

**Before the Hearings Panel
At Kapiti Coast District Council**

**Statement of evidence of David Kieran James Pickett on behalf of Kāpiti Coast
District Council Ecology**

Date: 20 August 2026

INTRODUCTION:

- 1 My full name is David Kieran James Pickett. I am employed as a Senior Ecologist at Tonkin & Taylor Ltd (T+T).
- 2 I have prepared this statement of evidence on behalf of the Kāpiti Coast District Council (**Council**) in respect of ecology related matters arising from the private plan change request and submissions and further submissions on the Private Plan Change 5 (PPC5) to the Kāpiti Coast District Plan (District Plan).
- 3 I am authorised to provide this evidence on behalf of the Council.

QUALIFICATIONS AND EXPERIENCE:

- 4 I have the following qualifications and experience relevant to this assessment.
- 5 I graduated with a Bachelor of Science degree in Biological Sciences from the University of Auckland in 2017.
- 6 I have been employed as a consultant ecologist with T+T since October 2017. I was based in T+T's Hamilton office from 2017 to 2021 and have been based in T+T's Wellington office since 2021.
- 7 My work as ecological consultant has covered terrestrial, wetland and freshwater ecosystems. I have undertaken technical assessments and completed field assessment across a wide range of small-to-large scale projects. This experience ranges across both the North Island and South Island and covers a broad range of ecosystem types and includes assessment and management of fauna groups including long-tailed bats, herpetofauna, avifauna (forest & wetland), and invertebrates. Projects that demonstrate my relevant experience with respect to PPC5 include:

- a) I have held Lead Ecologist roles on several large infrastructure projects including projects in the lower North Island such as Te Ahu a Turanga: Manawatu-Tararua Highway, Peka Peka to Ōtaki (PP20) Expressway, and recently the Petone to Grenada project.
- b) On Te Ahu a Turanga (2020 – 2023) I was responsible for implementing mitigation measures for wetland, riverine, and grassland avifauna (including a large population of New Zealand pipit). I was responsible for fauna salvage/relocation of lizards, 'At Risk' plants, management of 'At Risk' invertebrates, and assessment of wetlands under the recently published NPS-FM. I was also responsible for the implementation of BOAM/BCM (offset/compensation) planting and monitoring.
- c) I am the Lead Ecologist on the Petone to Grenada highway project responsible for assessing terrestrial and wetland values and impacts over an approximate 100 ha site.
- d) I have led the implementation of large lizard survey and salvage/relocation projects in the Wellington region. As Lead Herpetologist on Silverstream Landfill I am responsible for the fauna management. This includes the continuous survey, salvage and relocation of up to five species of lizard including a large population of copper skink.
- e) I have undertaken a wide array of wetland assessments across the country prior to and following the introduction of the NPS-FM (2020). My experience with wetlands includes design of constructed wetland, wetland delineation and monitoring, effects assessment (including impacts from hydrology) and wetland restoration (BOAM/BCM). Within the immediate environment I have experience identifying and delineating extent of historic dune wetlands for the Ministry of Education on 49 Te Ara Kawakahia, Waikanae.

- 8 I am a member of the New Zealand Herpetological Society (NZHS), New Zealand Plant Conservation Network (NZPCN), and the New Zealand Ecological Society (NZES)

Code of conduct

- 9 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023¹. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

SUMMARY

- 10 In summary I conclude that:
- a) In general, I agree with the Applicant's assessment of ecological values present on the site. The Applicant has assessed potential effects that could result from future land development enabled by the proposed plan change to an appropriate level of detail.
 - b) The main ecological features of the site include:
 - i. Wetland habitat (QEII wetland and pond) that provides habitat for wetland fauna and some 'forest' species.

¹ <https://environmentcourt.govt.nz/assets/Practice-Note-2023-.pdf>

- ii. Stream habitat that may provide habitat for freshwater fish.
 - iii. Modified terrestrial habitat (mostly grazed or mown pasture, some rank exotic vegetation and dunelands.
- c) I consider that the area identified as a 'pond' by the Applicant forms part of the QEII wetland and a wider wetland complex that includes Ecosite K170. I also maintain that there is uncertainty with regard to the exact extent of the delineated QEII wetland boundary on the site and therefore potential impacts. However, I consider that the inclusion of a 10 m planted buffer as a plan change provision is suitable to address this uncertainty and manage the potential loss of wetland value and extent associated with future development.
- d) There is remaining uncertainty on the proposed measures effectiveness in avoiding or mitigating potential effects wetland hydrology. In my opinion, any further modification of the stream or catchment (whether a permitted activity or not) could result in a loss of wetland extent or values. Additionally, modification of the site through earthworks and development, as noted in the evidence of Mr. James Okaley, could result in a change in groundwater hydrology and a subsequent loss of wetland extent or value.
- e) While there is uncertainty around the potential effects of future development of the site on wetland and stream values, these can be appropriately addressed during future consent processes. In my opinion, the policy and rule framework in GWRC NRP, NPS-FM, and NES-F, provide robust mechanisms for identifying, assessing and managing potential effects on freshwater ecosystems.
- f) Fauna (lizards and birds) are protected under the Wildlife Act (1953). Any direct effects on protected fauna potentially present

can be appropriately mitigated through the implementation of fauna management plans.

- 11 Based on the information currently before the Hearings Panel, there remains some uncertainty on whether future development of the site will result in adverse effects for wetland and stream habitat. However, in my opinion, there are appropriate mechanisms for managing the potential effects on these ecosystems that can be deferred to subsequent resource consent stages.
- 12 In my opinion the inclusion of a 10 m buffer planting around the wetland is necessary to address any potential loss of wetland and should be included as a plan change provision.

INVOLVEMENT WITH THE PRIVATE PLAN CHANGE 5

- 13 I have been involved with PPC5 since December 2024 when I was engaged by Kāpiti Coast District Council to review an Ecological Values Assessment² prepared by RMA Ecology for the applicant and submitted in support of the draft Plan Change application.
- 14 I conducted a site visit on 16 December 2024 to assess the site and support my review of the Ecological Values Assessment. Following that site visit, I prepared a draft review memorandum dated 24 January 2025 outlining my site observations and recommendations. This memorandum was provided to the applicant prior to lodgement of the plan change application to assist in addressing ecological matters identified during my review.

² RMA Ecology (October 2024). *110 Te Moana Road, Waikanae Beach: Ecological Values Assessment*. (Project No. 2375)

- 15 An Ecological Impact Assessment³ (hereafter “the EclA”) prepared by RMA Ecology and dated April 2025 was subsequently lodged as part of the formal Plan Change application. I reviewed the EclA and provided comments to Council in my memorandum entitled Attachment 1 – Ecology Review dated 29 May 2025. As a result of that review, Council sought further information from the applicant on a range of ecological matters.
- 16 In response, the applicant provided further ecological information in the document entitled *100 & 110 Te Moana Road PPC: RFI Response Regarding Ecological Matters (July 2025)* (RFI Response – Ecology⁴), together with additional information relating to groundwater, flooding and stormwater management. I reviewed that information and prepared a further memorandum dated 6 August 2025 setting out my assessment of the additional information provided.
- 17 Following my review of the applicant’s further information, I considered that most ecological matters had been satisfactorily addressed. In my opinion, the principal remaining ecological issue was the potential effect of temporary or permanent groundwater dewatering associated with future earthworks on the hydrological functioning of the QEII wetland.
- 18 The April 2025 EclA, together with the subsequent ecological and hydrological information provided in response to Council's requests for further information, form the basis of my assessment. References to the EclA in the remainder of this evidence should be read as including the relevant further information subsequently provided by the applicant where applicable.

³ RMA Ecology (April 2025). Appendix 5 – Ecology Report. *110 Te Moana Road, Waikanae Beach Ecological Effects Assessment*. (Project No. 2375.100)

⁴ RMA Ecology (23 May 2025). *100 & 110 Te Moana Road PPC: RFI response regarding ecological matters; July 2025*

SCOPE OF EVIDENCE

- 19 My statement of evidence addresses the following ecological matters:
- a) Wetland identification and extent
 - b) Watercourse classification
 - c) Ecological values and significance
 - d) Fauna (including lizards and birds)
 - e) Hydrology as it relates to wetland function
 - f) Stormwater and overflow pathways as they relate to ecological values or features.
- 20 In preparing my evidence, I have relied on information provided by Awa Environmental, expert hydrological advice from Te Miro Water, and planning advice from Boffa Miskell on matters relevant to ecology.
- 21 In preparing this statement of evidence I have reviewed the following documents:
- a) Appendix 5 – Ecology Report. *110 Te Moana Road, Waikanae Beach Ecological Effects Assessment*. RMA Ecology (April 2025).
 - b) RFI Response – Ecology. 100 & 110 Te Moana Road PPC: RFI response regarding ecological matters; RMA Ecology (July 2025).
 - c) Sections of the Engineering Infrastructure Report Combined that are relevant to groundwater hydrology and wetlands.
 - d) Sections of Appendix 7 – Geotechnical Report as relevant to groundwater hydrology and wetlands. *Geotechnical Assessment*

Report for Plan Change 100 – 110 Te Moana Road, Waikanae. CGW Consulting Engineers (2 May 2025).

- e) *100 & 110 Te Moana Road, Flood Assessment & Stormwater Management Concept Memo. Awa Environmental (13 March 2025).*
- f) *RFI Response – Flooding and Stormwater (1). 100 & 110 Te Moana Road, Flood Assessment & Stormwater Management Concept Memo. Awa Environmental (2025).*
- g) *RFI Response – Flooding and Stormwater (2). 100 & 110 Te Moana Road, Flood Assessment & Stormwater Management Concept Memo. Awa Environmental (20 July 2025).*
- h) *Additional information response – Flooding and Stormwater. 100 & 110 Te Moana Road, Flood Assessment & Stormwater Management Concept Memo. Awa Environmental (18 August 2025).*

ENVIRONMENTAL EFFECTS

- 22 The EclA assesses ecological values present on the site and the potential effects that could result from future land development enabled by the proposed plan change. In my opinion, the EclA uses appropriate methodologies to assess ecological values and effects consistent with the level of detail expected for a plan change.
- 23 In general, I agree with the Applicant's assessment of assigned ecological value, unless stated otherwise in my evidence. In the following sections, I comment on the methodologies used to identify and assess ecological values, indicate where I agree or disagree with the Applicant's assessment conclusions, and identify areas of uncertainty relating to potential effects on ecological values present on the site.

Wetland Identification and Extent

- 24 The methodologies used by the Applicant to identify and delineate wetlands on the site are consistent with the methodologies referenced in the NPS-FM which represent current best practice.
- 25 In brief, methodologies for wetland identification under the NPS-FM require a stepwise assessment that is undertaken based on the type of vegetation, presence of hydric soil, and the presence of hydrological indicators. Three separate vegetation tests are applied in succession, as required. These are the Rapid Test, Dominance Test and Prevalence Index.
- 26 Several potential wetlands were identified, assessed and then discounted by the Applicant due to wetland vegetation not being present at the time of assessment.
- 27 One wetland was confirmed on the site by the Applicant, measuring 0.54 hectares in area. The area of identified wetland is generally characterised by a number of 'Obligative' and 'Facultative Wetland' species including raupō (*Typha orientalis*) and *Carex secta*. While the information from the Applicant does not clearly describe the application of each step of the NPS-FM assessment methodologies, the presence of numerous obligate and facultative wetland species indicates that this area would readily satisfy the "Rapid Test" and therefore meets the NPS-FM and RMA definition of a wetland. A map showing the 0.54 ha wetland area is shown in Figure 1 below. (Figure 3 of the EclA; Appendix A 'RFI Response – Ecology').



Figure 1. Sourced from Appendix A of the Applicants 'RFI Response – Ecology', showing the extent of the wetland identified, the pond, and additional wetland plots undertaken.

- 28 The wetland is referred to in the Applicant report as the QEII wetland as it is protected under a QEII Open Space Covenant. The wetland is also identified as a SNA (ecological site K068) in the District Plan and meets NPS-IB significance criteria. K068 measures approximately 0.98 hectares.
- 29 However, I disagree with the Applicant's delineation of the wetland extent (boundary). In reference to Figure 3 of the EclA (shown as Figure 1 above), I consider that the area identified as a 'pond' forms part of the wetland. Despite its modified state, it remains part of a wider contiguous wetland system that extends into the adjacent properties.
- 30 The detailed evidence supporting the 'pond' being part of the wetland is provided in the RFI request 'Attachment 1 – Ecology Review'. This is summarised as follows, and includes:
- a) The extent of wetland vegetation visible on historic aerial imagery.

- b) The pond supports obligate wetland species, including *Lemna disperma* and *Potamogeton cheesemanii* (See Photograph 1).
- c) There are two vegetated islands within the pond that are dominated by wetland vegetation (See Photograph 1).
- d) The wetland on the site forms part of a much larger ephemeral dune hollow wetland matrix that extends to beyond the property boundary and is contiguous with Ecosite K170 (Figure 2).
- e) And the presence of open water is a characteristic feature of many local dune wetland systems, including Waimaha Lagoon, Totara Lagoon (part of the Te Harekeke Swamp complex), and Te Hapua Swamp.



Photograph 1: Wetland vegetation within the 'pond' showing a high proportion of wetland plant species from my site visit on the 16/12/2024.



Photograph 2: Wetland vegetation on the adjacent property (Lot 1 Deposited Plan 88064) observed from the property's boarder with 110 Te Moana Rd from my site visit on the 16/12/2024.



Figure 2: Showing location of the 100/110 Te Moana Road property boundaries and KCDC ecosties, locations of relevant photographs and the highly modified stream .

- 31 I agree with the Applicant that the QEII wetland covenant has ‘high’ ecological value, but consider this value extends to the area identified as ‘pond’, which is part of the wider wetland complex.
- 32 During my site visit, I observed wetland vegetation, wetland hydrological indicators, and hydric soils in areas outside the wetland boundary delineated by the Applicant (RFI Attachment 1 – Ecology Review). These features were generally present within 10 m of the wetland boundary identified by the Applicant.
- 33 I acknowledge that subsequent assessments undertaken by the Applicant did not confirm wetland vegetation outside the areas delineated. However, those assessments occurred following mowing of the site; and regular mowing is likely to limit the expression and detection of wetland vegetation.

- 34 Regardless of whether wetland vegetation may be periodically present beyond the mapped wetland boundary, the provision of a 10 m wide planted buffer around the 'pond' and 'wetland' (i.e. the QEII covenant) as proposed by the Applicant is an appropriate measure to protecting these marginal wetland habitats and associated ecological values.
- 35 Overall, while I consider the pond should be regarded as part of the wider wetland system, I consider the Applicant's wetland assessment and mapping are sufficiently robust for plan change purposes. Wetland vegetation may establish beyond the currently delineated wetland boundary under different management regimes. However, any resulting adjustment to the wetland extent is likely to be relatively minor. The proposed 10 m planted buffer provides an appropriate mechanism to recognise and protect this uncertainty and the ecological values.
- 36 I recommend that PPC5 include a district plan provision requiring the establishment and maintenance of a minimum 10 m wide planted buffer around the QEII wetland (including the pond area) prior to site development. The detailed design, implementation timing, maintenance and monitoring of the buffer can be addressed through future resource consenting. This will assist in avoiding or reducing adverse effects on wetland values and associated wetland avifauna.

Watercourse Classification

- 37 One watercourse is present on the site and is classified as a Highly Modified Stream under the 'Greater Wellington Regional Council Natural Resources Plan' (GWRC NRP).
- 38 I agree with the Applicant that the watercourse, in its current state, is a historically human created drain for the purpose of lowering local groundwater levels.
- 39 The watercourse has a natural source, being the QEII wetland. The QEII wetland forms part of the historic Waimeha Stream catchment. On this

basis, the watercourse meets the classification of a Highly Modified Stream under the GWRC NRP and associated GWRC guidance note on watercourse types⁵.

- 40 The classification of the watercourse as a Highly Modified Stream, means that it is a 'river' under the RMA. Consequently, any future realignment or loss of stream bed associated with the future development of the site may require a resource consent under the NRP, together with any offsetting required through the relevant consenting process.
- 41 The stream may provide habitat for native freshwater fauna, including indigenous fish species. Should reclamation or realignment be proposed as part of future development, a fish capture and relocation plan would be appropriate mitigation measure to address potential effects on native freshwater fish.
- 42 As the highly modified stream is hydraulically connected to the QEII wetland (See Figure 2 above, and Photographs 3 – 6 below), any reclamation, diversion, or modification of the stream has the potential to modify wetland hydrology. Such changes could adversely affect wetland function, facilitate the establishment of pest plant species, reduce ecological values, or result in a loss of wetland extent.
- 43 I understand that any modification of the stream (whether a permitted activity or not) that "results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland" is a non-complying activity under the NES-F. Accordingly, any future modification of the stream would need to demonstrate that adverse effects on wetland hydrology can be appropriately avoided, remedied, or mitigated.

⁵ GWRC (May 2021). *Watercourse types: Guidance Note. How to determine whether a watercourse is a river, ephemeral watercourse, highly modified river or stream, or artificial watercourse.* [Watercourse-categorisation-guidance-document-v2.pdf](#)

44 The detailed assessment of potential effects on stream and wetland values, together with any required mitigation, offsetting, or consenting requirements, can be appropriately addressed at the resource consent stage.



Photograph 3: Looking west along the watercourse, from the Ecological Effects Assessment showing the QEII wetland on the left (January 2024)



Photograph 4: Looking west along the watercourse from my site visit on 16 December 2024, showing a drop in water level within the stream correlating with a decrease in water level within the QEII wetland



Photograph 5: Birdseye view of wetland interior (QEII) showing a reduced water level on the 16 December 2024



Photograph 6: Showing the wetland interior (QEII) with reduced water level on 16 December 2024. Lemna disperma (OBL) – usually grows in standing water is evidence of a recent drop in water table.

Ecological Values and Significance

- 45 The Applicant's assessment identifies the main ecological values present or potentially present at the site.
- 46 I agree with the Applicant's assessment of ecological significance of terrestrial vegetation and habitats outside the QEII covenant area. I agree that no terrestrial vegetation or habitat outside the QEII covenant meet the NPS-IB Ecological Significance criteria.
- 47 The QEII covenant meets the NPS-IB Ecological Significance criteria. However, as noted by the Applicant, the area is already subject to legal protection through a QEII Open Space Covenant and is identified as a Significant Natural Area (ecological site K068) in the District Plan.

Fauna (Lizards and Birds)

- 48 No formal lizard survey was undertaken by the Applicant to identify whether lizards are present within the site. The Applicant notes that no lizards were observed during their investigations. However, lizards are highly cryptic and their absence during walkover surveys does not necessarily indicate they are absent from the site. Nevertheless, I agree with the Applicant that a lizard survey is not necessary for the purposes of a plan change request, given that site-specific effects can be appropriately assessed and managed at the resource consent stage.
- 49 I agree with the Applicant that the most likely lizard species to be present on the site is Northern grass skink (*Oligosoma polychroma*). Northern grass skink is a relatively common species within the Greater Wellington region and has been recorded in the Waikanae area, including within 1 km of the site.
- 50 The site is also within the known range of copper skink (*Oligosoma aeneum*), albeit towards the northern extent of its local range. Copper skink is common in modified environments, such as urban gardens, and

may be present under dense kaikyu grass, or within the root balls of harakeke or pampas grass. They can form small, aggregated communities (hotspots) where there is refuge from predation. It is a highly cryptic species that would not be observed during site walkovers.

- 51 I agree with the Applicant that any lizard population present is likely to be low abundance, reflecting the generally modified nature of the site and the limited extent of suitable habitat. I consider the site is unlikely to support a substantial, locally important population of an 'At Risk' of 'Threatened' listed species.
- 52 Overall, I consider that the level of information provided by the Applicant on potential lizard ecological values is sufficient for plan change purposes. Management of lizards can be appropriately identified and managed, if required, in the future and at the resource consent-stage of the development.
- 53 The Applicant undertook wetland avifauna surveys and did not detect the presence of any cryptic wetland avifauna. Based on the survey results, a resident population of wetland avifauna is unlikely to be present. However, I agree with the Applicant that there is the potential that the site may be part of a network of local sites used by mobile wetland bird and waterfowl species.
- 54 The removal of wetland habitat is not proposed as part of future development, and as such specific management measures are unlikely to be required to avoid injury or mortality of native waterfowl or wetland birds. The proposed 10 m wetland buffer planting is an appropriate measure to minimise disturbance effects associated with future development of the site and may provide some enhancement of habitat values.
- 55 New Zealand pipit were not recorded during site investigations. However, the NZ pipit is a highly mobile species and locally present. They are commonly found, and nest in, rank or ex-pastoral grasslands. In my

opinion, NZ pipit may utilise the site periodically and could be present nesting within the site if grassland habitat was left unmanaged.

- 56 Potential effects on NZ pipit can be appropriately managed at the time of development. I recommend that future resource consents include a condition requiring a habitat assessment and pre-clearance nesting survey. Such measures would be appropriate for managing potential effects on NZ pipit if present.

Hydrology and Wetland Function overview

- 57 Changes to the current hydrological regimes of the site could result in indirect adverse effects on wetlands (loss of extent or loss of values). This potential effect is identified by the Applicant in the EclA. However, Council requested further information on how these potential effects would be managed to mitigate effects on wetlands via the Ecology RFI.
- 58 The following statements outline areas where, in my opinion, there is remaining uncertainty on the proposed mitigation measures effectiveness in avoiding or mitigating potential effects on wetland extent and ecological values resulting from the development enabled by the plan change, both during earthworks and following completion of the development.
- 59 I consider these potential effects on wetlands could result from either of the following mechanisms:
- a) The anticipated large-scale earthworks may alter local groundwater conditions during construction and potentially affect groundwater levels or groundwater flow paths. This may result in temporary dewatering effects and, depending on the final landform and drainage design, may influence groundwater recharge or movement following development.

- b) Changes to surface water or ground water hydrology following development that may affect wetland extent, ecological function, or ecological value.

60 I note that this uncertainty does not arise because adverse effects have been demonstrated, but because there is currently insufficient information available to fully assess the hydrological functioning of the site and the effectiveness of the proposed mitigation measures in maintaining wetland hydrology and wetland values.

Wetland effects from earthworks

61 Large-scale earthworks are anticipated on the site, particularly in the low-lying areas on the 100 Te Moana Road property. These works are expected to involve excavation of unsuitable soils, filling with suitable material, and compaction of sands.

62 Through a request for further information (RFI) (Question 7), Council sought to clarify how the potential effects of the large-scale earthworks would be avoided, remedied or mitigated

63 The Applicant's response notes that the wetland likely receives both groundwater and surface water inputs; and that these inputs sustain the hydrological function for the QEII wetland. The RFI response also notes that *"The water level in the wetland will be controlled by the invert level of the open channel and outlet into the Waimea Stream. Earth working of the site or formalisation of the open channel will not alter this controlling invert level."*

64 While I agree with the above statement that the invert level should be maintained to avoid changes to wetland water levels, the response does not fully address the RFI request. My concern relates to potential for temporary lowering of groundwater level during earthworks resulting in the lowering of the groundwater table that sustains the QEII wetland.

- 65 Given the anticipated nature and scale of earthworks and the shallow groundwater conditions reported for the site, it is possible that temporary groundwater control or dewatering measures may be required during construction. If such measures are required, they could temporarily lower local groundwater levels and may result in effects on the wetland.
- 66 Despite the uncertainty on whether earthworks will result in the above effect on the QEII wetland, I acknowledge that a future resource consent is likely to be required for these earthworks. The specific construction methodology, any groundwater management measures, and the potential effects on the QEII wetland can therefore be assessed in detail at that time under the relevant statutory policy and rules.

Wetland effects resulting from permanent changes to groundwater

- 67 There is potential for the QEII wetland to be affected by changes to groundwater hydrology following development of the site.
- 68 The Applicant suggests a '*diffuse mitigation strategy*' where surface water run-off flows are to be recharged into groundwater as close as practicable to its source, with the objective of maintaining infiltration patterns similar to existing conditions. Notwithstanding this approach, and as noted in Mr. James Oakley's evidence, some change in local groundwater conditions may occur post-development of the site, although the extent of any change remains uncertain.
- 69 The groundwater and surface water hydrology inputs into the QEII wetland (K068) are likely hydraulically connected with the K107 wetland hydrology on the adjacent site (i.e. same catchment). As the wider catchment is expected to remain mostly unchanged, and provided groundwater levels and associated surface water inputs are maintained, then I expect that development of the site would not result in loss of wetland values or extent associated with a change in groundwater hydrology. However, there remains uncertainty as per Mr.

Oakley's evidence and therefore monitoring would be an appropriate measure.

- 70 Monitoring of groundwater levels before and after development would assist in determining whether development has resulted in a change to local groundwater hydrology. I recommend that this monitoring be coupled with an appropriate wetland monitoring programme to assess any associated changes in wetland vegetation and/or extent. This monitoring would be a requirement of any future consent process.
- 71 I note that the Awa Environmental RFI response dated 20 July 2025 recommends installation of standpipe piezometers across the site, along with regular groundwater level monitoring. I agree that these measures would provide useful information for future consenting and are appropriate methods for assessing potential and actual effects on wetland hydrology.
- 72 While temporary and permanent effects on groundwater hydrology may occur during or following earthworks, post developmental dewatering of the groundwater table is not anticipated of a high enough magnitude⁶ to materially impact the QEII wetland provided the proposed 'diffuse mitigation strategy' performs as intended and groundwater recharge is maintained.
- 73 Due to the uncertainty of the scale of these effects on the QEII wetland I recommended a groundwater and wetland monitoring programme. A groundwater and wetland monitoring programme would provide an appropriate mechanism for identifying any actual adverse effects on the QEII wetland. If monitoring identifies adverse effects arising from development, an adaptive management response, including remediation, offsetting or compensation where appropriate, should be

⁶ Given that the majority of the wider wetland catchment remains unchanged i.e. including catchment of Ecosite K170

available through future consent conditions. The suitability of such measures can be assessed during future consenting processes.

Stormwater and Overflow Pathways

74 The information provided by the Applicant includes a concept level stormwater management approach based on a '*diffuse mitigation strategy*', whereby stormwater run-off is returned to ground as close as practicable to its source as practicable through soakage devices. I agree that, if implemented as proposed, this approach is unlikely to result in a material change to the overall hydrological catchment functioning of the site with respect to ecological values, provided stormwater and overflow pathways continue to be directed to groundwater.

75 However, as Mr. Oakley notes, the SMP (Stormwater Management Plan) presents various options to manage stormwater, and notes that alternative management options (other than the '*diffuse mitigation strategy*') may be required to manage stormwater. Under alternative SMP scenarios there is the potential for groundwater drawdown and associated hydrological impacts on the wetland ecosystem. In principle, provided stormwater and overflow pathways are appropriately directed to groundwater recharge (i.e. '*diffuse mitigation strategy*' or other measures as outlined in Mr. Oakley's evidence), I consider it unlikely that the development would result in hydrological changes of a magnitude sufficient to result in adverse effects on the associated wetland ecosystem.

Reliance on Future Consenting and other Statutory approvals

76 The main potential ecological effects relate to freshwater values (streams & wetlands). While these effects have been identified and considered at a plan change level, the detailed assessment of site-specific effects and mitigation measures will be addressed through future regional plan consenting process. The main protections proposed at this plan change stage are retention of the existing QEII

wetland and inclusion of a PPC5 provision requiring a minimum 10 m wide planted buffer around the wetland margin.

- 77 The potential effects of future development of the site on wetland and stream values can be appropriately addressed during future consent processes. In my opinion, the policy and rule framework in GWRC NRP, NPS-FM, and NES-F, as outlined in Section 11 of Ms Pascall's Section 42A Report and the Section 6 of the plan change request document, provides a robust mechanism for identifying, assessing and managing potential effects on freshwater ecosystems.
- 78 Fauna (lizards and birds) are protected under the Wildlife Act (1953). Any direct effects on protected fauna potentially present can be appropriately mitigated through the implementation of fauna management plans. Any future fauna surveys should be undertaken during an appropriate time of year (breeding or active season) and in accordance with accepted best practice methodologies. It is appropriate to rely on the Regional Plan and District Plan provisions and future consenting in this regard.
- 79 If any works are proposed in the stream, potential effects on freshwater fish can be appropriately managed through measures such as undertaking works outside key migration periods and implementing a fish salvage and relocation plan where necessary. It is appropriate to rely on the Regional Plan and District Plan provisions and future consenting in this regard.
- 80 While I acknowledge the concerns raised in Submission S1 on habitat fragmentation and ecological connectivity for waterfowl and wetland bird species, I do not consider that a formal habitat corridor is necessary to address the ecological effects of PPC5. The landscape surrounding PPC5 is already highly fragmented. The retention of the QEII wetland and establishment of the proposed 10m planted buffer will maintain ecological connectivity values associated with the site and

provide ongoing stepping-stone habitat for wetland-associated avifauna.

Submissions

Submission S1

- 81 Submission S1 raises a number of ecological concerns associated with the proposed plan change, which can be summarised as follows:
- a) Fragmentation of ecological corridors that could result in effects on fauna, or contribute to the cumulative decline in native biodiversity; and
 - b) Soil changes, hydrological changes and an increase in impervious surfaces that could result in changes to stream function and wetland function.
- 82 With respect to matters raised in paragraph 81 a) the site may provide movement and foraging opportunities for avifauna. Future urban development enabled by the plan change would contribute to the fragmentation of the remaining habitats in the Paraparaumu–Waikanae area. However, the site is already within a highly modified environment, and in my opinion, the incremental contribution of PPC5 to habitat fragmentation is likely to be relatively small when considered in the context of the broader pattern of existing and ongoing urban development.
- 83 Current changes and historical changes in the wider environment are likely to have led to a reduction in local biodiversity as noted by the submitter. While PPC5 is expected to contribute incrementally to these cumulative effects, I consider the scale of that contribution to be relatively limited.

- 84 In the context of this Plan Change, the main ecological habitats of the site are protected in perpetuity (QEII covenant). Provided the PPC5 requirement for a minimum 10 m planted buffer is implemented and maintained through future development, the habitat is expected to continue providing ecological connectivity and stepping-stone habitat for wetland-associated bird species moving between nearby wetland ecosystems.
- 85 With respect to the matters raised in paragraph 81 b), namely potential effects associated with soil disturbance and hydrological change, these issues have been addressed in the relevant sections of my evidence relating to wetland hydrology, stream function and stormwater management.

Submission S3

- 86 The QEII National Trust raises concern (Submission S3) that the proposed land use change allowing future urbanisation, may introduce new ecological threats to the QEII covenant area and associated wetland habitats. Specific concerns include dewatering of the wetland and pond, and adverse effects on fauna associated with those habitats.
- 87 In particular, the QEII National Trust note that it is a breach of clause 4 of the covenant deed to undertake any activity that affects the flow, supply, quantity, or quality of the wetland or any waterbody. Clause 4 of the covenant deed provides similar protection to the relevant policy and rules outlined in the NES-F, NPS-FM and NRP.
- 88 As discussed in the evidence above⁷, if the proposed '*diffuse mitigation strategy*' is implemented effectively and maintains existing hydrological inputs, significant adverse effects on the flow, supply, quantity, or quality of water supporting the wetland are not anticipated.

⁷ Refer to points 68 - 73

- 89 The detailed assessment of these hydrological risks can be addressed during future resource consent processes. Based on the information currently available, and provided groundwater recharge pathways are maintained and the watercourse remains substantially unchanged in its hydraulic characteristics (including depth, size and invert level), I do not anticipate material changes to the hydrological functioning of the QEII wetland, including the pond area.
- 90 Beyond the hydrological matters discussed above, it is not entirely clear what other 'new ecological threats' are being referred to in the QEII National Trust submission. Potential concerns associated with urban development could include increased weed invasion, garden escape species, pest animal pressure, or increased disturbance to wetland habitats. In my opinion, such matters can generally be identified and managed through development design, ecological management measures, and future consenting processes where necessary.

Conclusion on potential effects and effects management

- 91 The main ecological values present on the site are the QEII wetland and the highly modified stream.
- 92 The wetland provides habitat for waterfowl, and potentially for native wetland birds. The wetland values on site are protected by an existing QEII covenant. Further protection is proposed by maintaining hydrological inputs of the wetland and a PPC5 provision requiring a minimum 10 m wide planted buffer around the QEII wetland (including the pond area). The detailed assessment and management of residual effects arising from future development on wetland values can be addressed and managed through future resource consent processes.
- 93 The highly modified stream provides limited ecological habitat for freshwater fauna but remains hydraulically linked to the wetland.

- 94 While some uncertainty remains regarding the effects of future development on groundwater hydrology, particularly in relation to wetland loss of value/extent; any potential effects can be appropriately managed by future resource consent processes.
- 95 Relevant planning and policy mechanisms through the GWRC NRP, the NPS-FM, and the NES-F guide the assessment and management of effects on wetlands and streams. In my opinion, these frameworks provide a robust basis for assessing future development proposals and ensuring that potential adverse effects on freshwater ecosystems are appropriately considered during future consenting.
- 96 Provided appropriate survey, avoidance, mitigation, and management measures are implemented through future consenting, direct effects on fauna (lizards, avifauna, fish) can be appropriately managed through future consenting processes.
- 97 In my opinion, the potential ecological effects associated with future earthworks and development can be appropriately identified, assessed and managed through future consenting processes. In my opinion, the proposed rezoning and the potential ecological effects are acceptable at the plan change level, subject to inclusion of a PPC5 provision requiring a minimum 10 m planted buffer around the entire QEII wetland (including the pond).

Date: 20 August 2026



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