

BEFORE THE FAST-TRACK EXPERT PANEL

IN THE MATTER of the Fast-track Approvals Act 2024 ("FTAA")

AND

IN THE MATTER of The Central and Southern Block Mining Project
(FTAA-2512-1153)

JOINT STATEMENT OF EXPERT WITNESSES:

ECOLOGY – WETLANDS

21 September 2026

INTRODUCTION

1. Expert conferencing on adequacy of the proposed effects management measures for wetlands took place online via Microsoft Teams from 9.00am-2.00pm on 6 July 2026 and 9.00am-2.20pm on 7 July 2026. Conferencing on the ecology topic of wetlands was reconvened and took place online via Microsoft Teams from 9.00am-6.30pm on 21 September 2026.
2. The conference was attended by the following experts:
 - (a) Dr Hannah Mueller (“HM”), Ecologist (engaged by the Applicant);
 - (b) Hamish Dean (“HD”), Ecologist (engaged by the Applicant);
 - (c) Grant Eccles (“GE”), Planner (engaged by the Applicant);
 - (d) Kaitlin Morrison (“KM”), Ecologist (Waikato Regional Council);
 - (e) Dr Sung Soo Koh (“SK”), Hydrologist (Waikato Regional Council) (was only in attendance for agenda item A);
 - (f) Mark Chrisp (“MC”), Planner (engaged by Waikato Regional Council) (was absent from conferencing from 2pm-2:30pm and left at 5:15pm);
 - (g) Dr Catherine Beard (“CB”), Ecologist (Department of Conservation);
 - (h) Dr Fleur Maseyk (“FM”), Ecologist (engaged by the Department of Conservation);
 - (i) Taituwha King (“TK”), Mātauranga Māori (engaged by Te Nehenehenui);
 - (j) Cathy O’Callaghan (“CO”), Planner (engaged by Te Nehenehenui); and
 - (k) Fleur Passau (“FP”), Maatauranga Maaori (engaged by Ngaati Mahuta ki te Hauaauru).
3. Steve Mutch (ChanceryGreen) acted as independent facilitator.
4. Islay Fowler (ChanceryGreen) assisted the experts to draft the Joint Witness Statement (“JWS”).

CODE OF CONDUCT

5. The experts confirm that they have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and referred to in the Fast-track Approvals Act 2024: Panel Conveners’ Practice and Procedure Guidance 22 July 2025, and agree to comply with it. The experts

confirm that the issues addressed in this JWS are within their area of expertise, unless stated otherwise.

SCOPE OF JWS

6. The Expert Panel directed the experts to confer and advise on questions concerning wetland ecology. These questions are set out in Appendix A to Minute 24 of the Expert Panel (20 August 2026) as Request for Further Information (“RFI”) 4, 6 and 13. These questions have formed the basis of the conferencing agenda.
7. In this JWS, we report the outcome of our discussions in relation to each item (below), including by reference to points of agreement, disagreement, and unresolved matters or uncertainties. Where we are not agreed in relation to any issue, we have set out the nature and basis of that disagreement.
8. The experts have only commented on matters in this JWS that are within their expertise.

AGENDA ITEMS

RFI 2: AUTH 05.01(Water Permit - Surface Water Take): Condition 7

A. Confer and advise on whether 8.53 m RL as a cease take is needed and/or an appropriate level.

9. All ecological experts (FM, CB, HD, KM, HM) consider:
 - (a) a cease take is needed; and
 - (b) that a 8.53 m RL cease take is not an appropriate level from an ecological perspective.
10. FP and TK agree with the statements at [9] above.
11. CB, KM, FM, FP, TK, HM and HD consider that while they cannot pinpoint the exact lake level that would lead to detrimental effects on wetland values, they have reflected on ecological first principles of response, recovery, time lags cumulative effects, interactions between hydrology and ecological values, alongside first principles of managing scarce resources and are agreed that a precautionary approach should be taken. They are of the view that 9 m RL serves this purpose.

12. FP and TK consider that a cease-take level should be established to help protect the health, mauri and ecological wellbeing of the lake and its connected ecosystems. This reflects the Mātauranga Māori value of Kaiaua Piritahi, where kaiaua gather together and grow as whānau among the roots of the raupō. Maintaining appropriate lake levels is important for sustaining these habitats and the taonga species that rely on them. If lake levels approach the established cease-take level, abstraction should cease promptly to help protect the ecological balance and allow the lake and its ecosystems to recover.

**RFI 4: AUTH 16.01 (Destroy, disturb, dewater natural inland wetlands)
Schedule 1: Condition 16(c)**

The Panel requests Ecologists/Experts for the Applicant, DoC, NMKTH, TNNN and WRC to confer & propose specific conditions based on agreements recorded at [40] and [44] of their Joint Witness Statement dated 6-7 July 2026.

13. The experts did not have time to draft refined conditions for each item below.
14. Below the experts provide some comments on the matters provided in the Joint Witness Statement of 6-7 July 2026 (set out in blue below). Not all matters were able to be addressed within the conferencing timeframe. If the panel would like additional assistance on these outstanding matters, the experts are able to provide this.
15. FM, CB, KM, FP, TK, HM and HD recommend that definitions are included in the ecology condition sets to assist with interpretation and implementation of these condition sets. This would include, but not be limited to, definitions for canopy cover, growing season, etc.

Water augmentation

16. FM proposes the conditions framework for water augmentation appended as **Annexure A**. CB and FP support these proposed conditions.
17. CB, FM, KM, TK and FP record that the purpose of the proposed new conditions is to deal with the uncertainty regarding water augmentation conditions. HD agrees there is need for greater certainty regarding water augmentation measures.
18. CB, FM, KM, FP and TK agree that there needs to be additional conditions of consent that detail the specifications for the infrastructure for the water

augmentation and contingency for infrastructure failure. This would include the likes of pump or power failure, pipe blockages, source water availability, clear response procedures, telemetry, alarm systems, back-up pumps.

19. FM notes the framework includes a placeholder for the specifications for pumping rates and volume of water, but the experts have not had time to determine what they would be. FM and CB consider it necessary that such a condition is included to avoid or minimise ecological impacts relating to too much or too little water over time, or water delivered too quickly or too slowly. If this were to occur, it would fail to deliver the objective of the proposed water augmentation.
20. TK, FP, and KM support [19] above.
21. KM, FP, TK, CB and FM note that despite the conditions proposed in Annexure A, they are not confident that the uncertainty has been resolved around whether water augmentation can achieve what it sets out to do.

Wetland riparian planted buffers

22. FM, HD, CB, FP, KM, TK, refer to **Annexure B** which includes a proposed framework for conditions addressing wetland and riparian planted buffers, and indicates aspects that need to be captured in conditions. They note that these aspects may already be captured in the latest version of the proposed consent conditions, but they see value in the clarity the structure in Annexure B provides.
23. FM, HD, HM, KM and CB agree that 30m for the planted buffer would be appropriate. This is reflected in the conditions in Annexure B.
24. FP, KM and TK agree with the 30m planted buffer, provided that a 70m unplanted setback is also provided for.
25. KM notes that there is still disagreement about the requirement for, and the size of, an unplanted setback adjacent to the planted buffer.
26. FM, TK, CB, KM, FP agree that an unplanted setback of 70m adjacent to the planted buffer would be appropriate. FP and TK previously considered a 100m planted buffer preferable, but now agree to a 70m unplanted setback.
27. HD and HM maintain that a 30m planted buffer is all that is required to manage the majority of adverse effects from adjacent activities. GE notes that the angle of repose for mining excavations will in itself create an additional buffer.

Wetland offset and compensation site

28. All experts agree that the Wetland offset and compensation site currently named “Site 27” wetland shall be named “Te Kakara Wetland”, as confirmed by the Mātauranga Māori Experts following discussion with kaumātua and mātauranga knowledge holders. The name recognises the close association with the Te Kakara battle site and acknowledges the tūpuna who lived, fought and fell in the area. It also maintains the whakapapa, cultural history and connection of the whenua for future generations.
29. HD, CB, FM, HM, and KM agree that the left-hand column of table 1 in condition 3 of 16.01 in Appendix A to the applicant’s interim RFI response dated 8 September 2026 provides the detail of the wetland offset and compensation that was agreed was necessary in the Ecology Joint Witness Statement dated 6 and 7 July 2026.
30. **Annexure C** includes three additional clauses that FM, HD, CB, KM, HM, TK and FP consider are necessary to condition timing and offset and compensation design.
31. FM, HM, TK, CB, HD, KM, and FP consider that additional conditions are required to describe earthwork specifications required to create the necessary contours for the offset and compensation wetland, and the requirement for 12-month baseline hydrology monitoring post-earthworks monitoring, as specified in the NIWBMP should be brought forward into a consent condition. The Sediment Control Plan (Condition 19 of Schedule 1) will need a revision to include earthworks undertaken for the purposes of creating the offset and compensation wetland.
32. HD, CB, FM, HM, and KM agree that the right-hand column of table 1 in condition 3 of 16.01 in Appendix A to the applicant’s interim RFI response dated 8 September 2026 provides the detail of interim targets, with revision required to include dominance of wetland plant species as opposed to simply indigenous vegetation for the compensation of seepage wetlands.
33. The proposed consent conditions refer to contingency measures by reference to the NIWBMP but the specific measures and how they are triggered need to also be specified in conditions, including linkages to monitoring and reporting outcomes. The experts have not had time to develop a proposed framework for that, but can do so if requested.

- B.** *40(a) Purpose of the condition (to generate a net gain offset of wetland vegetation cover to address the loss of wetlands and generate additional gain to compensate for permanent loss of seepage wetlands).*

34. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

- C.** *40(b) Commencement of implementation of the offset and compensation actions is to occur no later than six years prior to any direct loss of wetland habitat from mining activities.*

35. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

- D.** *40(c) Description and mapping of spatial extent of the offset and compensation site and the planted buffer (noting paragraph 33 above in relation to naming this area).*

Planted buffer

- (i) HD and HM acknowledge wider buffers are always better, but they consider a 30m planted buffer is sufficient.*
- (ii) CB, FM and KM consider a wider buffer would provide more hydrological protection for wetlands given the potential requirement for water augmentation as a mitigation measure. They also consider a wider buffer would provide more ecological protection.*
- (iii) FP and TK consider a 100m planted buffer is appropriate. The 100 metre buffer is not presented as an absolute ecological threshold. Rather, it is a precautionary management measure that provides sufficient separation to reduce the likelihood of adverse effects on a taonga ecosystem. From a mātauranga Māori perspective, where uncertainty exists, it is more appropriate to err on the side of protecting the mauri of the wetland than relying on remediation after degradation has occurred.*

Unplanted set back

- (i) *While a wider planted buffer would offer better ecological protection, all experts consider that an additional unplanted set back within which mining activities would be prohibited (in addition to a 30m planted buffer) is preferable over having a 30m planted buffer and no setback. This would offer more protection from hydrological, sediment and disturbance effects. The set back would need to be specified in conditions and be subject to the weed and pest management conditions that relate to the site.*
- (ii) *FM, KM and CB consider that an unplanted set back of 70m in addition to a 30m planted buffer would be appropriate.*
- (iii) *As noted above, FP and TK consider a 100m planted buffer is preferred; however, a set back 70m and 30m planted buffer could be an alternative*

36. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

E. 40(d) Measurable offset and compensation outcomes required (extent and condition).

37. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

F. 40(e) Timebound actions required to achieve outcomes, including planting and maintenance, pest and weed management, hydrological changes (including water management), earthworks.

- (i) *FM, KM and CB consider that a strategy for wilding pines should be included in the weed control management plan.*

38. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

G. 40(f) Triggers and thresholds and performance measures as informed by the offset and compensation design. The specifications for end point state, triggers and performance measures as set out in

the monitoring section of the NIWBMP must be incorporated into the consent conditions.

39. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

H. *40(g) Contingency measures including additional offset and compensation where required that respond in a timely way to monitoring (e.g. additional and replacement planting to address plant death or slower growth rates than anticipated, additional pest control, actions to address where lake levels too low for augmentation, address spread of invasive aquatic species, to address delays falling short of performance targets, or where more monitoring may be required before actions are taken).*

40. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

I. *40(h) A legal protection mechanism in perpetuity of the wetland offset and compensation site, planted buffer, and any unplanted set back.*

41. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

J. *44(a) All experts agree that the water level triggers and contingency measures discussed below should also apply to the offset and compensation wetland (which is not currently the case in the proposed conditions).*

42. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

K. *44(b) All experts agree that the current seasonal low trigger (outlined in proposed conditions 5 and 6 of AUTH142035.16.01) could result in stress (including cumulative stress and irreversible loss) on wetland ecosystems. A revised trigger level of mean seasonal water level would be suitable, noting that water levels should be managed to align with natural fluctuations (including rewatering levels).*

43. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

- L. *44(c) CB, FP, TK, FM and KM consider monitoring of hydrology and condition at a grouping scale might not recognise gradients in water levels and impacts within individual wetlands and might not pick up degradation. That risk would be overcome by monitoring wetlands individually.*

44. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

- M. *44(d) TK and FP consider that a Cultural Monitoring Plan be prepared in consultation with the relevant marae prior to the commencement of works. The Plan should incorporate mātauranga Māori indicators and provide for ongoing cultural monitoring, marae participation, and governance involvement throughout implementation, rehabilitation, and long-term management to recognise and respond to effects on cultural values and relationships with wetlands.*

(i) *TK and FP consider that monitoring should include Mātauranga Māori alongside scientific methods to recognise the whakapapa and interconnectedness of wetlands, waterways, species, and people. Monitoring should be guided by MLC (Marae Led Committee/Rōpū) to ensure cultural values, mātauranga, and local observations are incorporated into reporting and long-term management.*

(ii) *TK and FP seek specified, measurable parameters and triggers, mandatory reporting thresholds, independent auditing and monitoring determined alongside the MLC, contain clearly specified timeframes and review clauses, and not rely solely on management plans to address effects. CB, FM and KM support this.*

(iii) *TK and FP consider hydrological and ecological monitoring alone cannot fully measure the health of a wetland. Cultural indicators, including observations of mauri, taonga species, and the relationships between wetlands and connected waterways, should also be monitored. MLC should co-design cultural monitoring and reporting to ensure the wetland's cultural, environmental, and intergenerational values are recognised and maintained.*

(iv) TK and FP consider that appropriate funding and resources must be provided to enable the hapū, mātauranga Māori knowledge holders, the MLC, and the Tahaaroa Lakes Trust to undertake cultural monitoring, reporting and adaptive management throughout the life of the project.

45. In respect to agenda items M through to P, FP and TK consider that the proposed consent conditions do not adequately provide for meaningful engagement of mana whenua groups including Taharoa C, Te Ruunanga o NMKTH, Aaruka and Te Kooraha. FP and TK support the preparation of a Cultural Monitoring Plan, developed in consultation with the relevant marae, prior to the commencement of works. The Plan should integrate mātauranga Māori alongside scientific monitoring and provide for ongoing cultural monitoring, marae participation and governance throughout implementation, rehabilitation, and long-term management. Monitoring should include measurable cultural, ecological, and hydrological indicators, including mauri, the condition and abundance of taonga species, the health of wetlands and connected waterways, and observations derived from mātauranga Māori and local knowledge. Monitoring outcomes should be linked to clearly defined trigger levels, reporting requirements, independent auditing, review mechanisms, and adaptive management responses.
46. FP and TK also support reasonable site access for cultural monitoring purposes, recognising that mātauranga Māori monitoring can complement quantitative monitoring and assist with the early detection of adverse effects. Baseline monitoring and ongoing assessment should acknowledge and incorporate the research, datasets, and monitoring undertaken by Ngāti Mahuta and the Tahaaroa Lakes Trust.
47. FP and TK consider a suitably qualified and mandated mātauranga Māori expert endorsed by Ngāti Mahuta ki te Hauāuru should be involved in the development, implementation, interpretation, and review of all monitoring programmes.
48. FP and TK consider adequate funding and resourcing should be provided to enable hapū, mātauranga Māori practitioners, and the Tahaaroa Lakes Trust to undertake monitoring, reporting, auditing, and adaptive management throughout the life of the consent.

49. FP has provided **Annexure D** as a guideline for the purpose, methodology, cultural enforceability, resourcing and Maaori data sovereignty for the cultural monitoring. TK supports this.

N. *44(e) FP considers Ngāti Mahuta ki te Hauāuru should be provided reasonable access to the site to undertake cultural monitoring at agreed intervals, following significant environmental events, and upon reasonable request where concerns regarding environmental effects arise. Records of monitoring undertaken, site access, and any requests made shall be maintained and provided to Waikato Regional Council upon request. FP considers Ngaati Mahuta mātauranga has the ability to work alongside quantitative monitoring to ensure early detection of any adverse effects. TK agrees.*

50. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

O. *44(f) FP considers that the results from research undertaken by Tahaaroa Lakes Trust and Ngaati Mahuta between 2023 and 2026 be acknowledged and addressed, including to ensure that it informs baseline monitoring of each retained wetland. TK agrees.*

51. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

P. *44(g) FP considers a suitably qualified mātauranga Māori expert, endorsed by Ngaati Mahuta ki te Hauaauru, should be involved across all aspects of the monitoring plan. FM, TK and CB support this.*

52. To the extent not otherwise addressed, the experts did not have time to address this agenda item.

Q. *44(h) As noted earlier in this JWS, all experts agree that the specifications for end point state triggers and performance measures for the offset site and planted buffers as set out in the monitoring section of the NIWBMP must be incorporated into the consent conditions.*

**RFI 6(2): AUTH 16.01 (Destroy, disturb, dewater natural inland wetlands):
Conditions 5(a) and 5A (limited to ecological effects associated with
different lake levels)**

**R. Confer and advise on representative sites for wetland monitoring (as
potentially affected by groundwater) i.e. which wetlands per group**

53. CB, FM, KM, HM, FP, TK and HD consider that ecological monitoring of individual wetlands is appropriate.
54. CB, FM, KM, HM, FP, TK and HD consider that the monitoring frequency and timing need to be adjusted to align with the timing of potential drawdown in retained wetlands and should not cease until the risk of drawdown is absent.
55. CB, FM, KM, HM, FP, TK and HD agree that a trigger for monitoring needs to be established based on the proximity of the mine sequencing. The trigger needs to be based off the hydrogeological ground water model.
56. CB, FM, KM, HM, FP, TK and HD agree that condition 43 in Schedule 1 should additionally require that the annual work plan include specification of the areas to be mined over the next 24 months, to allow for monitoring to commence in wetlands likely to be affected by drawdown, and provide a 12-month monitoring period ahead of when effects on wetland may arise.
57. CB, FM, KM, HM, FP, TK and HD consider Condition 5A should read as follows (changes from the Applicant's interim response dated 8 September 2026 are shown in underline/strikethrough):

Condition 5A: The Consent Holder must engage a suitably qualified and experienced ecologist to undertake baseline monitoring of the extent and health of the wetlands as shown in Table 3 of the NIWBMP within the growing season months of February and March following the commencement of this consent, ~~and every 5 years thereafter~~. The ongoing monitoring shall be undertaken in accordance with section 3.2 of the NIWBMP, commencing for individual wetlands as indicated by hydrological modelling on potential drawdown and confirmed in each annual workplan, including appropriate indicator species. The outcomes of this monitoring shall be provided in accordance with conditions [XXX – refer JWS [73] below], ~~to Waikato Regional Council~~.

58. KM and FM record that the intention in the above cross-reference in condition 5A is to be captured in the annual monitoring conditions, including for the review panel, should that recommendation be adopted.
59. CB, KM, FM, FP, HM, TK, HD consider that the NIWBMP needs to be amended to clarify that monitoring frequency only reduces where adverse effects are not detected. The proposed statement for inclusion is as follows, which should be reflected in the associated condition of consent.

“within the growing season:

- i. Annually for the first three years; then, if adverse effects have not been detected*
- ii. Every two years for the next six years; then, if adverse effects have not been detected*
- iii. Every five years for the duration of the consent.”*

60. FM considers there is a need for an expert review panel for the purposes of expert oversight and assessment of monitoring reporting for the life of this consent. The consent holder will invite members to collectively establish the panel. The panel will comprise experts in the following areas: ecology, hydrology, hydroecology, hydrogeology, and Mātauranga Māori. The discipline experts will represent the discipline, not a specific party. The purpose and function of the expert review panel is to review and provide feedback on draft management plans prior to submission to council, review monitoring reports, provide advice to the consent holder if they propose to change or amend provisions in the management plans, provide recommendations to the consent holder in respect of monitoring findings, and provide council with a copy of those recommendations. Resourcing of the expert review panel would be met by the applicant. FM considers that the current drafting of proposed conditions does not provide the ability for meaningful review and feedback on draft plans and monitoring reports. This is required to, for example, enable triggering contingency condition measures that an expert review panel would provide. CB, FP, CO, and TK agree with FM's comments.
61. GE is of the view that the existing proposed conditions of consent already allow for the functions sought for the expert review panel set out at [60] above.
62. As a related matter, with reference to condition 15 in Schedule 1, CO, FP, and TK seek that a copy of the EMP lodged with the regional council for certification

be provided with the parties listed for the purpose of comment if necessary, with sufficient time for meaningful engagement.

S. Confer and advise on which indicator species (including taonga species) and how often

63. FP and TK note that the following references should be used as a guideline for what taonga species should be included in the conditions:

- (a) **List of taonga species set out in NMKTH EMP Appendix 2: Taonga species.**
- (b) **Tupu Wai (Native Submerged Macrophytes):** *Chara australis* and *Nitella sp. aff. cristata* (indigenous charophyte meadows), *Potamogeton ochreatus* (native pondweed), and *Myriophyllum triphyllum* (native milfoil). These serve as primary biological indicators of water clarity, sediment stability, and lake health.
- (c) **Wai Maaori (Marginal Wetland Flora):** *Typha orientalis* (raupoo), *Phormium tenax* (harakeke/flax), *Carex virgata* (pukio/sharp spike sedge), *Carex secta* (puurei), *Eleocharis acuta* (sharp spike sedge), and *Eleocharis sphacelata* (kutakuta/tall spike rush). These filter nutrients and stabilize soils.
- (d) **Taonga Species Registries:** Tuna (longfin and shortfin eels - *Anguilla dieffenbachii* / *australis*), Kaiaua / Kaakahi (freshwater mussels - *Echyridella menziesii*), Kooura (freshwater crayfish), Kokopuu (*Galaxias*) and Kanae (grey mullet - *Mugil cephalus*).
- (e) **Sensitive Avifauna:** Matuku-huurepo (Australasian bittern - *Botaurus poiciloptilus*), Koitareke (spotless crane - *Porzana tabuensis*), and Maataataa (fernbird - *Bowdleria punctata*).

64. HD considers the wetland indicator status of plants a robust method for monitoring wetland changes due to hydrology, but he agrees that a selection of taonga species should also be monitored. CB, TK, KM, HM, FM and FP agree.

T. Confer and advise on methods for doing so

65. HD notes the monitoring methodology in the updated NIWBMP and the changes recommended above, which include use of the prevalence index, which wetlands are monitored, and monitoring frequency. HD, CB, FM, HM, and KM consider this appropriate in terms of wetland condition and function.
66. CO, FP and TK consider that if the purpose of the panel's direction under T was to consider monitoring of taonga species, they suggest that a cultural monitoring plan as referenced at [44](d) of the Ecology Joint Witness Statement dated 6 and 7 July 2026 is the appropriate way forward. The cultural monitoring plan should be appropriately and adequately resourced by the consent holder. FM acknowledges that this suggestion also makes sense from a perspective of good practice effects management.

RFI 13: AUTH 05.01 (Water Permit - Surface Water Take): Condition 8

U. Confer on the coverage (wetland types, locations, indicator species) and frequency of this baseline monitoring noting the Regional Council's request that a broader set of wetlands rather than just raupō and flax be covered, recommending any consequential changes for conditions 10 (b) Permit 05.01.

67. HD continues to support the proposed changes to condition 8 of AUTH142035.05.01 proposed in the applicant's interim RFI response dated 8 September 2026, with amendments to clarify that monitoring frequency only reduces where adverse effects are not detected. The proposed statement for inclusion is (no tracked changes shown) below. The reference to February and March is deliberate in the below, and relates to the probable seasonal lows in water levels prior to raupoo entering a senescent phase.

"The Consent Holder must engage a suitably qualified and experienced ecologist to undertake monitoring of the extent and health of wetlands on the margins of Lake Tahaaroa adjoining the Taharoa C Block within the months of February and March:

- i. Within the first year following the commencement of this consent (baseline monitoring); then*
- ii. Annually for the first three years; then, if adverse effects have not been detected*
- iii. Every two years for the next six years; then, if adverse effects have not been detected*

iv. Every five years for the duration of the consent."

68. KM, FM, HM, CB support [67] above.
69. FP, CO and TK support the condition at [67] above, but consider that a mandated Mātauranga Māori expert endorsed by Ngaati Mahuta ki te Hauaaauru should be engaged alongside the suitably qualified and experienced ecologist.

SIGNATURES OF EXPERTS



Dr Hannah Mueller



Hamish Dean



Grant Eccles



Kaitlin Morrison



Dr Sung Soo Koh



Mark Chrisp



Dr Catherine Beard



Dr Fleur Maseyk



Cathy O'Callaghan



Taituwaha King



Fleur Passau

ANNEXURE A

Note to panel:

- Purple text is placeholder
- Yellow highlight is flagging areas where specific metrics require further discussion and/or awaiting final reports
- Orange text is cross-references to other conditions

#	Water Augmentation Management and Monitoring Plan 1) At least [one year] prior to removal of any area of wetland [as shown in Figure xxx, report xxx], the Consent Holder shall prepare a Water Augmentation Management and Monitoring Plan (WAMMP) in accordance with [Condition x (general conditions relating to preparation of plans, review by Expert Review Panel, and submission to WRC)] The purpose of the [Water Augmentation Management and Monitoring Plan (WAMMP)] is [to ensure water quality of source water is good enough to reduce risk to receiving environment, prevent the spread of pest organisms, further understand the effectiveness of augmentation in maintaining water levels and hydrological regimes within the receiving wetlands and maintaining wetland ecological function]. 2) To ensure the purpose of water augmentation is achieved the Consent Holder must ensure that: - Only clean, freshwater from [named sources] is used to augment any wetland or waterway; - The source water is screened to exclude biological contaminants; - Augmentation is continued for a duration and at a volume that ensures water reaches and is retained within the receiving wetland; - Any water used to augment any wetland or waterway must: - not exceed electrical conductivity of 1000µS/cm; - not increase the temperature within the receiving wetland or waterway by more than 3°C; - not increase the turbidity of the receiving wetland or waterway by more than 10%; [specs for chlorophyll-a,]; [specs for phytoplankton]; - contain any cyanobacterial bloom; - not have N concentrations greater than xxx; - not have P concentrations greater than xxx; or - contain any aquatic pest organism, or part of therefore, including fish, shellfish, plants, algae matter, xxx; - have a pH of between 6 and 9. - Prior to any augmentation occurring the source water is monitored and tested for: - chlorophyll-a;
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- ii) phytoplankton composition;
- iii) cyanobacteria abundance;
- iv) presence of aquatic pest organisms (including fish, shellfish, plants, algae matter, xxxx);
- vi) nutrient levels;
- viii) pH;
- ix) temperature;
- x) electrical conductivity; and
- xi) turbidity.

f) Submit the monitoring results report to [Expert Review Panel] [xxx days] prior to lodging with WRC.

g) [Process if monitoring shows the source water is not compliant with these conditions]

h) [specifications for pumping rates and volumes]

3) As a minimum the WAMMP will set out:

- a) The wetlands which are to receive augmentation [as described and shown in Fig x]
- b) The conditions under which water augmentation will be undertaken; [link to conditions on water level monitoring trigger levels];
- c) The water level targets for each wetland to receive augmentation [time period over which levels are to be measured and retained] and volumes / rates to be pumped
- d) How a decrease in water level within retained natural inland wetlands, the [Wetland Offset and Compensation Site], or other waterway will be addressed in the event drawdown of water level occurs during a period where there is no water availability to enable augmentation in accordance with these conditions;
- e) Monitoring and reporting plan for source water;
- f) Monitoring and reporting plan for all receiving environment wetlands [link to where wetlands that might be augmented are identified], at the point of discharge, that includes
 - Continuous monitoring of:
 - i) electrical conductivity;
 - ii) water temperature;
 - iii) pH;
 - iv) dissolved oxygen;
 - v) water level; and
 - Monthly monitoring of:
 - i) Turbidity;
 - ii) Suspended solids; and

	Annual surveillance monitoring for aquatic pest plant presence and abundance, including macrophytes, algal cover, phytoplankton communities, and macrophyte communities. g) Methods for analysis of monitoring results, including: i) for source water, against the specifications set out in (this Condition clause 20 c) i)–x)); ii) for receiving environment wetlands, against reference wetland sites and condition scores of each wetland. h) Detailed process for reporting on [link to process for review and submission of monitoring reports] i) Detailed, time-bound contingency measures to be implemented should monitoring at source and receiving environment indicate the augmentation in any or all of the receiving wetlands has failed to address water drawdown with the wetland; f)
#	Water augmentation must cease within [xxx days] if monitoring of the water augmentation [in accordance with Condition x] shows that the augmentation: a) Has resulted in the presence of new invasive aquatic organisms; b) A significant increase in invasive aquatic organisms (including aquatic macrophytes, algal cover, phytoplankton communities, macrophyte communities, fish, shellfish, xxx); c) Breaches the water quality measures [Condition x] for more than a period of [xxxxxxx] or [xxxxx]
#	Water Augmentation– Failure to Restore Water in Retained Wetlands Where monitoring indicates that augmentation of water within any of the retained wetlands is not maintaining water levels [period of time], as evaluated against baseline monitoring and the relevant reference site, and therefore not effectively mitigating adverse effects of sand mining on the wetland, additional mitigation measures and/or offset or compensation effort (as detailed in the WAMMP) must be implemented within [time period]

ANNEXURE B

Note to panel:

- Purple text is placeholder
- Yellow highlight is flagging areas where specific metrics require further discussion and/or awaiting final reports
- Orange text is cross-references to other conditions
- aspects highlighted pink are direct comments to the panel from experts at conferencing to help complete the drafting of those proposed conditions.

#	Wetland and Riparian Planted Buffers 1) The consent holder shall, in accordance with the [NIWBMP, author date] plant with appropriate indigenous plant species, maintain, and protect in perpetuity, as a minimum: a) An area no less than [30 m] wide around the periphery of each of the retained wetlands as described in [Condition x (location of wetlands)] b) An area no less than [30 m] wide around the periphery of the [Wetland Offset and Compensation Site] in accordance with [Condition x (requirements of offset and compensation site)] c) An area no less than [30 m] wide along each bank of the Wainui Stream and Mitiwai Streams in accordance with [Condition x (riparian conditions)] 2) Planting of planted buffers must a) for retained wetland and riparian buffers, commence by [xxxx] with initial planting within all retained wetland and riparian buffers be completed by [xxxx]; and b) for the [Wetland Offset and Compensation Site], commence by [xxxx] with all initial planting completed by [xxxx]. 3) The Wetland and Riparian Planted Buffers will be monitored in accordance with [the RPMP, author, date] and as required by [Condition xxx (monitoring requirements)].
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#	Retained Wetland and Riparian Planted Buffers – Performance Targets 1) The planted buffers required by [Condition x (above)] must be implemented to achieve the following outcomes and performance targets: a) For planted buffers at each of the retained wetlands: i) At 1-year post planting b) For planted buffers along Mitiwai Stream and Wainui Stream: i) At 1-year post planting [This condition can be populated from the detail provided in the NIWBMP] <i>Note: The performance targets for the planted buffer around the [Wetland Offset and Compensation Site] has been included in the general performance targets for the site at [Condition xxx]</i>
#	Wetland and Riparian Planted Buffers – Monitoring and Reporting - prepare and submit a Buffer Planting Monitoring and Reporting Plan (BPMRP) - undertake the monitoring - purpose of the plan - contain as a minimum - frequency of monitoring - indicators and metrics - Monitoring reports to go to Expert Review Panel prior to submitting to WRC These matters are addressed in the NIWBMP, and may in part be captured in proposed conditions, but FM, CB and KM are of the view that all of these things need to be captured in a structured way, similar to the augmentation conditions, for clarity.

ANNEXURE C

Notes for panel:

- Purple text is placeholder. Note that the placeholder text within clause 1 (highlighted blue) is covered in the left-hand column 1 of Table 1, condition 3 16.01 of Appendix 3 in the Applicant's RFI #4 response document, as addressed at [29] of the Joint Witness Statement.
- Orange text is cross-references to other conditions.

#	Wetland Offset and Compensation Site [or alternative name/description of the area (Site 27)] 1) The Consent Holder shall, at [description of the Offset and Compensation Site], in general accordance with [Wetland Offset and Compensation Site Management and Monitoring Plan, author, date] undertake, maintain, and protect in perpetuity as a minimum the: a) Creation of [area] of [type] wetland to generate an offset for the loss of [area and type]; b) Creation of [area] of [type] wetland to generate an offset for the loss of [area and type]; b) Creation of [area] of [type] wetland to provide compensation for the loss of [area of seepage wetland]; and c) The planting of an area [no less than 30 m] wide around the periphery of the [Wetland Offset and Compensation Site] to provide a buffer between [the Wetland Offset and Compensation Site] and the remainder of the site 2) The commencement of implementation for the offset and compensation measures is to occur no later than six years prior to any direct loss of any wetland habitat due to mining activities. This includes pre-construction baseline monitoring in accordance with [Conditions xxx] and earthworks undertaken for the purposes of creating wetland habitat in accordance with [Conditions xx]. 3) The initial planting of wetland vegetation in accordance with the planting plan detailed in the [NIWBMP] and the planting of the [30 m] buffer area must be completed within [ten [10] years] of commencement of implementation in accordance with [clause 2 of this condition]. 4) The consent holder shall ensure that the design and implementation of any wetland offsetting and compensation measures to achieve the requirements as set out in [this condition, clause 1, Condition x (development of plan)] are developed in accordance with mātauranga Māori principles as advised by a suitably qualified mātauranga Māori expert endorsed by Ngaati Mahuta ki te Hauaauru.
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ANNEXURE D

10A. Cultural Mauri Monitoring and Māori Data Sovereignty

- (a) Purpose: To uphold Tūhono - the ancestral relationship and kaitiaki responsibility of Ngaati Mahuta to the living waters of Tahaaroa - a parallel cultural monitoring framework must operate side-by-side with scientific monitoring.
- (b) Methodology : Mandated kaitiaki appointed on the recommendation of the Tahaaroa C, NMKTH Ruunanga, Tahaaroa Lakes Trust, Aaruka and Te Kooraha Marae shall conduct real-time environmental audits utilising taiao observation tool (e.g. Rongo App). . Assessments shall systematically evaluate and record:
 - (i) The six states of *mauri* (*Mauri kaha* – strong, *Mauri ora* – thriving, *Mauri tuu* – stable, *Mauri Māori* – natural, *Mauri kino* – diminishing, and *Mauri mate* – dying) based on water clarity, substrate condition, and sensory markers.
 - (ii) The abundance, recruitment, and health of taonga species.
 - (iii) The native-to-invasive ratio of *tupu wai* macrophyte vegetation.
- (c) Cultural Enforceability: If the data collated from the taiao observation tool logs a consistent decline in *mauri* to a state of *Mauri kino* or *Mauri mate*, this qualitative assessment shall stand as legally recognised parallel evidence triggering WRC compliance audits of adjacent mine dewatering and water abstraction rates.
- (d) Resourcing: The Consent Holder shall fund and resource the Tahaaroa Lakes Trust, local *maatauranga Maaori* experts, and the KRG to systematically carry out this monitoring throughout the life of the consent.
- (e) Maaori Data Sovereignty: In accordance with the principles of *mana whakahaere*, all qualitative, quantitative, and spatial data generated via the Rongo App or cultural registries shall remain the exclusive, intellectual property of Ngāti Mahuta, stored in a secure digital repository managed by the Tahaaroa Lakes Trust.