BEFORE THE OTAGO REGIONAL COUNCIL

IN THE MATTER	of the Resource Management Act 1991
IN THE MATTER	of an application by Port Otago for resource consents to implement Project Next Generation.
BY	**PORT OTAGO LIMITED**
	Applicant

STATEMENT OF EVIDENCE OF PETER HAYDEN

STATEMENT DESCRIBING ALTERNATIVE DUMP SITE TO A0 FOR 'FINES' AND CLAYS.

1.0 INTRODUCTION

1.1 My name is Peter John Hayden.

1.2 I hold a degree of Batchelor of Science: Animal Physiology. I am a producer and writer of wildlife and science documentary films. As part of the Commercial Fisher Collective ('Collective') evidence, and as spokesperson for the Harbour Restoration Group ('**Restoration Group**'), I would like to offer mitigating proposals for the dumping of fines and clays at Port Otago's preferred dump site A0.

1.3 I am a member of the Restoration Group, whose members, are drawn from many interests and professions, share an interest in providing establishing ecological habitat for wildlife and recreational habitat for people in the upper (or inner) part of Otago Harbour. To this end, we are promoting and suggesting a more positive and restorative use of the fines and clays that form part of the dredged material to be dumped at site A0, from Port Otago's proposed New Generation project.

1.4 The submission of the Otago Rock Lobster Association who form part of the Collective and who also have a presence on the Harbour Restoration group supported the Application, however it was conditional upon "consideration being given to the reestablishment of intertidal salt marsh and beach front areas within Otago harbour". My evidence will discuss and expand upon the background work that has been undertaken by the Restoration group to investigate this alternative proposal.

2.0 SCOPE OF PROPOSAL

2.1 I have agreed to make a statement about the potential ecological and recreational benefits of building harbour islands as part of the Collective's

evidence, as the creation of harbour islands, will in my view, provide a mitigating use of fine silts and clays, which are seen by Commercial fishers as the most troublesome part of the dredged material proposed to be dumped at site A0.

2.2 My statement will offer some detail and background to the idea of harbour islands. A concept plan reflecting this outcome is attached as **Appendix 1** of this statement. The Restoration Group are united in the view that suspended fine materials that are dredged from the harbour, can be retained in the harbour within secure and carefully constructed contour barriers, which can then be built up into a series of harbour islands. Each island and its wide apron of intertidal habitat would create enhanced habitat for upper harbour wildlife and offer the people of Dunedin ~~with~~ further recreational access opportunity to the upper harbour.

2.3 Dredging first began in Otago Harbour in 1867, and the material dredged in that and many subsequent deepening's of channel and berths of the inner harbour Dunedin wharves, were used as fill for the reclamation of the growing area of flat land on the east side of the developing city. In 140 years since then, around 400 hectares of harbour have been reclaimed, much of it in the upper or inner harbour. Reclaimed material has covered mainly rock, sand and mud intertidal flats, swamps and shallow lakes. I note that a detailed overview of the historical dredging works has also been presented to you by Maurice Davis (on behalf of Port of Otago).

2.4 Intertidal habitat is one of the most ecologically productive parts of a harbour ecosystem... and I will expand on this point later in my presentation, in paragraph 3.6.

2.5 While reclamation has buried almost all this habitat in the upper harbour, reclamation has hugely aided the development of the city, Port Otago Limited and its predecessors, have benefitted from economic opportunity by many millions of dollars.

2.6 We see the upper harbour island project as a means of restoring habitats lost to that historic and ongoing economic opportunity, while avoiding the

disposal of a large proportion of these fine silts and clays at disposal site AO, with their associated adverse effects[1].

3.0 HARBOUR ISLANDS

3.1 The group's decision to promote the harbour island concept was supported by a 1991 plan prepared for Port Otago, Dunedin City Council, Otago University, Polytechnic and College of Education by PortPlan a consortium of Land and Port Planning Professionals. One of its principle aims was to offer an overall forward development strategy for land between the harbour edge and main trunk railway.

3.2 Included in this report, in the section titled Background Report 3: Landscape, Page 3.8, Harbour Access: South, it says, *"[w]hereas (public) access from the CBD through the commercial port area is unlikely, access to the south creates exciting opportunities for recreational uses. The proposed islands also make possible an alternative pedestrian and cycle route...It is proposed the islands are formed from dredged material taken from any future deepening of Victoria Channel. Thus the hydraulic volume of water remains more or less constant, though the hydraulic character of the lower harbour may be modified. Obviously, developed designs would have to carefully address these and other environmental issues".*

3.3 The Restoration Group support the island proposal as contained and illustrated in the 1991 report and agree in the matter of the need to carefully address matters of hydraulic flow and other environmental issues. However, the Forest & Bird Protection Society and STOP (Save the Otago Peninsula) have suggested that to do something meaningful and significant in recreating lost intertidal habitat and encourage not just roosting but also breeding of birds in the upper harbour, that a substantial island could also be created. This larger island ideally would be 4-5

[1] In this regard I am referring to the evidence of Dr Brian Stewart who has raised concerns about the ecological effects of the disposal site and associated plume on Benthic habitats and uncertainties associated with wider effects once suspended sediments are released into the water column.

meters above high tide and comprise an area of between 30 and 40 hectares and could be planted with shrubs and trees. It would offer birds extensive roosting and breeding sites and be surrounded by extensive beaches and intertidal flats where birds could feed. Such an island would probably best be situated beyond the immediate upper harbour basin, perhaps 1-5 kilometers from the city, and be off limits for humans, in order to give birds much needed space, privacy and freedom from predators.

3.4 Engineering advice suggests that the large island and the series of smaller islands would be a way of sequestering a major volume if not all of the more than ~~1 cu M~~ 2.3 million cubic metres of fines and clays from phase 2 (Major Capital Works) of the New Generation dredging.

3.5 Having at least one large island and a series of smaller upper harbour islands will offer considerable benefit to Dunedin people and wildlife and there are a number of positive and compelling reasons for looking favourably at harbour islands.

3.6 These islands will be surrounded by beach and intertidal flats that are habitat for larval fish, shellfish and micro flora. These organisms are the basis of the coastal marine food chain and an important component of a healthy harbour. Intertidal areas are a nursery for many young fish; marine algae, not only feed fish and other creatures, they make oxygen, so this habitat acts as a 'lung' refreshing harbour waters.

3.7 The islands will offer much needed high tide roosting for waterfowl, marine bird species and waders that can have difficulty finding high tide roosts close to the water. Some species now roost on the narrow and dangerous margin between road and harbour.

3.8 The proof that the upper harbour needs high tide roosting sites can be seen on a recently created tiny island in Andersons Bay inlet. The island is about the size of this room, yet, the person who conceived and has overseen the island's construction, eminent anthropologist and member of STOP (Save the Otago Peninsula) Jill Hamel, has counted up to 16 bird species roosting on the island. Its creation has also received wide positive and enthusiastic reaction from Dunedin people.

3.9 Our upper harbour is hugely modified and completely walled, removing the soft edge has not only drastically reduced wildlife use of the upper harbour, it also cuts off the people of Dunedin from their harbour. We believe that islands are a positive way for people of Dunedin to closely connect with the harbour. With consultation, research and planning, islands could offer improved opportunities for rowing, windsurfing, sailing, biking, strolling, bird watching and relaxing.

3.10 What has given the group huge confidence that this idea is not just a pipe dream, is engineering advice that it would not only be possible to build such islands, but that the islands could retain large amount of silts without leakage into surrounding waters.

3.11 The solution offered is a technology that uses what are known as 'sand sausages' to outline the contours of the islands. Such structures are the basis of many habitat creation schemes around the world and have been recently used to combat coastal erosion at St Clair beach here in Dunedin. Sand is pumped into geotextile tubes or 'sand sausages' more than a meter in diameter. These tubes are laid out on contour lines around each island, and on exposed outer edges are armoured with strong protective materials. After the tubes are laid down, silts are pumped inside the contour, the sand filled tubes are impenetrable to silt, which cannot escape. In this way a secure island can be built up and planted.

3.12 Initial advice indicates that the 'harbour island' is also achievable both from hydrological and harbour engineering points of view. They can be designed so that tidal and storm water flows will not be compromised.

4.0 CONCLUSION

4.1 We see the need for Port Otago to deepen the channel and swing basin as being a vital part of securing the future prosperity of Dunedin.

4.2 We believe that a properly planned upper harbour island scheme could put much of the most damaging material from the New Generation

dredging to good restorative use and that creating island habitat within the harbour, could be a positive outcome for the health of the upper harbour, its wildlife, Port Otago, and the people of Dunedin.

4.3 Thank you for your attention and I am happy to answer any questions the Panel may have.

Peter John Hayden

18th April 2011

Appendix 1 – Island Concept Plan

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