documents, including the “Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (2011)”. This guide outlines the background on how MfE came

up with the investigation levels, and also includes reference materials. These values are based on conservative assumptions around eating habits and drinking habits (i.e. approximately 100mg of soil is consumed per day on residential sites), which are used to come up with soil investigation levels.

- ii. In establishing soil investigation levels there are several exposure pathways considered:
 - a. Soil ingestion (eating or coming into contact with soil which is consumed)
 - b. Produce consumption (produce grown in backyards)
 - c. Dermal exposure (soil in contact with skin)
 - d. Inhalation of particulates (breathing in contaminated dust which may be in soils)
 - e. Inhalation of volatiles (fumes you may smell)Each pathway has a number assigned for the particular chemical in questions, which are then added together to establish a Soil Guideline Value (SGV) or Soil Contaminant Standard (SCS). When assessing the site, samples of the soil are collected, and are evaluated by the laboratory for comparison against the SGV or SCS. These values are conservative, if the concentrations are less than the SGV or SCS, there is no further need for assessment, and the site is considered suitable or safe for that particular purpose. If the concentrations are above the SGV or SCS, there is a potential risk to human health.
- iii. In relation to SCS, there are five standard scenarios established in New Zealand for various land uses:
 - a. Rural residential/lifestyle (25% produce)
 - b. Residential (10% produce)
 - c. High density residential
 - d. Recreational
 - e. Commercial/Industrial outdoor worker
- iv. Standard investigation levels have been established by MfE to include dioxins. There are 210 possible congeners, of which 17 are of toxicological concern. These dioxins don't occur as pure compounds. The total toxicity is assessed on toxicity equivalency factors (TEF) to 2,3,7, 8-TCDD, which is given a TEF of 1. The majority of dioxin congeners have a TEF of 0.5 or lower. I-TEQ is the sum of TEF, and is expressed in three ways – I-TEQ-high, I-TEQ-medium and I-TEQ-low. There is a difference in which the TEF have been established (prepared by the International (I-TEQ) or the World Health Organisation). I-TEQ are more conservative, and they are the numbers used in calculating the concentrations of dioxin found in the Kopeopeo Canal.
- v. MfE established standard dioxin values for the five human exposure scenarios. The standard values are based on commonly occurring scenarios, and range from 120 – 1400 pg/g TEQ. For the Kopeopeo Canal site, the scenario or pathway is different, and a risk assessment was undertaken based on the MfE guidelines to come up with site specific values or clean up targets.

- vi. ToxConsult were engaged in 2013 to prepare a site-specific assessment. A series of eels were caught in the canal, along with sediment samples from the same areas. The weight of the eels was recorded, and samples of skin and flesh were taken and analysed for the presence of dioxin. The resultant estimate undertaken was based on standard equations for how the chemical is consumed or taken up by people who eat eel. This resulted in a potential dioxin uptake of 0.55 - 0.78 TEQ/kg/d. This also took into account the number of eels eaten on average in a week, which was an average of three servings of eel per week. The combined total of uptake in eel and other sources of dietary intake was 0.88 to 1.11 TEQ/kg/d, which is slightly in excess of the values set by MfE. Three site specific exposure scenarios were taken into account when developing the remedial target:
 - a. Eel consumption
 - b. Dermal absorption during eeling
 - c. Dermal absorption during swimmingHuman body weight, the consumption rates of eel and sediment data in the home range of the eels was used to calculate the sediment remediation target of 64 to 92 pg/g. This was rounded down to 60pg/g, which is the remedial target for the Kopeopeo Canal.
- vii. A cross-section of the canal was shown. There is approximately 1-2m of target (contaminated) material on the base of the canal before dredging. After dredging there is approximately 0-30mm of residual target material left. A sample is taken via a 100mm core, and is sent to the lab for analysis.
- viii. An image of a sampling core that has passed was shown. In the example, a small layer of target material can be seen, and the sample had a pass of 23pg/g.
- ix. An image of a sampling core that has failed was shown. In the example, a large layer of target material can be seen (a clear difference between the grey natural sand and the black target material can be seen), and the sample had a fail of 990pg/g.
- x. The validation results on slide 12 show the raw lab results from the samples. All the congeners are broken down, and then the I-TEQ totals. The I-TEQ Upperbound is used to compare to the remedial target. In this case, I-TEQ Upperbound is 47, which is a pass.
- xi. Slide 13 presents the lab results taken (as represented on the previous slide), both on a map and in graph format. The blue line of the graph is the limit of reporting (LOR) for that particular test method (20pg/g is the lowest result possible), and the red line is the remediation target of 60pg/g.
- xii. The Resource Consent has stipulation that the results of the testing should be compared to a 95% Upper Confidence Level (UCL). This UCL value must be below 60pg/g. The diagram shows the result of 95% of samples will likely fall within this particular range of results.
- xiii. A conceptual site model of the canal before the remediation was undertaken was presented. It showed the source (dioxin) and the pathway (animals, dermal contact and eels) to the receptor (human).

- xiv. The conceptual site model of the canal after the remediation is undertaken shows the source material removed from the canal and placed in geobags, and covered in cleanfill. There is still a source on the canal stopbanks, and the pathway for this needs to be managed (ie fencing) in the short term while in-situ treatment methods are being trialled. This is considered an acceptable risk.

Questions and comments that were raised during the presentation:

- a) Robbie Martin asked what the agricultural levels were for chickens and cows. Andrew responded that he wasn't aware if there were any, as the levels being discussed are based on human health. Brendon added that he has been asking MPI if they have done any recent studies on this, and hasn't received a response. Chris added that the agricultural guidelines are triggered during a land use change.
- b) Ken asked for clarification on the TEQ/kg/d formula. The kg refers to the body weight of the person consuming. BMI is not taken into account.
- c) Robbie asked how the Council will manage the stopbank in the future. Jo responded that a layer of wood pellet is being trialled, so there will be a cover, and no contact with soil. It will probably be planted, rather than being used recreationally. Brendon added there is no definitive decision on long-term use, and fencing will be erected in the meantime.
- d) John Pullar asked who signs off on the whole project. This is outlined in the consent. Brendon stated that based on the consent conditions the contractors environmental consultant will provide a report, which is reviewed by the Independent Monitor and Consent Authority, and when it is approved it will be published.

Item 8: Independent Monitor Update

During the presentation (Slides 21-26) by Matt James, the following points were commented on:

- i. The March IM report has been published to the website. The April report will be available soon.
- ii. Sampling and monitoring is detailed in the IM report.
- iii. A photo on slide 22 showed some redness in the water, which is iron precipitate, and not dioxin.
- iv. There was a robbery at CS3, which was dealt with by the Police.
- v. Some samples have failed, and there has been some redredging in Section 6. The 62pg/g result will remain, as it is within the 95%UCL. Some of the higher concentrations where redredging was required are next to former mill stormwater culvert discharge points, and there have been very low results elsewhere in Section 6.

Questions and comments that were raised during the presentation:

- e) John Pullar asked if the canal water will ever be clear. Brendon responded that you only see the iron when it is on the bags, and the water is clear.
- f) Tani Wharewera commented that he is often asked why a result of 0 is not achievable, and suggested the reason for this is communicated through the media. Brendon responded that the high resolution tests are more expensive and will not read 0. Chris also noted that dioxin is naturally occurring, so it will always be found in a sample. Andrew commented that no laboratory will ever report 0 for any test of any chemical. Brendon noted that the bulk of the mass of contaminant will be removed, despite there being a small residual and measurable amount of contaminant, the eel consumption pathway (eel tissue) is the overall human health objective. Eel migration will need to be considered in the long-term monitoring program.
- g) Tui Edwards asked when the canal would be available for safe use again. The response was when post-validation assessment has satisfied. The aim is to have the public use the canal but everyone needs to be sure that the eel tissue is safe to eat again before taking down the health advisory notices.
- h) John Pullar commented that we need to be careful that we communicate that although the dredging can be finished, the canal isn't ready for use.

Item 9: Cultural update

During the presentation (slides 27), the cultural monitor commented on the following points:

- i. Archaeologists are onsite guiding the Cultural Monitor.
- ii. Toolbox meetings are being attended.
- iii. The Cultural Monitor is not always present for the re-dredging.

Item 10: Health, Safety and Monitoring

During the presentation by Des McCleary (slides 28-35) the following points were commented on:

- i. Each stage requires equipment to be disestablished and re-established.
- ii. There have been no safety incidents reported.
- iii. Works hours were amended to accommodate the barge lift and dredging restart. This lift was done at night to reduce public disturbance and to aid with subcontractor availability, TMP requirements and crane operations. A large crane was used to achieve the required reach.
- iv. The shoulder is still closed on Kope Drain Rd as there is still pipeline in place. Keepa Road was closed overnight on the 6th May for the barge lift.
- v. Physical concerns are being managed and addressed, including protecting the assets. Canal water levels have been managed to assist the FMP and water storage, and also for dredging.
- vi. Acoustic panelling was installed for noise monitoring.
- vii. The sandbug can be utilised if the redredged areas in Section 6 do not achieve target validation.

- viii. The inlet pipeline has been modified to prevent spills outside of the HDPE liner area.
- ix. A summary of weekly reporting of daily progress since the restart was presented.
- x. The dredging end date is scheduled for the 16 June 2019.

Questions and comments that were raised during the presentation:

- a) Cameron Huxley asked what the process would be if the wastewater pipe along Keepa Road leaked. Des responded the Project Team would be notified and actions undertaken to repair the pipe.

Item 11: Other business and date of next meeting

- i. It has been suggested that there be one more CLG meeting. The IM and Engineers Representative and the CLG Chair will be on leave in July, so a tentative meeting date in mid August is to be set.
- ii. After the CLG meeting wrap-up, continued email correspondence and media would be used to inform the public of project progress.
- iii. Brendon noted that KEW investigations aren't affected by the CLG wrap-up.

Meeting closed at 12.52pm

Draft to be accepted by CLG at next meeting