

Comments on a Substantive Application under section 53 of the Fast-Track Approvals Act 2024: Stormwater Management

Fast-track project name	Waikanae North Development
Fast-track application number	FTAA-2603-1194
GW file number	FTA106

Technical area	Stormwater Management
Date	24 July 2026
Author	David Wilson Principal Engineer/Director The Urban Engineers
Statement of expertise	I am a Natural Resources Engineer with over 30 years of experience in stormwater management. My academic and professional qualifications include: a. Bachelor of Natural Resources Engineering (Hons); b. Chartered Professional Engineer in Civil and Environmental Engineering; c. Chartered Member of Engineering New Zealand; d. Member of the New Zealand Water and Wastes Association. I have been a Principal Engineer and Director at 'The Urban Engineers Limited' for the last nine years. My expertise is in water infrastructure and, in particular, stormwater treatment, disposal and management. Over the last six years, I have been engaged by Greater Wellington Regional Council (GWRC) to undertake Operational Stormwater Discharges Consent reviews against the requirements of their Natural Resources Plan (NRP). I am also an author and the technical reviewer of Tiaki Wai's Water Sensitive Design for Stormwater: Treatment Device Design Guideline. I have provided evidence for hearings and the Environment Court.

Code of conduct	I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical memorandum has been prepared in accordance with that Code. Unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.
Documents considered	1. Stormwater Management Plan (SMP), Landlink, 26 March 2026 2. Hydrological Report, O'Callaghan Design Ltd, March 2026 3. Engineering and Infrastructure Report, Landlink (Harris and O'Callaghan), 25 March 2026 4. Substantive Application AEE, Building Block Planning Ltd, 30 March 2026 5. Stormwater Management Drawings (Appendix 7A–7C), Landlink, November 2025–March 2026 6. FTAA-2603-1194 Waikanae North Section 53 Substantive Application Comments Hydrology, James Blyth, 21 July 2026

Scope

1. My comments relate to Stormwater Management for the site. Assessment of flooding risk and hydrology on behalf of the regional council is being considered by other council experts.
2. I have not commented on conditions proposed by the Applicant as Minute 1 from the panel has indicated that the Applicant intends to file an updated version of its proposed draft conditions of consent.

Regulatory Context

3. Stormwater discharges from the proposed development are regulated under the GWRC Natural Resources Plan (NRP), which has been operative since 2023. The primary applicable rule is Rule R50 (Restricted Discretionary). The development involves bulk earthworks and stormwater infrastructure well in excess of the thresholds for the permitted activity rule (Rule R49, which applies to development with earthworks $\leq 3,000 \text{ m}^2$ per 12 months). Rule R50 therefore applies.
4. The matters of discretion under Rule R50 are:
 1. Measures to minimise adverse effects in accordance with Policy P83, including the extent to which water sensitive urban design (WSUD) measures are employed
 2. Measures to manage runoff volumes and peak flows in accordance with Policy P84

3. Requirements of any relevant local authority stormwater network discharge consent, including any Schedule N stormwater management strategy
5. Policy P83 is the critical policy. It requires that adverse effects of stormwater discharges shall be minimised by:
 - (a) good management practice
 - (b) source control and treatment train approach for new activities and land uses
 - (c) water sensitive urban design in new subdivision and development
 - (d) progressive improvement of existing infrastructure
 - (e) managing localised adverse effects appropriate to the receiving environment
6. This assessment considers whether the proposed stormwater management plan demonstrates how compliance with Policy P83, apart from (d), could be achieved.
7. Policy P84 — managing runoff volumes and peak flows to avoid scour and erosion — is also relevant, but is a secondary consideration here because the development will primarily discharge to a low-energy freshwater environment (wetlands), rather than to a steep watercourse. As a result, the increased imperviousness from land-use change, and the resulting increase in runoff frequency, peak flow, and volume, are not expected to result in increased downstream scour and erosion.

Site and Receiving Environment

8. The proposed development comprises approximately 1,200 residential dwellings on a greenfield site immediately north of the existing Waikanae urban boundary. The site is located on flat to gently undulating terrain with significant peat deposits in the central and eastern areas. The site includes numerous natural wetlands and the Ngārara Stream.
9. The proposed development will result in a substantial change in land use from rural to urban. In addition, the proposed removal of approximately 475,000 m³ of peat from the eastern development area, and its replacement with compacted sand, will fundamentally change the site's hydrological character. The proposed stormwater management system, together with the realignment and modification of the Ngārara Stream, is intended to compensate for those changes and maintain or enhance the hydrological function of the offset and restored wetland areas.
10. The primary receiving environments for stormwater from this development are:
 - The Ngārara Stream (to be realigned and modified with a weir structure to raise water levels)
 - The on-site wetland network, including offset and restored wetlands in the central and eastern areas
 - Te Harakeke Wetland in the western zoneThe ultimate catchment receiving environment is the Waimeha Stream.

Assessment

Summary

11. The proposed stormwater management approach for the Waikanae North development is consistent with Policy P83(b) and (c). The concept treatment design — bioretention at source, adaptive groundwater interface management, three-zone catchment classification, and targeted discharge to wetlands — is appropriate for a development of this type and reflects the principles of water sensitive urban design.
12. From a stormwater treatment perspective, I am generally satisfied that the toolbox of devices in the SMP is appropriate for the site. However, I am concerned about the apparent lack of KCDC involvement in preparing the SMP. KCDC will be the eventual owner of these devices, and the SMP relies on KCDC accepting them. It is not clear whether KCDC will accept the devices proposed in the SMP.
13. The central issue for Policy P83(e) — managing localised adverse effects appropriate to the receiving environment — is linked to establishing a design seasonally high groundwater level. I understand, based on discussions with GWRC's Hydrology expert¹, that the hydrological assessments completed to date are insufficient to establish a design seasonally high groundwater level.
14. KCDC acceptance of the site stormwater management “toolbox”, including discharge to kerbs, together with the definition of a design seasonally high groundwater level and any resulting SMP revision, should be secured before any operational stormwater consents are granted, and must in any event be secured before detailed design commences.

Points of Agreement with Applicant

15. **Treatment train and WSUD approach.** The SMP proposes bioretention devices as the primary treatment mechanism, with sediment forebays at all basins, three-zone catchment classification, and discharge to soakage or wetland systems. This is consistent with Policy P83(a), (b) and (c) good practice requirements.
16. The Water Quality Volume sizing basis — one-third of the 50% AEP rainfall depth — is appropriate and supported by the NZTA and Christchurch City Council bioretention design guides. Using Kāpiti-specific HIRDS v4 rainfall data is the correct approach and is supported by Wellington regional research that NIWA undertook on behalf of Wellington Water to support its Treatment Device Guidelines. The device design parameters (600 mm media depth, forebays at all basins) are consistent with GD04 guidance. The three-zone catchment classification — eastern flats, western

¹ J. Blyth, personal communication, July 24, 2026

catchments, and local infiltration areas — responds to the different receiving environments and ecological objectives across the site.

17. **Groundwater interface framework.** The SMP's tiered groundwater clearance framework is appropriate, as discussed previously. Auckland and Christchurch guidance recommends a minimum 300 mm clearance to the seasonal high water table, while Wellington Water's guidance recommends 200 mm clearance. Christchurch guidance defines the base of the bioretention device as the bottom of the transition layer, which is consistent with the SMP minimum vertical stack calculation. Christchurch guidance also allows "submerged raingardens" where the bottom of the transition layer is above the seasonally high groundwater level. This supports the first two clearance ranges.
18. Confirming the device selection at detailed design, rather than locking it in at the consent stage, is appropriate given the current uncertainty in the groundwater data and long lifetime of the proposed development. An adaptive management approach to device selection is the correct response to that uncertainty.
19. **The SMP is an adaptive management document.** Over a 15-year development and the duration of the operational phase of the consent, understanding of what the wetlands require will evolve as monitoring data accumulates. Monitoring data will progressively refine the picture of what surface flow and subsurface interflow contributions are required, and the stormwater management design and operation must be able to respond as that understanding develops.
20. The SMP cannot function as a document fixed at detailed design and applied unchanged for 15 years. It must be an adaptive management document, with a defined review and update mechanism tied to the wetland ecology and hydrology monitoring cycles, allowing the stormwater approach to be adjusted in response to monitoring outcomes.
21. **Forebay pretreatment.** The SMP's use of sediment forebays as the primary pretreatment mechanism, sized at 10% of the treatment area and with a minimum area of 25 m², is appropriate for this site and supported by national guidance documents. Auckland guidance requires pretreatment for devices larger than 50 m², which will apply here given the size of the proposed bioretention devices. Standalone gross pollutant traps with deep sumps would be impractical given the flat topography and shallow groundwater conditions.
22. **On-lot retention tanks.** On-lot rainwater harvesting tanks are not required for stormwater retention, as discharge to ground is proposed to recharge groundwater.

Critical Outstanding Matters: KCDC Acceptance of Treatment Devices and Design Seasonally High Groundwater Level

23. **KCDC acceptance and vesting.** Public stormwater infrastructure will be vested with KCDC as the territorial authority. The SMP records KCDC's preferences from pre-application engagement

(section 9.1): fewer, larger centralised basins; sediment forebays; and passive non-proprietary devices. Pre-application discussions do not constitute formal acceptance. It is not clear from the information provided whether KCDC has given in-principle acceptance of the stormwater treatment device “toolbox” presented in the SMP.

24. For a 15-year staged development, KCDC’s in-principle acceptance of the proposed device types and provision of access for maintenance should be confirmed before consent is granted, to avoid locking in an approach that KCDC may subsequently decline. The existing conflict in the SMP between the stated KCDC preference for passive non-proprietary devices and the SMP’s proposed fallback to proprietary systems in groundwater-constrained areas is a specific concern. If KCDC will not accept proprietary devices, then the stormwater solution in those catchments needs to be revisited.
25. The reliance on lot discharges to kerb is another critical stormwater management design aspect that requires KCDC acceptance.
26. The Engineering and Infrastructure Report (Appendix 14) includes a letter from KCDC’s Chief Executive (Darren Edwards, 3 March 2026) expressing support for the development’s alignment with KCDC’s housing and growth objectives. The Engineering and Infrastructure Report confirms that the stormwater strategy aligns with KCDC’s network modelling and longer-term strategies. That characterisation appears to overstate the scope of the letter. The CE letter addresses housing and infrastructure servicing at a strategic level; it does not address device types, vesting arrangements, or maintenance responsibilities.
27. **Design seasonally high groundwater level.** A critical stormwater management driver for this proposal is the linkage between the stormwater treatment systems, site hydrology, and the ecological functionality of the offset and restored wetlands. This matter is central to an assessment against Policy P83(e) — managing localised adverse effects appropriate to the receiving environment. To ensure that the stormwater treatment devices provide the required level of treatment, they need to be constructed at an appropriate height above a design seasonally high groundwater level. It is my understanding, based on discussions with GWRC’s Hydrology expert, that the hydrology assessments provided to date are insufficient to establish a design seasonally high groundwater level.
28. Until a design seasonally high groundwater level is defined and accepted, the application of the SMP toolbox cannot be finalised. This should be secured before any operational stormwater consents are granted and must in any event be secured before detailed design commences.

Points of Clarification or Improvement

29. **Design guidelines.** The SMP needs to be updated to confirm the design guidance and specific KCDC access-for-maintenance requirements. The SMP states that bioretention systems are “designed in accordance with GD01/GD04” and that “performance is met via GD01/GD04-compliant

bioretention”; however, this is not correct. For treatment-only devices, GD01 uses a water quality flow design approach, although it does accept a water quality volume design approach using Darcy’s Law.

30. This is not critical at the consent stage as the adopted 270 m²/ha treatment requirement is greater than the 2% minimum in GD01, and there are national guidelines (Christchurch and NZTA) that provide guidance on the parameters to use for a water quality volume bioretention sizing approach. I note that these guidance documents require a design coefficient of permeability of 30 mm/hr, which is less than the 50 mm/hr used in the SMP.
31. From a compliance perspective, it is critical that the SMP nominates the basis of design for detailed design, and that this is accepted by KCDC. This could also impact on the maximum size of the bioretention devices; for example, Wellington Water’s and Christchurch City Council’s design guidelines suggest a maximum bioretention size of 1,200 m².
32. A minor correction is required under the SMP’s 10% AEP event performance criteria: replace “Prevent flooding of dry basins from macro flows” with “Prevent flooding of dry basin treatment devices”.
33. **Access for maintenance.** The SMP should also provide clear guidance on KCDC’s access-for-maintenance requirements. This will be important given the location of the devices adjacent to restored and offset wetland areas that will not be available for maintenance access. The larger devices may require access from at least two sides.
34. **Proprietary devices.** The SMP proposes proprietary filtration units (Hynds Up-Flo, SPeLFilter, Atlan) as a fallback where bioretention depth is constrained. Due to the manufacturers’ required driving heads and the resulting minimum depth to inverts, I am not aware of any proprietary treatment device that would solve this groundwater level constraint. The minimum depth to invert for a proprietary treatment device that I am aware of is for the SW360 Jellyfish device, with a standard minimum depth to invert of roughly 1 m.
35. If proprietary devices are accepted by KCDC, then independent performance verification — not manufacturer specifications alone — should confirm that they achieve equivalent contaminant removal to the bioretention standard. This should be addressed through the detailed design certification process.
36. Precedent exists in other consents for securing independent performance verification (for example, RiverLink, which requires proprietary devices to demonstrate greater than 75% TSS removal on a long-term average basis); appropriate wording can be considered once the revised condition set is available.
37. **Lined treatment response.** I am not aware of any national guidelines that support lined bioretention treatment responses to high groundwater levels. As mentioned above, Auckland and

Christchurch guidance recommends a minimum 300 mm clearance to the seasonally high groundwater level, while Wellington Water's guidance recommends 200 mm clearance. Christchurch guidance defines the base of the bioretention device as the bottom of the transition layer, which is consistent with the SMP minimum vertical stack calculation. Christchurch guidance also allows "submerged raingardens" where the bottom of the transition layer is above the seasonally high groundwater level.

38. I note that the adjacent Mackays to Peka Peka project used vegetated swales for stormwater treatment, partly in response to the constraint of high groundwater levels. As mentioned, this solution could not be included in the SMP without KCDC acceptance. If accepted by KCDC, the design requirements for any vegetated swales would need to be included in the SMP. Because swales provide both treatment and conveyance, they are vulnerable to the remobilisation of trapped sediment.
39. **Minimum depth to seasonally high groundwater level.** A minimum depth to seasonally high groundwater level that must be achieved by the finished ground levels should be included in the SMP as runoff must be treated before discharge to the receiving environment.
40. **Operation and Maintenance.** A full O&M Plan has not been provided at consent stage. This is acceptable at this stage, provided completion and approval of the O&M Plan is secured before any public stormwater infrastructure is vested. The plan must address the staged development and the responsibilities of each party during progressive transfer of the consent to KCDC as each stage proceeds.
41. **Ability for consent to respond to staging.** Over the life of the development, there will be areas of the site that have been developed with devices vested to and managed by KCDC and areas that are yet to be developed. Should the panel choose to issue a stormwater discharge consent, it must include conditions that allow for partial transfer to KCDC as they become responsible for the operation and maintenance of the devices required by the consent.

Conclusion

42. The stormwater management approach proposed for the Waikanae North development is consistent with good-practice requirements under Policies P83(a), (b) and (c). The concept treatment design — bioretention at source, adaptive groundwater interface management, discharge to wetlands and soakage — is appropriate for this type of development and adequately reflects the principles of water sensitive urban design.
43. While in general the toolbox of stormwater devices in the SMP is appropriate for the site and its receiving environments, it is not clear to me that the devices have been accepted by KCDC. This is critical because KCDC will be the eventual owner of the devices, and the SMP relies on KCDC accepting them for vesting, operation and maintenance.

44. In addition, the central requirement of Policy P83(e) — managing localised adverse effects appropriate to the receiving environment — depends on a design seasonally high groundwater level that is yet to be established.
45. My position is that the application contains a sound stormwater management framework, but it remains incomplete without KCDC acceptance of the proposed stormwater management “toolbox” and assessment and acceptance by GWRC of a design seasonally high groundwater level. If these matters are not resolved before consent is granted, I consider that they must be resolved through enforceable consent requirements before detailed stormwater design commences.