

Appendix 1. Taharoa Ironsands Ltd Request for Information

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Substantive Application

1. General

To afford the Panel greater clarity on what is proposed and what is already consented, please clarify/confirm these details:

Name	Location	Consent Granted	Consent Expiry	Status
Eastern Block	E of Central	2018	?	<i>Completed. Rehab underway</i>
Te Mania Extension	NE of Central	2022	2029 ¹	<i>Yet to commence</i>
Pit 1	Northern Block	2024	2029 ²	<i>Currently being mined</i>
Central Block	Central Block	TBD	TBD	<i>Proposed</i>
Southern Block	Southern Block	TBD	TBD	<i>Proposed</i>
Northern Block	Northern Block	TBD	TBD	<i>Proposed</i> ³

2. Mining of southern area

Section 1.1 of Appendix K (Terrestrial Ecology – Wetlands and Vegetation) notes an understanding that there is no intention to mine the area below the escarpment at the southernmost end of the site or south of the Waiohipa Stream (so this area was not surveyed in detail). Similarly, the summary of Appendix O (Archaeology) at page 73 states that no mining is proposed in the southern zone of the southern block, which is shown in Figure 31 of that Appendix.

Is that understanding correct and if so **what plan or other reference within the application materials confirms this** as Figure 4.4 of the substantive application and Figure 1 of Appendix N (Hydrogeology) shows extension 3 of the Southern Block mining most of the site?

3. Buffer

The statement that a 100-metre buffer around the site perimeter would reduce the mine's potential revenues by over \$1.5 billion over 35 years equates to 11% of the projected overall revenue of \$13.5 billion. This estimated economic loss is noted as being calculated from an assumed average 50 metre depth over an 11 km perimeter which equates to 55 million m³.

Is this economic loss estimate proportionate given:

- the Southern Block resource is around 57 million m³ (mine plan in Appendix B of Appendix N); and
- the entire resource is around 300 million m³ (Substantive Application s2.2).

¹ Attachment B to Applicant's response to comments in relation to planning at page 30

² Complaint to WRC dated 13 Jan 2025, Roy Wetini Whānau Trust at digital page 195 and letter to Taharoa at digital page 227.

³ Project summary information provided by Taharoa to local community, Roy Wetini Whānau Trust at digital page 216 and letter to Taharoa at digital page 227.

4. Rehabilitation

A key issue recorded in Appendix G to the Substantive Application relates to the extent and nature of stabilisation and rehabilitation. The conditions imposed by the Hearings Panel set timeframes within which stabilisation and rehabilitation must be completed across different parts of the site. The applicant disagrees that conditions should dictate the extent and timing for stabilisation and rehabilitation and appealed the Panel's conditions because of their stated impracticability.

Appendix G also advises that the applicant rehabilitates mined areas in two stages – initial stabilisation to manage dust and erosion, followed by final contouring in line with the Site Rehabilitation Plan. Once tailings have been dewatered, the land is reshaped, topsoiled and replanted using a seasonal planting programme supported by an on-site eco sourced nursery.

The Panel refers to the stated need for flexibility/adaptability to the rehabilitation approach referred to at section 4.18 of the Substantive Application, such that rehabilitation efforts cannot be bound to rigid timeframes or fixed hectare targets.

The Panel nevertheless notes as follows:

- The statement in section 6.1 of the Air Quality Assessment report (Appendix S to the Substantive Application) that progressive rehabilitation is one of the most significant dust mitigation measures, as it reduces the areas of exposed surfaces which consequently reduces the potential for windblown dust emissions to be present. Attachment J of the Applicant's response to comments in relation to Air Quality further references stabilisation and rehabilitation as key for minimising dust generation from the site .
- The recommendation in section 5.2 of Appendix M (Terrestrial Ecology) that tailing cells are rehabilitated "as quickly as possible" after mining operations in each area has finished to ensure any effects associated with loss of grassland habitat are only temporary.
- The mine staging plan (for example as appended as Appendix B and C to Appendix N, Hydrogeology Assessment) which shows a clear sequence of dry mining, dredging and tailings intended over the lifetime of the consent.
- Condition 20 of proposed Schedule 1 contains no specific objectives or timeframes for completion of site rehabilitation (interim or final) sheeted to either air quality or ecological concerns. Instead, the management plan itself would set out the "goals, targets and success criteria" to be followed with the timeline for interim rehabilitation of areas within 200 m of the consent area boundary once mining has been completed (Attachment B of the Applicant's response to comments in relation to planning).
- The revised Condition 9 of proposed AUTH142035.01.01 (Land Use Consent) provides a 12-month timeframe for completion of mining within the Priority Stabilization Area and a 3-month timeframe for stabilisation.
- At the hui, the Panel was advised that previous rehabilitation efforts were successful (when undertaken), and there were no dust problems when there were smaller exposed areas and a greater buffer. However, video footage shown by the Taharoa Lakes Trust Panel at the hui showed widespread, wind-generated dust discharges to air from open,

exposed areas of the mine (and not from the beach or sea-spray).⁴ The footage accords with visible dust clouds viewed by the Panel on the day of the hui.

- Information presented in the comments from the Roy Wetini Whaanau Trust (Attachment 7) records that under the approved Rehabilitation Plan (WRC doc number 3261348), rehabilitation was required at an approximate rate of 10-15 ha per year, with the report citing that information stating that TIL had only completed 7 ha out of 70 ha rehabilitation required between 2017 and 2023. This point was recorded in the Hearing Panel's decision, noting that since the time of that report (April 2024) the applicant had undertaken some rehabilitation but remained "behind schedule" (paragraph 376 of the decision).

For these reasons, **the Panel requests comment from the applicant as to why** (assuming the Substantive Application is to be approved) **conditions consistent with good practice requirements for other quarries and mines in New Zealand should not be imposed requiring:**

- Initial (or interim) stabilisation of tailing deposits within (say) four to six weeks of each stage being completed to manage dust and erosion as the mine sequencing plan is progressed.
- Final stabilisation in accordance with the Site Rehabilitation Plan (in order to achieve the future landforms and ground covers detailed in the Conceptual Site Closure Plan), progressively within (say) three months of mining being completed in each stage according to the mine sequencing plan.

Further, the Panel requests the applicant's comments as to why the specific goals, targets (including timeframes and spatial areas to be rehabilitated) and success criteria for rehabilitation should not be included within condition 20 itself, in line with established case law whereby management plan objectives and targets must be set in consent conditions, and if so **what goals, targets and success criteria the applicant considers a condition to that effect should include.**

Noting the point above regarding the comments from the Roy Wetini Whaanau Trust, in Attachment B to the Applicant's response to comments in relation to planning (page 28), Regional Council correspondence is cited recording confirmation by monitoring staff that all outstanding rehabilitation had been completed and in place as of mid-2025).

What specific rehabilitation works were completed (where, and covering what spatial areas) between the date of the April 2024 compliance report produced by the Roy Wetini Whaanau Trust and Regional Council correspondence referred to in Appendix B?

More broadly, there have been over five years of operation under s124 (since the existing consents for the mine expired) .

How much overall rehabilitation and planting has been undertaken during this period?

For the avoidance of doubt the questions on this topic are not put as a matter of compliance but within the context of the issues and effects raised in the comments received on the Substantive Application and in framing conditions for the permits to be approved in the event the application is to be granted.

⁴ [Online] <https://www.fasttrack.govt.nz/projects/central-and-southern-block-mining/correspondence>

5. Ridgeline Reinstatement/ Rehabilitation/

The comments lodged by the Roy Wetini Whaanau Trust raised concern about the removal of the ridgeline located on their south western boundary, noting that since mining of that ridgeline commenced they have experienced a noticeable decline in air quality, being exposed to “clouds of dust moving across their land”, observed visible dust on surfaces inside the dwelling, and ceased using roof collected drinking water out of concern over clay dust contamination. The removal of the ridgeline is also said to affect visual amenity, and the level of noise and light emissions experienced from within the property.

The Trust points to correspondence with the Regional Council (and produces application material submitted by Taharoa Iron Sand Mine in 2013 in support of a consent variation) advising that a buffer would be maintained between the open mine areas and neighbouring properties.

The Trust seeks reinstatement of the ridgeline adjoining the northern boundary of the Central Block along with its stabilisation and planting as part of the amended conditions of consent requested by that commenting party.

Attachment B of the Applicant’s response to comments in relation to planning (at pages 7 - 9) notes that there is no condition of consent requiring a set back from this boundary, and says the issue raised is essentially a compliance matter that is not relevant to Panel’s decision because no formal enforcement action has been taken by the Council. Conversely, the correspondence produced by the Trust (Regional Council letter dated February 2026) advises that the Council considers this issue to be a matter for the consent process (as now superseded by the Substantive Application before the Panel). There may also be issues of jurisdiction (consent scope) raised by the statements made in the 2013 application.

Please advise, in these circumstances, whether it would be feasible to reinstate the ridgeline with tailings/overburden removed in carrying out mining activities in the (former) ridgeline area once mining in this specific area is complete and if it is not considered feasible or viable, explain precisely why that is the case and what the implications for the mine would be.

Appendix C Economic Assessment

6. Net Present Value of Project Expenditure

The economic assessment identifies that the anticipated expenditure over the next 30 years will be \$9 billion (\$298 million per year). Economic assessment of Fast Track projects have typically used the net present value (NPV) of project expenditure over a period relevant to the project to estimate the project contribution to Gross Domestic Product (GDP) for the region.

The Panel requests the Applicant provide such an assessment incorporating project capital and operating expenses and adopting the New Zealand Treasury discount of 8%. The Panel anticipates that the estimate would include both direct and indirect effects of expenditure and employment as generated by a regional input-output model.

The economic assessment records that \$1.2 billion has been spent on regional goods and services since 2017 (\$150 million/annum). This is projected to increase to \$298 million per annum. A similar increase in capital spending is projected. **The Panel requests those numbers be verified in the model**, being clear to differentiate regional/national expenditure from expenditure on overseas goods and services.

The Panel further requests the Applicant **compare the NPV with the most recent Waikato regional GDP** (noting that Appendix C incorrectly refers to the Taranaki region for a GDP comparison).

7. Export Earnings

The economic assessment refers to \$14 billion of export revenue over the next 30 years. The revenue forecast rests on:

- (a) iron ore price held constant at \$100 USD/tonne for 30 years (the 62% FE fines index has recently been below this);
- (b) production ramping from 3.6Mt to 5Mt; and
- (c) NZD/USD at 0.55.

What is the sensitivity of revenue to downside scenarios on each of these variables, and has a low-case scenario been modelled?

The economic assessment draws a parallel between the projected export of Taharoa Ironsands and wool exports. The Panel requests that **actual export data from most recent published statistics be provided** to make a comparison with the current \$316 million per annum export revenue?

8. Employment

The economic assessment identified that there are currently 350 full time employees “indirectly” employed (page 2) and 240 staff “directly” employed (page 13). Counsel’s memorandum of 5 December 2025 states that there is a “core workforce” of 70 – 80 employees with 70% of the mine’s workers from Ngāti Mahuta hapū (Substantive Application s3.2.3).

Please clarify the employment numbers:

- **Are there 350 full-time employees or 350 full-time equivalent roles (page 20, Appendix C), and if the latter is correct what is the total number of employees, full-time and part-time?**
- The Panel viewed onsite staff accommodation at the mine during the site visit and was advised that the mine intends to expand this to accommodate FIFO (fly-in fly-out) mine workers. Concerns were expressed at the hui that employment of local mana whenua in the village was no longer occurring to the extent that it had under previous mine management. The Panel anticipates that such changes need to be factored into the flow of expenditure in the local community in the input-output assumptions if wages and salaries are repatriated and not spent locally.

9. Adverse effects

There does not appear to have been any attempt to quantify adverse impacts in economic terms, the proportions and thresholds of which are to be weighed in terms of section 85 of the FTAA.

Can examples of any adverse impacts be identified and evaluated where practicable?

10. Report Preparation

The authors of the economic report (Appendix C to the Substantive Application) are requested to provide the following declaration (or similar) as to independence:

“While this report has not been prepared for proceedings before the Environment Court, it has been prepared and reviewed in accordance with the Environment Court's Code of Conduct for Expert Witnesses, as contained in the Environment Court Practice Note 2023. We confirm that the issues addressed are within our area of expertise, that we have not omitted consideration of any material facts known to us that might alter or detract from the opinions expressed, and that we have not been directed in the substance of their findings.”

Appendix I - Hydrology

11. Risk of Flooding

The Executive Summary of Appendix I states that water levels in Lake Taharoa are approximately 2.5 metres higher due to the dam and that lake levels have remained relatively stable between ~9.6 m RL and ~10.4 m RL over the last 10-years.

Section 6.2 notes that a section of Taharoa Road that is of concern regarding flooding during high lake levels is located along a topographic low (~10.5 m RL) and is close to current normal lake water levels. Figure 5 of Appendix I indicates around six occasions in the last eight years when Taharoa Road would have flooded. Given the legal baseline for the existing environment is the dam not being present (Appendix CC, paragraph 17(c)), **how does increasing the lake level by 2.5 metres not increase the risk of flooding at the road?**

Section 6.2 of the report states that the box weir is a “passive” structure and cannot be actively operated to increase or decrease outflow rates for given water level, and as such it is not possible for the mine operator to control or affect high lake water levels based on the current weir design.

Is this consistent with the condition structure whereby water must be pumped through the weir to maintain residual flows below the dam, if water levels drop below the invert level of the v-notch (9.36m)? **Why can't maximum lake levels (presenting potential flooding risk) be managed in the same way?**

What would be a maximum level, to avoid flooding Taharoa Road?

12. Climate change projections

Mr Kelsey requested a flood risk assessment on Taharoa Road to consider climate change impacts. Attachment F of the Applicant's response to comments in relation to Hydrology clarifies

that flooding has occurred at the low point of Taharoa Road on nine occasions in the 13 years between 2013 and 2025 but declined to provide a flood risk assessment.

The Panel notes that Section 5.1 (page 22) of Appendix I states:

*Projected climate change is fairly neutral for the Taharoa area, with only a 2% decrease in annual rainfall projected for the period 2041-2060. Summer rainfall is projected to decrease by ~5%, **while winter rainfall is projected to increase by ~2%.***

On the face of it, the statement that climate change projections are ‘fairly neutral’ seem at odds with the extreme events experienced in Auckland in the last five years. It is also inconsistent with the Appendix Q (Coastal Processes Assessment, section 2.1.2) which anticipates increased stormwater discharge volumes due to climate change, to manage effects of extreme events. The Panel also notes the temporal differences between an individual event, and the seasonal/annual effects being discussed in section 5.1.

The Panel wishes to understand **how many additional flood events are anticipated** under MfE’s climate change scenario SSP2-4.5?

13. Reference levels and triggers

There are various lake and river level metrics referred to in this report and in consent conditions, including as to when water take must cease or management responses need to be triggered. Section 3.3 of Appendix I refers to a previous understanding that the local datum was the same as mean sea level (MSL), it since being realised that a 2.38m offset was required.

Section 3.4 of Appendix I refers to lake levels being between ~9.6 and 10.4m local datum. Condition 10 of AUTH142035.05.01 (Water Permit for surface water take) requires management responses to be initiated if Lake Taharoa drops “below 9.6m RL *as measured by the Local Datum Survey Marker*” (over a 30-day period)⁵ and similarly condition 7 requires that water must not be taken when the Lake Taharoa water level is less than 8.53m *as measured by the Local Datum Survey Marker*.

This creates some confusion in the Panel’s mind as to what levels are being referred to i.e. RL or the local datum? It may be that the intention is that the levels are in “RL” terms (set to the New Zealand Vertical Datum) but measured at a local datum survey marker (spatially).

Please clarify the situation for the Panel’s understanding of the various triggers, management responses and condition requirements relating to water levels.

Figure 5 of Appendix I shows a “consent trigger” level set at 9m – the Panel cannot see a condition linked to 9m (as opposed to 8.53m, 9.6m as above), or for residual flows through the fish pass, 9.3m under condition 7 of AUTH142035.03.01 (Water Permit for surface water take).

Please clarify the purpose of the 9m consent trigger line in Figure 5.

⁵ Attachment F to Applicant’s response to comments in relation to hydrology

14. Gaps in modelling database

Section 4.3.5 (page 18) records that there is uncertainty in the exact lake topography and bathymetry behind the dam structure and so the stage versus outflow curve was adjusted as a calibration parameter.

Please explain the calibration approach and any potential consequences of uncertainty in the lake topography and bathymetry that might remain despite calibration.

A similar question is raised by section 4.3.6 of Appendix I referring to uncertainties in the exact configuration of the outlet structure, vertical datum offsets and frictional head loss along the Wainui Stream, resulting in adjustment to a model calibration parameter (for the discharge through the outlet dam structure). It is said as a result of this that lake seepage to groundwater was “implicitly accounted for as part of discharge losses” as described in section 4.3.5.

Please explain the significance of this point including for the accuracy of the overall water balance model.

Do the calibration results in section 4.4.1 overcome or address any limitations in the modelling inputs as referred to above e.g. uncertainties or absence of data?

15. Water take scenarios

The amount of water to be taken for ship loading as assumed in Scenarios 3 and 4 (at 21,428 m³ per day) is substantially less than the average rate of water take for ship loading as recorded at section 2.3.3 prior to expansion of operations (i.e. 37,000 m³).

It is explained that this assumed ship loading take (21,428 m³ per day) was set relative to the maximum annual volume of water take provided for in condition 4(b) of AUTH142035.05.01 (Water Permit for surface water take), i.e. 3 million m³ per annum, for 35 ship loading events per year, at 4 days per event.

It is further assumed that recycled processing water would supply additional requirements for ship loading (as currently occurs). However, given the planned expansion in operations (increase in number of ship loadings per year), use of recycled water would presumably be greater than currently required over an annual cycle of operations.

Are there any implications for the water balance model of using recycled processing water and discharging that to the CMA through the ship loading process, particularly during summer periods when water abstraction rates are greater than summer natural catchment inflows (see bottom of page 23 of Appendix I), and given the planned increase in number of ship loadings proposed?

Is this the reason why there are four occasions under Scenario 3 when **the cease take trigger level of 8.53 m RL is exceeded**, when that has never occurred before and is not permitted under the existing consent? (see section 2.3.1).

At the bottom of page 22 (section 5.2.1 of Appendix I) it is recorded that the temporal variation in lake water levels is due to seasonal variation in natural catchment inflows, and that this will not change with any future increase in the frequency of water abstraction associated with an increased number of ship loading events.

Please explain - this does not appear consistent with the final sentence on the following page (23) whereby abstraction rates are greater than inflows in summer.

16. Lake level management

Proposed Condition 10(a) of AUTH142035.05.01 (Water Permit for surface water take) refers to implementing management responses to “reduce as far as practicable” the water being taken for the purposes of ship loading and sand mining operations, if lake levels fall below RL 9.6.

What would that condition entail i.e. what “practicable” reductions in the water take could be achieved and how pursuant to this requirement of the permit?

Proposed Condition 10(c) of AUTH142035.05.01 (Water Permit for surface water take) requires a review of the Lake Level and Water Management Plan but only in the event that Lake Taharoa falls below 9.6 metres RL *and* a wetland monitoring report concludes there is an adverse effect. **Isn't this too late - i.e. after the adverse effects have already occurred?**

How does this condition requiring a plan review ensure mitigation measures are undertaken to protect the Lake margins wetlands from such effects arising in the first place?

Please provide a readable Citect (water management) diagram (Attachment 1 of Appendix EE to substantive application).

17. Weir Calculations and Minimum Flow

In reference to the dam outlet weir, Section 4.3.5 of the hydrology report (Appendix I) states:

*“The outlet weir has reportedly been upgraded and modified on a number of occasions since construction in the late 1970’s. There do not appear to be any current as-built or design drawings that reflect the current state of the structure which is shown in **Figure 11**”.*

Additionally, Attachment F to the Applicant’s response to comments in relation to Hydrology (page 4) response regarding the outlet weir is as follows:

“While original construction drawings of the outlet weir are available, the weir has been modified and raised with the V-notch plates. The date and exact construction details of these modifications are unknown. TIL have not been able to accurately survey the current configuration of the weir due to difficult unsafe access requirements.”

Section 6.1 of the hydrology report states:

“As seen in Figure 6 the lowest water level measured behind the dam structure was 9.45 m RL in early 2014. This is equivalent to 0.09 m head above the invert of the two v-notches in the weir structure (Figure 12). Applying a standard weir flow calculation, the flow through the outlet weir at this level would have been 10 L/s.”

From the above, it appears that the minimum flow of 10 L/s was calculated based on the original construction drawing of the outlet weir, which has since been modified.

Please provide an updated schematic of the weir with surveyed levels so that minimum flow can be correctly calculated.

It is understood that Condition 4 of the proposed conditions for AUTH142035.02.01 (Water Permit for dam) already requires a flow of no less than 10 L/s to be maintained. A correct calculation of the minimum flow is critical for this condition.

18. Stream Low-flow trigger and no take level

Attachment F to the Applicant's response to comments in relation to Hydrology (page 8) states:

DoC – Section 4.4, Para 2

Comment: DoC noted an inconsistency between the draft LL&WMP and proposed consent conditions regarding the 9.6 m RL trigger level. The draft LL&WMP states a trigger level of less than 9.6 m RL for a continuous 30-day periods, whereas the relevant proposed consent condition (Condition 10, AUTH142035.05.01) does not specify a duration (i.e., appears to be an instantaneous trigger).

Response: The absence of reference to a continuous 30-day period in Condition 10 appears to be an error. We recommend that Condition 10 is amended to reflect the requirement set out in the draft LL&WMP.

The Panel queries why is it appropriate to wait 30 days before any of the responses are triggered, and for those 30 days to be continuous.

Section 2.3.1 of the hydrology report states:

“While we have been unable to identify any records which provide a basis for the 8.53 m RL trigger level, we believe it was likely based on the minimum lake level prior to construction of the dam.”

Please provide an assessment of effects of periods when the lake levels are drawn down below the 9.6mRL trigger to the 8.53mRL no-take trigger.

Will periods such as these have a significant impact on wetlands bordering the lake?

19. Maximum abstractions

Attachment F to the Applicant's response to comments in relation to Hydrology (page 7) states:

DoC – Section 4.1, Para 9

Earthtech – RFI17

“If TIL continuously abstracted ship loading water at the maximum rate of 75,000 m³/day they would exhaust their annual limit of 3,000,000 m³ in approximately 40 days. This is the equivalent of 10 ship loading events, assuming an average of 4-days per loading event. While TIL could abstract in this fashion under the consent conditions, it is not realistic given their intention to increase to an average of 35 ship loading events across one year.”

The Panel requests Would the applicant be willing to consider a weekly maximum abstraction to avoid a situation of back-to-back maximum abstractions?

Appendix K – Terrestrial Ecology – Wetlands and Vegetation Assessment Wetland mapping

20. Wetland mapping

Appendix K covers the ecological effects on retained natural inland wetlands associated with drawdown of groundwater as a result of mining activities, as assessed in Appendix N (Hydrogeology Assessment).

In order to better understand and evaluate these effects along with proposed monitoring and mitigation to address them, the Panel needs to be able to compare and correlate material in the two reports. This is not assisted by the two reports (Appendix K and Appendix N) adopting a different numbering system for the wetlands at issue as well as specifying different study areas.

For example, Appendix K (Table 9 and Figure 4) identifies 29 to 30 wetlands/sites within the central and southern block only, whereas Appendix N identifies 88 wetlands within its study area of the wider catchment which includes the northern block as well as central and southern blocks (Table 1 and Figure 4) all of which are numbered in a different way to those identified in in Appendix K. Appendix K also refers to seven wetlands being mined (section 6.2.3), whereas Appendix N refers to 13 wetlands being mined (section 6.3.2).

This matter was raised by the Panel in Minute 10 and addressed (in part) in Counsel for the Applicant's memorandum of 23 June, which includes a map and table applying *both* numbering systems, and a table identifying the wetlands being mined adopting both numbering systems (ie from Appendix K and N).

It thus remains difficult to correlate the information in section 6.3.2 of Appendix N (which groups the wetlands referred to in that report into **four** sets according to their location as well as degree of groundwater connection/reliance on surface water versus groundwater), with the assessment of hydrology related ecological effects at section 6.2.4 of Appendix K.

Table 12 of Appendix K is helpful in identifying (and matching) the natural wetlands to be retained as discussed in each of the two reports (i.e. with a column for each numbering system), but not all wetlands referred to in Appendix N are covered in that table, including the proposed new monitoring and proposed offset site 27 (wetland 72 under Appendix N), and it is unclear which wetlands are considered "Wainui Stream" or "Lake Margin" wetlands as referred to in column 2 of that table. Further, the wetlands to the north of Mitiwai Stream identified in Appendix N (notably the wetlands closest to the central block, i.e. 40, 42, 46, 50 and 53 in Figure 4 of Appendix N) are excluded from the assessment in Appendix K.

The Panel requests that a consistent set of mapping be prepared (going beyond that already produced on 23 June) **enabling the Panel to correlate and compare information in the two reports relating to each retained wetland or water body, in order to be able to better understand the significance of the effects on the various wetlands from groundwater drawdown, along with proposed monitoring and mitigation.**

This is particularly important as section 6.2.4 of Appendix K refers to potentially high/substantial adverse effects associated with groundwater drawdown on water dependant plant species, with Table 15 recommending specific monitoring and mitigation (including augmentation with supplementary water flow) for wetlands affected in that way, if certain triggers identified in

baseline monitoring are exceeded. Section 6.2.4.1 refers to a different degree of effect on lake margin wetlands, again with corresponding monitoring and mitigation outlined in Table 15.

For these reasons, the additional mapping requested by the Panel above should identify which (Appendix N) Grouping each wetland falls within (ie refer Groupings adopted in Table 13 of Appendix N), and adopt the colouring convention (for depth to groundwater) and other information currently on Figure 17 to Appendix N, but also include the numbering for the wetlands adopted in Appendix K, and a system for the Panel to readily track which wetlands are “Lake margin wetlands” (subject of section 6.2.4.1 of Appendix K), and which are covered in section 6.2.4 (on page 35 of the report). The mapping should also reveal which wetlands are “Wainui Stream wetlands” as referred to in column 2 of Table 12 of Appendix K.

The Panel further requests an assessment of potential (hydrogeology related, i.e. associated with groundwater drawdown from mining activities in the Central or Southern block) **ecological effects on the wetlands to the north of Mitiwai Stream**, specifically the wetlands closest to the central block (wetlands 40, 42, 46, 50 and 53 in Figure 4 of Appendix N).

21. Wetland types

Section 3 of Appendix K refers to “margin wetlands” being as extensive as they are now, prior to current mining activity -based on historic aerial photos.

Please confirm if the “margin” wetlands described in **section 3** are those discussed at **section 6.2.4.1** of the report (Lake Margin Wetlands).

Which of the wetlands described in **Table 9** (and shown on Figure 4 of Appendix K) **are “margin” or “lake margin” wetlands**, noting the reference to that term (Lake Margin Wetlands) in the second column of row 1 of Table 12.

Specifically, and related to Question 20 (Wetland mapping) above, **please produce a revised Table 12** identifying the Lake Margin Wetlands and “Wainui Stream Wetlands” in the second column by wetland number (as applied on Figure 4). This revised table also needs to include the wetlands north of Mitiwai Stream referred to in Question 20 (appropriately allocated according to degree of groundwater connection) .

There are also various references in the report to wetlands having been “induced” as a result of mining activities – see e.g. page 18 (section 4.6). The Panel notes that Table 9 identifies a number of Natural Inland Wetlands (shaded green) as having been induced (for example wetlands 5, 6, 9) with Table 11 also referring to some (only) of the southern and eastern wetlands as having been induced.

Do these induced wetlands qualify as Natural Inland Wetlands despite that induction from mining activities **because they have not been ‘deliberately constructed’**, while other sites (as identified in Table 9) are referred to as ‘sites’ rather than wetlands (including site 27, the proposed offset site), because they have been deliberately constructed (noting Footnote 4 on page 12 of Attachment H of the Applicant’s response to comments in relation to Fauna and Wetlands)? **If not, on what other basis has a distinction been drawn between such ‘sites’ and Natural Inland Wetlands for the purpose of the wetland assessment and Table 9?**

Please identify in Table 11 which wetlands, if any, **are habitat for threatened species** identified under clause 3.8 of the NPS-FM, for the purpose of clause 3.21 of the NPS-FM (definition of Natural Inland Wetland, clause (e)).

22. Pest Plant Species

Sections 4.4 and 4.5 of Appendix K refer to a number of pest plant species listed in the Waikato Regional Pest Management Plan, along with a number of species requiring management in certain locations (including marram grass).

Section 6.2.6 notes that dune vegetation and wetlands are particularly sensitive to pest plants which have the potential to alter the structure and composition of the vegetation by excluding native species, resulting in loss of ecological value. It is also said that mining activities have the potential to further spread pest plants that are already present in the site. In Table 15 (Recommended mitigation of adverse effects), certain measures to address pest plant invasion are recommended, with a Pest Plant Management Plan to be developed as part of the proposed 'Ecology and Rehabilitation Plan'.

It is assumed that this is a reference to the Natural Inland Wetland and Buffer Management Plan (NIWBMP) – **please confirm**.

On that assumption, it is noted that there does not appear to be any Plant Pest Management Plan as part of the draft NIWBMP (Appendix DD to the application, including as revised in Attachment Q to the Applicant's response to comments - updated draft NIWBMP). Section 6 of the Draft NIWBMP simply refers to controlling pest plants listed in the Waikato Regional Pest Management Plan in the proposed offset wetland site. It is also noted that Schedule 1 Condition 16(b) has requirements in relation to pest management for the NIWBMP.

It is requested that the NIWBMP be amended to set out the proposed measures to control the pest plant species referred to in Table 15 (page 43 of Appendix K), and in sections 4.4/4.5 of the report.

Why is marram grass, an introduced pest species, **still proposed for use in site rehabilitation** (Condition 20b, Schedule 1)?

23. Wetland 21

Table 9 of Appendix K refers to wetland 21 being used as water storage for the mine with water levels fluctuating significantly as a result.

Is it proposed to continue taking water from wetland 21, and if so under which resource consent, at what volume, and for what purpose?

24. Table 10 (vegetation ecological values)

Table 10 of Appendix K assesses the ecological values for various vegetation type groupings but in doing so appears to only cover 20 of the 39 vegetation types referred to in Table 7. **Is the omission of the remaining vegetation types deliberate and is so on what basis? If not, please amend Table 10 to include all vegetation types in Table 7.**

Table 10 refers to plantation pine forest as Relevant Vegetation Type 6 (second column) – presumably this is an error and the correct vegetation type would be 20? **Please clarify.**

25. Exclusion Areas/Riparian setbacks

Section 6.1.1 of Appendix K states that various exclusion areas (including land within 30m from any perennial water body or retained natural inland wetland) is as mapped in Figure 5.

Please confirm that Figure 5 includes the 30m exclusion area surrounding all retained natural inland wetlands (as shown on Figure 6). **Please add the proposed offset wetland (with buffer) to Figure 5 or advise why the offset site should not be included.**

A number of commenting parties challenge the adequacy of the proposed 30 m buffer width for streams and wetlands (including Waikato Regional Council, Department of Conservation, Ngāti Mahuta, Te Nehenehenui).

Attachment H to the Applicant's response to comments in relation to Fauna and Wetlands (page 5) advises that there is no clear scientific evidence available in New Zealand for any particular buffer width that would be sufficient to manage adverse effects on avifauna, other fauna, species or wetland systems, but considers that a 30 m planted buffer around all retained wetlands, alongside restoration and predator control, would be appropriate to manage the adverse effects of mining activities on wetland birds.

Appendix I (page 8) advises that the 30 m buffer would be appropriate to address adverse effects on the site streams and that narrower planted buffers can be expected to provide beneficial aquatic functions in terms of water temperature control, filtering sediment etc.

With these comments and responses in mind, why has a 30 m width been specified in consent conditions rather than some other (including greater) width, as being necessary to protect ecological values (fauna and aquatic habitats) ?

In Te Nehenehenui's comments, a 100 m setback (from the Mitiwai Stream) is requested (noting that other commenting parties have also sought a 100 m setback from the Mitiwai Stream), in part to increase certainty that adverse hydrological effects on wetlands and water bodies would be appropriately minimised.

Attachment H to the Applicant's response to comments in relation to Fauna and Wetlands (page 13) advises that buffers are not intended to help with maintaining wetland hydrology, but are instead focussed on limiting physical disturbance, runoff, weed invasion and fauna disturbance.

Would a greater setback from wetlands and streams nevertheless provide benefits in terms of minimising potential hydrogeological impacts on those water bodies?

26. Wetlands to be removed/retained

Section 6.2.3 of Appendix K states that some of the wetlands to be completely removed were induced by the landform left by historic mining of this area.

Which of the seven wetlands to be completely removed are the induced wetlands? Is it (solely) wetlands 5 and 6 as recorded in Table 9? If not, which of the other wetlands to be removed are induced?

The point is raised because section 4.1.1 of the Substantive Application records that TIL proposes to mine seven wetlands "*that have formed as a result of earlier mining activity*". Conversely, page 97 of the Substantive Application refers to only "some of" the seven wetlands (being removed) having been induced by the landform left by historic mining.

Clarity on the point is therefore requested.

27. Hydrology related effects on retained wetlands

Section 6.2.4 of Appendix K refers to the level of drawdown of groundwater in the vicinity of the wetlands west of Lake Taharoa (being wetlands 12, 13, 14 and 21) during mining in the southern block, stating that these wetlands could see a 1-3m drop in groundwater over a period of six months or more. These wetlands are all located in the Southern Block and this level of drawdown is described as “significant”, with the level and magnitude of the potential effects on wetlands from such drawdown referred to as “substantial and “high”.

Section 3.1 of the Natural Inland Wetland and Buffer Management Plan (NIWBMP) records that during mining of the pits on the southern block, groundwater levels beneath “nearby” wetlands will drop by up to 4m, and a groundwater gradient from east to west will be created.

This information raises a number of questions, namely:

- **What information** in Appendix N are these assessments (Appendix K and NIWBMP) based on, i.e. how is it determined that certain wetlands would experience between a 1-3 (or 4) m drop in groundwater levels?
- **What is the full range and extent of drop in groundwater levels** for all wetlands referred to in Table 12 (first row) including the Wainui Stream Wetlands and the Lake Margin Wetlands (noting the information request above, ie a revised Table 12 identifying the Lake Margin Wetlands by number (as applied on Figure 4)).
- **Which retained wetlands** (as numbered in Appendix K) **would experience a 4m drop in groundwater?**
- **Will the existing and proposed new monitoring sites** referred to at section 3.2 of the NIWBMP (and on page 41 of Appendix N) **be able to detect these fluctuations in groundwater levels for all retained and potentially affected wetlands**, with reference to the proposed baseline ‘lowest natural water level’ monitoring referred to on page 42 of Appendix K, and as required by condition 5 of proposed consent AUTH142035.16.01?
- **What is the full range and extent of drop in groundwater levels for the wetlands to the north of Mitiwai Stream** (wetlands 40, 42, 46, 50 and 53 in Figure 4 of Appendix N)? **Should any monitoring be proposed as conditions for these wetlands?**
- **Why is 5 yearly monitoring of wetland condition** (after the initial baseline survey of extent and health of raupō and flax) **considered adequate** (per Table 15 on page 42 of the report and proposed Condition 8 of AUTH142035.05.01, Water Permit for Surface Take)?

It is also noted that wetlands 12, 13, 14 and 21 are said to be groundwater fed (in Table 12 of Appendix K), whilst in the hydrology report these wetlands (appear to be) included within wetland Group 2, whereby surface water is recorded as the primary source of water for those wetlands, and as such controlled by the dam/Wainui Stream levels (see pages 39 and 41).

Attachment H to the Applicant’s response to comments in relation to Fauna and Wetlands (page 13) advises that for the high value wetlands up slope of the mine, although there may be drawdown, seepage inflows to those wetlands would be unaffected, and supplementation of surface water can maintain appropriate water levels, should that be necessary.

Given the influence of surface water on these wetlands, how would groundwater levels in these wetlands be detected as falling below the lowest natural seasonal water levels referred to in condition 5 of AUTH142035.16.01 (Consent to Destroy or Disturb Natural Wetlands), as required to be maintained by condition 6 of that permit?

The issue for the Panel here is untangling groundwater/surface water related issues and effects and ensuring that proposed monitoring and mitigation measures are effective.

In this respect also, Table 15 of Appendix K states that if water levels drop below the lowest natural seasonal water levels recorded from pre-mining baseline monitoring for more than 14 days, supplementary water flow would be provided.

Further details of this proposed mitigation (by way of contingencies) are as set out in section 3.4 of the draft NIWBMP.

Where would this supplementary water be taken from, and under which proposed resource consent? What potential volumes of water would need to be extracted and discharged (noting section 3.4 of the NIWBMP indicates this is yet to be determined) ?

Similarly, is a further resource consent required to discharge any augmentation water of that kind, or would this be covered by WRP permitted activity rule 3.5.4.4 as referred to at section 5.1.8 of the Substantive Application (dealing with augmentation water to the Mitiwai Stream).

How will the quality of the discharged (augmentation) water be monitored to ensure it is clean, as required by the rule?

In this context, Attachment I to the Applicant's response to comments in relation to Freshwater Ecology discusses the introduction of new proposed Condition 7 of AUTH142035.16.01 (Consent to Destroy or Disturb Natural Wetlands) in response to issues raised regarding salinity or saltwater intrusion into mining pits requiring baseline temperature, pH, turbidity and electrical conductivity measurements (although the latter is missing from the wording of the condition in Attachment O) .

The report advises (on pages 4 and 5) that augmentation water for stream flows and wetlands does not come from mining pits but instead from the Wainui Stream reservoir or will be "clean water from mining operations".

Where is that commitment recorded in any of the consent conditions or management plan requirements? If not currently referred to or required, the applicant is requested to propose a specific condition to that effect for the Panel to consider **or advise why it is not required.**

While the proposed new Condition 7 would require that augmentation water be undertaken with freshwater with a maximum electrical conductivity limit, there is no ongoing monitoring requirement in that respect (nor for the other parameters referred to in the new condition).

Given the proposed introduction of new condition 7 requiring baseline monitoring (within three months of commencement of the consent and six months of the establishment of the offset wetland), presumably specific and ongoing monitoring of these parameters in the augmentation water should also be required.

Again, the applicant is requested to propose a specific condition for the Panel to consider on that point.

The other management measure proposed in section 3.4 of the draft NIWBMP, in the event that groundwater levels drop below the lowest natural seasonal water levels, is cessation of dewatering in pits in close proximity to the wetlands. **How long would it take for cessation of the watering in nearby pits to improve water levels for these wetlands?**

Finally on this issue, **the Panel requests the proposed conditions** of AUTH142035.16.01 (Consent to Destroy or Disturb Natural Wetlands) **be amended to refer to these contingency measures**, and when they must be applied, as recorded on page 42 of Appendix K and in sections 3.3 and 3.4 of the draft NIWBMP.

28. Lake margin wetlands – fluctuations in water levels

Section 6.2.4.1 of Appendix K states that the increased number of ship loading events will increase the regularity of natural fluctuations in lake levels to “some extent”, and result in “slightly larger” fluctuations in water levels. This is because a greater number of ship loading events are proposed and there will be slightly longer periods of sustained low water in summer (when abstraction exceeds summer low flows into the lake).

Presumably this is based on the information at Section 5 of the hydrology report (Appendix I). However, the hydrology assessment assumes that recycled processing water would supply additional water requirements for ship loading over and above the proposed water take from the Wainui Stream, “as currently occurs”.

Please refer to the related question on the hydrology report (Question 13) in terms of whether use of recycled processing water in that way (particularly given the planned increase in number of ship loadings per year) would have an impact on the overall water balance model, particularly in periods when abstraction rates are greater than natural catchment inflows.

If that assumption is not correct, **could this lead to a greater level of impact on Lake Margin Wetlands** than as assessed at section 6.2.4.1? (noting that this section of the report identifies a low risk of potentially “high adverse effect” on wetlands in the event of drought combining with lake drawdown for ship loading). **How would such an impact be monitored and mitigated ?**

29. Table 13 (unmitigated effects on terrestrial habitat)

The following points are noted/questions raised for clarification and potential amendments of the table:

- The Stable dune system is referred to in column 2 as having very high ecological value. Table 10 by contrast assesses the overall ecological value of the stable dune system as “high” – **which is correct?**
- Table 13 does not cover the Kanuka forest habitat grouping referred to in Table 10. **Is this deliberate or an omission** – if the latter – it is requested that Table 13 be amended accordingly.
- Table 13 notes that there is the potential for damage to the edges of the Active dune system yet this habitat area is presumably protected by the 100m buffer requirement (from Mean High-Water Springs). Section 6.2.2 of Appendix K states that dune vegetation could potentially be damaged or destroyed by mining operations, where it extends beyond 100m.

How much of the Active dune system (said to have very high ecological value) would extend beyond the 100m buffer, and so potentially be subject to the effects of mining?

- Does the calculated mean high-water springs (MHWS) for the purpose of setting this buffer (refer proposed condition 2 of AUTH142035.01.01, Land Use Consent), take sea level rise into account over the next 35 years?

30. Table 12 (groundwater connectivity) and Table 14 (unmitigated effects on wetland habitat)

It is difficult to reconcile the assessment of unmitigated effects on wetland habitats as assessed in Table 14 with the information in Table 12 of Appendix K against the Hydrogeology report (Appendix N). For example, the magnitude/level of hydrological effects for the Lakes and Wainui Stream wetlands is said to be “low/moderate”, yet Table 12 identifies the Wainui Stream wetlands and Wetland 22 as being groundwater fed. **What specific wetlands is the ‘Lakes and Wainui Stream’ row of Table 14 referring to** (with reference to the information and revised mapping requested in Question 20 above) and is there a discrepancy between the tables in this respect? *(The points made at page 16 of Attachment H to the applicant’s response to comments in relation to Fauna and Wetlands may be relevant here).*

Conversely, it is said that there would be potentially significant drawdown effects on wetland 15 in the second row of Table 14 (dealing with the southern wetlands), yet in Table 12 wetland 15 falls within the “potentially groundwater fed” wetlands.

Again, comment/clarification is requested, noting that wetland 15 is understood to be one of the proposed new monitoring sites for Wetland Group 4 (per Appendix N).

Finally on this issue, **what is the total area of wetlands (being retained) that are potentially affected by drawdown of groundwater as a result of mining activities**, as referred to at section 6.2.4 and in Table 12 of Appendix K?

31. Offset model

The Panel has a number of questions about the biodiversity offsetting model applied to determine the offset quantum (8.3ha) as follows:

- Appendix K (Section 6.6.3) states that “appropriate quantitative data on the potentially impacted sites was not available” and the use of the more complex Department of Conservation Biodiversity Offset Accounting Model (BOAM) model was not deemed warranted. Attachment H to the Applicant’s response to comments in relation to Fauna and Wetlands sets out further justification for the use of the Biodiversity Compensation (BCM) model rather than the BOAM model (Page 14), noting however that the BOAM model is considered to be best practice “but requires a significant amount of data to be collected”. **Why was quantitative data sufficient to apply the BOAM model not obtained so that this more detailed ‘best practice’ model could be applied?**
- The Department of Conservation model is said to be well suited to complex situations. **Is this situation not considered complex** and if not, why is that the case?
- The 10% (above no net loss) net gain target applied appears quite low in terms of the biodiversity offsetting principle of achieving net gain in light of the potential risks that the

expected level of net gain is not achieved (as outlined in Table 18, namely that hydrological conditions may not be “quite right” or that weed control and maintenance is not done to the desired standard). **Why has a higher net gain target not been applied** given the complexities of the hydrological model and the number of assumptions inherent to the respective assessment reports (noting also the net gain outcome of 10.2% as recorded at Figure 7).

- Table 18 assumes only one habitat type (second row) yet Table 9 records several wetland classes for the wetlands being removed. The Panel notes the Department of Conservation’s concerns about “aggregation” of wetland types under the BCM model, allowing seepage wetlands to be lost in exchange for gains within other wetland types (Dr Maysek’s evidence, paragraph 31(ii)). The justification in Table 18 records that the “habitats and values” of the wetlands being removed are similar within the group – **is this justified having regard to the wetland descriptions in Table 9 for each of the wetlands that are going to be removed through mining?**
- Table 18 records a discount rate of 3% - **over what period is that discount rate applied?**
- **What are the risks associated with the proposed offset site** (site 27) which is recorded as being potentially affected by groundwater drawdown (such that the mitigation requirements in Table 15 need to be applied to that site – refer section 6.6.5). **Does this confuse** (tangle up) **proposed mitigation and offsetting** – contrary to the “additionality” principle of offsetting in the NPS-IB?
- Section 6.6.5 of Appendix K states that the wetland creation process should begin immediately after consent is granted so that the time lag between the impact and the biodiversity gain from the restoration project is minimised. On that basis, **why are the words “as far as reasonably practicable” needed** (reasonable or appropriate) in proposed condition 3 of AUTH142035.16.01 (Consent to Destroy or Disturb Natural Wetlands), having regard to when these wetlands would be removed under the proposed mine staging plan ?

For the avoidance of doubt, the Panel requests this information to assist with its consideration of the Substantive Application, despite the proposed expert conferencing on the applicant’s offset proposal.

32. Wetland removal

The offset proposal is intended in response to the proposed removal of the wetlands shown on Figure 6 of Appendix K to the Substantive Application (and as also shown on Figure 1 to proposed AUTH142035.16.01, Consent to Destroy or Disturb Natural Wetlands). This includes a number of seepage wetlands which the Department of Conservation’s comments describe as “irreplaceable”.

The Panel is required to consider clause 3.22 (1) (e) of the NPS-FM (National Policy Statement – Freshwater Management 2020). As such we need to be satisfied that (in addition to being necessary for the purpose of extraction of minerals) there is a functional or operational need for the activity to be done *in that location*.

We also need to be satisfied that the effects would be managed through the effects management hierarchy (which is in part the reason why the Expert Panel is proposing expert conferencing on the offset proposal), including whereby adverse effects must be avoided, where practicable.

Therefore, before we get to the offset in our deliberations, the issue of wetland removal being necessary and there being a functional or operational need for the activity to occur in the area of the wetlands being removed, is raised.

Please advise as to why it is considered necessary, and that there is a functional and operational need within a circa 900 ha site, to carry out mineral extraction activities that would result in these proposed wetlands being removed, and as to why it would not be practicable to avoid this impact?

33. Fencing and pest control

The recommended mitigation in Appendix K (Table 15) includes a plan to plant buffers around retained wetlands, along with a maintenance and weed control programme and “*other measures as outlined in the fauna report*”.

The fauna report in Appendix M recommends animal pest management for protection of bats and avifauna, including within riparian margins and wetlands (sections 5.1 and 5.2). The draft Natural Inland Wetland and Buffer Management Plan (NIWBMP) as lodged with the Substantive Application refers to fencing of wetland and stream buffers to exclude livestock and feral animals such as pigs (section 5.2) and contains detailed pest animal control measures (section 7).

However, in Attachment B to the Applicant’s response to comments in relation to planning, it is stated that fencing of wetlands and planted riparian setback areas against wandering third party stock would generate substantial upfront cost, and that it is not uncommon for fences at the site to be overwhelmed by windblown sand within 12-24 months of establishment (refer page 6).

On the other hand, Attachment H of the Applicant’s response to comments in relation to Fauna and Wetlands (page 8) advises that in principle, stock exclusion and buffer planting are an effective management tool for protecting and enabling restoration of habitats (noting the issue and questions above about the adequacy of the 30 m setback, said in part by the authors of Attachment H to be appropriate given proposed restoration and predator control).

The Panel notes that the amended NIWBMP (Attachment Q to the applicant’s response to comments) no longer proposes fencing including for wetlands, streams generally, instead just for the proposed offsetting area.

Section 5.2 of the revised NIWBMP states that “plantings and natural wetlands cannot thrive in the presence of grazing animals”.

Are the benefits of restoration (particularly buffer planting) within the 30 m riparian and wetland margin areas undermined (or materially reduced) by the proposed removal of any requirement to fence those areas? Is fencing necessary to ensure these benefits are achieved? If not, why not?

It is also noted that proposed Condition 7 of AUTH142035.01.01 (Land Use Consent) does not refer to either fencing or pest control for the planted buffer areas – **should these measures be referred to in a revised condition 7?**

The Panel requests a track change (comparison) of the NIWBMP as included with the Substantive Application and as now proposed in Attachment Q to the Applicant’s response to comments (updated draft NIWBMP), so that all changes now being proposed can be readily identified.

Appendix L Freshwater Ecology

34. Wainui Stream reservoir

Photograph 1 of Appendix L of the Substantive Application (“View of dam reservoir looking towards the dam”) shows a clear water body devoid of any significant patches of surface vegetation – as taken in January 2022. On the site visit, the Panel observed that the reservoir had a different appearance including quite a large amount of surface vegetation (as may have an impact on the fish screen). **Please comment on the reasons for this change** in condition of the reservoir and its implications for management of the fish pass/fish screen. **Is the vegetation the Panel observed on the site visit, the Hornwort weed referred to in Appendix Z ? What steps have been taken to manage this pest plant species and how effective have these steps been?**

35. Mullet in the Taharoa Lakes

Appendix L at page 8 records that a school of mullet had been observed in one of the lakes above the fish pass (citing an earlier Tonkin & Taylor report referencing a study by the Waikato Regional Council). However, Appendix L at page 13 also states that “*small schools of adult mullet have been observed in the Taharoa lakes*”, with a similar comment made on page 27 i.e. “*schools of mullet have also been observed in the Taharoa lakes*”.

Are these two latter comments based on the one observation cited in the report (referencing the Tonkin & Taylor report) or are there other observations/surveys to confirm the presence of schools (plural) of mullet in the Taharoa lakes?

36. Monitoring the effectiveness of the fish pass

Appendix L (Section 2.3.2) recommends proposed conditions of consent to confirm the effectiveness of the fish pass for migratory fish species. This includes a fish pass monitoring plan to “add to the understanding of mullet movements, age and population size *within the lakes*”. Should condition 4 of proposed AUTH142035.03.01 (Water Permit for Diversion) specifically reference the need for monitoring *within the Taharoa lakes* (or any other specific locations of interest and value) for the various species referred to in the condition?

Similarly, Appendix L (section 2.3.3) recommends regular maintenance and monitoring of the fish pass structure, referring to maintenance and monitoring *focusing on clearance of excessive aquatic weed growths, debris blockages and structural integrity checks, including at the inlet and outlet of the pass*.

The report author is requested to confirm that these locational requirements (i.e. inlet and outlet) are adequately covered in proposed Condition 2 of AUTH142035.03.01 (Water Permit for Diversion), noting that Condition 2(d) refers to the pool “at the entrance of the fish pass and access to the main channel” being kept free of aquatic weeds.

Similarly, will proposed Condition 4 monitor the effectiveness of the fish pass for downstream eel migration, as recommended in Appendix L (section 2.3.4), **or is the 0.5m depth pool to be maintained at the base of the dam overflow chamber** (under proposed Condition 2 (e) of proposed AUTH142035.03.01, Water Permit for Diversion) **sufficient to address the issue?**

37. Fish screen mesh size

One of the issues in contention recorded in Appendix G to the Substantive Application relates to the size of the intake screening (12mm versus the screen mesh size of 1.5mm set as a standard under the Waikato Regional Plan).

Appendix L (Section 3.4) advises that larvae of galaxiid species such as banded kokopu and potentially inanga along with juvenile galaxiids (whitebait) and eels (elvers) could be at risk of entrainment when the pumps are on.

Appendix L records the positioning of the fish pass inlet away from the pump inlets and dam spillway as helping to mitigate the potential adverse effects on upstream migrating fish. The Panel also notes the draft Lake Level and Water Management Plan (section 6.3) records that the temporary pump for maintaining residual flow in the fish pass must be no less than 3m from the fish pass entrance.

Appendix L also notes a maximum intake velocity of 0.3 m/s as a standard requirement of the Waikato Regional Plan to reduce the likelihood of impingement for larger fish with Condition 16 of AUTH142035.05.01 (Water Permit for Surface Take) requiring this.

Nonetheless, Appendix L goes on to state that while intake velocities are within acceptable limits, the coarse mesh size allows for small fish to potentially pass through and enter the pumps. The report then recommends that alternative mitigation measures or retrofitting be considered to “better align with ecological and regulatory expectations”.

Appendix L (page 28) recommends that the consent holder undertake a “review of design options” with the aim to minimise screen mesh size while maintaining operational efficiencies.

What specific alternative mitigation measures including retrofitting/design options **have been considered** in response to this recommendation, and to meet the requirement of proposed condition 15 of AUTH142035.05.01 (Water Permit for Surface Take) that the placement of the intake (with a 12mm mesh size) does not cause fish to be entrained?

In posing this question, the Panel notes that it is aware of the points made in Appendix G regarding the practical issues raised by retrofitting finer mesh screens.

Attachment I to the Applicant’s response to comments in relation to freshwater ecology responds to evidence produced through Mr Smith (for the Waikato Regional Council), giving examples of water intake structures used in the Waikato region that meet the Waikato Regional Plan Intake Standards.

The response also refers to the Regional Council’s proposed revised condition 15 of AUTH142035.05.01 whereby, within 12 months of the commencement of the consent, the intake would need to be screened with a mesh size not exceeding 1.5 mm, and the consent holder would have three months to submit plans for the upgrade to meet that requirement for Council certification.

The author of Appendix I nevertheless proposes (should Mr Smith’s recommendation be accepted by the Panel) that these timeframes be extended to allow 12 months for the plans of the upgraded intake structure to be provided and for new structures to be installed within 24 months of that certification .

Appendix I states (page 7):

These timeframes would allow for options, investigations and site-specific design, and any seasonal constraints (such as high winter flow conditions or fish migration periods) that may affect installation.

The report author is requested to confirm that this opinion (regarding timeframe) is within the author's expertise and experience of the time taken to prepare plans for an upgrade of the water supply intake and complete such an upgrade .

Further, to advise why, from a freshwater ecology perspective a two-year period for installation is considered more appropriate than the timeframes proposed by Mr Smith?

38. Mitiwai Stream

Appendix L states (page 26):

Based on the proposed mining staging plan, dewatering effects on the Mitiwai Stream could occur over summer periods for between 4 to 5 years.

Over which years (following commencement of consents) would this 4-to-5-year duration impact occur? Please clarify which stage of the mining plan (specifically, which stage) this relates to.

Based on what finding (or section) of Appendix N is this statement as to the temporary duration and timing of the impact made?

Appendix L (page 26) also states that water supplementation is proposed to mitigate this potential effect of drawdown on the Mitiwai Stream – with conditions of consent proposed that outline the flow conditions that would trigger the need for flow augmentation to commence.

The Panel assumes that this is a reference to Condition 2 of proposed AUTH142035.14.01 (Water Permit for Diversion and Surface Take) which includes a trigger of 28 L/s and which, in turn, reflects one of the trigger levels set out in Appendix N (Table 10, page 32).

Should the conditions in this permit also refer to the other triggers included within Table 10 of Appendix N (for early warning and water use review) rather than just the trigger for flow augmentation? **If not, why not?**

Appendix L (page 26) also states that monitoring is proposed to ensure there are no adverse changes in water quality resulting from flow augmentation.

Condition 3 of AUTH142035.14.01 (Water Permit for Diversion and Surface Take) sets controls on the permissible degree of change after any augmentation for temperature, turbidity and pH (after reasonable mixing). **Is this range of parameters adequate** to ensure that augmentation does not result in any adverse changes in water quality, noting that the previous paragraph of the report refers to “water clarity, temperature, dissolved oxygen or other contaminants”. **What are the “other contaminants”** the report authors were referring to in their recommendation? **Why is no monitoring of these parameters required in the condition to ensure the proposed controls on the degree of change to them are not exceeded ?**

Noting the Applicant's response to the salinity issue in the wetland context (as referred to in relation to Question 27 above), Attachment I to the Applicant's response to comments in relation to Freshwater Ecology recommends an amendment to Condition 2 of AUTH142035.14.01 (Water

Permit for Diversion and Surface Take) to set a maximum level of electrical conductivity in augmentation water for the Mitiwai Stream (page 4)).

Attachment I (page 5) further states that water to augment flows in the Mitiwai Stream would come from the Wainui Stream reservoir or be clean water from mining operations.

This requirement is not included in proposed conditions of consent and nor is specific monitoring of salinity (electrical conductivity) proposed through any amendment to Condition 3 of AUTH142035.14.01 (Water Permit for Diversion and Surface Take).

The applicant is requested to propose revised conditions for this permit to address these issues.

Appendix L (page 26) then states that if monitoring shows a notable reduction in the characteristics of the stream, management measures would be required to address adverse effects, including review of augmentation source water or flow rate. **Where are the proposed conditions requiring this management response?**

Why is Condition 2 of AUTH142035.14.01 (Water Permit for Diversion and Surface Take) worded so that augmentation of Mitiwai Stream is only required during mining of Pit 3 in the central block, and then only in the summer months, for minimum base flow?

While section 6.2.1 of Appendix N to the Substantive Application refers to the “maximum base flow reduction” from mining in the Central Block being predicted to occur during excavation of proposed Pit 3, presumably groundwater drawdown associated with mining activities in other areas or stages of the mine sequence could affect the Mitiwai Stream?

On that basis, **shouldn’t the condition be amended to refer to extraction of sand generally rather than just within Central Block Pit 3?**

Appendix L identifies high velocity flows and partial barriers to fish passage that are apparently being successfully navigated by native fish in the lower levels of the Mitiwai Stream (page 23). It further identifies a threat to stream levels in the lower Mitiwai Stream from dewatering effects from mining, with recommendations for ongoing monitoring and flow augmentation if minimum baseline levels are triggered (page 26).

However, monitoring is only proposed for water quality parameters – with no monitoring or reporting on the presence or loss of native fish. The only recommendation is that the “existing level of fish passage” is maintained. **Why was no consideration given to a fish pass to support migratory fish which are important for (regional plan) high value natural streams upriver, along with monitoring of native fish species in the stream?**

39. Wainui Stream

Appendix L (page 17) records a proposal to augment flows past the overflow weir (which otherwise ceases at RL 9.36 m) to maintain water flow to the lower Wainui Stream, to a minimum of 10 L/s.

Proposed Condition 4 of AUTH142035.02.01 (Water Permit for Dam) would require maintenance of the residual flow in the Wainui Stream downstream of the dam structure to no less than 10 L/s, but the Panel cannot see a link to the RL 9.36 m trigger for augmentation by manual pumping (as also referenced in the table on page 86 of the Substantive Application). **The Panel requests** this be remedied with **a revised condition** for the Panel to consider.

Attachment F to the Applicant's response to comments in relation to hydrology responds to a proposal by the Waikato Regional Council to increase the minimum trigger levels for flow augmentation to 10mRL (albeit in the context of Condition 7 of proposed AUTH142035.03.01, Water Permit for Dam relating to residual flow in the fish pass). The Panel understands this is to ensure that temporary pumping initiates before the stream and fish passage flows fall below 10 L/s and 24 L/s respectively.

In Attachment O to the Applicant's response to comments with revised conditions of consent, for AUTH142035.03.01 (Water Permit for Diversion) the trigger level is now proposed to be set at RL 9.45 m in Condition 7 (setting the fish pass minimum flow of 24 L/s).

However, Attachment F to the Applicant's response to comments in relation to hydrology (page 7) refers to increasing the RL trigger level in the context of Condition 4 of AUTH142035.02.01 (Water Permit for Dam) setting the minimum residual flow for the Wainui Stream at 10 L/s.

The Panel notes in Attachment I to the Applicant's response to comments in relation to Freshwater Ecology (page 3), the author refers to raising the trigger level from 9.36 m to RL 9.45 m in the context of the 10 L/s residual flow for the Wainui Stream rather than the minimum flow through the fish pass of 24 L/s.

Indeed, the author of Attachment I recommends that no change be made to Condition 7 of AUTH142035.03.01 (Water Permit for Diversion) dealing with fish pass augmentation, yet that is the condition proposed to be amended in Attachment O (revised conditions of consent).

Should the amendment therefore be to the conditions of AUTH142035.02.01 (Water Permit for Dam) setting the trigger level at RL 9.45 m for residual flow in the Wainui Stream (rather than RL 9.36 m as referred to above) or increased to RL 9.45 m for both conditions?

The Panel understands that the proposed 10 L/s residual flow was calculated from the lowest water level measured behind the dam structure in early 2014, and that this low flow condition only occurred temporarily (Appendix I, Hydrology Assessment, page 26).

The Panel is also aware of the Waikato Regional Plan requirement that a minimum flow of 160 L/s should be required (as reflected in the Hearings Panel decision under appeal – refer Appendix G). Appendix G states that the downstream habitat was not adversely affected by this flow level of 10 L/s, but as noted above, it was a rare (and perhaps single) occurrence, so potential future effects at that flow rate (for longer or repeated periods) have not been determined.

Why/how is such a low residual flow considered adequate to protect aquatic habitat values in the lower Wainui Stream?

Proposed Condition 3 of AUTH142035.02.01 (Water Permit for Dam) would require daily monitoring of the Wainui Stream for a residual flow immediately below the dam structure of no less than 10 L/s (per Condition 4). Condition 5 requires additional monitoring and reporting on instream ecological values by a qualified ecologist if the minimum residual flow “persists for a period exceeding 14 calendar days”. Condition 6 requires that, if the ecologist's report concludes adverse effects are occurring, then the consent holder shall identify measures to address these effects.

Given the very low residual flow level being proposed – wouldn't such remedial action be too late, the adverse effects have already occurred before action is taken?

Should the report required by Condition 5 require an assessment of the *adverse effects on instream ecological values* (from the residual flow being at 10 L/s for more than 14 days) rather than the values themselves?

Appendix M: Terrestrial Ecology – Fauna

40. Habitat loss

The fauna assessment identifies loss of nesting/foraging/commuting habitat for birds as an effect but only quantifies the 4.25 ha area of wetlands permanently lost (at section 4.2.2) . **What is the total area of nesting/foraging/commuting habitat for birds lost in hectares** (i.e., including grassland and terrestrial vegetation) **and when is this proposed to occur** (noting that this occurs in stages over many years according to mine sequencing).

Similarly, the fauna assessment identifies loss of roosting/foraging/commuting habitat for bats. **What is the estimated total roosting/foraging/commuting habitat for bats lost in hectares** (area near Mitiwai Stream and remnant pines to east) and when is this proposed to occur?

How do these relate to the 344 ha of moderate value habitat to be removed noted in Appendix K at section 6.2.1?

41. Survey timing and existing environment

Appendix M (Section 1.1) advises that it is informed by surveys undertaken in 2021 with no new surveys having been undertaken since, however recent aerial imagery has been reviewed through which it was determined that the overall character of the site and ecological features have not changed since the survey work was completed.

Does the lack of any more recent field surveys (not least for bats, birds and lizards) **raise any risk** that the “existing environment” is not as assumed in the report, particularly given the cryptic nature of the faunal species involved, which would not be detectable by aerial imagery?

For example, the range and extent of these species might have improved (habitat expanded through rehabilitation) or conversely have been degraded over the past 5 years of mining activity?

In this respect it is noted under the section “basis of report” that it had been prepared taking account of the timescale and resources allocated to SLR – **do the authors of that report consider the extent of assessment materially constrained by resourcing from the applicant?**

There appears to be some circularity in the determination of the existing environment inherent to the report, noting that at section 1.3 it is stated that rehabilitated areas in the “existing environment” are similar to the unmined or previously mined and rehabilitated parts of the site, and so likely to provide habitat for terrestrial fauna as determined by the completed ecological surveys based on the current condition of the land (i.e., as at the survey date of 2021) .

Is the logic here that while the existing environment includes completion of rehabilitation works required under the existing consents, rehabilitation planting would be in a newly established state (on commencement under the consents now being sought) and so effectively the rehabilitated existing environment and the actual existing environment as determined in field

surveys are effectively one and the same? – refer paragraph 17(e) of Appendix CC to the substantive application.

Appendix M states (section 1.3):

In the context of the existing environment assumptions explained above, the mitigation measures which have been proposed exceed the rehabilitation measures contained in the existing consent conditions.

Is this (underlined statement) relative to an environment whereby the existing rehabilitation requirements have been *fully* implemented and established, or just as the environment as it actually exists now?

42. Bat surveys and habitat – pine harvesting effects

Appendix M (assessment of terrestrial ecology – fauna, section 4.1.1) states that pine forest habitats supporting bats have a *very high* ecological value, whereas in Appendix K (assessment of terrestrial ecology – wetlands and vegetation, Table 10, page 27) the pine forest habitat grouping is described as having *moderate* ecological value.

Is there a reason for this discrepancy between the two reports?

Section 4.1.1 of Appendix M states that potential roost trees are likely to be low in numbers within the pine plantation forest.

What is the basis for this statement?

Is it to do with the age of the plantation forest (noting the comment on page 29 whereby younger pine trees may not be suitable for highly trafficked bat roosts, albeit that there may be some trees present within the pine plantation forest, and smaller dead spars, that could be suitable as occasional roost habitat).

Appendix M (section 4.2.1, page 28) records wetlands within the range of habitat types as providing habitat for bats, along with lake, stream and wetland margins (also having very high ecological value). Based on the survey data presented in Table 2, **what is the basis** for determining that wetlands provide habitat for bats within the site, noting that those sites where most bats were recorded (4S9, 4S10, 4S14, and 4S15) were all adjacent to remnant stands of pine trees?

The point has potential significance given the comment made at section 4.2.1.1 of the report (page 29) that the nearby wetlands, lake margins, streams and native forest edges all provide suitable habitat for bats and that the pines to be removed under the harvesting consent only form part of foraging habitat available for bats.

It is not clear to the panel whether provision has been made for bat habitat to be retained/replaced as part of the forestry harvesting (see Appendix U page 7).

Was consideration given to providing offsetting compensation for loss of the (pine forest) habitat for native bats and if not, why not? What would this look like as a condition?

43. Lizard and katipō surveys

Appendix M at Figure 3 on page 8 shows that the Artificial Cover Object sites were principally located in the central block and northern part of the southern block.

The same applies for the Katipō survey sites as shown on Figure 4 on page 9.

Why were no surveys for lizards or katipō undertaken in the central and southern zones of the Southern Block? Noting that no lizards or Katipō were detected, **is there a risk** that survey sites were not more extensively located within the southern block, as might have detected lizards or katipō in that area? If not, why not?

44. Avifauna surveys

Please revise Figure 2 to include the nomenclature used in the report for the avifauna survey ‘dawn and dusk’ (sites 1-7) and 5-minute bird counts (sites B1 – 23).

The description of the dawn and dusk survey site 5 for avifauna in section 3.2.1 of Appendix M as outside the Central Block does not appear consistent with the site boundary shown on Figure 2 of Appendix M (or Figure 1.1 of the substantive application). **Please clarify.**

45. Dotterels and Bittern

Appendix M (section 4.2.2) records that there is potential for New Zealand dotterel disturbance from emergency pipeline works. Dotterels are recorded as having been observed during the 5-minute bird counts (section 3.2.2). **Where were New Zealand dotterel found** during the surveys i.e. presumably within the dune areas but on which of the sites shown on Figure 2?

Section 3.2.2 states the New Zealand dotterel ‘At-Risk’ status is ‘recovering’ whereas Table 4 lists the threat status of the New Zealand dotterel as ‘nationally increasing’. **Are these two terms meant to be the same?**

At section 3.2.1.5 it is recorded that Australasian bittern were detected at Site 5 within a 2.53 hectare wetland assemblage.

Which, if any, of the wetlands identified within Appendix K (Terrestrial Ecology- Wetlands and Vegetation Assessment) **were the Australasian bittern detected** on in the survey work undertaken?

Would this species (or any other species reliant on wetland habitat) **be potentially affected by the range of effects described at section 6.2.4 of Appendix K** (effects from groundwater drawdown)?

Would the mitigation and monitoring proposed for remaining wetlands as summarised at page 42 of Appendix K (as referred to at page 31 of Appendix M), along with proposed pest and weed control as detailed in the NIWBMP, **be effective in addressing any such effects on these species? What other conditions of consent would assist in protecting these species?**

Appendix M (section 5.2.3) recommends a prohibition on planned maintenance works inside the coastal marine area between September and January to protect nesting dotterels – however Condition 4 of proposed AUTH142035.09.01 (Coastal Permit – Structure) refers to avoiding such impacts during these periods “as far as practicable”.

The condition also provides an exception where approval is obtained from the Council in consultation with the Department of Conservation. **Why are the words “as far as practicable” needed?**

46. Mitigation planting and management in riparian areas

Appendix M (section 5.1, page 36) recommends that restoration planting of wetlands and buffer areas include large trees such as kahikatea as part of the overall mitigation package for bats and avifauna including to mitigate for dust, light and other disturbance effects (to bats and birds).

However, the range of species proposed for planting in these areas as set out on page 19 of the NIWBMP does not include kahikatea and it is unclear to the Panel whether any of the other species in the table on page 19 would rapidly grow to a significant height. **The Panel requests the NIWBMP be amended** to reflect this recommendation in Appendix K.

Similarly, section 5.1 (page 35) recommends that the pine forest be removed in stages rather than felled in one harvest or a buffer of pine forest be retained to maintain foraging habitat as long as possible. In addition, because indigenous tree species take a long time to become potential roost sites, replanting of fast-growing exotic species in adjacent areas (not to be mined) is recommended to shorten the lag between habitat loss and new foraging and roosting habitat becoming available.

The report author is requested to **confirm whether these measures are adequately provided for within the draft Harvest and Earthworks Management Plan** (Appendix U to the Substantive Application, pages 7 and 16) **and proposed AUTH142035.17.01 (Land Use Consent for Earthworks, Forestry), and if not, advise what changes to the Management Plan and conditions of this permit should be made.**

Appendix M (section 5.1, page 36) further states that pest control including animal pest management should be undertaken along the edges of neighbouring native forest, riparian margins and wetlands. The NIWBMP (section 7) refers to pest animal control within the “offset site and all buffer zones”. **Will this cover all of the areas** referred to in this section of Appendix M? **Would it be more efficient and effective to undertake pest control on the whole site? If not, why not?**

47. Grassland and vegetation clearance

Appendix M (section 5.2.6) recommends management steps to guide clearance of habitat suitable for grassland bird species (presumably including New Zealand pipit). **Is that part of the purpose of proposed Conditions 31-34 of Schedule 1?**

Appendix M (section 5.2) further recommends clear, permanent marking of the 100 m setback from mean high water springs (MHWS) and 30 m setback from perennial waterbodies to ensure compliance. **Who is this marking for – mining staff? Where are the conditions that implement this recommendation?**

The report further recommends tailing cells are rehabilitated “as quickly as possible after mining operations in each area has finished”. Noting Question 4, **which conditions implement this recommendation?**

Appendix N – Hydrogeology

48. Relationship with Appendix I assessment

Does the Hydrogeology assessment in Appendix N factor in effects associated with the level and rate of water take provided for under the consents for ship loading and mine operations (under AUTH142035.05.01 (Water Permit for Surface Water Take) or simply address groundwater drawdown resulting from pit excavation?

In short **how have cumulative effects from groundwater drawdown and surface water abstraction been considered in the effects assessment?**

Clarification is required regarding water abstraction and water demand for the proposed sand mining.

Please provide a mine water balance for the groundwater drawdown and surface water abstraction in terms of critical water demand cases associated with slurry pipeline and sand processing needs.

In the water balance assessment, please consider mine staging and demonstrate the feasibility of the proposed Wainui Stream augmentation.

49. Borehole depth and data

Section 3.7.4.1 states that some of the permeability (hydraulic conductivity) values measured are unrealistically low and so have been ignored. **What are the potential risks or consequences of ignoring that data and on what basis is it valid to do so?**

50. Ground Water Model - Appendix A

Does the groundwater model include mining currently being undertaken in Pit 1 or planned in the Te Mania extension? How/does this affect the representativeness of the groundwater model developed for the wider area, particularly with respect to conservatism of predicted impacts?

Section 3.2.2 states that the groundwater model is only 'partially' informed by piezometer readings - **why is that? Is this important or not?**

Section 5 of the hydrogeology report states the groundwater model is 'broadly' based on the conceptual groundwater model in Appendix A. **What does 'broadly mean'?**

51. Modelling assumptions

Section 4.2.1 states as an assumption inherent to the modelling that once a given area is excavated it will be backfilled with engineered landfill as the excavation proceeds to an adjacent area.

This point is repeated at e.g. sections 5.1 and 6.2 (top of page 32) and on that basis, for example, that stream base flows would return to their initial levels within e.g. 15 months of the backfilling.

What is this assumption based on and what condition of any of the consents would require such backfilling?

In a similar vein, the modelling assumes a continuous 20 year mine excavation proceeding according to the indicative mine plans as detailed in section 2.2 and included within Appendix B and C to this report . (Refer section 5.2 of the report). This includes a total of 20 years of mining activity (across the 35-year duration of consent sought), as summarised in Tables 7 and 8.

What conditions of which consents require that this mine plan sequence and timing be followed as modelled, and what are the implications in terms of the timing or duration of effects on groundwater connected wetlands (and/or for the proposed offset site 27) if that sequence is not followed?

Given the significance of the mining plan for the modelling and effects, and assuming the Substantive Application is to be granted, is there any reason why the Panel should not impose a condition requiring the timing and sequencing of the mining plan to be followed?

For the 'baseline scenario' (section 5.2) **does a 22-year period** (historical) **go back far enough** to account for climate change in projecting forward (refer Hydrology Report, Appendix A to the report, page 20).

It is understood that the mine pit dewatering drawdown predictions are based on the transient modelling runs extending between 2003 and 2046 (Table 4 of Appendix A).

Please demonstrate that the predictive modelling runs for the period 2026 to 2046 have considered reduced aquifer recharge and lake low levels associated with the 1:10 year and 1:50 year drought conditions. If not please run these cases.

Will the existing and proposed new monitoring sites for the retained wetlands (as detailed on page 41) **be sufficient** to account for any predictive errors in the modelling and ensure an appropriate management response in the event that groundwater drawdown effects are greater than predicted through that modelling?

What is the significance of the 0.2m drawdown contour as a measure of where hydrological effects on wetlands might occur (as referred to at section 6.3.2 of the report) – i.e. why has 0.2m been selected as the drawdown contour threshold?

Consenting could consider a maximum envelope of effects approach. Consent condition monitoring would simply ensure that all effects remain within the defined envelope.

To assess this option further please provide:

- i) **Maximum drawdown extend from all mine stages. A plot of maximum combined extent for drawdown contours plus groundwater level contours (in terms of RLM) required.**
- ii) **Maximum dewatering levels (in terms of RLM) for the Central and Southern mine blocks.**
- iii) **Maximum groundwater abstraction rates (understood to be 131.8 L/s)**
- iv) **Maximum salinity of discharge water as measured by Electrical Conductivity (understood to be $EC \leq 1,000\mu S/cm$).**

Confirmation that the effects assessments provided are consistent with the maximum drawdown extent.

52. Offsite bore impacts

Table 9 (section 6.1.2) identifies five neighbouring (offsite) bores for which only two are known to be used for community drinking water. **Were these five locations the only offsite receptors used to assess impacts? Are there likely to be any other offsite bores in the study area?**

53. Groundwater Availability

No assessment of groundwater availability has been provided.

Please provide an assessment of groundwater availability in terms of the modelled maximum groundwater abstraction rate of 131.8 L/s (equivalent to 4,156,400 m³/yr) and the Waikato Regional Plan.

Appendix O – Archaeology

54. Destroyed sites

In discussing the attributes of the various archaeological sites recorded within the Central and Southern blocks on pages 49-68, there are repeated references to sites being “assumed” or “considered” or “believed” to be destroyed, sometimes in the absence of (what appears to the Panel) to be any direct evidence of that e.g. not all sites descriptions refer to on-site probing having been undertaken in the 2025 survey. Yet in Table 1, these sites are recorded as Destroyed without qualification. Does it necessarily follow that because sites are within areas that have been mined or subject to foresting activity, they have actually been destroyed? **For example, could a site simply be buried in tailings (now revegetated) and therefore be present and potentially affected by reactivating mining to deeper levels in these areas (e.g. in the Southern block area)?**

Pages 63 and 64 of the report record that sites 153, 154 and 156 were not able to be “safely accessed” during the 2025 survey. Given these sites are within the Te Kapua Reserve, **why could they not be accessed?**

Site 327 appears to be a highly significant site including recorded presence of human bones which are assumed to have been removed (collected by elders with reburial elsewhere - see page 65 and with page 81 saying that it is assumed that all known kōiwi were interred in the nearby reserve at that time).

Page 65 also records that it is “thought that” the grid coordinates are not accurate and that the site is actually situated slightly further to the east, just within the reserve.

Given the significance of the site, and rather than relying on accidental discovery protocols, shouldn't steps be taken to ensure that all bones have actually been recovered and appropriately interred before works recommence in the Southern block area?

A number of intact sites (sites 135-143) are recorded and referred to on pages 67-68 – all of which are said to be outside the mining lease area. They are nevertheless within the consented area. Table 2 of the report assumes that these sites would not be affected (as does the subsequent assessment of effects on pages 74-78). **What guarantee is there that there would not be mining activities outside the lease area?**

Appendix P – Preliminary Site Investigation

Section 2.3 identifies an “area of stockpiling and storing old materials”. Table 3 and Figure 2a in Appendix A identify this activity as waste being disposed to land.

- a. Please clarify the nature of this activity.
- b. Is consent required for discharges to land from such onsite disposal and is it to be sought now or pursuant to the conceptual site closure plan?
- c. Is this waste explicitly addressed in the site rehabilitation plan?

Appendix Q – Coastal Processes Assessment

(including Appendix FF – Discharge Dispersion Modelling Assessment)

55. Sediment characterisation

Appendix Q appears to use the terms “sediment” and “sand” interchangeably – referring to the along shore transport of “sediment” at 620,000 m³ per year to the north and 440,000 m³ per year to the south in the Executive Summary, while section 3.3.3 refers to those same volumes of “sand” rather than “sediment” being transported north and south.

Section 3.5.1 refers to “sediment” delivery to the coast from the rivers and harbours within 100 kms of the site.

Section 4.2 compares the volumes of sediment discharged into the coastal marine area via the de-watering plume, in comparison with gross along shore sediment transport, and sediment delivery to the coast from the rivers and harbours.

However, section 4.3 explains that sediment discharged from the stormwater ponds would be a combination of sand and silts, compared to the plume from ship loading which is “primarily silts that leak out through decanting”. Appendix GG (Marine Mammals Assessment) refers to this material as “clay” (section 2.3).

The Panel queries whether it is valid to use the terms “sediment”, “silt” and “sand” interchangeably and specifically whether the nature of the “sediment” discharged in the plume is comparable in characteristics to the type of sediment (presumably sand) transported up and down the coast by wave action or discharged from rivers and the harbour.

These comparisons are important given the emphasis in Appendix Q on putting the volume of “sediment” discharged from the ship during ship loading (via the plume) into their natural context.

Please clarify and explain any differences in characteristics between the type of sediment naturally transported or discharged into and along the coast, from the sediment discharged during ship loading.

The point is also relevant in terms of comparing the concentrations of naturally suspended sediment as measured offshore and in the beach areas referred to at section 3.5.2 of Appendix

Q, with the sediment concentration assumed in the discharge modelling as referred to at section 2.1.1.

56. Consents sought

Why is there no increase in the proposed volumetric flow of dewatering fluid (maximum 7.5 million m³/year) when exported product is projected to increase by 39% (3.6 million tonnes/year -> 5 million tonnes/year) for increased ship loading (from 24 to 35 ships) per year?

Clarify/confirm consent is sought for:

- **Maximum annual discharge of 7,258 m³/year of sediment to the coastal marine area**

Estimated from (fine-grained) sediment in **dewatering (5,250m³/year** in section 2.1.1) **plus** (coarse-grained) sediment in **process water (2,008m³/year** = daily discharge in section 2.1.2 of 5.5 m³/day x 365).

- **Maximum daily discharge of 37 m³/day sediment to the coastal marine area**

Estimated from (fine-grained) sediment in **dewatering (14 m³/day** = 5,250m³/year ÷ 365 days/year) **plus** (coarse-grained) sediment in **process water (23 m³/day** maximum during high rainfall events in section 2.1.2).

Where are the monitoring and reporting requirements to support these, and the maximum discharge limits in Condition 2 and 3 of AUTH142035.12.01 (Coastal Permit Discharge to Water) being enforceable conditions of consent?

Where/how exactly at the mooring buoy (Executive Summary, Appendix Q), via the export pipeline (page 20, Appendix Q), **does the process water discharge to the coastal marine area?** Is there a figure or photograph of this showing the height above sea level for this discharge?

57. Sediment deposition rates

The Panel has compared the de-watering plume deposition rates summarised in Table 4.2 of Appendix Q with the information in Appendix FF (section 3.4) and cannot readily track the figures stated in that table (and discussed at the bottom of page 18 through to page 19 of Appendix Q) with the information in the Discharge Dispersion Modelling Assessment.

Please explain how the information in Table 4.2 (Appendix Q) was generated based on the information presented in section 3.4 of the Discharge Dispersion Modelling Assessment (Appendix FF).

58. Modelled discharge rates

In section 4.2 of Appendix Q (at the top of page 18) information is presented as to the modelling assumptions applied in Appendix FF for each of the 3-month periods modelled in that report.

The summary in Appendix Q records that for each of the modelled three-month winter and summer periods, 12.5 de-watering events (each being at 15,000 m³ over 48 hours) were included in the model.

This can be compared with the information at section 2.2.4 of Appendix FF (12.5 discharges per three-month period, with each event being over 48 hours and a total of 150,000 m³ per discharge).

(It is assumed that the reference to 15,000 m³ in Appendix Q is a typo and intended to refer to 150,000 m³ over 48 hours, being the daily limit of 75,000 m³ per day x 2).

However, the Panel understands from page 43 of the Substantive Application, along with the information presented on page 21 of Appendix I (Hydrology Assessment), that 35 ship loading events per annum are proposed (following expansion in operations) with each event occurring over four days (rather than two). That is 35 days of discharge per quarter, not 25 as assumed (i.e. 12.5 events, 2 days per event).

On that basis, sediment loading would occur approximately every three days during a given three-month period, not every six days as assumed in the Discharge Dispersion Modelling Assessment report and Appendix Q (coastal processes assessment), as well as Appendix V (Marine Ecology assessment) in turn.

The Metocean modelling appears to apply the correct fraction of the 7,500,000 m³ annual volume for each three-month period (1,875,000 m³) but not the correct number of days per three-month period or volumes released over the four days of each discharge event.

The authors of these reports are requested to clarify the situation and advise as to whether this makes any difference to the information presented in these reports as to concentrations of sediment in the water column, and at the surface of the seabed including in the Aotea and Kawhia harbours.

Attachment C to the Applicant's response to comments in relation to Coastal Processes includes a number of responses to comments made by Natasha Willison-Reardon/Mirumiru Pā ki Marokopa – Marokopa Marae) relating to that invited party's concerns about potential impacts of sand extraction on the coastline/coastal processes at Marokopa and on the beach profile at Taharoa.

The response advises that monitoring of beach profiles is not necessary because the mining activity has *negligible* effect on the active dune system and that there is "no effect" of the sand mining activity on the littoral sand budget between Taharoa and Marokopa.

In dealing with the section of the coastline between Marokopa and Kawhia more broadly, the report states that TIL's operations export *land-based* sediment deposits and therefore have no "material" effect on the littoral drift sediment budget between Marokopa to Kawhia.

The report author is requested to confirm that:

- **There is no mechanism by which a land-based sand mining activity at the scale proposed could have an impact on the active dune system/beach profile (at Taharoa in particular).**
- **Similarly at Marokopa, including in response to the stated concern that up to 4 million tonnes a year is extracted at Taharoa (a further 140 million tonnes proposed over the next 35 years), and the suggestion in the comments that the mining operation intercepts and permanently removes sand, thereby gradually depleting sand available to Marokopa's beach and dune system (longshore drift row of this invited party's comments table).**

Appendix R – Geotechnical Assessment

59. Conditions

The summary and conclusions (page 14) record that the proposed pit slopes up to 60 m height are expected to perform acceptably provided slopes are limited to 33° /30 (Te Ake Ake/Mitiwai respectively); the 30 m buffer separating the crest of pit slopes from perennial waterways is implemented along with a 20 m buffer adopted between the crest of pit slopes and archaeological reserves etc.

In addition, the report refers to weekly monitoring of the mining areas with annual independent geotechnical reviews of ponds and tailings to include pit slope performance in proximity to property boundaries and reserves.

Where are these requirements referred to in any of the proposed conditions or management plans (noting Condition 1 (f) of proposed AUTH142035.01.01, Land Use Consent covers mapping of the buffer area for urupā and wāhi tapu sites) and the general requirements of Condition 4 of proposed AUTH142035.08.01, Discharge to Land and Condition 9 of Schedule 1)?

Appendix S - Air Quality

60. Representative Receptors

How have the ‘Representative Receptor’ locations shown in Figure 6 (and listed in Table 2) **been identified?**

What about the structures that appear to be residences at the southern end of the site?

61. Historical (TSP) Monitoring

Section 5.1 refers to a colocation study between one (only) of the nephelometers in December 2020. How long was the study undertaken for? If less than a year, how representative is the developed K-factor for other time periods and other locations? **What confidence intervals should be applied** to the TSP data presented in this assessment?

Given the differences in the time series data presented in Figures 8-10, **what are the % valid data for each of the monitoring sites presented in Table 5? What mining activities were being undertaken** in relation to these monitors during this period?

Section 7.2 states that Table 9 shows the mean 1-hour average TSP concentrations across all monitors “*are well below the MfE suggested trigger level of 200 µg/m³*”. **Is this supposed to be referring to Table 5?**

If so, **what is the purpose of this comparison** of the MfE suggested trigger level as a 1-hour mean with data averaged over 1.5 years (1 July 2023 to 31 January 2025)?

Table 9 shows the MfE suggested trigger level as a 1-hour mean was exceeded a total of 98 times over the period of monitoring (approximately 1.5 years) at monitors MP2, MP3, MP4 and MP8. Please describe available monitoring data in comparison with the *daily* suggested MfE trigger level for TSP of 60 µg/m³ and provide an assessment of the implications for chronic impacts.

Figure 8 shows at least 3 exceedances of $200 \mu\text{g}/\text{m}^3$ as a *daily average* at MP1. **Why was MP1 not included in Table 9? Did any of the other monitoring locations record exceedances of the MfE suggested trigger level as a 1-hour mean (other than those presented in Table 9)?**

62. Stokes Law

The air quality assessment (Appendix S to Substantive Application) and Attachment J to the Applicant's response to comments in relation to Air Quality include multiple figures purporting to present deposition distances for various size particles using Stokes' Law. None of these figures include a particle size for PM_{10} . **Why was PM_{10} not included in these presentations?**

Stokes' Law is derived under very specific conditions, most of which do not hold in the real atmosphere. **Please explain the limitations of Stoke's law and justify its application** in an air quality assessment so that it does not systematically underestimate transport distances and therefore underestimate the spatial extent of impact.

63. Particulate discharges to air

From a public health perspective, the key pollutant of interest in discharges to air from mines and quarries is particulate matter less than 10 micrometres in diameter (PM_{10}) (MfE 2016).⁶ The Panel notes Appendix S and Attachment J do not provide any information on the scale or significance of PM_{10} discharges to air from the proposed mining operations despite these being readily estimated from published emission factors (e.g. US EPA AP-42 or Australian National Pollutant Inventory Emission Estimation Technique Manual for Mining).

Using published emissions factors for mining activities please calculate (in table form) how much PM_{10} is discharged to air from the existing and proposed mining operations (in kg/day and tonnes/year) from the proposed stages of mining operations in the central and southern blocks.

It would be helpful, to identify PM_{10} discharges to air from existing consented activities (Pit 1 and Te Mania Extension) separately.

64. PM_{10} assessment

What was the minimum sieve size held by the Geotechnics laboratory that undertook the (sand grab sample) size fraction analyses? **What is the relevance of this size fraction analysis** of sand samples to PM_{10} discharges *to air* (e.g. generated by vehicle tracking) from the site?

The workplace exposure monitoring undertaken for inhalable particulate (roughly equivalent to PM_{10}) indicates *onsite* measured concentrations of PM_{10} ranged from $90 \mu\text{g}/\text{m}^3$ – $840 \mu\text{g}/\text{m}^3$ with a mean exposure of $440 \mu\text{g}/\text{m}^3$ (all as 12-hour averages, $n = 12$). These measured onsite concentrations were all well within *workplace* exposure standards, however they are considerably elevated in comparison with *ambient* exposure standards, notably the national environmental standard for PM_{10} of $50 \mu\text{g}/\text{m}^3$ (noting this is a 24-hour average).

Attachment J to the Applicant's response to comments in relation to Air Quality states (page 5):

⁶ Ministry for the Environment, 2016. *Good Practice Guide for Assessing and Managing Dust*. Wellington. November. [\[Online\]](#)

The observed trend of consistently higher TSP concentrations at MP4 compared to MP2 is therefore more reflective of the dispersion of concentrations as onshore winds blow across the site and towards the township.

Table 4 of Attachment J shows that the annual average TSP at MP4 is 11.0 µg/m³ and at MP2 is 10.7 µg/m³. Is it correct, therefore, to infer that the dispersion provided by the distance between MP4 and MP2 (which appears to be ~ 650 m) is **less than 3% reduction** (in annual TSP)?

Given the workplace measurements likely included in-cab locations for the truck/excavator operators, **please clarify how average onsite PM₁₀ concentrations** of 440 µg/m³ as 12-hour average **will not result in exceedances of the NES offsite**, particularly at residential locations R2, R3 and R4 which are all less than 300 metres of the site boundary.

Appendix S (section 9) of the Substantive Application concludes that “*it is extremely unlikely that direct health effects can be associated with the type of dust generated by TIL’s mining operations in the CSB*”. Given no measurements are available for background PM₁₀ and no quantitative assessment has been undertaken of the PM₁₀ discharges to air, **where is the science to support this statement?**

The Panel has the following unresolved questions:

- **What are the likely daily and annual PM₁₀ concentrations** (in µg/m³) **at the nearest neighbours and in the village?**
- **How much does current mining likely contribute to daily and annual PM₁₀ levels at these locations?**
- **How will daily and annual PM₁₀ levels likely change** at these locations over the proposed mining stages in central and southern blocks?

65. Respirable crystalline silica discharges to air

Table 4 of Attachment J of the Applicant’s response to comments in relation to Air Quality provides estimates of likely *offsite* annual respirable crystalline silica (RCS) concentrations estimated as a fraction of annual average TSP concentrations measured in 2024. The annual TSP values appear low, given the relatively high wind speeds of the area. Please provide upper and lower bound estimates for the estimated RCS concentrations using the confidence intervals requested for TSP (refer Question 61).

66. Mitigation

In Appendix S of the Substantive Application, **how are the inactive and clay stockpile areas** (section 2.4.4 and section 2.4.6 – the latter said to have significant potential for dust generation) **managed on the site?** For example, see Table 7, which refers to dampening silt clay exposed areas that are trafficked – **what about inactive/tailing areas** including clay deposits that are not disturbed by vehicle movements but might nevertheless generate dust in higher windspeeds?

Section 6.4 of the draft environmental management plan (EMP) in Appendix T to the Substantive Application refers to “Additional operational controls” including “minimising the height of stockpiles” – **what does minimise mean?** Is there a maximum height limit that could be imposed to be clear and enforceable?

Similarly, the draft EMP states “where practicable”, ‘shape and compact’ the surface of stockpiles, **what does ‘where practicable’ mean and why would that not be practicable in all instances?**

Rehabilitation appears to be extremely important to minimising dust generation from the site. Attachment J of the Applicant’s response to comments in relation to Air Quality repeatedly refers to stabilisation and rehabilitation methods in “*draft consent conditions 8 – 10, Schedule 1 conditions 13 – 14 and 20, as well as chapter 6 of the draft Environmental Management Plan*”. However, the Panel notes that the actual details of stabilisation and rehabilitation methods are not in these conditions:

- Condition 8 is a performance requirement;
- Condition 9 requires ‘compaction and surface stabilisation within 3 months of mining operations being completed’ within the priority stabilisation area only – and does not state how this is to be achieved;
- Condition 10 is a monitoring requirement;
- Schedule 1 Condition 13 is a performance requirement for the EMP;
- Schedule 1 Condition 14 outlines the minimum requirements for the EMP;
- Schedule 1 Condition 20 requires a site rehabilitation plan (which includes pest grasses);
- Chapter 6 of the EMP includes Table 6-5 which has some mitigation measures (NB: not stabilisation or rehabilitation methods) linked to trigger levels, but these triggers are still linked to TSP concentrations whereas PM₁₀ monitoring is now proposed.

Is it adequate that stabilisation and rehabilitation measures are not specified and addressed in the EMP only given the ability for EMP provisions to change over the duration of the consent?

The Panel queries if the proposed conditions of consent for mitigating and controlling PM₁₀ discharges to air are **consistent with good practice consent conditions for quarries and mines in New Zealand**.

67. Proposed (PM₁₀) Monitoring

Please provide the updated proposed air quality monitoring locations in latitude and longitude coordinates suitable for location on Google Earth.

Revised Condition 10 of AUTH142035.01.01 (Land Use Consent) requires monitoring using PM₁₀ dust monitors in at least six locations, including one upwind and one downwind of the Consent Area.

Condition 11 requires that only one of these six monitors be a reference method monitor, which is to be used at Taharoa School /Te Kura.

Condition 14 requires that concentrations of PM₁₀ “*as a result of mining operations recorded as at the monitor adjacent to Taharoa school /Te Kura shall not exceed 50 µg/m³ as a 24-hour average*”.

If only one reference monitor is proposed, how will background concentrations of PM₁₀ which are necessary to determine PM₁₀ “as a result of mining operations” (as required by Condition 14) be accurately assessed?

The Panel queries typical good practice PM₁₀ trigger limits in other mine and quarry consents around New Zealand and requests consideration of their inclusion in AUTH142035.01.01 (Land Use Consent).

Appendix U Draft Harvest and Earthworks Management Plan

68. Readable plan

Please provide a readable (legible) version of the Figure for the Harvest Plan in (Appendix A) that includes the 30 m buffers.

Appendix V – Marine Ecology Assessment

69. Survey effort

The Hearing Panel’s decision notes that, as stated in the Executive Summary and explained further in section 3.0 of Appendix V, the conclusions in this report are supported by a “one off” sampling assessment conducted in 2021. This included monitoring of sediment in only four locations.

Do the authors of this assessment consider a one-off survey adequate and proportionate to the potential range and extent of effects from the discharge of water associated with ship loading (and the discharge of process water and stormwater into the coastal marine area) as assessed in this report, and if so why?

70. Process water and stormwater discharge concentration

Appendix V (section 2.2) states an assumption that the quality of the water being discharged (within the 32,000m³ per day of process water and stormwater to the coastal marine area) would have a similar concentration to that of the de-watering discharge from ship loading (i.e. a total suspended solids concentration of approximately 1 kg/m³). It also states that sampling has not been undertaken for these discharges. **Where then is the basis for this assumption?**

Why is no monitoring proposed for these discharges to the coastal marine area?

The report notes “slightly elevated” levels of total suspended solids could extend up to 20 km south towards Tirua Point and over 30 km north past Kawhia and Aotea Harbours up to 10% of the time. **What does this mean?**

71. Mooring sampling locations

Why was a distance of approximately 250m north and south of the mooring selected for the mooring sampling sites, rather than a distance closer to the mooring where sedimentation effects may have been greater than at that distance from the mooring?

Note that the answer to the next Question (72) below may be relevant to this question as well.

72. Sediment deposition depths

Appendix V (Section 3.1) states that the findings of the MetOcean report “suggest” that sediment deposition from de-watering over a three-month modelled period would be very low near the mooring (less than 0.002 mm) and in the nearby Kawhia and Aotea harbours (less than 0.006 mm).

What specific information in the MetOcean report is that data based on – for example is it taken from Figure 3.15 on page 43 of Appendix FF, or does the report author (for Appendix V) have access to more detailed data used in generating Figure 3.15? **If so, please provide that data.**

Similarly, section 3.1 states that the “maps” presented in the MetOcean report show that the ‘Mooring’ sampling sites are located within the highest likely deposition area near the mooring. **Which “maps” is this section of the report referring to?**

73. Numbers of sediment samples/cores taken

Section 3.1 of Appendix V records difficulties in extracting the intended number of samples from each location due to the compaction of sediment, technical difficulties and limited bottom time of the divers.

Sub sampling of two sediment cores for the southern sampling sites is noted at the top of page 3 of the report.

Do these limitations have any impact on the reliability of the data obtained and the conclusions reached in the report? If not, why not?

Attachment D to the Applicant’s response to comments in relation to marine ecology refers to the vanadium concern raised in the comments from Natasha Willison-Reardon/Mirumiru Pā ki Marokopa – Marokopa Marae and notes that vanadium was not included in the metals analysed in seabed sampling (as discussed in Appendix V to the Substantive Application), but given that the metals analysed did not indicate elevated concentrations or accumulation near the discharge, the author would not expect vanadium to show a materially different pattern.

The Panel requests information as to the relative concentration of vanadium in titanomagnetite compared to the other metals that were subject of sampling and reporting in Appendix V (refer section 4.1.1).

74. Grain size

The graphs presented at section 4.1.2 of Appendix V show a statistically significant difference in mud content near the mooring, as opposed to at the reference sites.

Is this a reflection of the character of the sediment in the discharge plume as discussed (or explained) at section 4.3 of Appendix Q (Coastal Processes Assessment) noting that the plume is primarily comprised of silts that leak out through decanting (rather than sand)?

75. Sediment deposition depths and sediment concentrations

(Refer Question 57 above in relation to Appendix Q – Coastal Processes)

Please explain the specific information upon which the concentrations and depths of sediment referred to at section 5.2 of Appendix V are derived, including the percentage areas of the Kawhia and Aotea harbours as referred to in the last paragraph on page 11 of that report.

Appendix W – Noise

76. Monitoring and modelling

The report advises that noise monitoring was undertaken on one day (1 October 2024). **Is that an adequate monitoring period** (covering different wind conditions, etc) to base a conclusion that noise levels would generally be compliant with the District Plan standards?

The report discusses the need for limitations on the location and operation of machinery particularly during the nighttime period (section 8.1), with a potential for noise exceedances when mining occurs on the ridge area at the northern end of the block near the Kana and Wetini homesteads, with the summary to the report stating that:

- TIL will implement a modified mining methodology to meet maximum noise levels in table 7.1.
- The methodology will be verified by a qualified acoustic specialist.
- Ridge mining would be restricted to 7.00 am to 7.00 pm until operations progress below the ridgeline.

Is it adequate that this is covered in section 11 of the draft EMP only, rather than in consent conditions, given the ability for management plan provisions to change over the duration of the consent?

Section 8.1 also advises that a tailored mining methodology would be needed to comply with daytime noise limits, and advises that this would be developed in consultation with an acoustic expert – again **where is that requirement in either the consent conditions or the management plan** (noting no update to the EMP has been provided)?

Finally, the Panel queries why two of the best practice measures set out at section 9.3 of the report (timing of activities, DMU location) are not included in section 11.3 of the draft EMP.

Given the issues raised above, and assuming the Substantive Application is to be approved, is there any reason (other than the legal point noted in the following question) why the Panel should not impose a condition in e.g. Schedule 1 requiring all activities to comply with the District Plan noise standards?

The Panel notes that in Attachment B to the applicant's response to comments in relation to planning it is stated that conditions addressing noise (or amenity) cannot be included in regional level permits (page 24). Counsel for the applicant is requested to provide case law authority to support that statement.

Appendix GG Marine Mammals

77. Whale strike and underwater noise

Has a whale strike ever occurred for ships attending Port Taharoa?

Should the noise survey required by Condition 7 of proposed AUTH142035.12.01 (Coastal Permit Discharge to Water) be focused specifically on the noise frequency range relevant to Māui dolphin, as recorded in Table 1 of Appendix GG?

Will the one-off verification survey measure noise from all three ships used at the Port of Taharoa? If not, why not?

Attachment E to the Applicant's response to comments in relation to marine mammals advises that the conditions requested by Te Nehenehenui in relation to marine mammal sighting, strike incident reporting and underwater noise monitoring etc are all set out and included in the draft Environmental Management Plan (section 13.3 and table 13-2 of Appendix T to the Substantive Application).

The applicant is requested to advise as to why these specific measures (as summarised in Table 3 of Appendix GG) should not be expressly referenced in consent conditions themselves, rather than left to the content of a management plan which could be changed over the duration of the consents sought under the Substantive Application.

Proposed Condition 8 of AUTH142035.12.01 (Coastal Permit Discharge to Water) would require a further noise monitoring assessment to be undertaken if new vessels *that use substantially different methods or equipment for loading iron sand and associated dewatering* are to be used. The Panel understands that the applicant intends to procure new vessels to support the future mining operations at Taharoa (refer Appendix C).

Please explain why the condition should not refer to the use of new vessels *and* different methods or equipment for loading iron sand i.e. as to why the vessels themselves might not generate a different noise level or character than as assessed in the one-off verification survey required by condition 7 within six months of the commencement of consent.

Simply put it might not just be the different methods or equipment for loading iron sand that creates a change in noise levels or character, but the different vessels themselves?

Appendix EE Lake Level Management Plan

1. Section 6.3 (Fish passage). Has, and how often, augmentation of the fish pass occurred in the past? What type of screens are used for temporary pumping?

2. Table 3 identifies housekeeping as a key control for workshops, stores & yards. More generally, are there **any conditions of consent relating to housekeeping** on site?
3. Table 3 refers to waste collection facilities for the laboratory. **How is general waste from the site dealt with?**
4. Section 11.1.1 notes the fortnightly visual inspection is carried out of the Fish Pass for “*significant changes from the normal condition*”. **Where is this reflected in the conditions of consent?** The Fish Pass (installed in 1972 and upgraded in 2010 which is now 16 years ago)⁷ did not appear to be in especially good condition during our site visit. **Are there any plans to upgrade it?**
5. Where is a diagram showing the fish pass, plunge pool, weir rip-rap, low flow channel and low weir, overflow weir?
6. The Lake Level Plan refers to one to two yearly performance checks of the Fish Pass. **Where is this reflected in the conditions of consent?**
7. Attachment 2 states that plant shutdown occurs when Ponds 1 & 4 level reaches the RL16.5 m. Which ponds are these? This also states that during this trigger, water supplied to Ponds 1 and 4 remain active. Why?

⁷ Section 3.5.3 of Substantive application at page 36.