



IRON FILTRATION

DOES A STIRLING JOB IN BALCATT

Kevin Zoccoli - Irrigation Services Supervisor and Mark Pipes, Elliotts Irrigation Filtration Manager inspecting the filter system at Vasto Reserve

Above: Commissioning of the iron filter at Vasto Reserve, Stirling - WA

ei ELLIOTT'S IRRIGATION Article by Elliotts Irrigation

High Iron levels found in a sizable percentage of bore water in Perth can be a huge issue to those responsible for irrigation maintenance of large commercial projects. Water with high iron concentration is not only responsible for unsightly staining onto surrounding surfaces, but more importantly provides an environment for iron bacteria to grow which can cause breakdown of the watering system due to fouling of irrigation mainlines, blockages of sprinklers and failure of solenoid valves.



After the commissioning of the iron filter on the Vasto Reserve, the iron dropped to below 0.3ppm and has maintained this level for over 12 months. The dramatic reduction of the iron level has reduced the ongoing maintenance demands.

Vasto Reserve is a public open space sports field reserve located in Balcatta, within the City of Stirling. This reserve is used for multi-sport activity including soccer and cricket as well as general public use, so it's utilized year-round.

b) Filtration:- The oxidised water then passes through a naturally occurring catalytic media catching the precipitated iron.

The Balcatta and Gwelup area groundwater has high iron levels which create maintenance within the City's irrigation systems. The iron bacteria build up within the pipe work, valves and sprinklers affect the overall performance. After installing a new irrigation system at Vasto Reserve, it was decided to install a filtration system to ensure they got the full life expectancy out of the system compared to the previous one.

The Vasto Reserve iron filtration unit is capable of removing iron for between 15 and 25 hours of service. This time frame is site specific with the unit being set to its own requirements. After the specified operation time the filtration system will automatically backwash using the bore water. This process rids the filter of accumulated iron effectively recharging it for its next operation period. A rinse stage cleans the filter before returning it to service.

The City of Stirling contacted Elliott's Irrigation to discuss options for an iron filtration system to deal with the challenge of reducing the raw water quality of the bore water from up to 25.0ppm (parts per million).

After the commissioning of the iron filter on the Vasto Reserve, the iron dropped to below 0.3ppm and has maintained this level for over 12 months. The dramatic reduction of the iron level has reduced the ongoing maintenance demands, from having the need for a maintenance fitter attend the site every day to run each station on the park and fix blockages as they occurred, to a once per week system check, with no system failures to speak of. This gives the City of Stirling a financial saving on resources with technicians able to be utilised elsewhere.



The Iron Filtration process involves a unique method of removing soluble iron from groundwater without the need for large dropout tanks or chemical extraction procedures. The process of removing the iron is carried out through a two-part procedure:

Irrigation Services Supervisor, Kevin Zoccoli states that the capital outlay will be quickly offset against labour rates and replacement parts, as well as the aesthetic effect on the turf of having reliable water application because of reduced blockages from iron build up.

a) Oxidation:- Air is injected through a venturi via a booster pump into the raw bore water. This starts the iron oxidation process.

Above: Enclosure filtration system Vasto Reserve

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Since the initial installation of the Iron Filtration Units, which have been fitted to several new and existing irrigation systems within the City of Stirling; maintenance on the sprinklers and irrigation infrastructure in the City of Stirling's parks and gardens has reduced significantly which is a positive outcome for their investment.

Filtration enclosures have been adapted, and custom designed to blend in with the location and landscaping being it in a brushwood enclosure, custom built sheds/huts to colour coded aluminum or plastic slat encloses to mirror new estate architecture.



Above: The 'After' photograph was taken after the filter was installed and a stain clean carried out. The path remains clean after 12 months of running.