



20th May 2026

**Bream Bay Guardians Society Inc**

**Attention :** Malcolm Morrison – Bream Bay Guardians

**Re: Attachment Twenty Supporting Statement of Paul Donoghue of McCallum Bros Limited  
Application to Fast Track a Sand Extraction Consent from a Site in Te Akau Bream Bay.**

In response to your email dated the 16th of April 2026 to both Allied Concrete and Brookby Quarries regarding McCallum Brothers analysis of the suitability of different sand types and the properties of concrete.

Please see below our comments in relation to Bream Bay Fast Track Application Attachment Twenty.

Allied Concrete Ltd (ACL) and Brookby Quarries Ltd, would like to draw your attention to several misrepresentations and factually incorrect information contained in attachment twenty related to the use of Manufactured Sand and its current use and acceptance in the Auckland market.

While we are completely ambivalent to the outcome of this application at Bream Bay and do not normally involve ourselves in other businesses applications, we cannot ignore or allow misconceptions and factually incorrect statements that name and malign our respective businesses as is the case with attachment twenty for this application. We cannot allow attachment twenty to go unchallenged and have the record corrected to protect our product and customers in the marketplace. Therefore, we have responded to correct the record relating to statements and incorrect assumptions made in attachment twenty relating to Manufactured Sand.

The following provides the background to Manufactured Sand and its development by ACL and Brookby.

**PARTNERSHIP AND PURPOSE**

Allied Concrete's journey with Brookby Quarries began in 2022 when trials were initiated to develop a high-quality Manufactured Sand from greywacke rock.

Working closely with the quarry team to refine grading, shape, and performance characteristics, the goal was to produce a sand that would perform across a wide range of concrete applications, ensuring reliability for both residential and commercial use.

**RIGOROUS TESTING ACROSS APPLICATIONS**

The development process involved not only internal trials but also significant testing with industry contractors. The engineered sand has been rigorously assessed across a wide range of applications, using familiar mix designs and performance benchmarks. From residential slabs to commercial floors and infrastructure, this sand has been trialled and refined alongside trusted contractors, pump operators, and engineers.

## **A SUSTAINABLE AND SCALABLE RESOURCE**

Brookby Quarry's investment in a purpose-built Manufactured Sand processing plant and new power infrastructure underpins this shift. Their site now has a production capacity of 300,000 tonnes per annum of this material, with an expansion capability of up to 600,000 tonnes if required. The use of local materials not only strengthens supply chain resilience but also supports broader sustainability goals by having alternatives to both marine extraction and long-haul transport.

## **LOOKING AHEAD**

Allied Concrete remains committed to innovation, product performance, and sustainable practices. Their work with Brookby Quarries reflects a shared focus on developing fit-for-purpose materials that meet the needs of today's construction sector, without compromise. This milestone marks a significant advance in material performance, consistency, and sustainability, and sets a new standard for concrete production in the region.

We note and welcome the announcement that the panel has invited Concrete NZ and the Aggregate and Quarry Association of NZ to comment on the application which from our perspective is an entirely appropriate initiative by the panel. ACL is a member of Concrete NZ and Brookby is heavily involved in the AQA. Both these organisation's have a good understanding of Manufactured Sand initiative that is now fully integrated and accepted as a viable alternative in the Auckland market as a viable alternative to sea sand.

Focusing on Paul Donoghue's statements in attachment twenty titled "Concrete Suitability Statement (Paul Donoghue)" we make the following comments in relation to specific paragraphs of that report regarding the use of Manufactured Sand relating to the product and its use in the Auckland Market, that are erroneous or factually incorrect.

*Paragraph 3* – Mr. Donoghue states that he is employed by Concrete NZ as the Manager - Training and Certification and outlines several tasks that he performs for Concrete NZ. He therefore has a duty of care to correctly represent the facts regarding Manufactured Sand which is not the case in attachment twenty. Given several of his assumptions in attachment twenty we believe he has a conflict of interest with his involvement in Concrete NZ and authoring this report in support of the Bream Bay application regarding use and suitability of Manufactured Sand in concrete in the Auckland market. Accordingly, ACL has raised this matter directly with the CEO of Concrete NZ and our understanding is that organisation is looking into this matter. Brookby has also raised the issue with the CEO of the AQA.s

*Paragraph 12* – The assumptions made in this paragraph relating to the Manufactured Sand product in entirely and factually incorrect. In their current financial year ACL have successfully produced and sold 69,500 cubic metres of concrete using Manufactured Sand from their Penrose Plant. During this period ACL has used 64,000 tonnes of Manufactured Sand and only 5,000 tonnes of natural sand in all grades and mixes of concrete that were sold.

ACL's use of marine sand is restricted to lower strength pump mixes and decorative mixes which are historic and being reviewed. This is completely the opposite to the note in [Appendix 12](#) regarding ACL's usage. Over the past 7 months, marine sand represents only 7% of the sand used to make concrete from this plant and 93% is Manufactured Sand.

*Paragraph 31* – Again, the statement relating to Bream Bay Sand pertaining to Chlorides are easily managed by washing.... James Mackechnie has assured ACL that this statement – i.e. over NZ history there have never been any results near or above limits specified by NZS 3101 - is patently false particularly for concrete used in pre-stress elements which have a lower allowable limit for chloride. In any case the presence of chloride, while it improves early strength, can be detrimental to 28-day strength.

**Paragraph 58** – Suitability for use in high strength concrete. Mr. Donoghue’s report states the opposite of ACL’s experience, save for some pre – existing project mixes, which are coming to an end, ACL use Manufactured Sand exclusively (i.e. no marine sand) in higher strength mixes – standard mixes for 30 MP and above, pump mixes 35MPa and above. Higher binder – cement and/or SCM – content enhance the suitability of Manufactured Sand for use. It is also of note that while historically the proportion of marine sand in mixes was typically between 45 and 55%, of the fine aggregate portion, that since the introduction of manufactured sand, marine sand makes up no more than 15% of the fine aggregates. Mr. Donoghue’s statement in this paragraph that there are potential limitations on the use of Manufactured Sand relating to its particle shape, distribution of particle sizes and other factors that make the concrete less suitable for higher strength pumping etc. are erroneous and as such factually incorrect. ACL and Brookby find these statements misleading and as such potentially meet the threshold as defamatory to ACL products in the market

**Paragraph 61** – ACL’s experience of using Manufactured Sand in all facets of concrete at various strengths and applications clearly shows that natural sand can be replaced by manufactured sand and accordingly refute the comments made in this paragraph based on a cursory review of international literature which is the basis of the reference in this paragraph by the author.

**Paragraph 63** – The Manufactured Sand process developed at Brookby was undertaken in house using our own technical advice and input on the required specification from ACL. This is not a process that was promoted by Mimico. In short, the paragraph does not describe or show any understanding of how Brookby’s manufacturing sand process works and therefore this statement is completely incorrect. Brookby has confirmed that it has not been approached by Mr. Donoghue at any time to confirm his understanding and statements made in this paragraph relating to Manufactured Sand nor has he visited the site to understand the process. Neither Brookby nor ACL have been requested by Mr. Donoghue to provide samples of the product and can confirm that the samples shown in Figure 4 are not representative of Brookby Pap 7 or Brookby Manufactured Sand.

**Paragraphs 64** – That Manufactured Sand has been successfully used in the Auckland market for the past 12 months with the volumes exceeding 110,000 tonnes. The information relating to the grading curve and other information on its specification as stated in this paragraph is not accurate and simply not true.

**Paragraph 65** – The statement contained in this paragraph is incorrect based on ACL’s experience, ACL use only Manufactured Sand in Self Compacting Concrete, high strength mixes and in our specialist flooring mixes for which finishing characteristics are vital.

**Paragraph 67** – The key take away from this statement is that both too much fine material and too little fine material may result in difficulties when finishing the concrete surface. Manufactured Sand has been designed, and trialed through several iterations, to provide optimal amounts of the various size fractions. Consistently achieving this outcome when blending two variable materials – marine sand and PAP – can be more challenging.

**Figure 3** – This figure is completely inaccurate and is very misleading. While Manufactured Sand is used by itself, Marine sand is not used in a mix in isolation; it can only be used and always has been in a blend with PAP7 (0-7mm aggregate dominantly greywacke in the Auckland market). The blend will result in an overall grading for the “sand fraction” broadly like that of the Manufactured Sand that requires no blending of the sand as shown. The table in **Appendix 3** shows this is a ratio of 60% PAP7 to 40% marine sand.

**Paragraph 71** – Bleed rate. One of the factors our industrial flooring customers value in our concrete using Manufactured Sand is the reliability and predictability of bleed when compared with previous mixes using the blended PAP and marine sand products. In simple terms ACL’s experience with its clients has shown Manufactured Sand mixes have provided a superior product and outcome.

*Paragraphs 65-72* – These paragraphs generally just offer Mr. Donoghue’s personal opinions and are therefore quite subjective. The key response to this is the ability of Manufactured Sand to be adaptable and manufactured to a specified grading and/or particle size. Using Manufactured Sand avoids the reliance of blending of two materials (Sea Sand and pap7) which are both variable products.

*Paragraph 74* – In response to the reference to James MacKechnie’s results referenced in this paragraph ACL contacted Mr. MacKechnie and asked him to review and comment on the statement in this paragraph. Mr. MacKechnie’s response “. The literature quoted is from an unpublished report not accessible to the reader but as the author I can state the initial report never stated this but rather that 100% Manufactured Sand produced the best concrete in terms of workability and strength. Two conference papers state the same from the original research on Kayasand material in 2024 and subsequent later work.”

While traditionally much of Auckland’s sand supply came from marine sources, disruptions in the past prompted ACL in conjunction with Brookby Quarry to explore more resilient alternatives. This journey began in 2022 and was driven by a clear goal: to ensure a stable, local supply of high-quality sand that would meet the technical expectations of our respective customers.

ACL and Brookby have now achieved that goal and Brookby Quarry is today capable of producing 300,000 tonnes per annum of Manufactured Sand and has plans as market demand increases to expand that volume to 600,000 tonnes which is achievable in a 9-month timeframe.

Should you require any additional information from ACL or Brookby regarding this document please do not hesitate to contact the signatures.



**Bob Officer**  
National Technical Manager  
Allied Concrete Ltd



**Steve Riddell**  
Managing Director  
Brookby Quarries Ltd