

Sand Filter

(Stormwater Treatment)

Technical Guide SW 12

Developed to capture settleable solids, floatables, and oils and grease from stormwater runoff.



Applications

Industrial and commercial facilities

Vehicle maintenance yards

Streets and roadways

New developments

Truck stops

Product Attributes

No pollutant re-entrainment

Removes sediment, floatables, oils and grease

Designed to remove greater than 75% Total Suspended Solids (TSS)

Approvals/Standards

Auckland Council TP10

NZS3109, Concrete Construction

Quality

ISO 9001:2008 Quality Management Standard

We are the supply partner of choice for New Zealand's stormwater management and treatment solutions.

HYNDS
STORMWATER

Designed to comply with Auckland Council TP10 which makes them simple to specify and easy to approve. Developed to capture settleable solids, floatables, and oils and grease from stormwater runoff.

Design and Sizing

- Hynds Sand Filter Systems are sized based on the volume of stormwater to be treated. Standard systems are available to treat from 150m² to 5000m² and custom Sand Filters have been designed to treat up to 10,000m².
- Hynds Environmental will design a Sand Filter for each specific site based on the site constraints and performance requirements.
- Models
- Hynds In-Line System
Hynds In-Line Sand Filters are designed to treat a larger runoff area after the stormwater has entered the drainage network. These systems are integrated with the on-site drainage network and designed to collect, store, and treat all stormwater runoff from a specified catchment area.
- Hynds Source-Control System
Hynds Source-Control Sand Filters are designed for treatment prior to the stormwater entering the drainage network. These systems can be placed in roadways or carparks adjacent to kerbs or in open spaces. Multiple Source-Control Sand Filters can be installed for treatment of larger catchment areas.

Engineered for Performance

Hynds Sand Filter Systems are designed to treat stormwater runoff with the following performance criteria:

- Retention of >75% of total suspended sediments
- Capture of floatables, oils and grease
- Ability to store increase flows during storm intervals
- Capture of coarser sediments in a sedimentation chamber
- Modular units to allow incremental capacity increases as well as simple on-site installation
- Hynds In-line units incorporate a bypass device to prevent unit flooding during peak flows.



FIG. 1 Sand Filter – filtration chamber installation.

Note: Sand is placed after system installation.

Installation

Installing a Hynds Sand Filter is quick and simple. The Sand Filter is delivered to site in a kit set form, ready to be installed into the excavated hole and connected to the stormwater system. All internal components are installed in our factory to minimise the work required on-site. The treatment media is supplied separately for the installing contractor to place once the system has been established.

Maintenance

Two ports at ground level provide access to both the sedimentation and filtration chambers. A simple vector procedure is used to periodically remove the sediments in the primary sedimentation chamber while the filtration chamber requires the sand to be rejuvenated periodically.



FIG. 3 Sedimentation and filtration chamber

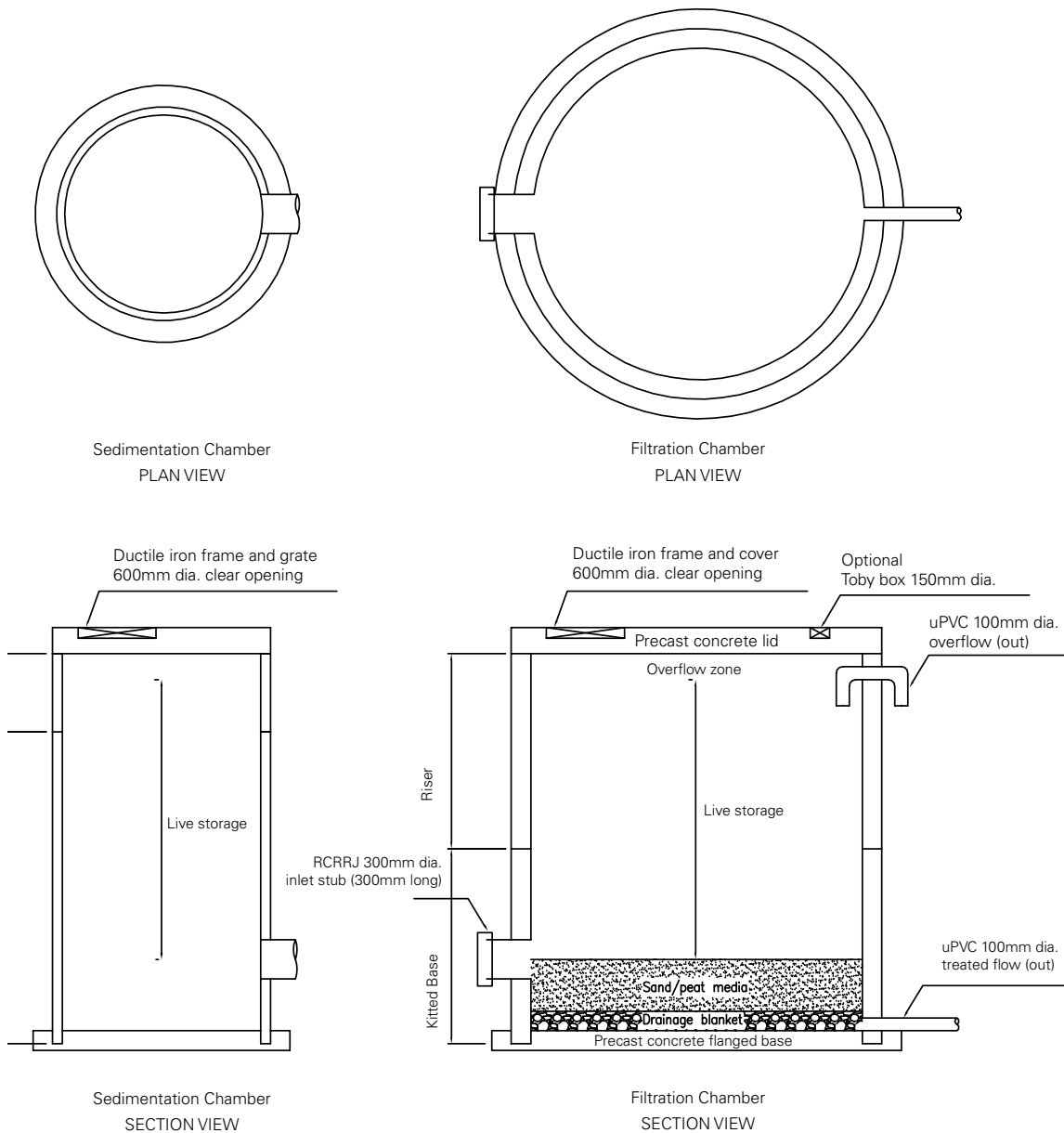


FIG. 2 General arrangement drawing

Lifting and Handling

All Sand Filter systems incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured Sand Filter systems with a minimum dynamic factor of 1.2. This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the filter system:

1. Lifting with mobile plant (*such as an excavator or similar*) where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
2. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
 - a. Transporting the element as close as practical to ground level (300mm recommended)

- b. Establishing and maintaining exclusion zones
- c. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
- d. Inspecting lifting anchors both after transportation and before final lifting into place

Refer to "Safe work with precast concrete - Handling, transportation and erection of precast concrete elements" published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended Sand Filter systems over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

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Disclaimer: While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.