

KĀPITI COAST DISTRICT COUNCIL

Submission on the National Engineering Design Standards Framework

Overall framework and prioritisation approach

To	Water Services Authority – Taumata Arowai
From	Kāpiti Coast District Council
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Executive summary

Kāpiti Coast District Council (Council) supports a nationally consistent, performance-based framework for water supply, wastewater and stormwater infrastructure. Council supports the proposed three-layer model, subject to clearer boundaries between mandatory outcomes, deemed-to-comply codes, alternative solutions and local network-owner requirements. The framework should standardise matters where national consistency creates clear public health, environmental, resilience, efficiency and whole-of-life benefits, while preserving tightly controlled local inputs where hazards, receiving environments, network configuration, operational practice or approved products genuinely differ.

Council recommends a hybrid organising model: separate service-specific codes arranged primarily by infrastructure component, supported by mandatory cross-cutting lifecycle modules for design assurance, construction, testing, commissioning, asset data, handover, maintenance, renewal and decommissioning. This reflects how KCDC's Land Development Minimum Requirements (LDMR), standard drawings and approved-products controls operate together: requirements, drawings, products, engineering approvals, departures, inspection, certification and vesting form one assurance system rather than standalone documents.

For prioritisation, Council supports the proposed "prioritised NEDS" option but recommends a transparent, scored and gated method. Public health and statutory obligations should be threshold considerations. Candidate topics should then be assessed for national benefit and readiness, with explicit weighting for lifecycle cost, resilience, environmental outcomes, market scale, implementation burden, local variability, interoperability and transition risk. The first tranche should create an end-to-end usable pathway for common reticulation and development infrastructure, rather than isolated technical clauses.

Council also recommends a distinct stormwater pathway within NEDS. Stormwater performance is driven by land use, catchment response, rainfall and runoff, receiving environments and changing climate conditions rather than population alone. National requirements should therefore define a risk-based method, evidence expectations and adaptive-management process, while allowing catchment- and site-specific design inputs and covering the full range of piped, open-channel, green and nature-based infrastructure.

Council further recommends that future NEDS development address multi-storey water supply and wastewater servicing and reconcile detailed wastewater hydraulic criteria with NZS 4404 and established territorial authority requirements. Stormwater pump stations should also be covered where pumping is unavoidable, while retaining the principle that pumping is generally an exceptional solution.

Key recommendations

1. Confirm the three-layer NEDS model and publish a clear legal and technical hierarchy.
2. Use service-specific, component-led codes supported by common lifecycle modules and digital navigation.
3. Strengthen common objectives through measurable evidence, lifecycle value, resilience, operability, maintainability and cultural/environmental context.
4. Select the first tranche using threshold gates, weighted scoring, evidence confidence and package/dependency review.
5. Publish candidate scores, reasons for decisions and readiness work for deferred high-value topics.
6. Prioritise end-to-end pathways for common reticulation, connections, construction, testing, commissioning, asset data and vesting.
7. Create a nationally consistent alternative-solutions and departures process.
8. Limit local requirements to defined, justified and published inputs or schedules.
9. Provide risk-based transition arrangements for legacy assets, repairs, renewals and upgrades.
10. Test code usability with KCDC and other providers against existing approval, inspection, certification and vesting workflows.
11. Develop dedicated requirements for multi-storey water supply and wastewater servicing.
12. Reconcile wastewater hydraulic criteria with NZS 4404 and established territorial authority standards.
13. Develop a dedicated stormwater pump station and flood-management pathway where pumping is unavoidable.
14. Subject detailed technical standards to further sector review before implementation.

1. Purpose

This submission responds to the Authority's questions on the overall NEDS framework and the approach for deciding which national standards and codes of practice should be developed first.

2. KCDC context

KCDC's current development-control framework uses the LDMR together with standard drawings, approved products, consent conditions, engineering approval, construction quality assurance, inspection, certification and vesting. The LDMR review brief identifies water supply, wastewater, stormwater, roads, earthworks, structures, urban design, network utilities, departures, detailed design reports, certification and section 223/224 processes as connected parts of the framework. It also calls for issues with standard drawings to be addressed and for consultation with internal and external stakeholders. This experience supports a nationally integrated framework rather than a narrow design manual.

3. Submission on the overall NEDS framework

3.1 General position

Council supports the proposed framework of mandatory performance standards, optional deemed-to-comply codes of practice, and provider-approved alternative solutions. It is broadly clear and capable of enduring. Its success will depend on disciplined allocation of content between the layers and on the usability of the supporting administration system.

- Mandatory standards should state clear, measurable and risk-proportionate outcomes. They should avoid embedding product brands, construction recipes or local administrative preferences.
- Codes of practice should provide complete and auditable compliance pathways, including design inputs, calculations, drawings, material and product requirements, construction tolerances, testing, commissioning, evidence, asset data and acceptance criteria.
- Alternative solutions should be a legitimate pathway, but the evidence standard, approval process, decision record and responsibility for ongoing performance must be nationally consistent.
- Local requirements should be confined to published local inputs or schedules, such as hazard parameters, approved connection locations, network operating constraints, receiving-environment information, pressure zones, datum, specific seismic or geotechnical conditions, and interfaces with non-water infrastructure.

3.2 Common objectives

Council supports the seven proposed objectives. They cover the principal outcomes needed for infrastructure performance. Council recommends strengthening them in the following ways:

Objective	KCDC recommended emphasis
Public health and safety	Apply to both routine operation and foreseeable failure conditions, including cross-connections, contamination pathways, confined space and public safety interfaces.
Environmental protection and performance	Recognise source-to-receiving-environment effects, green infrastructure and climate-adjusted stormwater performance.
Service performance, capacity and reliability	Require design demand, growth assumptions, hydraulic performance and acceptable degradation or failure modes to be stated.
Lifecycle performance and asset integrity	Include whole-of-life cost, accessibility, standardisation, ability to inspect, maintainability, renewability and compatibility with network-owner capability.

Resilience and recoverability	Require proportionate consideration of seismic, flood, coastal, drought, power, communications, supply-chain and climate risks, including safe/fail and recovery expectations.
Context suitability and network integration	Include constructability, utility conflicts, corridor constraints, network capacity, operating philosophy and interfaces with existing assets.
Performance evidence, asset data and monitoring	Require digital asset information, traceability, test results, commissioning records, geospatial accuracy, warranties and evidence needed for vesting and later operation.

3.3 Recommended structure for codes of practice

Council recommends both component-led and lifecycle-led navigation, with one controlled source of requirements. The legal document structure should be component-led because that is how most designers, developers, reviewers and contractors locate requirements. Shared lifecycle modules should apply across components and services to avoid duplication.

- Common core: definitions, roles, risk classification, design assurance, departures and alternative solutions, document control, digital data, standard drawing conventions and evidence requirements.
- Water supply code: mains, service connections, meters, valves, hydrants, storage, pumping, treatment interfaces, backflow and network controls, including dedicated provisions for medium-density, high-density and multi-storey developments.
- Wastewater code: gravity networks, laterals, maintenance structures, pressure sewers, rising mains, pump stations, storage, overflow interfaces and treatment-plant interfaces, including specific requirements for multi-storey developments and reconciliation of hydraulic design criteria with NZS 4404 and recognised local authority standards.
- Stormwater code: pipes, culverts, inlets, manholes, outlets, detention and retention, treatment devices, green infrastructure, stormwater pump stations where unavoidable, overland flow paths and receiving-environment interfaces.
- Cross-cutting lifecycle modules: investigations, design basis, construction, quality assurance, inspection, testing, commissioning, as-builts, asset data, vesting, operation, maintenance, renewal and decommissioning.
- Digital presentation: users should be able to filter the same controlled content by service, component, lifecycle stage, role, infrastructure class and evidence deliverable.

3.4 Lessons from the KCDC framework

Observation	Submission implication
Integrated document set	The LDMR, standard drawings and approved products register operate together. A national code should identify all documents and evidence that comprise a deemed-to-comply solution.
Engineering approval and departures	KCDC's LDMR review identifies pre-application and pre lodgment meetings, engineering reports, departures reports and a departures panel. NEDS should include a nationally consistent decision framework, service time expectations and records required for alternatives and departures.
Drawings and construction detail	KCDC project and consent material repeatedly relies on standard drawings for connections, trench embedment, chambers, drops, sumps and crossings. National codes should include controlled drawings and tolerances, not text alone.
Products and compatibility	KCDC's approved products register links products to the LDMR and drawings and provides for project-specific approval where a product is not listed. NEDS

	should distinguish national performance requirements from provider-specific compatibility and spares constraints.
Local and system context	KCDC's review recognises steep land, stormwater flow paths, coastal issues, multi-unit development, utility congestion and structures. National requirements must allow defined local parameters without allowing each provider to recreate a full local code.
Assurance through vesting	Consent conditions and engineering reviews rely on qualified persons, quality plans, inspections, testing, long sections, certifications and section 223/224 processes. The deemed-to-comply pathway should finish at accepted asset information and vesting, not at design approval.

3.5 Stormwater-specific framework requirements

Council supports NEDS and the work undertaken to establish a nationally consistent framework. However, stormwater requires a more differentiated approach than water supply and wastewater. Stormwater demand and performance are closely linked to land use, rainfall-runoff response, topography, groundwater, receiving environments and cumulative catchment effects. Optional deemed-to-comply pathways and alternative solutions may therefore be difficult to assess and enforce unless the framework clearly identifies the required design process, evidence, professional disciplines, decision criteria and residual-risk ownership.

KCDC's LDMR requires developers to use a coherent, design-led process and to identify integrated solutions that provide fit-for-purpose outcomes. In practice, few proposals are supported by the full multi-disciplinary capability needed to address planning, hydrology, hydraulics, geotechnical conditions, ecology, landscape, operations, maintenance and asset ownership. This can transfer an unreasonable design-development and assurance burden to Council staff. NEDS should make applicant responsibilities explicit and require suitably qualified, coordinated professional input proportionate to catchment context, site complexity, consequence and novelty.

Stormwater functional and performance requirements may be catchment- or site-specific, and there is no consistently applied national definition of the stormwater service or its level of service. The framework should specify how climate scenarios, design horizons, rainfall data, uncertainty allowances, residual risk and future performance thresholds are selected, documented and updated. It should codify adaptive management through defined monitoring indicators, review triggers, decision points, responsible parties, funding and maintenance obligations, and pre-agreed adaptation pathways that are understandable and enforceable for land developers and future asset owners.

NEDS should also explain its interface with the National Policy Statement for Natural Hazards 2025 and its risk-based, proportionate approach. For stormwater, the national framework should provide a consistent structure for assessing hazard likelihood, consequences, mitigation, effects on other sites and residual risk, while recognising relevant statutory interfaces and the need to use best available information.

While the draft NEDS appropriately discourages stormwater pumping except in extraordinary circumstances, nationally consistent requirements are still required where pumping is unavoidable. Such requirements should address pump stations, pump sumps and wet wells, rising mains, controls, telemetry, backup power, emergency storage, screening and debris management, redundancy, resilience, commissioning, operational monitoring and integration with catchment-scale flood management. Resource consent, engineering approval and catchment planning processes should remain the primary mechanisms for determining whether pumping is appropriate.

The NEDS should also:

- Define stormwater infrastructure broadly to include constructed wetlands, soak pits and infiltration systems, ponds, overland flow and overflow paths, attenuation and treatment devices, treatment trains, dams, open channels, streams, culverts, outlets and associated landscape or ecological components.

- Provide asset-class-specific deemed-to-comply pathways only where national prescription is technically mature and suitable; otherwise provide mandatory performance outcomes, assessment methods and evidence requirements with bounded local inputs.
- Require assessment of cumulative catchment effects, exceedance behaviour, safe failure, maintenance access, operational capability, whole-of-life performance and responsibility for privately owned or distributed devices.
- Include common definitions and level-of-service concepts for stormwater, but allow nationally prescribed
- methods to generate catchment-specific performance requirements and climate-adjusted design inputs.

Attachment 1 provides further comments from Council's stormwater consultant partners, Awa, on the stormwater design proposals. Their observations are informed by the extensive work Awa has undertaken with Council staff to respond to the complex hydrological conditions in Kāpiti.

3.6 Changes needed to make the framework practical and enduring

The following changes to the NEDS are required to make the framework practical and enduring:

- Publish a hierarchy stating what prevails where the NEDS, a code, another national standard, a consent, a bylaw, a provider schedule or a local requirement overlaps.
- Define infrastructure classes and proportionality triggers so that requirements scale with consequence, complexity, size, network criticality, and novelty.
- Create a controlled national register of referenced standards, drawings, templates and updates, with versioning and transitional dates.
- Require each mandatory clause to identify acceptable evidence and each code clause to identify the mandatory requirement it satisfies.
- Provide a national change-control process with regulatory impact assessment, sector testing, compatibility review and reasonable transition provisions.
- Protect existing asset compatibility by allowing evidence-based local schedules for approved products, spares, telemetry, controls, network modelling inputs and connections.
- Coordinate NEDS with water services bylaws, the Building Code, NZS 4404, corridor-access requirements, resource-consent requirements, wastewater environmental performance standards, drinking-water standards requirements and asset-data standards.
- Include a clear legacy-assets and repair/renewal policy. Requiring full new-build compliance for every intervention may be disproportionate or technically impossible.
- Ensure detailed water and wastewater technical criteria are reconciled with NZS 4404 and established territorial authority requirements before implementation, including minimum wastewater grades and self-cleansing criteria.
- Provide dedicated requirements for multi-storey developments where hydraulic performance, pressure management, fire-fighting, access, maintenance and ownership interfaces differ from conventional subdivision infrastructure.

4. Recommended prioritisation approach

4.1 Position on the proposed approach

Council supports the Authority's two principal questions: whether early national direction would make a material difference, and how quickly an area can be standardised and codified. However, these questions are necessary but not sufficient. They should be applied through threshold gates and a transparent weighted assessment so that urgency, consequence and system completeness are not displaced by topics that are merely easy to draft.

4.2 Proposed decision process

Gate 1: statutory and safety necessity: Identify obligations under the Water Services Act and any urgent public health, environmental or critical service risks. A topic that is needed to make the statutory framework operable cannot be screened out solely because it is difficult.

Gate 2: suitability for national standardisation: Confirm that a national outcome can be stated and that legitimate local differences can be expressed as bounded inputs, classes or schedules. Exclude topics where national prescription would create material risk or inefficiency.

Stage 1: score national value: Assess consequence, inconsistency, transaction cost, volume, lifecycle benefit, resilience, environmental benefit, interoperability and equity.

Stage 2: score readiness and deliverability: Assess technical maturity, evidence base, stakeholder alignment, drafting complexity, availability of existing standards and drawings, implementation capability and transition burden.

Stage 3: apply package and dependency review: Group related topics into end-to-end usable pathways. Avoid publishing a mandatory requirement before a practical code, evidence method, drawing set and approval process are available where these are necessary for implementation.

Stage 4: moderation and decision: Moderate scores with provider, developer, contractor, supplier, mana whenua and technical input. Publish the rationale, dependencies, exclusions and intended later work programme.

Stage 5: review: Reassess priorities at defined intervals using implementation evidence, incidents, disputes, asset-performance information, cost data and regulatory changes.

4.3 Proposed weighted criteria

Council suggests the following approach to prioritising review and development of NEDS:

- Score each criterion from 0 to 5, where 0 means no demonstrated case and 5 means a very strong case, and
- Apply evidence/confidence ratings and do not score uncertainty optimistically.

Suggested weightings are set out below.

Criterion	Weight	Assessment focus
Public health, safety and statutory consequence	15%	Severity and likelihood of harm; statutory operability; critical-service implications.
Environmental and cultural outcomes	10%	Potential to prevent or reduce adverse effects and support receiving environments, kaitiakitanga and relevant iwi/Māori interests.
Current inconsistency and transaction cost	12%	Extent of local variation, redesign, disputes, duplicated review, delayed approval or inconsistent acceptance.
Volume and repeatability	10%	Frequency of the infrastructure/activity and benefit from a repeatable national pathway.
Whole-of-life value	10%	Potential CAPEX, OPEX, maintenance, renewal, failure and disposal benefits, not only design-stage savings.
Resilience and climate adaptation	8%	Contribution to resilience, recoverability, safe failure and climate-responsive performance.
System interoperability and asset data	8%	Compatibility, standard interfaces, evidence, digital information and ability to operate, maintain and renew assets.

Equity and provider capability	5%	Benefit to small, rural or capacity-constrained providers and avoidance of unreasonable transfer of cost or risk.
Technical maturity and evidence	10%	Settled, repeatable engineering practice; standards and evidence are available and performance benchmarks can be assessed.
Implementation and transition feasibility	7%	Availability of skills, suppliers, products, training, systems, drawings and reasonable legacy arrangements.
Dependency and package completeness	5%	Ability to form an end-to-end usable pathway and unlock or support other priority topics.

Suggested calculation: weighted score = sum of (criterion score ÷ 5 × criterion weight). Report both the national-value subtotal and readiness subtotal so that a high-value but difficult topic remains visible rather than being lost in an aggregate score.

4.4 Priority bands and decision rules

- Priority A: high national value and high readiness. Develop in the first tranche.
- Priority B: high national value but lower readiness. Establish the mandatory outcome or policy signal early, then undertake targeted technical development before issuing the full code.
- Priority C: moderate value and high readiness. Include only where it completes a Priority A pathway or provides a genuine quick win with low opportunity cost.
- Priority D: low national value or high legitimate local variability. Retain as local input, guidance or later review rather than national prescription.
- Override: critical statutory, public-health or safety requirements may be advanced regardless of readiness, but must be accompanied by an interim implementation and evidence pathway.

5. Suggested areas for the first tranche

The list below is Council's recommended starting package. Final inclusion should be tested through the scored process and national evidence. The purpose is to create complete pathways for common infrastructure and address recurring approval and vesting friction. Detailed technical development should also address multi-storey servicing and harmonisation of wastewater hydraulic criteria with NZS 4404 and recognised territorial authority requirements.

Priority package	Reason/scope
Common core and administration	Definitions; infrastructure classification; roles; design basis; competent-person requirements; engineering approval; departures and alternative solutions; quality plans; inspections; evidence; certification; document control; and change management.
Asset data, as-builts and handover	Common asset-data schema, coordinate and datum requirements, metadata, photographs, test and commissioning records, warranties, operation and maintenance information, and vesting acceptance.
Common civil construction	Trenching, embedment, backfill, compaction, utility separation and crossings, concrete works, chambers, surface boxes, reinstatement, testing tolerances and standard drawing conventions.
Water reticulation	Common mains, service connections, meters, valves, hydrants, restraints, thrust management, disinfection, pressure testing, commissioning and backflow interfaces, including multi-storey servicing interfaces.

Gravity wastewater	Pipes, laterals, gradients, maintenance structures, drops, connections, infiltration control, testing, CCTV, commissioning and acceptance. Detailed criteria should be reconciled with NZS 4404 and existing territorial authority standards.
Wastewater pumping and pressure systems	Pump stations, rising mains, pressure sewers, emergency storage, controls, alarms, resilience, odour/corrosion considerations, commissioning and network integration.
Stormwater pump stations and flood management systems	Where pumping is unavoidable: pump stations, pump sumps and wet wells, rising mains, controls, telemetry, backup power, emergency storage, screening and debris management, redundancy, resilience, commissioning, operational monitoring and integration with catchment-level flood management.
Stormwater conveyance and development interfaces	Pipes, inlets, manholes, culverts and outlets; constructed wetlands, soak pits and infiltration systems, ponds, overland flow and overflow paths, attenuation and treatment devices and treatment trains, dams, open channels and streams; catchment- and site-specific functional requirements; climate scenarios and adaptive-management triggers; cumulative effects; residual risk; maintenance access; and development, ownership and receiving-environment interfaces.
Repair and renewal pathways	Like-for-like repair, rehabilitation, lining, replacement, upgrade triggers, temporary works, decommissioning and proportionate treatment of legacy networks.
Approved products and equivalence	National product performance and evidence criteria, with bounded provider schedules for compatibility, spares, control systems and operational constraints.

6. Key implementation risks and controls

Council notes the following risk with suggested controls:

Risk	Recommended control
Over-prescription	Keep mandatory requirements outcome based. Put detailed solutions in optional codes and allow evidence-based alternatives.
Re-creation of 45 local codes through schedules	Define a closed list of permissible local inputs and require justification, publication, version control and review.
Incomplete pathways	Do not commence mandatory application where necessary drawings, evidence templates, test methods or approval processes are absent.
Legacy network cost shock	Use risk-based transition and intervention triggers. Separate new assets from repairs, renewals and upgrades, where proportionate.
Conflict with other instruments	Maintain a hierarchy and mapped interface with statutes, regulations, environmental standards, NZ standards, bylaws, consents and corridor controls.
Loss of local knowledge	Use provider and mana whenua input to define local parameters and contextual requirements rather than embedding broad local discretion.
Product and supply-chain constraints	Use performance-based product acceptance, equivalence evidence and transition periods, while preserving compatibility requirements where justified.
Digital exclusion or document instability	Provide an authoritative downloadable version, revision history and stable clause identifiers as well as an online portal.
Conflicting wastewater design	Complete a clause-by-clause reconciliation with NZS 4404 and representative

criteria	territorial authority standards before implementation; publish a clear transition and conflict rule.
Unaddressed multi-storey infrastructure interfaces	Develop dedicated guidance for hydraulic performance, pressure management, fire-fighting, access, maintenance, ownership and private/public network boundaries.
Stormwater pumping applied without catchment justification	Retain the exceptional-circumstances principle and require resource consent, engineering approval and catchment-level evidence before acceptance.

7. Recommendations

1. The Authority confirms the three-layer NEDS model and publishes a clear legal and technical hierarchy.
2. The Authority adopts service-specific, component-led codes supported by common lifecycle modules and multi-path digital navigation.
3. The common objectives are retained and strengthened through measurable evidence, lifecycle value, resilience, operability, maintainability and cultural/environmental context.
4. The first tranche is selected using threshold gates, weighted scoring, evidence confidence and package/dependency review.
5. The Authority publishes candidate scores and reasons, including why high-value topics are deferred and what work is needed to make them ready.
6. The first tranche provides end-to-end pathways for common reticulation, connections, civil construction, testing, commissioning, asset data and vesting across all three waters.
7. A nationally consistent alternative-solutions and departures system is developed, including evidence requirements, decision records and review/change control.
8. Local requirements are limited to defined and justified inputs or schedules, including network constraints, hazards, approved connection points, product compatibility and operational systems.
9. Transition arrangements distinguish new infrastructure from repair, maintenance, renewal and upgrade of legacy assets.
10. KCDC and other providers are involved in detailed testing of code usability against existing LDMR, standard drawing, approved product, engineering approval and vesting workflows.
11. The Authority develops dedicated requirements for multi-storey developments to address water supply, wastewater servicing, hydraulic performance, pressure management, fire-fighting requirements, maintenance access and asset ownership interfaces.
12. The Authority reconciles wastewater hydraulic design criteria, including minimum grades and self-cleansing requirements, with NZS 4404 and established territorial authority engineering standards before implementation.
13. The Authority develops a dedicated stormwater pump station and flood-management infrastructure pathway for circumstances where pumping is unavoidable, covering design, resilience, operation, maintenance, telemetry, backup power, debris management, commissioning and catchment integration.
14. Detailed technical standards are subject to a further sector review phase to ensure practical implementation, consistency with existing engineering standards and alignment with provider's operational experience.

8. Attachments

- AWA Stormwater memo

9. Source material reviewed

- Water Services Authority – Taumata Arowai, National Engineering Design Standards proposal document, August 2026.

- Water Services Authority – Taumata Arowai, National Engineering Design Standards webpage and engagement material, updated 06/08/2026.
- Water Services Act 2021, Part 3, Subpart 1AA, version as at 27/11/2025.
- Kāpiti Coast District Council, Revision of KCDC LDMR 17-7-25.
- Kāpiti Coast District Council, LDMR-linked standard drawing files and examples identified in Council records, including KCDC-CM, KCDC-WW, KCDC-SW and KCDC-RD drawing references.
- Kāpiti Coast District Council, Register of Approved Products for use in Water Services Infrastructure, August 2025.
- Kāpiti Coast District Council consent and engineering review examples showing use of the LDMR, standard drawings, quality assurance, long sections, inspections, testing and vesting requirements.