TOTAL **MARINE** SERVICES
Physical – 3 Beechy St, Opua, 0200
Adjacent to where the car ferry berths

Date: 15.08.18
Attn: Colleen Prendergast
Henderson Reeves
PO Box 11
Whangarei 0140

DOUG'S BOATYARD OPUA - REVIEW OF s42A REPORT AND EXPERT EVIDENCE

1. I have reviewed the addendum to the s42A Report for Doug's Boatyard Opua, and the accompanying peer reviews undertaken by Paul Maxwell and the conclusions made by Melanie Donaghy. And I make the following comments in response.

Sub-Surface Erosion Barrier

2. Paragraphs 72- 74 & Appendices 2 and 3 of the s42 report, conclude that the sub-surface erosion barrier shouldn't be included in the current consent application.

3. The sub surface erosion barrier was proposed as a mitigating effect of the dredging on the shellfish bed. The primary purpose of the sub-surface erosion barrier is to stabilise the edge of the shellfish bed to prevent the batter extruding on the surface area of the shellfish bed. For geotechnical stability reasons either; (i) the sub-surface erosion barrier is used and the shellfish bed remains largely undisturbed as illustrated in Figure 1, or (ii) the batter of the dredge pocket extends into the shellfish bed area as illustrated in Figure 2. Either option is suitable to fulfil the operational requirements of the boatyard and achieve the required dredge depth, however with the sub-surface erosion barrier the shellfish bed is not disturbed. In my opinion, the sub-surface erosion barrier is less invasive than extending the batter into shellfish bed.

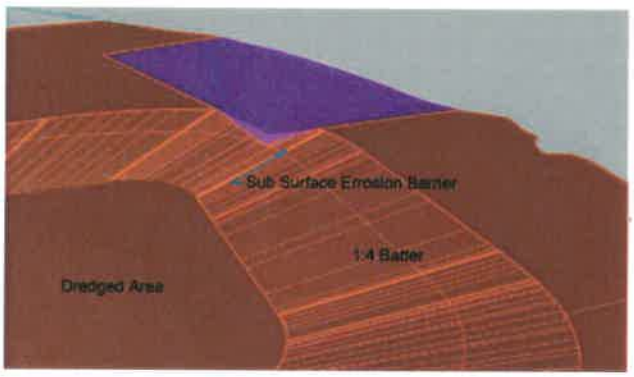

Figure 1: Sub Surface Erosion Barrier shown supporting shellfish bed

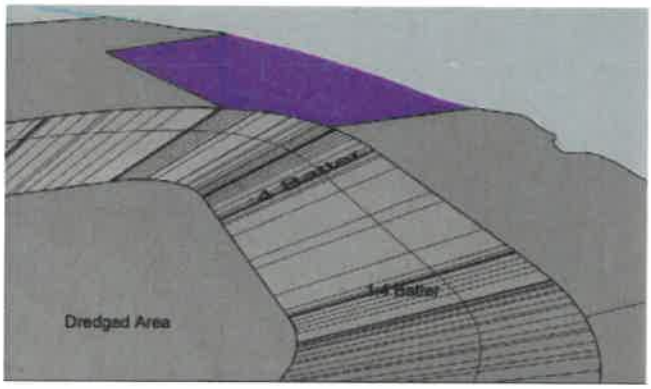

Figure 2: No Sub Surface Erosion Barrier, batter extends into shellfish area

4. A Sub Surface Erosion Barrier as a fixed structure is also intended to act as a groyne (refer to paragraph 5.3 of my initial Report) interrupting the longshore drift and encouraging material to be deposited on the up current side (on the shellfish bed) while causing erosion on the downstream side (slipway). This serves two useful functions by maintaining the shellfish bed and beach, while preventing material build-up on the ramp.

5. Thus, in my opinion a sub-surface erosion barrier is still the most suitable option to preserve the shellfish bed while fulfilling the operational requirements of the boat yard.

6. Mr Maxwell's comments in para 3 of Appendix 3, about the potential long-term effect are valid. While the construction of a sub-surface erosion barrier is intended to have positive hydrodynamic effects on the beach and environment, the long-term effects are slightly unknown, as with all structures in the marine environment (particularly so with those located on the foreshore). If the currents and or morpho dynamics observed changed significantly due to natural or unnatural circumstances, then the sub surface erosion barrier (groyne effect) may not act as intended. However, I believe given the scale of the structure and benefits versus the risks of the sub-surface erosion barrier, the potential benefit to the surrounding environment outweighs the minor risks.

The Security Gate

7. It has been proposed in the S42A report paragraph 40 that the security gate be moved to the end of the jetty at the head of the gangway in order to allow "full public access over the fixed jetty". I do not support that proposal. The boatyard has lifting equipment, storage and permanent berthage on the head of the fixed structure. As a consequence, this is a very hazardous environment and presents a significant H&S issue to the general public. A more suitable location for the security gate would be just before the T-head (as shown in Figure 3), as it still allows public access down the wharf and small boat access but prevents any assess to the hazardous areas.

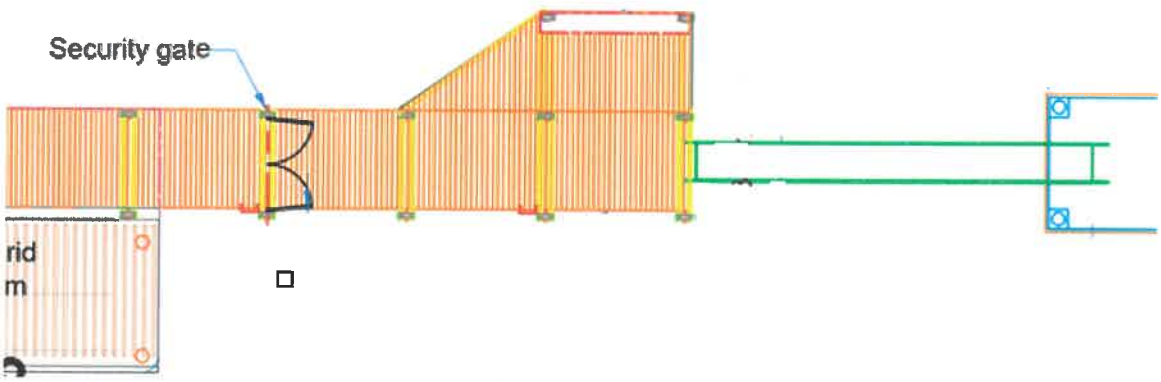

Figure 3: Security gate proposed location

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Washdown Grid

8. As noted in para 55 of the s 42A report, the maritime biosecurity issue within Northland is becoming a significant biological issue for the Northland Regional Council. Working in the industry it is clear the reason the fight against fan worm and other invasive species is unsuccessful, is due to the lack of access to affordable haul out facilities. I note the planners report no longer supports a mudcrete grid. A washdown grid is however the most cost-effective way to clean and inspect a hull. Because of this and the positive effect such a structure will have in biosecurity control in the Bay of Islands, I believe there is a definite need for the grid on this site.

9. It has been proposed in the S42A report (paras 59-62) that the grid is required to be cleaned and wash contaminates collected. This would be impossible on a cement stabilised mudcrete floor. To achieve the proposed conditions, the grid would need a sealed impervious structure – such as a concrete floor. Mr Schmuck has agreed to provide the structure required by the proposed condition. Additional detail to illustrate how this will be achieved is shown in the drawing 0155-0504-0008 Rev 6 Grid Detail, dated 13/08/18, attached as Appendix A. The concrete floor of the grid with timber sleepers will allow a vessel to ground safely on the grid, while the concrete grid with its kerbed edges will capture any contaminated run off, as shown in the drawing. A pump installed in the sump will pump the run off directly to the trade waste reticulated system.

Andrew Johnson
Project & Design Engineer
BEng(Ocean)(HONS) BEng(NavArc)(HONS)
Total Marine Services Ltd

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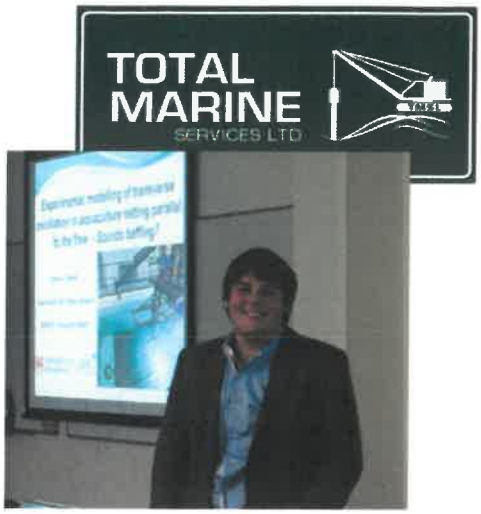

ANDREW JOHNSON

ENGINEER

B.Eng (Ocean Engineering) (1st Honours)

B.Eng (Naval Architecture) (1st Honours)

Andrew is the Project & Design Engineer for TMS

Andrew works on the concept and detailed design of marinas and marine structures.

KEY SKILLS

- Qualified Ocean Engineer with background in all aspects of costal engineering from hydrodynamic and environmental loads to civil and structural design of the structure.
- Extensive project management experience in marine structures
- Practical design know how and a proactive approach towards building a close working relationship with clients to deliver a quality practical product on time and within budget.
- Andrew is also an experienced hydrographic surveyor and conducts all the hydrographic surveys in house.

EXPERIENCE

- Andrew has spent his working life in marine roles, a qualified skipper himself, which allows him to approach design problems with practical solutions which work for a marine application.
- Andrew has also worked as an engineering in offshore projects, where a simple solution is just not viable. And has shown he can manage extremely technical design and builds solutions, which require broad and in-depth knowledge of a range of engineering principles.
- Well respected reputation for common sense technical design and management
- Successful management of multidisciplinary teams and extensive experience consulting with design engineers in design and build partnerships.

RECENT RELEVANT PROJECTS

Opua Marina Stage 2: Sept 2015- July 2017
Role: Design Engineer – Dredging
Construction of 156 marina extension with 305linial meters of seawall to reclaim significant foreshore. 35,000m^3 of Marine Sand and Sediment Dredged to CD-2.0m & CD-1.5m.

Paroa Bay Jetty, Bay of Islands: July 2016- Feb 2018
Role: Design & Project Engineer
Construction of 100m long timber jetty and boardwalk with a 14m x 4m floating pontoon and 12m x 2m aluminium gangway. Dredging of 895m^3 rock and sand to a dredge depth of CD-2.0m.

Portland Dredging: July 2016- Feb 2018
Role: Design & Project Engineer & Hydrographic Surveyor
Dredging 16,000m^3 of marine sediment and mudstone from the channel and berth pocket to a dredge depth of CD-7.0m.