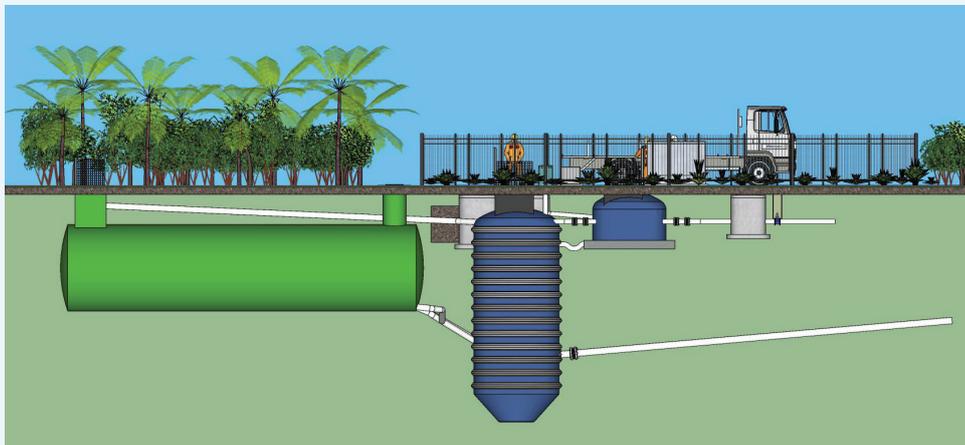


Subdivision guidance note

Wastewater pump stations



A wastewater pump station may be needed for your subdivision

Wastewater pump stations collect wastewater from large areas of gravity wastewater network and pump it to the larger collection network

Public pump stations should generally serve 50 or more properties

Subdivisions of 50 properties or fewer should investigate solutions that have a smaller footprint

Pump stations need to be located and sized to serve the wider catchment

Typical features of a pump station

- Located in low-lying areas of a development to collect wastewater
- Has all-year safe and dry access with hardstand areas for service vehicles that provide for safe truck entry and exit
- Has an underground wet-well, typically with two pumps and a valve chamber that is either free-standing or connected to the wet-well
- May have additional underground storage
- Has an automated wash-down feature for the well and storage to reduce odour and corrosion issues
- Has a control cabinet that integrates with our telemetry network
- Has a lifting davit or lug for a removable post to allow for lifting equipment into the well and onto service vehicles
- May have a security fence around the site

Considerations when planning a pump station



- **Servicing strategy** – you will need to look at the servicing strategy for the wider wastewater catchment. Pump stations impose significant operational costs on the network and should only be used where necessary.



- **Hydraulic design** – this is needed to evaluate the pump and pipe sizing. Flow velocity and pipe length (time in retention) is critical to prevent septicity in wastewater systems.



- **Access to telemetry** – some areas cannot be serviced by telemetry without significant investment. It is important to choose the location carefully.



- **Rising main location** – the rising main must discharge at a high point so that the main is always filled with water to prevent hydraulic hammer when the pumps re-start. High points require air discharge and additional air treatment. Rising mains cannot be located in private property.



- **Pump station location** – low-lying areas are prone to flooding. Pump stations and equipment must be protected and suitably located outside of the flood plain and in areas that will not be affected by climate change.



- **Emergency overflow point** – every pump station must have an emergency overflow point. The location must meet the requirements of our network discharge consent.

Key standards

Design

- CoP-02 Wastewater chapter of the land development code of practice
- DP-06 Network wastewater pumping stations
- DP-09 Electrical design
- MS Material supply
- DP-12 Architectural design
- 7363 CAD manual

Construction

- CG Civil construction
- ME Mechanical construction
- EC Electrical construction
- MS Material supply

Commissioning and handover

- CoP-03 Commissioning code of practice
- 7363 CAD manual
- AI series for asset information

Quality assurance

- Compliance policy
- Construction QA templates

Subdivision guidance note *continued*

Wastewater pump stations

Resource consent application requirements

You will need to:

- Justify the need for a pump station and how it fits with the overall wastewater servicing strategy for the wider catchment
- Show the location of the pump station and the catchment it will service
- Show how the site will be serviced with applicable telemetry
- Demonstrate the accessway for maintenance and future replacement of the pump station
- Show the proposed discharge location and demonstrate its suitability
- Show where the emergency overflow point will discharge and demonstrate that the frequency of overflows will comply with our network discharge consent
- Demonstrate suitable nuisance clearances from neighbouring properties
- Ensure that public rising mains are not located in private property

Engineering plan approval (EPA) requirements

- Geotechnical report
- Basis of design report
- A comprehensive design report that includes:
 - ✓ Site engineering and detailed calculations
 - ✓ Value engineering and selections
 - ✓ Assumptions and alternatives
 - ✓ Functional description
 - ✓ Design drawings
 - ✓ Site specific construction specification
 - ✓ Nominated construction monitoring levels
- Project execution plan
- Risk analysis
- Operations and maintenance manual
- New assets register

Useful links:

www.watercare.co.nz/Water-and-wastewater/Building-and-developing/Engineering-standards-framework

www.aucklanddesignmanual.co.nz/regulations/codes-of-practice

www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html

www.watercare.co.nz

Construction deliverables

- Construction and environmental management plan
- Quality control and test records
- Material records
- Construction monitoring records
- As-built information
- Updated operations and maintenance manuals
- Standard operating procedures
- As-built information and drawings
- Compliance statements

Commissioning and handover

Before we can take over the operation of a new pump station, it must operate correctly. Commissioning involves running the pump station under the expected operating conditions. All systems must be checked and configured in accordance with our commissioning code of practice.

We will require the following documentation:

- Updated operations manuals, updated functional descriptions, updated drawings and electrical certification
- Proof that construction quality control has been completed
- Factory acceptance testing
- Commissioning plan, records and report



How to streamline the process

- Use standard Watercare solutions and standard details
- Provide complete and accurate documentation
- Use our templates for electrical drawings, operational documents, construction quality assurance and commissioning records

Legalities

Our obligations under the Local Government Act 2009

- Manage operations efficiently, keeping overall cost at minimum with undertakings maintaining long-term asset integrity
- Not pay dividends or distribute surplus
- Regard for public safety in relation to our structures

Water and wastewater bylaw

- Any new assets vested or to be connected must comply with Watercare's relevant codes of practice and standards
- Watercare is not required to accept any vesting or connections that do not comply
- Protection of the water supply and wastewater networks as necessary to achieve obligations

Nuisances

- Our operations and infrastructure may not cause certain nuisances under the Health Act such as odour and noise

Network discharge consent

- Authorises the discharge of wastewater from Watercare's wastewater networks to land, freshwater and coastal receiving environments under a set of rules

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