



environs



Keeping Scotch Green.

Welcome to the first edition of **environs**, a newsletter aimed at keeping the Scotch College community informed about how the School is responding to the considerable environmental challenges that it confronts each day.

Scotch believes that parents, teachers, staff and students want and deserve to know about the great work being done to reduce the School's impact on the environment.

From water and energy management to waste reduction, Scotch either has in place or is developing policies and practical initiatives that are measurably improving the School's environmental profile. In this first edition, we look at Scotch's far-reaching and innovative program to find new water sources and reduce water consumption in all aspects of the School's operations.

In future editions we'll examine the many areas where Scotch is striving for best environmental practice, and we will meet some of the key people in the School who are driving this work.

We hope you enjoy **environs** and find it informative.



Proud of his team – and the results: Michael Smith surveys the re-grassed Quadrangle

Keeping Water Consumption in Check Requires Smart Thinking – Curator

Many around the College credit Michael Smith (Mick, to most who work with him) and his team with being among the strongest drivers for an innovative new approach to water use at the School.

As Curator, he and his team run the biggest water-using operation at the School – irrigating the ovals and other playing fields – which absorbs more than 55 per cent of Scotch's total water consumption.

“When we went from Stage 2 to Stage 3 water restrictions we really had to start thinking outside the square at what we could do with our water regime,” says Michael.

Facing tough limits on the number of ovals the School was allowed to irrigate; with limited water supplies and potentially ballooning water costs, Michael and his team, along with the College Property Manager Bill Sciarretta and Greg McMahon (Maintenance Supervisor) began developing a comprehensive, strategic approach to water management in all facets of the School's operations.

“Water shortage issues are never going to go away, so it was time for some really smart thinking – and action”.

After the School took detailed advice from expert consultants, Sustainable Development Consultants (SDC) and with guidance from Scotch's water authority, Yarra Valley Water, Michael, Bill and Greg prepared a comprehensive water management plan with six objectives:

- > Significantly reduce demand for mains water
- > Develop water-saving initiatives for the long term
- > Reduce Scotch's environmental impact
- > Save money
- > Deliver positive social results
- > Deliver educational benefits



The worst effects of drought (above) can be reduced by good water management.

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The range of initiatives Scotch is pursuing is remarkable, from re-planting ovals and grassed areas like the Quadrangle with summer grasses that use less water, through to:

- > reclamation of water from Gardiner’s Creek;
- > supplementing creek water with Class A reclaimed water from City West Water, Barry Brothers and others;
- > comprehensive changes to the management of the swimming pool;
- > radical changes in the way the boarding house laundry operates, and
- > big expansion of the stormwater collection system.

Even sewer mining – collecting and treating water from nearby sewers, is under active consideration.

These and other initiatives Scotch is pursuing are spelt out elsewhere in this newsletter. The School has already made remarkable water savings and is now consuming 20 per cent less mains water (or drinking-quality water) than in 2004.

Scotch’s Water Management Plan, when implemented in full, will see water savings of around 20 megalitres a year.

“The School administration and the College Council have been really receptive to our ideas and supportive in carrying them out,” says Michael.

And, with the pride characteristic of strong leaders, Michael and Greg heap praise on their grounds and maintenance team.

“Lots of this couldn’t have been done without the work and ideas from our team. They’ve come up with all sorts of new ideas for ways we can run the watering regime. Some of these ideas have taken a fair bit of working through, but they’ve really helped,” Michael says.

“We meet regularly to discuss how we’ve been going and to share ideas”. Over the summer, the School has two full-time staff dedicated just to watering and irrigation to make sure Scotch gets maximum value and effect from its watering of playing surfaces and its gardens.

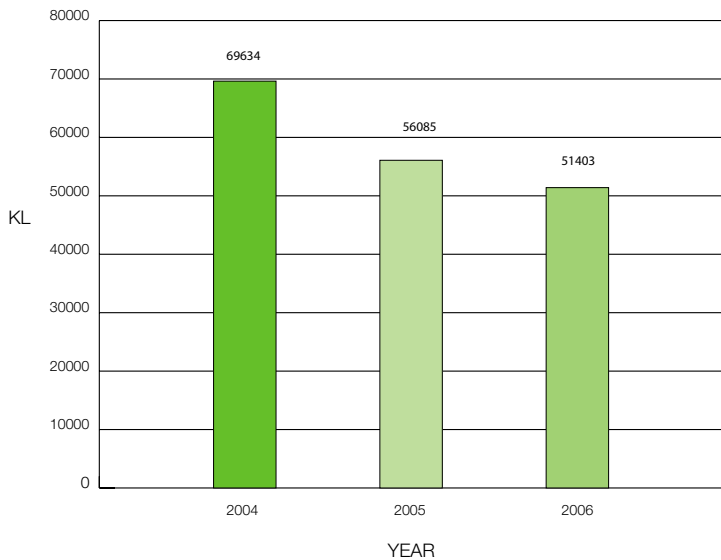
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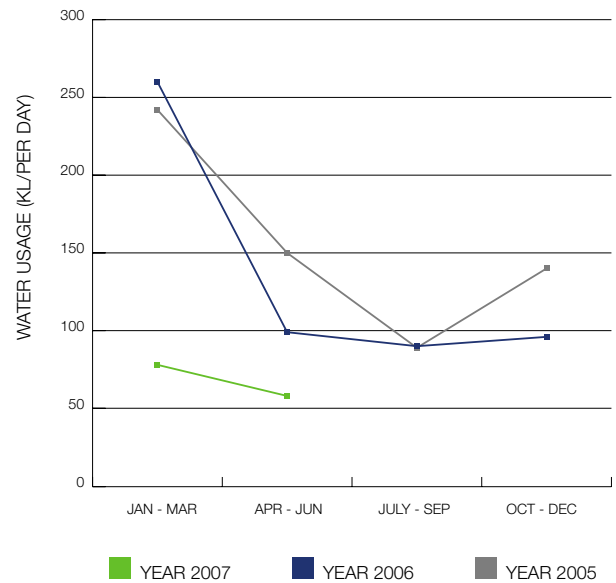
Scotch and Water: a Frugal Mix

Scotch College is proving itself to be a champion water saver, achieving remarkable reductions in mains water consumption in all areas of the School's operations.

Water Consumption 2004-2006



Water Usage Comparison (per day)



As the chart above (left) illustrates, Scotch last year was using just three-quarters the volume of water (51.4 megalitres) that it was consuming in 2004 (69.6 megalitres). The usage rate has continued to fall in 2007.

An even more dramatic demonstration of what Scotch has achieved is shown in daily water consumption figures in the peak summer period.

In the peak consumption period this year Scotch has reduced its daily water use to about one quarter of the amount used in 2005.

The chart above (right) shows that in February of both 2005 and 2006, Scotch was consuming more than 200,000 litres of mains water each day.

In February this year, Scotch had reduced this to approximately 68,000 litres per day.

Scotch has achieved this by introducing:

- > Water efficient taps, shower heads and toilets, saving 1.7 million litres a year;
- > Changes to the way the swimming pool is backwashed, reducing water losses by 5,000 litres a week;
- > Reclamation of 6 million litres of mainly stormwater from Gardiner's Creek for irrigation;
- > Expanded below-ground drip irrigation and using rain sensors to shut off irrigation systems automatically (saving more than 360,000 litres a year);
- > An expanded storm water collection system, and
- > A program to re-plant ovals and grassed areas with warm-weather grass varieties that need less water.



Storing rainwater a small but important part of a big strategy

And there is more to come

Scotch continues to evaluate and implement a number of other ways to save and harvest water.

For example, the School boarders' laundry discharges nearly a million litres of grey water into the sewer each year. Scotch has installed an ozone-based clothes laundering system to reduce this considerably.

By using cold water only, and requiring a single wash/rinse cycle, the ozone system provides significant benefits in reduced water, energy and chemicals required for use in each wash.

There is also potential to collect and store more rainwater and use it for toilet flushing, swimming pool top-ups and watering of ovals. The School already has considerable rainwater storage installed, such as the tanks under the Cardinal Pavilion (pictured) which store around 40,000 litres.

This is still a relatively small amount, though, as just one overnight watering of the Main Oval soaks up 70,000 litres. The feasibility of re-planting the Main Oval with warm season grasses is being examined.



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All new buildings on Scotch land will be designed to incorporate rainwater storage with the water either reticulated back for use in the building or connected into a new drain to distribute irrigation water.

Scotch is getting engineering advice on establishing a new ring main, separate from the drinkable water mains, for distributing recycled, storm and rainwater and water reclaimed from a potential sewer mining project.

There is also potential to:

- > Re-use pool backwash water
- > Harvest stormwater from College and Council drains for grounds irrigation
- > Establish a sewer mining plant, either as a Scotch College – only project, or as part of a joint venture with other large water users nearby, facilitated by Yarra Valley water.



The Quadrangle has come up a treat after its winter grass lawns were replaced with water-saving Sir Walter Buffalo Grass

Sewer mining

Late last year Scotch management began talking with Yarra Valley Water to re-kindle their interest in a shelved Sewer Mining Project which had been planned for the Kooyong Valley and major users such as Scotch and Kooyong Tennis Club.

Yarra Valley Water responded positively and agreed to do a comprehensive feasibility study. This has now been completed and Scotch expects to hear the study results shortly. We will keep you informed about the outcome via this newsletter.

Scotch has also investigated alternatives to the Yarra Valley Water Sewer Mining Project, in case it again doesn't proceed. Scotch's contingency planning might include a stand-alone sewer mining facility.



Innovative thinking came up with these 'tanker tractors' as an efficient water-distribution solution.

Scotch Water Pumpers a Pioneering Design

Securing a licence to use up to 6 megalitres a year of reclaimed stormwater from Gardiner's Creek was a big boost to Scotch's plan to reduce its demands on the mains water supply.



Expert tests showed the water is of acceptable quality for irrigating turf and garden areas, says Curator Michael Smith.

Eventually, Scotch hopes to be able to pump this water into a main irrigation drain supplying most parts of the School's 27 hectare site.

For now, though, Scotch has developed its own smaller-scale solution to the problem of distributing reclaimed water.

The School designed a light water tank and pump system that could be towed by tractor. It worked with a local engineering company to turn the design into reality. Other institutions with large grounds saw the finished product and have started asking to have the same.

Scotch recently added a 1,000 litre version to its original 4,000 litre tanker.

“We were the pioneers on this, so we were rapt about that,” says Michael Smith