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| Before the Independent Commissioners |  |
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| Under | the Resource Management Act 1991 |
| In the matter of | a hearing on submissions on the proposed Te Tai o Poutini Plan Hearing Topics 1 and 2: Introduction / Whole Plan and Strategic ObjectivesSubmitter**: WMS Group (HQ) Limited and WMS Land Co. Limited (S599)** |

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| Statement of Evidence of Duncan John Hardie  |
| 2 October 2023 |
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**Introduction**

1. My full name is Duncan John Hardie.
2. I am a Director and the Chair of Westland Mineral Sands Co. Limited (**WMS**) and I have held that position since incorporation. Interests associated with myself are the largest shareholder of WMS. WMS is a New Zealand registered company, and I am authorised to give evidence on its behalf.
3. I am also the founding shareholder and a Director of Hardie Pacific <https://hardiepacific.com/> , which has its head office in Dunedin and longstanding and wide-ranging business interests in several south Pacific countries. Our largest New Zealand current project is Weora Limited <https://weora.com/> which is leading the Southern Hemisphere in the in-situ mineralisation of captured carbon dioxide.
4. I have experience as the founder and leader of numerous companies including Hardie Pacific, Apollo Gas (listed on the ASX before being taken over by Queensland based Arrow Energy), Waterford Coal (which discovered and mapped a PNG Gulf coal field which was merged into an ASX listed company) and numerous others. I also served as a trustee at the New Zealand Institute for Minerals to Materials Research – Te Kahuōpapa up until 2021.
5. I provide this statement in support of WMS' submission in respect of the proposed Te Tai o Poutini Plan (**TTPP**). My evidence provides an overview of the journey to developing WMS and discusses who WMS is as a company. I also provide an overview of our growth strategy.

**Company overview**

1. WMS was incorporated on 15 March 2021 with the purpose of undertaking the proposed mineral sand mine operation at Okari/Nine Mile, Cape Foulwind, and subsequent projects in the West Coast Region.

## Company Genesis

1. My involvement with these Westland heavy mineral sands goes back more than 40 years. The first permits were issued to my company in 2011. We knew the resource was there, but we could never make the logistics/economics work. During this period, I was successfully involved in mineral sands ventures in Australia and Papua New Guinea.
2. The international mineral sands markets have been firming up over the past years, giving confidence to begin building a robust West Coast team. The ports of Greymouth and Buller fell into disrepair allowing long-term leases to be secured. WMS now have the Buller Port fully operational, and work will be commencing on Greymouth in due course.
3. We managed to secure a Wet Concentrating Plant second hand, but still in packing cases and never used, from Australia. This plant commenced operation in late 2022. The above plant enabled us to send a number of HMC product in sufficient volume (in the form of multiple container loads) to offshore HMC buyers resulting in substantial offers of long-term sales contracts.
4. This has led onto the need to expand, and we will be shortly lodging a resource consent application with the West Coast Regional Council and Westland District Council for a much larger plant at Mananui, south of Hokitika.

## Company Expertise

1. It was, and remains, essential that WMS has the breadth of expertise required to undertake projects.
2. WMS engaged in a worldwide search for a suitably qualified and experienced HMC General Manager that can lead a World Class operation. Tim Chase commenced as the WMS GM Mineral Sands in August 2023.
3. In addition to the directors, we have skilled staff involved in the company's operations. In terms of operational staff, we have already employed a Managing Director (Ray Mudgway), Chief Financial Officer (Christine Wright), Chief Information Officer (John Wilson), GM Logistics (Mike Stewart), GM People, Safety and Community (Dan Mahony), Executive Assistant/Office Manage/Board Secretary (Katie Kumar), Programme Director (Damien Barr), Mine Manager (Chris Heath), Group Health and Safety Manager (Bryan Harrington) Sales Managers in New Zealand and the USA, and two Geologists (through Hardie Pacific). We have directly employed 23 mine operators at Nine Mile. We have also contracted a Mine Planner, Geotechnical Engineer, Hydrologist, Plant Design Expert and appointed local engineering contractors and electrical contractors for the maintenance of operations. The employment of the above team allows the plant to operate 24/7. The plant has been operating 24/7 since January.

## Company Direction

1. Our growth strategy reflects our intention to work collaboratively and benefit the West Coast, while ensuring that we care for the land, as we spread our operation across the West Coast. The growth of the business has been broken into two stages:
	1. Establish the Trade: Nine Mile at Cape Foulwind has become the first operational facility for WMS. This has established WMS as a credible global supplier of ilmenite, which is critical for ongoing growth. This phase is now complete.
	2. Grow the Company: This is achieved by:
		1. expanding the operations to company owned private land in the Mananui (South Westland) to expand markets to include high grade garnet and other minerals.
		2. Planning (feasibility, mineral exploration, and quantifying markets) and expanding extraction to increase volumes within close proximity to the Port.

This phase will strengthen WMS' position as a global supplier of ilmenite and Garnet as well as advancing the high grading of some of the lesser volume but highly sought after monazites, zircon and others. This will require significant capital expenditure.

* 1. Optimise the Company: Consider West Coast wide options to sustain operations for 50 years plus. Options include purchasing more land for mining or entering into royalty agreements with third party private landowners. Another option is to establish a secondary processing plant that separates the various minerals prior to export which significantly increases the export value of the products from New Zealand.
1. I grew up in Canterbury, with much of my early working life spent in Westland and Nelson. We are proud to be a West Coast company, and intend to deliver positive economic impacts and employment opportunities to the West Coast community with the minimum environmental impact.

# West Coast Mineral Geology

1. The Alpine Fault runs from Fiordland to Nelson, and from this fault line rocks containing gold and other heavy minerals (predominately ilmenite and garnet with smaller amounts of rutile, zircon and monazites, which contain the rare earths and other minerals) spill out. Westland contains these minerals, whereas the East Coast tends to be relatively barren. This is because the fault tends to be slightly on the western side of the Main Divide and it disgorges into the headwaters of Westland’s river systems.
2. Initially the minerals are held in large (20 tonne) boulders. Over time they start breaking down, due to changing temperatures, sun, rain, glacial activity and so on, to smaller rocks. These reduce to gravels downstream and coarse sand becoming finer towards the coast until it reaches the sea. The ocean drift here on the coast is northwards, so the gravels from Fiordland and South Westland begin their journey northwards towards Farewell Spit, slowly, with the actions of the sea making the sand finer and finer towards the northern point of the South Island.
3. These sands are deposited horizontally in layers on the beach and are relatively well defined. Over time these layers of sand build up and form sand dunes. The HMC content is typically 15 – 25% of the Run of Mine (**ROM**), being the sand in its natural and unprocessed state, although in some cases HMC is as high as 40%. The southern deposits are coarser due to less time in the sea, becoming finer as they travelled northwards. This is not so important in the ilmenite as this is processed and ground to a very fine material at the eventual processing plant, but the coarser garnets (which are predominately used for grinding or water jet blasting) are the most sought after. The rare earth elements that are contained in the monazites are more concentrated in the Buller sands, and those to the north Buller.
4. The mineral sands that we are targeting today are from 8,000 – 10,000 years ago, when sea levels were circa 5m – 15m higher and further inland than the shore line today and the world climate was stable for a period. In the meantime, the coastline has retreated (either by the sea levels dropping or the ground levels rising) and the land containing these mineral deposits has been preserved inland. Fortunately for miners, these lands tended to be well drained, flat and fertile, so they were sought after by the early farmers who cleared the land and are today predominately freehold dairy farm land. We have now purchased three of these freehold farms.

**Ports and Coastal shipping**

1. The development of a sustainable shipping solution and ports development (including dredging) is paramount to creating an inter-generational and sustainable mineral sands sector on the West Coast and our company is investing heavily in these areas to make this happen. This system will underpin and support other businesses and trade across the region and NZ.
2. WMS' Mineral Sand business is inextricably linked to the success of the port and coastal shipping business. A successful mineral sand business will underpin the operation of the ports for the region. The WMS Group will undertake operational upgrades and asset support is planned for the port and mineral sands’ operations. My colleague Mike Stewart has provided more detail as to how critical our West Coast port operations are to the West Coast region**.**

**Conclusion**

1. WMS supports the enabling of mining activities in the TTPP on the basis that the mineral extraction industry is vital for the prosperity of the West Coast both now and in the future.

**Duncan John Hardie
2 October 2023**