

ENVELOPE

MT WELCOME, PUKERUA BAY, PORIRUA

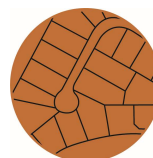
Tiaki Wai section 53 comments – response schedule

PROJECT	Mt Welcome, Pukerua Bay, Porirua	ENVELOPE REF	1753-02
APPLICATION	FTAA-2603-1181	DATE	31 July 2026
COMMENTS	Comments on FTAA-2603-1181 – Mt Welcome, Pukerua Bay, Porirua. Tiaki Wai, Version 1.0 (Final), 31 July 2026. Authors David Wilson (stormwater treatment and hydrological control) and Zeean Brydon (water, wastewater, flood hazard, retention wetlands, stormwater reticulation), Consultant Peer Reviewers, Tiaki Wai Land Development Consenting.		
PREPARED BY	Envelope Engineering Limited		

Part 1 – Fundamental consent level matters

Matters Tiaki Wai considers cannot be resolved through minor wording changes or deferred to Engineering Approval, and should be resolved before consent is granted.

REF	MATTER RAISED BY TIAKI WAI	SOURCE	ENVELOPE RESPONSE
F1	Stormwater management – water sensitive design Water sensitive design is not simply the selection of stormwater management devices; it is a design process that should influence the location, layout, scale and form of development to avoid or minimise stormwater impacts, with residual effects mitigated through treatment and hydrological control devices. No clear options assessment has been identified. The application does not appear to test alternative treatment configurations, rainwater harvesting at different scales, infiltration opportunities where geotechnically feasible, or catchment-scale trade-offs between source control, distributed devices and centralised stormwater management areas. The dismissal of rainwater harvesting as “ineffective for a single catchment” is not supported by sufficient engineering analysis. Required: an options assessment testing alternative treatment configurations, rainwater harvesting at different scales, infiltration and catchment-scale trade-offs, with the final design tied to enforceable impervious-area assumptions secured through consent notices so later private development cannot undermine the public system.	§5.1.1, paras 62-65; App A F1	Given the site's topographical and geotechnical constraints, many WSUD methods are excluded. What's been proposed is fit for purpose for the site, backed by technical assessment and modelling. An options assessment has been prepared within the SMP, with a more detailed version updated and appended this response



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F2	Stormwater management – treatment and raingardens The SMP relies on pollutant removal rates from the Water Sensitive Design for Stormwater: Treatment Device Design Guideline, including high removal rates for TSS, zinc and copper. Tiaki Wai does not accept those rates can be relied upon unless the raingardens are sized, configured and maintained in accordance with that guideline. Current sizing gives a filter media footprint of approximately 1.3% of contributing impervious area, against the guideline requirement of 2% of contributing untreated impervious area (section 4.3.2.1). Required: resize the raingardens to 2%, or provide a site-specific, evidence-based assessment demonstrating equivalent or better contaminant removal performance. Without it the claimed removal rates cannot be relied upon for assessing effects on Te Awarua-o-Porirua Harbour, Taupō Stream or Kakaho Stream. Tiaki Wai would not support vesting of the raingardens or transfer of the operational stormwater discharge consent until resolved. Resizing may affect the earthworks design, road layout and scheme plan, which could not be accommodated by condition alone and may require a s127 application. Tiaki Wai treats this as fundamental, to be resolved before consent is granted.	§5.1.2, paras 66-69; App A F2	The raingardens have been designed using a site-specific treatment methodology rather than the Guide's simplified 2% sizing relationship. The attached technical memorandum sets out the design methodology and demonstrates that the proposed devices will achieve the required treatment performance, including treatment of at least 85% of mean annual runoff volume and the required copper and zinc load reductions. It should also be noted that the 2% relationship applies to the contributing untreated impervious area, rather than the total imperviousness area. Section 4.3.2.1 of the Guide states: <i>"Bioretention devices must be sized based on a relationship of the filter media area being 2% of the contributing untreated impervious area"</i>
F6	Stormwater management – Schedule 29 Stormwater Impact Assessment Under the Natural Resources Plan a Stormwater Impact Assessment prepared in accordance with Schedule 29 is the mechanism through which treatment performance, hydrological control and receiving-environment outcomes are assessed together against the objectives of the Plan and the catchment-wide reduction targets of the Te Awarua-o-Porirua Whaitua Implementation Programme. No accepted Schedule 29 assessment has been identified, and the SMP does not appear to have been developed from one. Required: an accepted Schedule 29 Stormwater Impact Assessment must form the basis of the revised SMP, developed with PCC, Greater Wellington, Te Rūnanga o Toa Rangatira and Tiaki Wai.	§5.1.6, paras 78-79; App A F6	Section 11 of the SMP already contains a Stormwater Impact Assessment prepared in accordance with the information requirements of Schedule 29. Table 14 provides a direct cross-reference to the relevant site and catchment assessments, modelling, treatment and hydrological controls, receiving-environment effects, maintenance requirements and cultural considerations. The Stormwater Impact Assessment has therefore already informed the proposed stormwater management approach. Schedule 29 does not require the assessment to be jointly developed with, or accepted by, PCC, Greater Wellington, Tiaki Wai or Te Rūnanga o Toa Rangatira. No separate assessment or revision of the Stormwater Impact Assessment is considered necessary



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F7	Stormwater management – flood modelling Modelling is limited to the site and immediate surrounds on the basis that peak-flow neutrality is sufficient to manage flood risk in the receiving catchment. Volume control is not provided, and the Applicant's modelling indicates a 40% increase in mean daily discharge to the Taupō Stream and increases of 14,761 m³ and 28,129 m³ (12.9% to 13.7%) in the 10% AEP and 1% AEP plus 20% climate change events respectively. The approach ignores the potential impact of increased volume on the Taupō Swamp and downstream flooding. The Tiaki Wai flood modelling team raise technical concerns on: how the difference in vertical datum was managed; how the 21 sub-catchments were changed to drain to a 2D point source; the basis for selecting curve numbers, initial losses and calculating time of concentration; and how hydrological parameters were established for the 586 sub-catchments added to the model. A legend or key is requested on Figure 19 to show the 50% and 100% impervious zones. Catchment errors noted: catchments discharging to the Kakaho East Stream are not discussed; stormwater discharge from Lots 733 to 744, part Lot 2020 and Lots 767 to 772 is not included in the post-development catchment areas and is not provided with any stormwater management; Lots 783 to 792 and part Lot 2021 are incorrectly included and should be fully excluded as they discharge to the Kakaho East Stream, and are also not provided with any stormwater management. It is also unclear how sedimentation of the retention wetlands has been allowed for in the flood modelling and wetland sizing, noting Greater Wellington's advice that historical flooding in similar local catchments has generated high sediment loads and that ongoing deposition should be expected. Required: updated flood modelling addressing the above and extended downstream of the Taupō Swamp to demonstrate no increase in flooding in the SH59, James Street and St Theresa's Church and School catchments. Tiaki Wai does not consider this can be resolved by minor wording changes or deferred entirely to Engineering Approval; granting consent ahead of updated modelling may require scheme changes and potentially a s127 application.	§5.2.1, paras 80-88; App A F7	The 2023 LiDAR and proposed surface were converted to WGN1953 using the LINZ datum conversion raster. The 21 sub catchments were redirected to 2D point sources because the original river reaches were based on superseded 2013 LiDAR and no longer reflected the current overland flow paths. Curve numbers, losses and times of concentration were derived from the Wellington Water hydrology guidance, land use, slope and flow-path length, and applied consistently across the additional sub catchments. The identified lots discharge to the Kakaho East Stream and do not form part of the Taupō Stream flood model. They represent only a very small proportion of the wider Kakaho East catchment and would not result in a material change to modelled flood depths. Separate flood modelling of these lots is therefore not considered necessary. No change to the proposed stormwater management approach is considered necessary. The flood assessment uses a cut-off model and demonstrates that the effects of the development have been mitigated at the model boundaries. This is independently supported by the attenuation design, which confirms that post-development peak flows are controlled to pre-development levels. Mt Welcome is located near the top of the catchment. The proposed attenuation will delay peak discharges and is therefore expected to assist, rather than worsen, downstream flood conditions.
F8	Stormwater management – flood hazard cumulative effects The flood modelling considers the site only and does not address cumulative effects, which matters given existing flooding experienced downstream of the Northern Growth Area.	§5.2.2, paras 89-90; App A F8	The flood modelling demonstrates that runoff from Mt Welcome is managed within the development, with no increase in peak discharge or flood effects at the NGA model boundaries.



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	Required: flood modelling assessments for Mt Welcome, Mt Welcome with the Muri Road block, and the combined context including Plimmerton Farm Stage 1 and fully developed NGA.		A catchment-wide model of the entire Northern Growth Area is not considered necessary where the development effects can be assessed by comparing pre- and post-development boundary conditions at the relevant downstream locations. This provides a clear basis for demonstrating that Mt Welcome will not increase downstream flood risk. Mt Welcome is located in the upper catchment, and the proposed attenuation devices will reduce and delay peak discharges. This is expected to assist downstream flood management, unlike attenuation near the lower end of a catchment, such as Plimmerton, where delayed discharges may worsen flooding.
F9	Retention wetlands – stormwater options assessment No clear options assessment or safety in design assessment has been identified. The application does not appear to test alternative stormwater detention at different scales, locations or configurations (on-lot devices, oversized pipes, dry basins in isolation or combined), or catchment-scale trade-offs between source control, distributed devices and centralised stormwater management areas. The approach relies on significant earthwork embankments. The application states the consequence of embankment failure is negligible, but this does not appear to consider the ecological, environmental and operational costs of system failure. Greater Wellington advises it is industry best practice to consider failure modes when designing flood protection structures, and that breach and over-design event scenarios should be provided. Given the elevation and location of the wetlands upstream of known flood-prone areas including the Plimmerton roundabout, adverse downstream or consequential effects of dam failure should be assessed and presented in the options assessment to support emergency management planning. Required: a detailed optioneering report to support the design strategy and the site Stormwater Management Plan.	§5.3.1, paras 91-93; App A F9	An options assessment has been prepared within the SMP, with a more detailed version updated and appended this response
F11	Retention wetlands – maintenance requirements The proposal does not appear to account for ongoing maintenance of the retention wetlands. Greater Wellington, as owner of similar retention and detention dams, advises they require ongoing maintenance including clearance of post-flood debris and sediment. The Applicant stated at the meeting of 16 June 2026 that these areas will not	§5.3.3, paras 99-104; App A F11	Maintenance access has been designed for all raingardens and to the retention wetlands, in accordance with Tiaki Wai's guidance, we've increased this from 3m to 4m wide. Sediment is managed within the raingardens prior to discharge, which have been designed with maintenance access. Outlets downstream of the raingardens are not expected to carry sediment,



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	require desilting; that is not supported by the flood modelling, wetland sizing or management experience. The SMP provides 3.0 m maintenance access to and across the embankments. Tiaki Wai considers 3 m and access to the top of embankments – elevated between 0.9 m and 3.7 m above top water level and up to around 7 m above the outlet structures – is not sufficient. A minimum 4 m wide access corridor is required under the Water Sensitive Design for Stormwater: Treatment Device Design Guideline to accommodate maintenance vehicles and excavators for inspection, sediment removal and vegetation management. Required: an access assessment for each stormwater device in the updated SMP, confirming safe operating conditions – working areas not immediately adjacent to steep fill or cut slopes, and vehicle access to all inlets, outlets and pre-treatment devices, and to the wetlands for desilting and plant maintenance within the reach of standard construction and maintenance equipment. Tiaki Wai will not support vesting where adequate access cannot be demonstrated.		and would not constitute a 4m access trail to everyone small raingarden outlet given the terrain of the site.
F12	Retention wetlands – pre-treatment The application appears to assume all pollutants will be removed by the raingardens and does not discuss the need for pre-treatment upstream of the retention wetlands. The raingardens and retention wetlands serve different roles in the treatment train, and diverting and treating water quality flows does not negate the need for pre-treatment upstream of the wetlands. Required: pre-treatment in the form of a gross pollutant trap and/or sediment forebay upstream of all stormwater management devices, with appropriate access, to protect the wetlands and receiving environment from sediment, gross pollutants and coarse material in bypass flows. Tiaki Wai does not consider this can be resolved by minor wording changes or deferred entirely to Engineering Approval, and recommends it be addressed before consent is granted.	§5.3.4, paras 105-107; App A F12	The raingardens provide upstream treatment and are designed to achieve approximately 90% TSS removal before flows enter the retention wetlands. Gross pollutants and coarse sediment will also be intercepted through the road drainage network, catchpits and raingarden inlet structures. Accordingly, the retention wetlands are not relied upon as the primary water quality treatment device. The ecological assessment also confirms that sediment generation from areas outside the proposed stormwater treatment system will be negligible. On this basis, additional gross pollutant traps or sediment forebays upstream of every wetland are not considered necessary and would provide limited additional treatment benefit.
F13	Rain Garden 01 within the Retention Wetland B inundation zone Rain Garden 01 is placed within the stormwater storage associated with Wetland B, giving it a 1% chance of inundation in any year. While the Treatment Device Design Guideline does not prohibit raingardens within inundation areas, it is not clear why separation cannot be achieved on a greenfield development. Co-location is not best practice and will compromise raingarden performance in large events and increase long-term operation and maintenance costs – scour and	§5.3.6, paras 113-116; App A F13	RG-01's level is set by the stormwater pipe cover requirements – the pipe between SWMH 2-2 and 3-1 needs at least 870 mm of cover, and this drives the raingarden's invert level. RG-01 could be raised using a bubble-up outlet into the raingarden, but this would create permanent water within the stormwater pipe system, likely requiring additional maintenance and affecting the pipe network's hydraulics



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	displacement of surface mulch and filter media, inundation stress on planting, and clogging of the filter media and stormwater structures. Required: an updated design locating Rain Garden 01 clear of the 1% AEP flood hazard. Tiaki Wai does not consider this can be deferred to Engineering Approval, and would not support vesting of the raingarden in its current location.		
F14	Retention Wetland D Wetland D is placed above the future Muri Road residential development. Tiaki Wai considers it should be classified as a constructed wetland rather than a natural inland wetland, as it does not receive any natural flows. It is not required for treatment purposes, is elevated above residential lots, and is not a natural wetland, so is not considered best practice for the location and outcomes required. Required: an updated design changing Wetland D from a ponded water body to a dry detention basin. Tiaki Wai would not support vesting of Wetland D as currently designed.	§5.3.7, paras 117-120; App A F14	Wetland D includes permanent ponding to provide the required retention function and maintain discharge to the existing downstream drain at pre-development rates. Converting it to a dry detention basin would not provide the same retention outcome. The wetland is located within an existing gully. Any future development of the adjoining Muri Road land would require substantial filling, stream piping or culverting, and integration with the future stormwater network to create buildable platforms. Accordingly, Wetland D would not remain elevated above future residential lots as suggested. The proposed location and form of Wetland D are therefore considered appropriate, and no change to a dry detention basin is proposed.
F15	Retention wetlands – staging Retention wetlands A to E are to be established in Stages 4B, 5A, 21, 10 and 20 respectively. Except for Wetlands B and D, this means Wetlands A, C and E are delivered after completion of significant upstream residential stages (Wetland A) or all upstream residential stages (Wetlands C and E). Stages 20 and 21 are the last two stages and contain no residential or commercial lots or associated infrastructure – they exist solely to establish the wetlands, creating a delivery risk that the wetlands are not established if the developer's financial capacity is reduced or exhausted. The SMP does not appropriately address the effects of staged stormwater delivery, particularly where retention wetlands are not established until after the catchment is fully developed. Required: the SMP must demonstrate how stormwater management, and stormwater neutrality, will be secured at each stage. Tiaki Wai considers this will require a change to the scheme plan and staging.	§5.3.5, paras 108-112; App A F15	The retention wetlands will be constructed and operational as required to maintain hydraulic neutrality throughout the development. Vesting is proposed once the contributing catchments are substantially developed. Until that time, the wetlands will remain under the ownership and maintenance responsibility of the consent holder. The staging provides flexibility in the sequencing of works but will not compromise the required stormwater management or hydraulic neutrality outcomes.



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F16	Stormwater reticulation – outfalls The proposal relies on stormwater discharge via overland flow below the housing development. The information on erosion and sediment control at outfalls is generic and not specific to outfall locations, discharge velocities or the receiving environment (slope and soil conditions). In a number of locations concentrated stormwater is introduced where it would not typically be concentrated, rather than into existing ephemeral channels. The Geotechnical report records surficial soils of loess, alluvium, colluvium and residual soils from 1 m to 5 m and in places up to 16 m depth; evidence of multiple shallow soil landslides on slopes greater than 25 degrees; that overland flow should be directed away from existing slopes to reduce ponding and erosion leading to slope stability concerns; and that loess soils may require specific design. Specific concerns: outfalls below Lots 1311 and 1321 create point discharges at the property boundary with concentrated flows onto land outside the development; the Lot 1311 outfall discharges uphill of residential lots on the Muri Road Block; the outfall below Lot 1310 increases flood depths and velocities on property outside the subdivision; outfalls from Stages 8, 11 to 15, 16A and 16B, and 17 to 19 all discharge to Lot 5003, understood to remain private operational farmland; and only pedestrian access is provided along the pipe route to all outfall locations. Porirua City Council, as owner of similar assets, advises that even relatively small stormwater catchments can cause significant erosion, sediment generation, slope instability, infrastructure damage and ongoing maintenance liabilities despite engineered erosion protection, and that these issues may not become apparent until years after construction. Required: an updated SMP demonstrating outfalls that minimise scour and erosion in the receiving catchment and risk to downhill property – no concentrated discharge at the development boundary; no discharge to land uphill of any current or future residential development; no increase in off-site flood hazard; all outlets extended to the bottom of the gully or to an ephemeral watercourse; and appropriate access for ongoing inspection, operation and maintenance.	§5.4.1, paras 121-126; App A F16	All outfalls discharge to existing gullies, which is deliberate and maintains the existing hydrology – these outlets are designed to match existing flow conditions within the gullies and need to remain in these locations. As set out in the SMP, all outlets will be designed to prevent scour and erosion of the banks.
F17	Stormwater reticulation – scheme staging The initial subdivision creates superlots 5000, 5001, 5002 and 5003, with Lot 5003 a balance farm lot of 105.5476 ha. A number of stormwater outfalls are required within Balance Lot 5003. Subdivision of Lot 5003 will create issues for delivery of those	§5.4.2, paras 127-129; App A F17	Easements in gross covering future stormwater outlets will be created as part of the superlot subdivision and registered on the balance Lot 5003 at this time. Refer to scheme plans 1753-02-1004-1009 R2



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	outlets, requiring negotiation with the owner of Lot 5003 to secure outfalls, accesses and easements – securing them after subdivision represents a risk. Required: a change to the scheme plan and staging that retains the outfalls, accesses and easements within the subdivision to secure the stormwater reticulation.		
F18	Wastewater – modelling The application is presented on the basis that the development does not increase wastewater overflows and that mitigation (trunk main upgrades and on-site storage) is not required until the Muri Road Block comes forward, with further review of the modelling at Stage 10. Tiaki Wai does not consider the modelling can be relied upon, or that further review can be deferred to Stage 10. The model only considers the trunk network as far as Pump Station 13 (just south of the SH59 / James Street roundabout) on the basis that the pump rate does not change; this ignores that wastewater volume and therefore pump duration will increase, with potential impacts on downstream overflows. It also excludes Muri Road Stage 1 and Plimmerton Farm Stage 1, so cumulative effects across the NGA Structure Plan area are not assessed. The application also assumes that surcharge of the trunk main is acceptable without reviewing as-built data to confirm the actual overflow risk, and that surcharging will not affect the Ulric Street or Plimmerton Farm Stage 1 trunk main connections. The proposed mitigation is trunk main upgrades plus on-site storage of between 380 m³ and 1,940 m³ within Stage 1, Lot 1300, but no concept design has been provided to demonstrate how that volume is achieved on Lot 1300. Required: updated wastewater modelling before consent, demonstrating the impact on the Porirua Harbour and Taupō Swamp and Stream, with an updated wastewater strategy and concept design demonstrating that any mitigation required can be achieved, subject to Tiaki Wai approval. Granting consent may require changes to the scheme and potentially a s127 application.	§5.5.1, paras 130-137; App A F18	We have proposed a condition to provide modelling outputs at stages with an agreed strategy with Tiaki Wai. The model is always changes and has changed multiple times during our assessment The pump rates used in our model reflect a network limitation set by Wellington Water, not an assumption of our own. Wellington Water confirmed reduced peak rates of PS13 = 68 L/s and PS08 = 62/20/17 L/s (down from the earlier design figures of PS13 = 30+71 L/s and PS08 = 50/25/37 L/s), and advised the PS13 reduction is deliberate, put in place to reduce public health risk from a known uncontrolled overflow at Mana Esplanade (see Appendix 5 correspondence). Our assessment and modelling has been carried out to that boundary condition, as set by WWL as a limitation. Working to these reduced rates has already significantly reduced the available capacity in the bulk network and in our design. We also understand there are a number of existing issues in the Porirua wastewater network that should be addressed through Tiaki Wai's strategy for the wider network, rather than placed on the applicant. On the as-built point: the wastewater model is Wellington Water's own calibrated model, provided to us for this assessment, and Wellington Water directed that calibrated flows be used and compared against design flows rather than a design storm. There are known inconsistencies between the model and the GIS as-built records, but because the model is calibrated against monitored flows it has governed our design and has proven more reliable than the as-built records in this instance.



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F19	Wastewater – cumulative effects The wastewater modelling does not include the adjacent Muri Road Block, Plimmerton Farm Stage 1 or the wider Northern Growth Area, all discharging to the same sensitive receiving environments. Required: wastewater assessments for Mt Welcome, Mt Welcome with the Muri Road Block, and the combined context including Plimmerton Farm Stage 1.	§5.5.2, paras 138-139; App A F19	The Muri Road Block has been included in the wastewater modelling. Plimmerton Farm Stage 1 has also been considered based on its proposed storage tank and pumping configuration; however, its ultimate build-out and development timing remain uncertain. A condition is proposed requiring progressive wastewater modelling as development within the Northern Growth Area proceeds. This will confirm available network capacity and ensure that each stage does not increase the frequency or volume of overflows within the downstream bulk wastewater network.
F20	Water reticulation – Gray Street connection A connection to the existing water reticulation in Gray Street is required in the short term to allow development ahead of the NGA 3.7 ML reservoir, and in the long term to provide resilience to Stages 1 to 5A. The alignment provided on 2 July 2026 does not take into account the public wastewater main within the highway berm or the required clearances between the wastewater main, water main and the Significant Natural Area. Required: further information before consent demonstrating the connection can be secured within the State Highway corridor with clearance to the public wastewater main and no impact on the SNA. Tiaki Wai does not consider this can be deferred entirely to Engineering Approval; a s127 may be required if the connection cannot be secured without impact on the SNA.	§5.6.1, paras 140-144; App A F20	Refer to Sheet 5001, which shows the proposed Grey Street connection and confirms the required clearance from the wastewater main and the SNA.

Part 2 – Consent level, engineering approval and consent notice matters

Matters Tiaki Wai considers can be secured through conditions, Engineering Approval or consent notices, but which still require a design or drafting response.



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1	Stormwater – raingarden maintenance access The SMP provides 3.0 m wide maintenance access at a maximum gradient of 1V:6H to all centralised bioretention devices. Tiaki Wai considers 3 m insufficient; a minimum 4 m wide access corridor is required to accommodate maintenance vehicles and excavators used for media replacement and inspection of vested bioretention devices. Required: an access assessment for each raingarden concept design in the updated SMP, confirming safe operating conditions – working areas not immediately adjacent to steep fill or cut slopes, raingarden plan dimensions achievable within the reach of standard construction and maintenance equipment, and earthworked platforms providing acceptable construction and maintenance access. Tiaki Wai will not support vesting where adequate access cannot be demonstrated.	§6.1.1.1, paras 145-146; App A 1	Maintenance access has been designed for all raingardens and to the retention wetlands, in accordance with Tiaki Wai's guidance, we've increased this from 3m to 4m wide. The SMP will be updated with reflect the changes.
2	Stormwater – joint access lot (JOAL) classification The concept servicing drawings show raingardens and stormwater infrastructure treating runoff from Jointly Owned Access Lots as part of the public network. JOALs are private accessways serving multiple lots and their drainage is typically private. Tiaki Wai supports private infrastructure managing JOAL stormwater, but private systems cannot form part of the public network without a formal agreement, and Tiaki Wai may not accept operational responsibility for treatment of private drainage within a public asset. Required: clearly delineate the boundary between public and private stormwater infrastructure, confirm the drainage classification of all JOALs, and demonstrate that any device proposed for vesting treats only public-catchment runoff. Where a private component is unavoidable, a servicing arrangement acceptable to Tiaki Wai must be agreed before Engineering Approval. The current arrangement may not be acceptable and will require amendment in the updated SMP.	§6.1.1.2, paras 147-148; App A 2	Where a JOAL has been designed, the stormwater network and treatment devices will be privately held. These may be proprietary devices rather than raingardens
3	Stormwater – imperviousness assumptions There is an internal inconsistency in the imperviousness assumptions across the application. The hydrological model adopts impervious fractions of 75% for residential lots, 85% for roads and 90% for the commercial area, while the raingarden sizing calculations use materially lower effective fractions averaging approximately 47% for residential lots and 68% for roads. The effect is that raingarden areas are sized on a smaller impervious base than the assumptions governing the hydrology model, so the undersizing identified under F2 is more significant than it first appears. No landscaping plans have been provided to verify	§§6.1.2 and 6.2.2, paras 149-150, 158; App A 3	The 75% lot imperviousness assumption is a conservative catchment-level allowance adopted for pond sizing and hydraulic and flood modelling. It is not the basis for sizing individual lot raingardens. In accordance with the Wellington Water WSD guideline, lot raingardens are sized based on the contributing untreated impervious area draining to the device.



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	the pervious area assumptions or confirm that water sensitive urban design and flood modelling outcomes will be achieved on individual lots. Required: a single, enforceable impervious-area assumption underpinning all elements of the stormwater management design, secured by consent notices on individual lot titles.		The current design allows for 200m ² of roof and 36m ² of driveway per lot, compared with the anticipated 160–180 m ² dwelling typologies.
4	Stormwater – zinc and copper building materials Source-control measures are considered necessary to protect the receiving environment and ensure long-term performance of the stormwater system. No restrictions on exposed zinc or copper building materials are proposed, and the matter is not addressed in the PCC District Plan. Required: restrictions on exposed zinc, galvanised steel and copper roofing, cladding and spouting materials, consistent with Plan Change 1 to the Natural Resources Plan, secured by consent notice. Tiaki Wai also seeks consent notices securing maximum impervious-area assumptions, rainwater harvesting requirements and non-potable reuse connections.	§6.1.3, paras 151-152; App A 4	Agreed. No comment
6	Stormwater – flood management during staging The application states the retention wetlands will come forward during the earthworks stages as functional structures to ensure neutrality at each stage. There is discrepancy between the earthworks staging (ECMP Table 5), the earthworks plans and the staging plans – for example Wetland E is not delivered until Stage 6B, yet under ECMP Table 1 earthworks Stage 6A (scheme plan Stages 11, 13 and 14) is delivered ahead of the wetland; and Stage 3 earthworks include part of scheme plan Stage 12 with a potential change of stormwater runoff catchment, even though Stage 12 is not delivered until Stage 6B. Required: further detail and co-ordination of the scheme plan, earthworks plans and earthworks construction management plan to demonstrate stormwater neutrality at each stage. Tiaki Wai considers this is largely co-ordination and timing and can be resolved by conditions requiring detailed earthworks plans, an updated and co-ordinated ECMP and staging plan for the entire development at Engineering Approval and before any works on site.	§6.2.1, paras 153-157; App A 6	The retention wetlands will be constructed and operational as required to maintain hydraulic neutrality throughout the development. Vesting is proposed once the contributing catchments are substantially developed. Until that time, the wetlands will remain under the ownership and maintenance responsibility of the consent holder. The staging provides flexibility in the sequencing of works but will not compromise the required stormwater management or hydraulic neutrality outcomes.
7	Stormwater reticulation – engineering approval and vesting The proposed layout appears generally consistent with the Regional Standard for Water Services. Tiaki Wai considers the reticulation details, other than the matters raised elsewhere, can be addressed through Engineering Approval with conditions for design,	§6.4.1, para 161; App A 7	Agreed. No comment



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	implementation and post-construction testing of the network to demonstrate appropriate stormwater servicing to each lot, meeting Tiaki Wai's Asset Owner Requirements.		
8	Wastewater – gravity versus pumped connections The layout requires six public pump stations, including PSI providing primary storage for wastewater mitigation, with a further 63 lots serviced by private low-pressure sewer pumps connected to public low-pressure mains. The application does not appear to include on-lot wastewater modelling or an optioneering report justifying the design and demonstrating the constraints and opportunities to minimise the lots requiring pumped systems. Required: a wastewater servicing assessment supported by modelling, demonstrating the number of lots requiring pumping has been minimised, provided for the entire development at Engineering Approval and prior to earthworks commencing on any stage, approved in writing by Tiaki Wai, together with consent notices requiring on-lot wastewater pumping. Tiaki Wai would not support vesting of the public wastewater network without it.	§6.5.1, paras 162-165; App A 8	All lots within the development have been included in the comprehensive wastewater servicing assessment and associated modelling. The number of public pump stations and lots requiring private pumping has been minimised as far as practicable. The remaining pumped catchments are dictated by the site topography and cannot reasonably be serviced by gravity. During the design process and early meetings, Tiaki Wai advised that low-pressure sewer systems may be accepted for catchments of fewer than 20 lots where a public pump station is not justified. The proposed design has been developed in accordance with this guidance.
9	Wastewater reticulation – engineering approval and vesting The proposed layout appears consistent with the Regional Standard for Water Services. Tiaki Wai considers the reticulation details can be addressed through Engineering Approval with conditions for design, implementation including connections, and post-construction testing to demonstrate appropriate wastewater servicing to each lot, meeting Tiaki Wai's Asset Owner Requirements for public pumping stations.	§6.5.2, para 166; App A 9	Agreed. No comment
10	Wastewater – development constraints on titles Consent notices are sought to secure the development restrictions associated with the wastewater mitigation design – one dwelling per lot – and to require on-lot mitigation (wastewater pumping) where needed, subject to the outcome of the wastewater strategy. Tiaki Wai supports conditions advising future lot owners of the need for on-lot pumping where required.	§6.5.3, paras 167-168; App A 10	Agreed. No comment
11	Water supply – sustainable water use Tiaki Wai has not been able to identify how the application incorporates water conservation measures to preserve water resources and their mauri. Given the guidance in the Whaitua Implementation Programme and Plan Change 1 and previous work in this	§6.6.1.1, paras 169-172; App A 11	No planning provision or water supply engineering standard has been identified that requires on-lot rainwater harvesting or a private non-potable water supply system for this development.



REF	MATTER RAISED BY TIAKI WAI	SOURCE	ENVELOPE RESPONSE
	catchment, the application should be revised to include on-lot rainwater harvesting for non-potable reuse. Required: on-lot rainwater harvesting and water metering conditioned, with a preliminary design provided at Engineering Approval demonstrating the principles of the system for future lot owners, and a consent notice on each title requiring implementation of the approved solution at the time of building construction. Without water conservation, Tiaki Wai would not support connection of Mt Welcome to the public water supply network.		The development has been designed to connect to the public potable water supply in accordance with the applicable servicing standards. While rainwater harvesting may be encouraged as a voluntary water-conservation measure, this does not create a mandatory requirement for tanks, private reuse systems, consent notices or preliminary designs. Accordingly, on-lot rainwater harvesting has not been included in the proposed water supply design.
12	Water supply – non-compliant water pressures 29 lots at the southern end of the Lucas Block have a modelled pressure of 24 m, just below the 25 m required by the Regional Standard for Water Services, and 3 lots have modelled pressures of 90 to 96 m, slightly above the 90 m maximum. The application does not appear to include water modelling justifying the design, or a water services strategy demonstrating the opportunities and constraints to minimise non-compliant pressures. Required: a water servicing assessment supported by modelling demonstrating that the number of lots without compliant pressures has been minimised, for the entire development at Engineering Approval and before earthworks on any stage, approved in writing by Tiaki Wai, with consent notices requiring on-lot mitigation where compliant pressures cannot be met. Tiaki Wai would not support vesting of the public water network without it.	§6.6.1.2, paras 173-176; App A 12	The proposed reservoir is located immediately adjacent to the development, resulting in minimal network headloss. The Regional Standard allows pressures as low as 10m for the highest properties adjacent to a reservoir. Accordingly, the modelled pressure of approximately 24 m does not warrant on-lot boosting or consent notices. The three lots modelled between 90 m and 96 m represent a minor and localised departure of no more than 6m. The network has been configured to minimise non-compliant pressures as far as practicable. The remaining departures arise from the site topography and servicing constraints, and no practicable alternative network arrangement is available to service these lots. No change to the proposed design is therefore considered necessary.
13	Water supply – network resilience The application correctly identifies the network resilience constraint limiting properties serviced via a single connection to 50, and the proposed interim secondary connection for the initial stages (up to 200 lots) via the Bulk Water Main extension is acceptable to Tiaki Wai. Required: a secondary water supply connection installed and commissioned before delivery of the 51st lot and every 50 lots thereafter. Note the updated staging of 2 July 2026 has 54 lots in Stage 1, so consent on the current staging will require either the interim secondary connection ahead of s224 for Stage 1, or a s127 application.	§6.6.1.3, paras 177-179; App A 13	Agreed. No further comments



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14	Water supply – Pukerua Bay reservoir connection limits The application proposes 237 houses (Stages 1 to 4B) fed from the Pukerua Bay reservoir. Tiaki Wai advises only 200 lots can be serviced: there is 0.8 ML spare capacity allowing 326 additional residential lots without reducing the level of service for domestic and firefighting storage, less 44 infill lots and 82 lots accepted under Muri Stage 1, leaving 200 for Mt Welcome. The application identifies 46 Muri Road Stage 1 lots (below RL100) and 44 infill lots but ignores the dispensation for a further 36 Muri Road Stage 1 lots (RC8763 conditions (51), (52) and (53)). The application provides no comment on water demand for the commercial lot; Tiaki Wai will not accept its connection until the NGA 3.7 ML reservoir and supporting infrastructure is installed. Required: conditions limiting connection to the Pukerua Bay reservoir to 200 residential lots and requiring installation and commissioning of the NGA 3.7 ML reservoir before connection of the 201st lot. Current staging only supports Stages 1 to 3B (190 lots) ahead of the reservoir, so connecting additional lots up to the 200 allowed will require a revised scheme plan and staging and potentially a s127 application.	§6.6.1.4, paras 180-185; App A 14	It is accepted that the initial connection to the existing Pukerua Bay reservoir will be limited to 200 residential lot equivalents. However, the consent conditions should retain flexibility for this limit to be reviewed where actual development within the wider catchment differs from the currently assumed yields or timing. This may include changes to the number or timing of infill lots, the Muri Road development, or other committed connections. The water demand for the commercial lot will be assessed once its final use and design demand are known, and the servicing requirements agreed with Tiaki Wai at that time. The conditions should also allow the commercial demand to be offset against the available residential allocation where the commercial lot is developed before all 200 residential lots are connected.
15	Water supply – bulk water supply main capacity The application does not appear to consider existing Bulk Water Supply Main capacity constraints. The Zone Management Plan confirms the existing main cannot service full Northern Growth Area build-out under peak demand, even with interim storage. Tiaki Wai's modelling confirms that connection of 152 lots (82 via Pukerua Bay and 70 via the new 3.7 ML reservoir), 500 to 870 lots (Plimmerton Farm Stage 1) and 200 lots (Mt Welcome) will cause the Pukerua Bay reservoir to drop to 60-70%, below the acceptable operating range of 80-100%. The reduced level of service can be accepted in the short term and will be addressed long term by bulk network upgrades (the Belmont Booster Pump), but connections brought forward ahead of those upgrades would not be accepted. Required: a condition that the consent holder provide Tiaki Wai with a 5-year development programme before commencement of the 201st lot and every subsequent block of 200, identifying the anticipated rate and timing of development water supply connections, to manage the bulk main upgrades.	§6.6.1.5, paras 186-190; App A 15	Will need to agree on a condition and its limitations



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16	Water reticulation – engineering approval and vesting The proposed layout appears consistent with the Regional Standard for Water Services and SNZ PAS 4509:2008 Fire Fighting Water Supplies, and the reticulation details can be addressed through Engineering Approval with conditions for design, implementation including metered connections, and post-construction testing. Tiaki Wai notes that portions of the key water infrastructure – the new NGA 3.7 ML reservoir, the bulk mains extension through the Muri Block and the gravity water supply mains through the Muri Block – are being delivered by the Muri Block developer under RCA24215. These are fundamental to servicing Mt Welcome and represent a risk the developer must manage. Required: conditions explicitly securing these requirements, with advice notes clarifying that delivery requires co-ordination with the Muri Block developer, and that Bulk Water Services must comply with the Tiaki Wai Asset Owner Requirements as separate to the Regional Standard for Water Services.	§6.6.2, paras 191-192; App A 16	Agreed. No further comments
17	Water supply – design limitations on titles The NGA 3.7 ML reservoir is sized for 1,500 new dwellings at 3.5 residents per dwelling and 700 L per person per day. To ensure appropriate water allocation across all new development, development is limited to one dwelling per lot. Required: consent notices securing one dwelling per lot in accordance with the reservoir design limitations, and conditions advising future lot owners of the need for water conservation measures and on-lot mitigation (booster pumps or pressure-reducing valves) where required.	§6.6.3, paras 193-194; App A 17	Agreed. No further comments
18	Easements and land parcels Tiaki Wai is not likely to accept ownership of land parcels other than those whose primary purpose is to provide for three waters infrastructure – reservoirs and pump stations – so the all-purpose drainage reserves currently shown will need to be removed from the scheme plan. Easements in gross over public water, wastewater and stormwater within private lots including JOALs are shown, but locations and widths need confirming post construction. Easements in gross are also required to secure all access requirements where separate from the public drainage routes, and to secure all secondary overland flow paths – in particular flow paths across open land and hill slopes between stormwater outfalls and natural water bodies. Both appear to be missing from the current scheme plan.	§6.7, paras 195-200; App A 18	Agreed. No further comments



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	Required: review and update of the scheme plan before consent is granted, reflecting all easements and appropriate ownership of land parcels.		

