



CLIENT: Hastings District Council

SPECIFIER: Tonkin + Taylor

Originally established in the 1940s, Lowes Pit began as a gravel and rock quarry used to support local road construction in Hastings. Over time, the pit filled with water and transitioned into a stormwater catchment for the surrounding industrial zone. With the area's growth, traditional piped stormwater infrastructure proved inadequate due to shallow pipe inverts, resulting in untreated stormwater being directed into the pit.

This runoff was found to be heavily contaminated with a range of pollutants, including lead, zinc, copper, hydrocarbons, and E. coli — raising concerns about environmental health and downstream impacts, particularly the potential risk to nearby groundwater sources.

THE CHALLENGE:

Retrofitting an effective stormwater treatment solution into an established and shallow system posed a major design and engineering challenge. The system had to address significant contaminant loads while fitting within tight vertical constraints.

THE SOLUTION:

To meet these requirements, the Hastings District Council selected a multi-layered treatment approach using:

- **Filterra® Bioscape®** – A high-performance biofiltration system offering the highest metal removal efficiency among available treatment technologies, ideal for the Council's targeted environmental outcomes.
- **LittaTrap™ Catchpit Inserts** – Installed throughout the catchment, these provided essential pre-treatment by capturing gross pollutants, trash, and debris before runoff entered the treatment train.

A pumped first flush system was designed to divert the most contaminated portion of stormwater to trade waste facilities, significantly reducing pollutant loads before they entered the Filterra® Bioscape® system. Once this initial flush is removed, typical stormwater is effectively treated through the biofiltration process.

DESIGN FEATURES & INNOVATION

- Retrofitted solution accommodating shallow pipe invert
- Pumped first flush diversion for high-contaminant loads
- Strategic placement of LittaTraps across catchment inlets
- Filterra® media with engineered filter soils and vegetation
- Designed for full-scale performance without requiring deep excavations

TARGET POLLUTANTS:

- Heavy Metals (Lead, Zinc, Copper)
- Hydrocarbons
- E. coli and other pathogens
- Gross pollutants (via LittaTrap)

MAINTENANCE:

Maintenance is streamlined and sustainable, with a focus on low lifecycle costs:

- Frequency: Every 6 months
- Method: Removal and replacement of the top 75mm mulch layer only
- Vegetation: Minor trimming as needed; no disturbance to filter media
- System Longevity: No requirement to replace or rejuvenate filter media under standard conditions.



Visual improvement of stormwater quality as it moves through the first flush and bioscape system (barrier 2 and 3). Image sourced from Hastings District Council.



Photo Taken in 2020

Photo Taken in 2025