

Revitalizing a Community with Rainwater Harvesting

Downstream Defender® and Up-Flo® Filter treat irrigation water in urban revitalization project

Project Profile

Objective

Revitalize the Paseo Edison neighborhood of Monterrey by eliminating frequent flooding.

Solution

A Downstream Defender® and Up-Flo® Filter were used to treat stormwater, which was then harvested and used to irrigate newly planted oak trees planted along a new public recreational space.

Product Profile

- The small footprints of the Downstream Defender® and Up-Flo® Filter are well suited to the space constraints of the site
- The high performance of the Downstream Defender® make it an effective pre-treatment device upstream of detention
- The high-rate Up-Flo® Filter provides a polishing level of treatment before stormwater is reused for irrigation

Find more about the Downstream Defender® and Up-Flo® Filter at www.hydro-int.com

PASEO EDISON, Monterrey, Mexico - A ground-breaking drainage project in downtown Monterrey has created a sustainable blueprint for rainwater re-use, which experts hope can be replicated to help tackle the joint challenges of urban regeneration and water-scarcity across Mexico.



Fig.1 The Paseo Edison neighborhood of Monterrey was suffering from frequent flooding events.

Monterrey is the capital of Nuevo Leon state in the north east of Mexico. With a population of 4 million it is the third biggest city in Mexico. In the arid northern regions of the country, water scarcity is becoming an increasing problem caused by over-extraction from underground aquifers.

In an ambitious social rehabilitation project, 1.5 hectares (3.7 acres) of abandoned street islands running along eight blocks of Monterrey's main Edison Avenue close to the city center have been transformed from hot-spots of crime and deprivation into a meeting point for the local community including sports facilities and children's play areas.

With a catchment basin of 540,000m² (133 acres) draining almost 300,000m³ (10,500,000 cubic feet) of rainwater, the area was prone to heavy flooding and subject to pollution from trash and other floatable debris as well as from hydrocarbons carried in the runoff during storm periods (Fig.1).



Fig.2 An 8-ft Downstream Defender® (pictured above) and a 6-module Up-Flo® Filter were used to treat harvested stormwater.

A solution designed and built by Soluciones Hidropluviales of Mexico City pioneered the use of stormwater treatment technologies from Hydro International in combination with stormwater storage to recycle rainwater, irrigate the islands and plant a green corridor of 170 oak trees.

The project employs a novel concept using Hydro vortex separation technologies (Fig.2) to clean runoff upstream of two retention tanks, explains Alberto Burgoa, President and CEO of Soluciones Hidropluviales, who are Hydro International's stormwater product distributors in Mexico.

"Using rainwater retention for stormwater management has not been common in Mexico, but we believe it could have great potential as a sustainable solution that can help combat the country's severe water scarcity problems," Burgoa says.

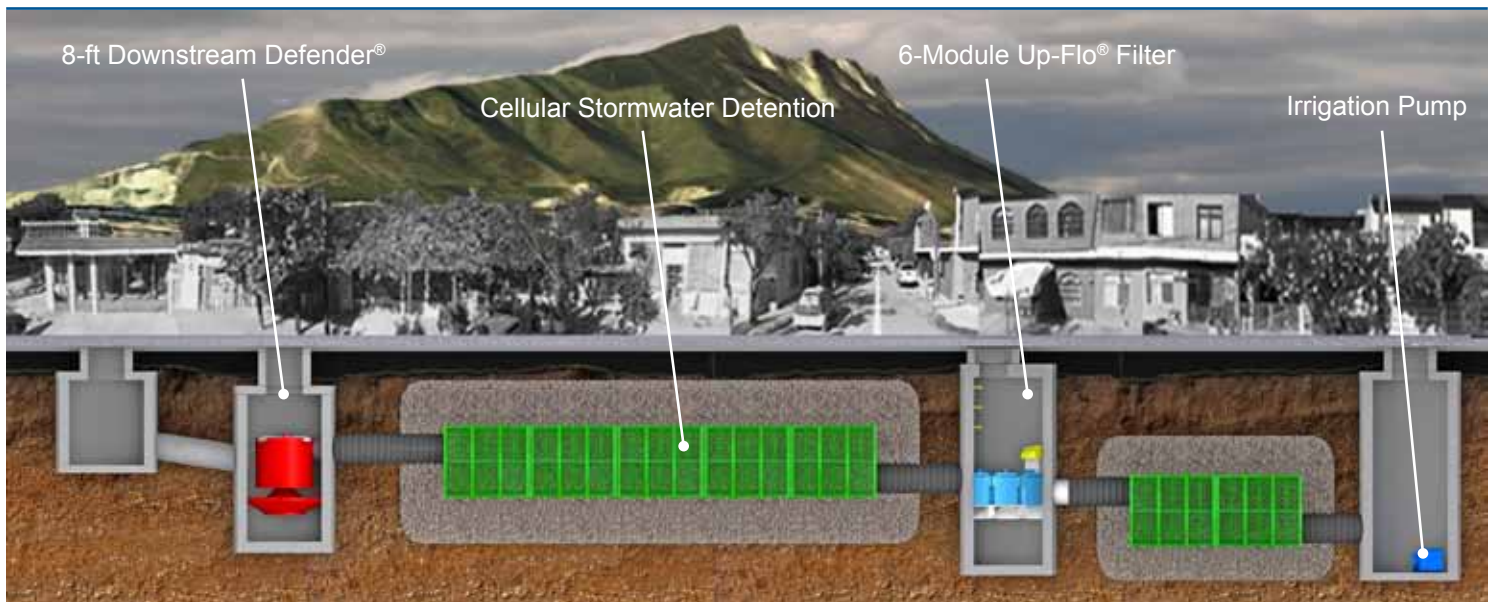


Fig.3 The stormwater harvesting scheme included an 8-ft Downstream Defender®, detention and a 6-module Up-Flo® Filter to treat and harvest stormwater that is reused to irrigate newly planted oak trees.



Fig.4 The land above the new stormwater system now includes public recreational space such as a playground.



Fig.5 The new public space, including fountains with LED lighting, gives the revitalized neighborhood a whole new look.

“The solution we have engineered will store enough water to irrigate the oak trees for 62 days. We hope the technology we developed can not only provide clean water for irrigation projects, but also be used for industrial or other urban regeneration schemes throughout Mexico.”

The new rainwater harvesting solution was retrofitted underneath one of the traffic islands with treatment solutions supplied via Hydro International’s Americas Stormwater Division, headquartered in Portland, Maine.

A Downstream Defender® vortex separator removes sediment, oils and floatables from the stormwater before it enters the first 186m³ (6,569 cubic foot) plastic tank designed to regulate the flow and store water. At the outlet to the tank an Up-Flo® Filter provides further high-performance stormwater filtration to remove fine sediments, nutrients and metals. Finally the water passes into a 62m³ (2,190 cubic foot) storage tank from where it is pumped to the drip irrigation system (Fig.3).

“We completed the drainage project in a very short three-month timescale. The Hydro products were quick and simple to install,” Burgoa says. Although the Downstream Defender® and Up-Flo® Filter typically require maintenance once per year, the heavy pollutant load of the drainage area will require more frequent clean-outs.

“The Downstream Defender® and Up-Flo® Filter will require maintenance twice a year, which is minimal compared to alternative stormwater treatment solutions,” adds Burgoa.

The regeneration of the Edison district is being led by OXXO, the well-known national convenience store chain which has its headquarters in the area. OXXO gathered together a group of investors and sponsors to form The Trust Poligono Edison, which includes the FEMSA bottling corporation, Monterrey Municipality, Monterrey Football Club and the US Consulate.

The project has seen the islands transformed into a series of family recreation areas including a children’s playground (Fig.4), basketball courts, exercise equipment, ping pong and public fountains (Fig.5). Cultural activities will be organised for the area’s 24,000 residents to provide a central community focus and encourage improved social conditions.