BEFORE THE HEARING COMMISSIONERS FOR NORTHLAND REGIONAL COUNCIL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of applications by Doug's Opua Boatyard for discharge consents and coastal permits for activities ancillary to and associated with the boatyard on 1 Richardson Street, Opua

STATEMENT OF ANDREW JAMES MUNROE JOHNSON ON BEHALF OF DOUG'S OPUA BOATYARD (DOBY)

Dated: 20 July 2020

Henderson Reeves Lawyers

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Qualifications and Experience

1. My full name is Andrew James Munroe Johnson.

2. I hold the degrees of Bachelor of Engineering (Ocean Engineering) with Honours and Bachelor of Engineering (Naval Architecture) with Honours from the University of Tasmania, School for Maritime Engineering &

3. I am presently employed as the Design and Project Engineer for Total Marine Services Ltd in Opua. I am currently the only design engineer for the Total Marine Group, one of the largest marine civil and floating construction company's in NZ. Examples of our work can be seen on the website http://www.totalmarineservices.co.nz/

4. I was previously a design engineer for Nautilus Minerals, the first deepsea marine mining company. working on the Solwara 1 Project (http://www.nautilusminerals.com/irm/content/technology-overview.aspx?RID=329).

5. Before that I was studying while working as a professional skipper so I have a good hands on understanding of the marine environment.

Code of Conduct

6. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2014 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is entirely within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

My involvement with DOBY

7. I was first engaged by Mr Schmuck in 2017/2018 when he was planning the proposals now part of the current application. In particular, I was asked to design the proposed wharf and pontoon to replace the existing structure, and to provide a dredging plan that would allow all-tide access to the wharf and pontoon with minimal effects on beach morphology. A copy of the technical report "Design of Timber Jetty, Pontoon and Dredging at Doug's Boatyard Opua"[1] that I provided at that time is to be found at pages 563 – 576[2] of the Application. Subsequently, Mr Schmuck has amended the extent of the dredging and the facilities to be provided on and by the wharf, as is shown in the Total Marine plans forming part of the current application.

Response to comments in the s 42A report

8. In paras 57 – 66 of his s 42A report on the application, the consultant planner for the Council (Mr Alister Hartstone) refers to concerns raised by the submitters about the dredging and the subsurface erosion barrier and seeks some answers to the questions raised. I respond as follows:

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1 Dated 2 August 2018.

2 Appendix I, 4Sight Consultants report titled "Ecology and Sediment and Water Quality Assessment," See also Appendix H to the 4Sight report for the dredging and excavation plan .

9. In **para 62,** the report refers to the importance of the timing and management of the dredging works and says:

> It would be expected that the dredging activity required to remove contaminated sediment will need to be done separately from the balance of the dredging activity for the berths and the channel. Some clarity about the sequence of these two activities should be provided prior to or at the hearing.

Comment

10. Dr Wilson's evidence deals with the methodology and timing of the removal of the contaminated material in the CMA. My understanding is that it will be done first, separate from the dredging for the channel, with the material removed deposited on the boatyard site and treated with lime, in the same way the boatyard and reserve were remediated.

11. The dredging for the channel will commence from the deepest part of the site (outer end of the approach channel), working towards the foreshore and the shallower part of the site (jetty and pontoon). Working in this way means the dredge barge will always have sufficient under keel clearance and will not be coming in contact with the sea floor and creating unnecessary plumes. Because we will have unrestrained tidal access (by working the dredge barge into the site from the deeper water), the dredging programme will be as quick as possible which will limit the time on site of the dredge barge and thus the effects on the shellfish beds and beach.

12. The report goes on, in **para 63** to note the need for careful management to avoid "*effects on the existing pipi beds, and to avoid any undue impediment of public access over the reserve area".* And in **para 64**, Mr Hartstone notes that the application:

> [D]oes not set out a staging or progressive programme defining how the works are to be carried out across both land and the CMA, although it appears that the works should form part of one programme to be carried out at one time.

Comment

13. During the dredging operations the barge and crews will be travelling to and from the site by water. Therefore, there is no need for construction crews to access or restrict access to the reserve or existing pipi beds that are not within the footprint of the dredging plan. Our Standard Operating Procedures (SOP) for dredging requires us to stop work if the public are within the working radius (plus a safety margin) of the dredge. Signs will be erected to make the public aware of what is happening and when.

14. Likewise during construction of the wharf, the barge, crews and materials will bought to the site from the water. There is no need for any access to, or to restrict access to, the reserve or existing pipi beds not within the footprint of the wharf. Again, signage will be erected to inform the public of what is happening and when.

15. **Para 65** notes the purpose of the sub-surface erosion barrier, and **para 66** notes the NRC's preference for softer protection measures, including a shallow sloping batter with minimal modification to stable seabed levels. The paragraph continues:

However, if engineering advice can confirm that a subsurface erosion barrier is an appropriate and effective means of supporting the shellfish bed, with any alternative being impractical or having greater adverse effects on the environment, then it may be acceptable".

Comment

16. While not called on to speak at the hearing of the earlier application, I was asked to respond to comments in the s 42A report to that hearing, one of which related to the need for and alternatives to the sub-surface erosion barrier. My response was as follows:

> 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. Either; (i) the sub-surface erosion barrier is used and 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.

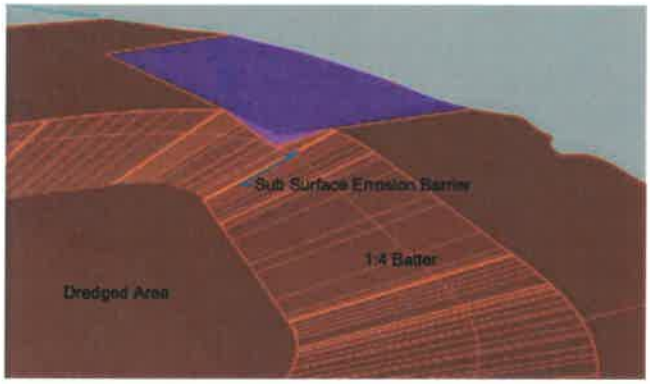

Figure 1 Subsurface Erosion Barrier supporting the shellfish bed

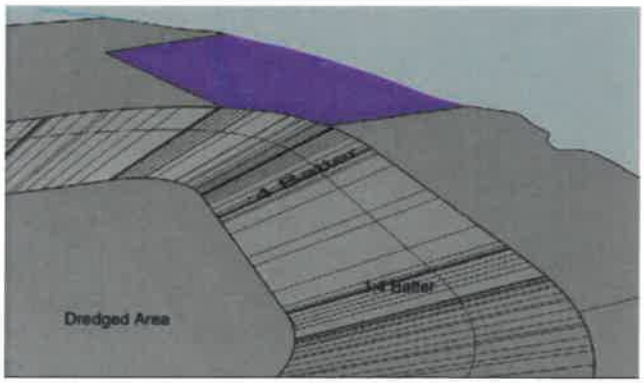

Figure 2 No Subsurface Erosion Barrier: batter extends into shellfish bed.

> Either option is suitable to fulfil the operational requirements of the boatyard and achieve the required dredge depth, however with the subsurface erosion barrier the shellfish bed is not disturbed. In my opinion, the sub surface erosion barrier is less evasive than the batter into the shellfish bed.

17. A full copy of my response to the earlier s 42A report is **attached**, marked "**A**".

18. The purpose of the subsurface barrier is essentially, to stop the shellfish bed falling into the dredge. The application seeks to provide all tide access to the wharf and slipway, and to and from the land, for allcomers. And this creates the need for the footprint of the dredge: the deeper (and steeper) the dredge, the greater the ability to provide all-tide access and the need for mitigation to protect the shellfish bed. On the other hand, restricting the footprint so that it doesn't affect the pipi bed will make the dredge shallower in-shore. As a consequence, the ability to provide all-tide easy access to the facilities, and to and from the land would be frustrated, and regular maintenance dredging would be required.

Andrew James Munroe Johnson

20/07/2020

Date

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

"A"

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.

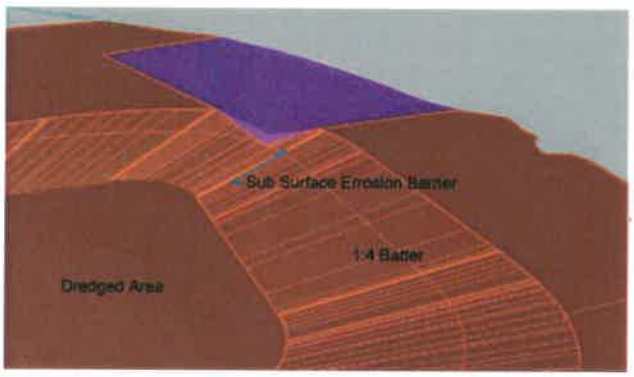

Figure 1: Sub Surface Erosion Barrier shown supporting shellfish bed

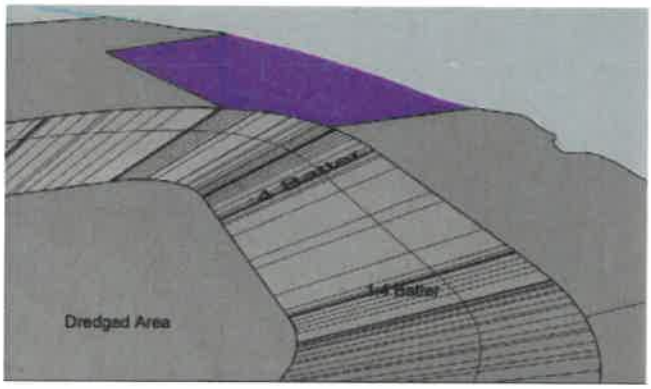

Figure 2: No Sub Surface Erosion Barrier, batter extends into shellfish area

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.

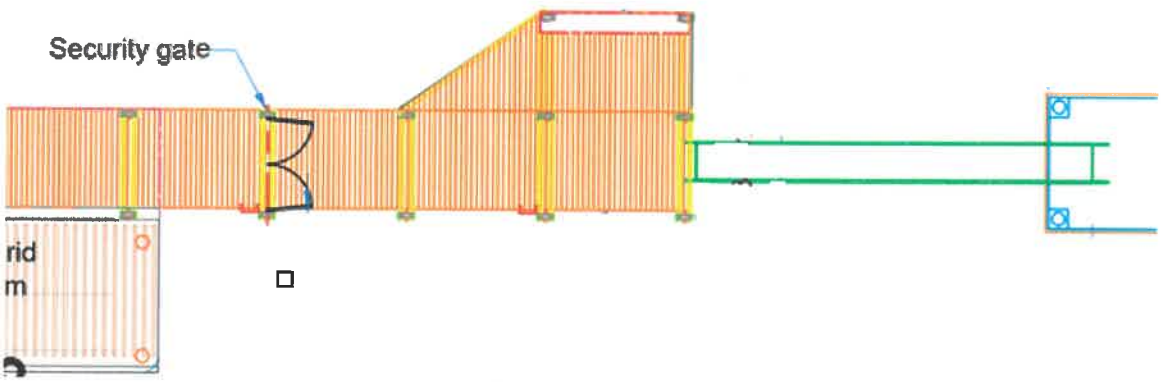

Figure 3: Security gate proposed location

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Physical – 3 Beechy St, Opua, 0200
Adjacent to where the car ferry berths

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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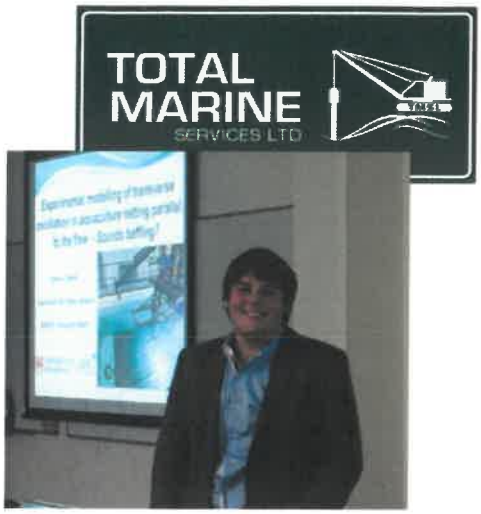
Adjacent to where the car ferry berths



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.