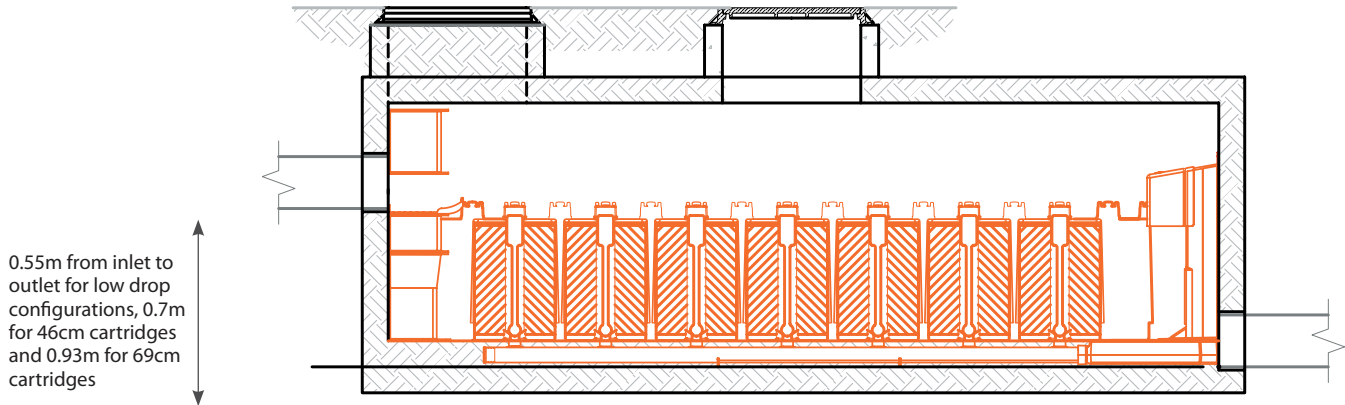


# Filtration for Low Drop Sites

## Designing for Limited Drop

In some cases, site constraints limit the hydraulic drop that is available to drive the passive filtration cartridges. Following are a variety of solutions to either create the required drop or work around the limited drop without impacting the performance of the system.

StormFilter configuration using low drop cartridges — 0.55m from inlet to outlet (compared to 0.7m for 46cm cartridges or 0.93m for 69cm cartridges)



## Solutions for Low Drop Sites

### Site Modifications

- Reduce Pipe Slope** Use an alternate pipe material with a lower Manning's n value for a portion of the site and reduce the pipe slope.

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- Reduce Pipe Cover** Use ductile iron pipe (DIP) or controlled density fill (CDF) at the front end of the conveyance system to minimise pipe cover and raise the conveyance system. CDF, a method of pouring concrete with fine aggregate (sand vs. gravel) around pipe, allows the use of most pipe materials with limited cover.

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- Drain Inlet Treatment** Substitute several shallow inlet configurations for the single end-of-pipe system. Shallow options include the Catchpit/Gullypit StormFilter, CurbInlet StormFilter, Manhole StormFilter and the Linear StormFilter. These systems still require the normal drop (0.7m for 46cm cartridges) but utilise the drop into the conveyance system to drive the cartridges.

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- Provide Pumping System** Stormwater360 offers the IPS (Integrated Pumping System) that can be designed in tandem with filtration system sizing.

### Treatment System Modifications

- Use Low Drop Cartridges** The StormFilter can be configured with low drop cartridges that activate at 30cm, reducing the overall head loss to only 0.55m, compared to 0.7m for the 46cm cartridge or 0.93m for the 69cm cartridge.

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- Surcharge the Inlet Pipe** Backing up water into the conveyance system can create the necessary drop to drive the StormFilter cartridges. This will affect the HGL and increase the volume of water required to activate the cartridges, which could have a detrimental effect on system longevity. The following design modifications mitigate these risks:
  - Confer with a Stormwater360 design engineer before surcharging the inlet pipe
  - Verify this is an acceptable practice in your local jurisdiction
  - Modify the overall system design to accommodate the increased HGL
  - Calculate the additional treatment volume and consider using more cartridges