

BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY THE  
TASMAN DISTRICT COUNCIL

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

Application for resource consent by  
**Māpua Community Boat Ramp Trust**

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STATEMENT OF EVIDENCE OF GARETH THOMAS ODDY  
CONTAMINATION

Dated: 1 November 2024

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P O Box:  
DX:  
Phone:

Level 2, 241 Hardy Street  
Nelson  
656  
WC 70016  
+64 3 548 2154

Solicitor:

Nigel McFadden  
(nm@mmp.co.nz)

## **INTRODUCTION**

1. My full name is Gareth Thomas Oddy. I am a Technical Director – Environmental Scientist with Davis Ogilvie & Partners Limited in Christchurch. Davis Ogilvie is a privately owned multi-disciplinary engineering consultancy providing specialist advice regarding civil engineering, geotechnical engineering, structural engineering, planning, surveying and environmental science.
2. I am a Certified Environmental Practitioner Site Contamination Specialist under the CEnvP SC scheme and hold a Bachelor of Science degree in Environmental Management from Sheffield Hallam University and a Master of Science degree in Contaminant Hydrogeology from the University of Sheffield, England.
3. I have 18 years post graduate experience in land contamination assessment, management and remediation, with the majority of that experience gained here in New Zealand.
4. My role at Davis Ogilvie is varied and includes the assessment of land preparation of a wide range of subdivision and land use and regional consent applications, as well as providing resource management advice to clients.
5. I have been involved with the Mapua Boat Ramp resource consent application since mid 2022 during which time DO completed an evaluation of the potential for land contamination with the completion of a Detailed Site Investigation (DSI) and produced the Site Management Plan (SMP) for the proposed earthworks.
6. I am familiar with the site and its surroundings having visited the site a number of times in late 2022. I am familiar with the revised application and proposal.

## **CODE OF CONDUCT**

7. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. I have complied with it in preparing this evidence and I agree to comply with it in presenting evidence at this hearing. The evidence I will present is within my area of expertise, except where I state that I am relying on information provided by another party. I have not knowingly omitted facts or information that might alter or detract from the opinions I express.

## **SCOPE OF EVIDENCE**

8. My evidence is presented on behalf of the Mapua Community Boat Ramp Trust the applicant in these proceedings.
9. I have read the submissions lodged, as well as the s42A Officers Report prepared by Victoria Woodbridge and Leif Pigott on behalf of the Tasman District Council.
10. The structure of my evidence is set out as follows:
  - a) A summary of the application site and land contamination present;
  - b) The proposal;
  - c) Proposed environmental management controls to be employed during the earthworks stage of the development.
  - d) My response to S42 officers report
  - e) My response to submissions received and specifically those that raised concerns about the potential disturbance of land contamination.
  - f) My response to the Council Evidence – HAIL Review by Ms Anna MacKenzie.

## **THE APPLICATION SITE AND LAND CONTAMINATION**

11. The application site and surrounding environment are detailed within the application document and the Davis Ogilvie DSI (April 2023). For this reason, I will not provide a detailed description of the site or surrounding environment here.
12. The land contamination status of the site is well documented in numerous previous assessments and reports including our DSI and SMP provided with the application. However, a summary of its status is worth describing at this point.
13. The site was previously the location of the Fruit growers Chemical Company (FCC) which operated from 1931 and closed in 1988. During that time FCC produced organochlorine pesticides (OCPs) such as DDT, DDD and dieldrin as well as 80 other different pesticides. and remediation of the soil completed at the site in 2008. Remediation involved the use of a relatively unproven method called Mechano-chemical dehalogenation (MCD) in to attempt to break the pesticides in the soil down into less harmful compounds.

14. Remediation included screening of soil into size fractions and the stockpiling and assessment of the various soils prior to reburial on site, treatment of fines within the MCD or off-site disposal. Ultimately remediation resulted in some of the pesticide contamination being removed but overall the soil returned to the site contained contaminants that were still above land use criteria for a commercial site and exceeded aquatic ecosystem protection criteria.
15. The risk posed to site users was mitigated by the application of a half metre thick layer of topsoil (still containing pesticide contamination above ambient concentrations but below residential criteria) over the more contaminated soil.
16. The topsoil in several places on site was sampled and analysed for OCPs and heavy metals during our DSI in 2022. In summary the soil contained concentrations of all contaminants of concern that were present below human health criteria for recreational land use however the concentrations of total DDT, aldrin and dieldrin concentrations in all samples exceeded ANZG sediment guideline values - GV-high.
17. This indicates that the soil is suitable to be retained on the site but its disturbance and interaction with water may result in sediment that if discharged to the marine environment may result in the deposition of sediment containing contaminants at levels which could pose an unacceptable risk.
18. In addition, although DDT concentrations in soil although are acceptable from a long term exposure perspective for a recreational site, they do potentially pose a risk to human health from a more acute earthworks exposure scenario and the potential inhalation of dust containing DDT.

## **THE PROPOSAL**

19. The proposal is set out in detail in the application document and is summarised again in Council's Sec 42A Officer's report.
20. A brief description of the proposal is set out below:
  - 49m long and 11m wide two lane concrete boat ramp at 1 in 8 gradient with 5m long rock reno mattress off the end of the ramp.
  - 1.8m wide footpath across top of ramp and path down to the foreshore on the southern side of the boat ramp.

- Access lane with barrier arm access to the top of boat ramp 7.2m wide at Tahī Street end widening to 11m with turn around area (R11.0m) just before the top of the ramp.
  - 4m wide Landscape plantings between boat ramp access land and waterfront park.
  - Kerb cut outs and a 2m wide open vegetated swale to carry stormwater to existing SW outlet in south-eastern corner of the site.
  - Minor changes to existing carpark to allow for boat ramp access lane.
  - Relocation of Petanque court and BBQ are on the northern side of Landscape strip.
  - New sealed access to Trailer parking area on western side of Tahī Street.
  - 62 Trailer car parks on a grassed area with sports field marking to delineate parks and routes for trailers waiting to use ramp.
  - Safety line of buoys between south-eastern corner of wharf and waterfront edge, to stop drifting boats on outgoing tide.
21. The bulk of the earthworks below the cap to construct the Sea Scout/Community building that was part of the original application, together with the new parking area on the western side of Tahī Street has been completely removed from the application and so will not form part of the assessment of this evidence.

## **PROPOSED ENVIRONMENTAL CONTROLS**

22. With regards to the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health, the proposal to disturb soil on the site for the purpose of constructing the boat ramp is considered to require a resource consent from TDC for a restricted discretionary activity.
23. As part of the resource consent application process we have provided a Site Management Plan (“SMP”) which outlines our intended controls during the earthworks to protect the health and safety of workers on site, the local community and neighbours as well as environmental receptors.
24. Our SMP (November 2023) outlined our initial controls proposed for the earthworks. An SMP would typically be refined following the issuing of detailed design drawings and progress of the project details.

25. As outlined previously, the two main contaminant exposure linkages exist and require controls and monitoring during the project to ensure the effect is no more than minor.
26. The main human health risks related to the proposed earthworks relate to the disturbance of soil and generation of fugitive dust containing OCPs which may be inhaled by workers on site or off-site members of the public.
27. The generation of dust on any site is nuisance and potential health hazard and should be avoided through simple dust mitigation measures and application of sound site management practices.
28. Similar to good erosion and sediment control practices, the earthworks would involve a series of controls including but not limited to the following;
  - (a) Earthworks only completed in suitable weather conditions,
  - (b) Earthworks split into stages to minimise the amount of site open at one time.
  - (c) Sites soils once disturbed should be reinstated as quickly as possible or a polymer applied if excavations are to be open for a prolonged period.
  - (d) Stockpiles covered and sealed with HDPE plastic sheeting.
  - (e) Dust suppression via a sprinkler system applied to dampen soils.
  - (f) Dust suppression at the excavator bucket position.
  - (g) Minimise drop heights from the excavator bucket to truck or land.
  - (h) Reassurance monitoring of nuisance dust and DDX concentrations in dust completed on workers breathing space and at boundaries during earthworks.
29. The discharge of construction phase stormwater from the site containing sediment and contaminated water is a potential risk to the marine environment.
30. As described in the SMP; DDT, dieldrin and aldrin have low solubility in water and a strong adherence to organic matter. As a consequence, pesticide contaminants are more likely to be present adhered to the construction phase stormwater than in the dissolved phase.

31. Erosion prevention and sediment removal from construction phase stormwater using typical erosion and sediment controls described in the TDC Nelson Tasman Erosion and Sediment Control Guidelines (2019) would be completed to mitigate the risk of discharging contaminants.
32. A series of steps would be undertaken to minimise the discharge of contaminants to the marine environment, these include;
  - (a) The production of an erosion and sediment control plan in conjunction with detailed design and input from a civil engineer and environmental scientist.
  - (b) Run-off capture and diversion of clean and 'dirty' sediment laden water around the site.
  - (c) Capture and encouragement of sediment laden water with to drop out of suspension through the use of flocculants.
  - (d) Re-use of captured water for dust suppression.
  - (e) Monitoring and sampling of water quality prior to discharge to grassed area on site or via swale to marine environment.
  - (f) if sampling shows that DDT is still present in stormwater above acceptable ecological criteria, water from the site could be pumped into a final treatment system consisting of granular activated carbon, which will discharge by gravity back into the outlet to discharge off-site.

#### **THE OFFICER'S REPORT AND CONSENT CONDITIONS**

33. As previously noted, I have reviewed Council officer/consultant's report and the proposed consent conditions. I identify the particular section of the report and comment on its content.
34. Ms Woodbridge and Mr Pigott raise several points with respect to the land contamination at the site. In this section I summarise their points (and state S42) and respond in the following paragraph.
35. Submitter 124 Jenny Easton, former TDC scientist worked on the remediation.

Comment:-

36. Jenny Easton's submission as well as others submitters are discussed in the below section. It should be noted that the remediation was, with the benefit of hindsight, overall, not a well-managed or successful remediation. There were numerous health and safety problems, new contaminants introduced (dioxins to air and urea/nutrients to groundwater), significant expenditure on the site (which continues to this day by the TDC taxpayer) and ultimately the site contamination only capped with permeable topsoil. Contaminants still remain in the marine environment, groundwater and presumably continue to discharge into the marine environment from groundwater at the site.
37. The risk to human health of site users was remedied by the construction of the half metre cap but the risk to the marine environment still exists by continued leaching through the soils into groundwater and the discharge of contaminants in groundwater to the foreshore.
38. The risk to the marine environment based on the imported topsoil and re-used topsoil (which exceeds ANZ sediment guideline criteria) also poses a potential risk to the marine environment from stormwater run-off at the site with the status-quo of the site. The risk can be effectively managed during the earthworks.
39. The proposal to cap the boat ramp part of the site with impermeable material will ultimately in the long term result in a reduction in the interaction of site stormwater with contaminants in soil.
40. As the site is not a lined constructed landfill with an impermeable liner the risk to groundwater and the marine environment was not mitigated by the remediation. The proposed boat ramp will assist with mitigating the risk posed to groundwater by capping this part of the site and reducing the amount of infiltration and contact with site soils.
41. The soil volumes to be disturbed via the new updated proposal is unknown (S42 17.2).

Comment: -

42. The earthworks have been revised based on initial feedback and changes to the design. Initial indications are that the following earthwork areas and soil volumes will be required;



- Carpark area – 1400 m<sup>2</sup>
- Cut volume 1400 x 50mm (chip& Road material) – 70m<sup>3</sup>
- 1400 x 250 mm (metal course) – 350 m<sup>3</sup>
- Total cut in carpark area – 420 m<sup>3</sup>
  
- Access Road
- Cut volume Topsoil – 430 m<sup>3</sup>
- Unsuitable material (silt/soil) – 155 m<sup>3</sup>
- Contaminated material – 5 m<sup>3</sup> (two culverts)
  
- Concrete Ramp
- Cut volume Topsoil – 48m<sup>3</sup>
- Removal of ex. Boulders/bank – 50m<sup>3</sup>
- Removal of sand excavation – 155 m<sup>3</sup>
  
- Limited testing has been undertaken of the marine sediments (S42 17.4). Testing of the foreshore sediments was undertaken by Envirolink in 2022 and showed relatively consistent contaminant concentrations to that identified by Davidson Environmental in their post remediation annual sediment assessments.

Comment: -

- The amount of sediment testing is considered sufficient to understand the continued risk the sediment poses to the marine environment and precautions required when this material is excavated and handled.
- They incorrectly state (S42 17.5) that the concentration of OCPs present from 150 – 500mm depth '*has OCP residues at concentrations that present no human health risk....*'. That is not accurate as the risk is present, its whether its an acceptable risk or not.
- The risk presented by the OCPs is considered acceptable in NZ based on an acceptable intake of contaminants also known as either the tolerable daily intake (TDI) for threshold compounds, or the dose that yields a specified increased cancer risk (the risk-specific dose). In New Zealand the specified acceptable cancer risk for non-threshold compounds is one additional cancer in 100,000 people (10<sup>-5</sup>) while in other countries it can be 10<sup>-6</sup> (one in a million people).

- The Tahiti Street sealed roadway has not been assessed and a testing regime should be undertaken in this area prior to the excavation of soils (S42 17.7 & 17.11).

Comment: -

- This was proposed in the SMP, but given the scaled back plans is considered unlikely to be required at this stage.
- Concentrations of DDT, dieldrin and aldrin pose a risk to the marine environment (S42 17.8).
- Yes as they do currently in soil, groundwater and marine sediments at the site. The earthworks will temporarily increase the risk but long term will help to cap contaminants at the site with a robust impermeable capping material consisting of the concrete boat ramp and access driveway.
- Vegetation removal and potential mechanism to bring 'remediated soil' to the surface (S42 17.10).

Comment: -

- Vegetation could be sprayed with a herbicide to reduce the amounts of vegetation root removal and potential soil disturbance prior to earthworks. Roots deeper than 0.5m are considered unlikely to occur frequently and mainly be related to trees and large shrubs. If this occurs roots can be cut and the deeper roots left in-situ.

43. With regards the marine foreshore and sediments

- The DO plan has no discussion on sediment control within the marine environment (S42 17.12).

Comment: -

- Earthworks will be completed in the foreshore at low tides. The contaminated sediment that is already present in the foreshore is able to move with the tides and be transported further down the beach or into

the channel. The works to construct the boat ramp will disturb and relocate the sand within the foreshore.

- There are no plans to remediate this area to make it suitable for the foreshore. Attempts by MfE and TDC to remediate the foreshore in 2004-2008 failed due to the movement of sand and contamination in the area and continued recontamination of the area.
- No controls on sediment disturbance are discussed in the existing management plan and there is potential for effects on the marine ecosystem (S42 17.14).

Comments: -

- The effects of disturbing the sediment is considered no more than minor given the current contamination being present in the foreshore and the active nature of the estuarine deposits. Disturbance and movement of the estuarine deposits is likely under normal conditions. DDT as described previously has a very low water solubility, and in sediment strongly adheres to particles.
- Common DDT-contaminated sediment remediation options include dredging, capping and natural remediation. In the absence of an active remediation programme for the contaminated foreshore sediments currently present at the site, natural attenuation and monitoring of the system is therefore assumed to be the remedial approach adopted by Council currently. In addition to this by building the boat ramp, some capping of contaminated sediments will occur close to the source.
- Dredging of contaminated sediments as the council and this site have experienced previously, is a difficult task and often results in the mobilization and re-suspension of contaminants.
- An assessment of the effects of disturbing the contaminants on the marine foreshore has not been provided- see response for item 43 of the RFI response - controls on sediment quality and disturbance of impacted sediments during any earthworks along the foreshore, and during the use of the area for boat launching has potential to release DDT to the marine environment. On-going monitoring will be required and possible

further remediation. Site management plan will need to address the marine sediment issue (S42 17.17).

Comment: -

- As described above, no active monitoring of the site occurs currently to assess what effect tidal wave action or boat use in near the site currently has on the contaminated sediment. Earthworks within the foreshore will be minimal in scale and duration and occur at low tides.
  - In terms of the potential for boat launching to further release DDT to the marine environment, again the DDT is already present in the marine environment and can be transported away currently in sediment from wave action or other uses. The increase in boat use in the area may cause sediment to be transported further away from the site and this is an unknown risk as the deeper sediment has not be characterised previously and the potential transport effect off sediment containing DDT by boat propellor is not a common subject matter on which numerous scientific papers are available on which to draw upon.
  - Again this raises the question of what is the remedial strategy for the existing contaminated sediment present in the foreshore. If it is remediation via natural attenuation then further input from all stakeholders would be required to ensure the remedial goals are well understood and efforts made during the construction of the boat ramp to increase conditions that would encourage natural attenuation.
  - I am aware of infrequent (3 yearly) sediment and biota sampling for OCPs which is completed on behalf of TDC currently. No other natural attenuation monitoring or other remedial efforts are known to the applicants team.
44. With regards to the off-site waste disposal and the proposal to introduce the Hazardous Substances (Storage and Disposal of Persistent Organic Pollutants) Notice 2023 by the Environmental Protection Agency.

With reference to off-site disposal and section 17.19 of S42. Less than 5m<sup>3</sup> of soil from beneath the topsoil cap may be required to be disturbed and may potentially require disposal if unable to be safely retained on site.

If that is the case the soil will be placed into a sealed container, sampled and analysed for OCPs. Should the rule be active at that time and greater than 50 mg/kg DDT be identified in the soil, then the surplus soil will be returned to the excavation and the cap height in this area increased to compensate the additional material.

## **SUBMISSIONS**

45. A total of 328 submissions were received and according to the TDC website (Publicly notified Consents) two thirds of the submissions were in support and a third opposed.
46. Of those that opposed the boat ramp, a number cited concerns in relation to the disturbance of the contaminated site. The majority of the concerns relate to the scale of earthworks initially applied for however there are also a number related to the disturbance of contaminated sediment by boats using the boat ramp.
47. In response to Jenny Easton (submitter 124) I have the following responses;
  - (a) The condition of the site beneath the 0.5m cap is well documented in the SVR and so at the time of the DSI laboratory data on the soil beyond the cap was not required. In addition the early design ideas were to not extend to this depth.
  - (b) The cap is not difficult to excavate and can easily be excavated by hand. The presence of trees and shrubs also indicates that their roots are not hindered by the capping material density and also indicate that the cap integrity has been breached.
  - (c) Ms Easton states that the most contaminated soil was placed in the SE corner at the location closest to the marine environment. The applicant is aware of this and again as described previously the best capping material over a landfill would be an impermeable material such as concrete. The current cap permits vegetation and root growth to disturb and permit rainwater into the contaminated soil and possible contact by recreational users.
  - (d) On several occasions, Ms Easton in her evidence states the pesticide residues are 'soluble' and 'water soluble pesticides'. This is somewhat

incorrect. DDX, dieldrin and aldrin all have very low water solubility in the order of 3 µg/L or 0.003 ppm for DDT, and all have a strong affinity for organic matter. That is they will cling to sediment in greater concentrations and fluxes and pose a greater risk to the marine environment in that form than via transport in the dissolved phase.

- (e) Therefore preventing the loss of sediment will be of utmost importance during earthworks on the site and will be the focus of the majority of the monitoring.

### **COUNCIL EVIDENCE – HAIL REVIEW**

- 48. I agree with Ms MacKenzie's comments dated 7 October 2024 related to the land contamination. I have addressed the soil volume question earlier in this evidence and have provided my opinion on the need for remediation of the sediments in the foreshore during this project.
- 49. Monitoring of the sediment DDT concentrations and collection of deeper contaminant data can be collected during the project to assist with informing on-going risks to marine receptors however currently based on the biota sampling completed for TDC over the past 16 years the risk to marine receptors should be understood and remediation if required, on-going.
- 50. Long term pesticide in sediment data has been collected for TDC by others and indicates that although DDT is still elevated with respect to the soil acceptance criteria (SAC) of 0.01 mg/kg for DDX, there is an overall downward trend.
- 51. Only groundwater monitoring well BH1a was anticipated to be within the project area, however all monitoring wells will be identified and protected during any earthworks.

### **CONCLUSIONS**

- 52. Although minor earthworks of the landfill cap is proposed, controls are proposed in the SMP that are considered sufficient to manage the potential hazards posed to health of contractors working on the site, neighbouring residents and members of the public.

53. In addition, the risk to the marine environment from the small-scale earthworks proposed is in my opinion very low. This conclusion is based on the chemical properties of the primary contaminants of concern, the stormwater management controls proposed to prevent their release from the site, the sensitivity of the receiving environment and presence of these contaminants already at concentrations above ambient levels at the foreshore.
54. Advances in erosion sediment control, analytical chemistry and environmental science since the original Mapua remediation have given scientists and contractors more proven tools for controlling and monitoring earthworks at contaminated sites.
55. A positive effect of the proposal would be to cap part of the landfill with concrete, which will limit future infiltration of rainwater in this area of the site, will prevent accidental dermal exposure with the top soils (which were found to be present in elevated concentrations), encourage stormwater run-off away from the site and prevent future disturbance of the cap.
56. I am not a local resident nor boaty, I'm an environmental scientist who entered this discipline in order to help protect the environment and clean up some of the mistakes we have made in the past.
57. It is my opinion, having considered the proposal against the relevant assessment matters under s104(1) of the RMA, that the development will not give rise to any adverse effects on the environment that are more than minor.
58. It is my professional opinion that the application can be granted for resource consent subject to the conditions proposed in the Council's Section 42A report.



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**Gareth Oddy**

1/11/2024