

- Watercourses
- Drainage and Plumbing
- Trade Waste Bylaw.

5.3 Wastewater infrastructure

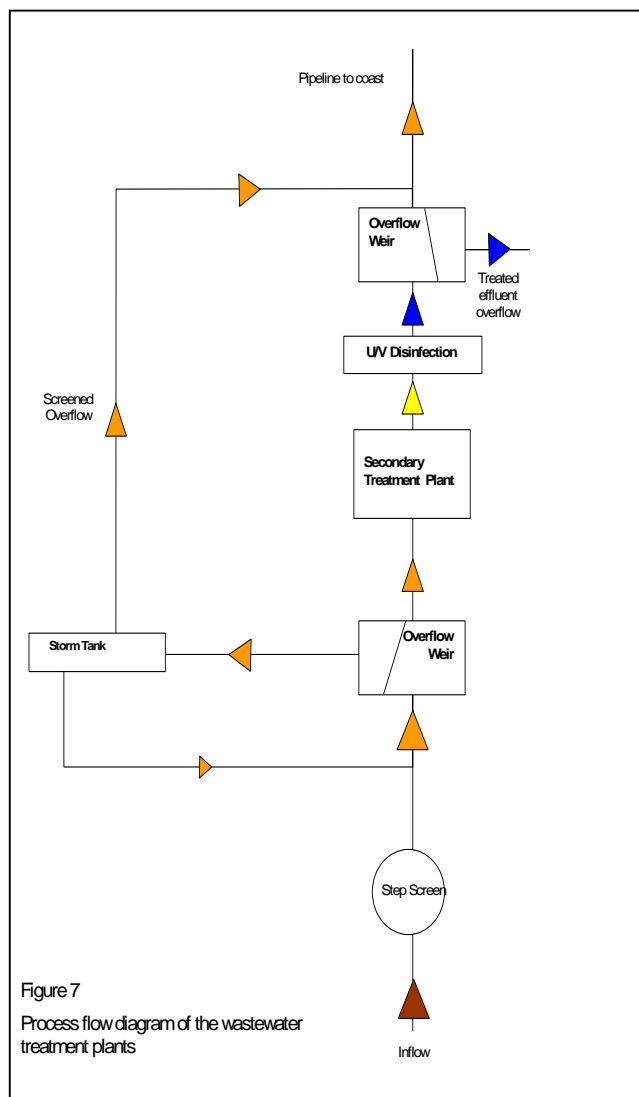
5.3.1 Reticulated

The wastewater drainage system consists of:

Wastewater System
<ul style="list-style-type: none"> • 1,048km pipe network • 62 pumping stations • Western Treatment plant at Karori. • Moa Point Treatment Plant • Carey's Gully Sludge Dewatering Plant • Porirua Treatment Plant (27.6% share)

The Main Interceptor

The main trunk wastewater pipeline (the Interceptor) flows by gravity from Ngauranga Gorge through the central city, beneath Mt Victoria, through the low-lying coastal areas and the eastern suburbs to Moa Point. Wastewater from Island Bay, Brooklyn, Houghton Bay and Berhampore is delivered by gravity and pumped to a major pump station located between Island Bay and Owhiro Bay. Wastewater is pumped from this station back through Island Bay and a tunnel beneath Mount Albert to join the main interceptor at Kilbirnie. This intercepts all wastewaters from the Wellington area, except Karori and the Northern suburbs. Moa Point Treatment Plant serves a population of approximately



130,000. Wastewater from Karori (approximate population 11,000) flows to the Western Treatment Plant and wastewater from the Northern suburbs (approximate population 25,000) flows to the Porirua Treatment Plant.

Sludge from this process is pumped from Moa Point Treatment Plant, and trucked from Western Treatment Plant, to Carey’s Gully Sludge Treatment Plant where it is de-watered (water removed from solids).

Treatment Plants

Moa Point

The Moa Point Treatment Plant was commissioned in 1998. It has an annual inflow of 27,073,088 cumecs. Treated wastewater is discharged through a 1.8km long outfall to the sea. The short outfall that was used prior to the construction of the treatment plant to discharge wastewater to the south coast is still in existence - for emergency discharges should they occur.

At the Treatment Plants, wastewater travels through a series of screens, tanks, bioreactors, clarifiers and ultra violet treatments (Figure 7). Large, non-organic materials such as toilet paper are first removed using screens. This rubbish is washed and compressed and disposed at the Southern Landfill. As wastewater travels through sedimentation tanks, the majority of solids settle out. A series of tanks and bioreactors use a combination of sedimentation and bacteria to decompose almost 70% of effluent material. Remaining liquid effluent is exposed to ultra violet light to destroy any harmful bacteria. The treated liquid is finally discharged in to Cook Strait.

The Treatment Plant and twin sludge pipelines to Carey’s Gully are owned by Council and operated by United Water International (UWI) under contract until 2019.

Western Treatment Plant

The Western Treatment Plant was commissioned in 1997. This plant is also operated by UWI

under the same contract as that for the Moa Point plant. It has an annual inflow of 1,762,098 cumecs. The treated wastewater flows by gravity through a trunk main (6.5km) that follows the Karori Stream, to the outfall at the stream mouth on the Southern coast.

Porirua Treatment Plant

Wastewater from some Northern suburbs drains naturally towards Porirua and is treated at the Porirua Treatment Plant, jointly owned by Council and PCC. This system manages wastewater from Churton Park, Paparangi, Glenside, Grenada, Tawa and parts of Johnsonville and Newlands. Currently 27.6% of the capacity is allocated to Council and 72.4% to PCC. Council already uses its 27.6% capacity allocation and this current agreement is under review due to the expected growth in the Northern suburbs.

The sludge generated at the Porirua Treatment Plant is currently landfilled at PCC's Spicer Landfill in Ohariu Valley.

The Moa Point and Western Treatment Plants have sufficient capacity to treat current peak dry weather flows and the predicted population growth related flows for the next 20 years. Porirua Treatment Plant needs some minor upgrades to improve capacity. Their design has been optimised to treat a certain percentage of wet weather flow during rain events. Due to financial and performance restraints not all wet weather flows are fully treated, there are occasions where the plants cannot cope and partially treated overflows occur, these events are managed under resource consent conditions administered by the GWRC.

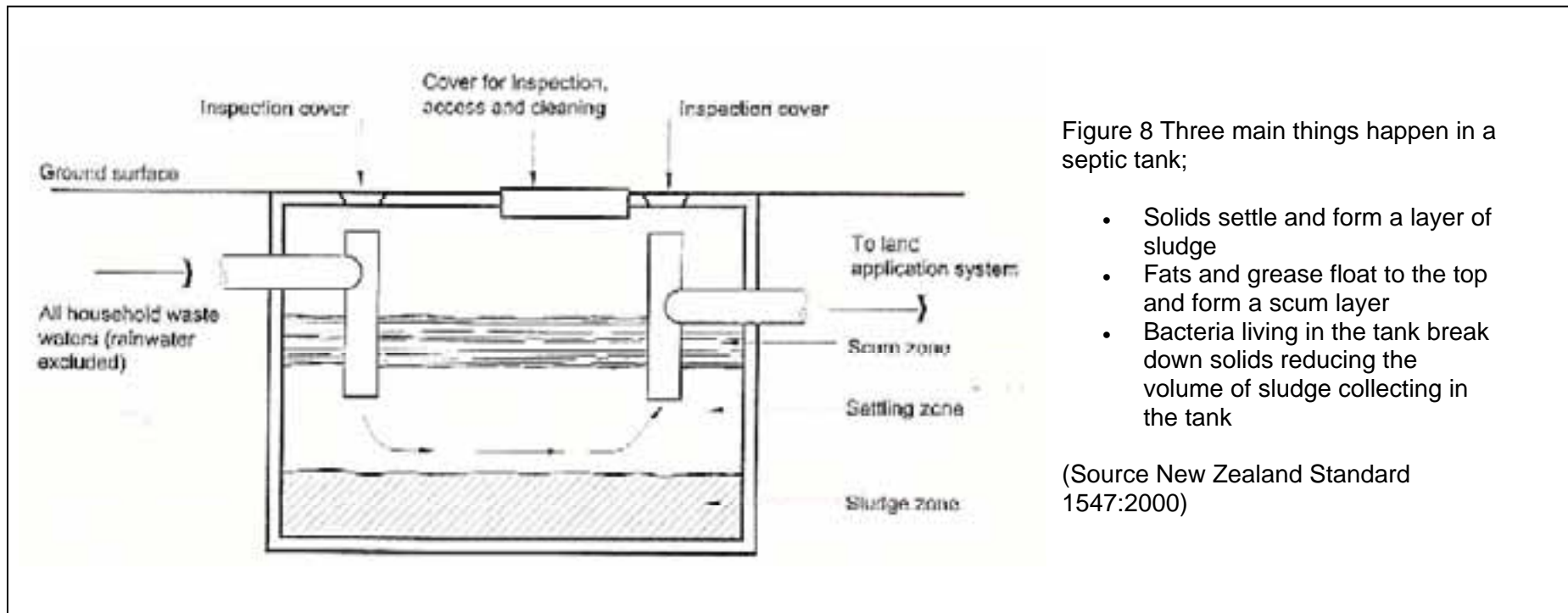
All three Plants also have resource consents governing their day-to-day operation. The Wellington Treatment Plant assets have some of the highest consented performance criteria in the country and continually meet those criteria.

5.3.2 Non-reticulated disposal systems

Low-density rural residential development is currently not required to connect to the city wastewater system and is not provided with a wastewater service unless provided by the developer. The dwellings on these blocks are required to provide their own disposal systems. Council's Building Consents and Licensing Business Unit regulate the approval and installation of these tanks.

Individual

In a typical modern system, waste from house plumbing, (kitchen sink, bathroom sink, shower, bath, toilet, laundry) flows through pipes into a two-part system: a septic tank (which retains all solid waste) and a soil absorption system whose job is to permit only liquid clarified effluent



(liquid from the tank) to seep into the soil. In the absorption system bacteria, which occur naturally in the soil, digest septic bacteria and other pathogens so that the liquid is eventually sanitary and does not contaminate the private wells, ponds, or streams. There is some bacterial action in the tank but most of the important action occurs in the soil absorption system. Tanks require periodic cleaning.

Combined

The Meridian Village has combined settling ponds and its own private outfall behind the village. This is the only such system in the Wellington area. The septic disposal system is of such a standard that they received a letter of satisfaction from GWRC stating that they will only be checking it every three years to ensure it meets their resource consent requirements.