# **GERARD VAN DEN BOSCH** AND THE BIG PIPE PEOPLE

## **VALETTA IRRIGATION DESIGN AND INSTALLATION**

## **INNOVATOR**

The innovations are multi-faceted and hard to separate. The common denominator is the innovator. Valetta exemplifies the innovations.

Former farmer, irrigation supplier then pipe manufacturer and installer, Gerard van den Bosch, Managing Director, Aquaduct NZ and Bosch Irrigation Ltd, is well known for thinking outside the square and getting results. Gerard is a 'go to man for irrigation design across NZ

Gerard has created many innovations for the recently completed highly successful Valetta Irrigation Scheme. Bosch's unique installation solutions and Aquaduct's industry firsts work together, reducing Valetta's capital costs while providing each farmer with the best irrigation outcome. The Valetta design combines low running costs, sustainability, value

AQUADUCTNZLT



Managing Director, Aquaduct NZ and Bosch Irrigation Ltd

telemetry control at farm outlets.

## **INNOVATION** FROM GO TO WHOA **SCHEME DISTINCTIVES**

- **ECONOMICAL ON-SITE CUSTOMISED PIPE PRODUCTION -**Aquaduct supplied over 80kms of pipe in sizes from 1.6 metres diameter to 200mm, in lengths up to 250 metres, from NZ's largest capacity plant - extruding up to 5800 tons of pipe in 60
- PIPE EXTRUDED ON SITE IN 100M + LENGTHS saves 80% of welds and a week's welding time for every kilometre, reducing installation time and cost
- CUSTOMISED TRENCHING MACHINE screens out cobblestones for fine bedding
- VIBRATED PIPE DURING BACKFILLING perfectly beds the pipe, greatly increasing longevity
- INNOVATIVE FARM OUTLETS simple low-cost flow and pressure control using butterfly valves, eliminating hydraulic valve 'dirty water' problems. Farmers can turn their system on or off with telemetry using internet on smart phones or computers
- BETTER WATER SHARING among farms to efficiently utilise
- PIPE OPEN RACES Irrigating an extra 3000 hectares with the
- GENERATING 2200kW of electricity from excess pressure
- PRESSURISING WATER to all shareholders, saves over \$2.3M
- numping costs reducing carbon footprint
- RETURNING LAND approximately 50ha previously used by the race system and freeing access that was blocked by races

### **AQUADUCT NZ**

## **PURPOSE MADE** LARGE BORE **HIGH PRESSURE PIPE**



- FASTER MANUFACTURING BETTER QUALITY PIPE plastic stays hot for a shorter time resulting in more ductile and less brittle pipe, substantially increasing its lifetime. The ASNZS standard calls for a 50 years' design lifetime. Aquaduct NZ pipe should last over
- STRONGEST MATERIALS PE100+ Polyethylene virgin material that Aquaduct uses is the strongest commercially available extra 25% safety margin above the AS/NZS 4130-2009 Standard
- COMPUTER CONTOLLED QUALITY latest extrusion technology with German ultrasonic scanning and monitoring, scans and records every mm of the pipe as it is manufactured to ensure that only perfect quality pipe is used.



## Bosch designed and adapted machinery for Canterbury Plains' unique cobblestone conditions



## WHAT ARE THE COST SAVINGS

The cost savings are widespread across the board and depends on the size of the

For Valetta cost savings were in the order of \$6.4m (approximately 20% overall):

### On - site pipe manufacture

- \$1.2m in welding costs and 80 weeks of welding time to have the factory on site.
- \$1.3 was saved in freight costs by having the factory on site. The cost of procuring 1.6m diameter pipe in itself is an other saving which is
- difficult to cost but would be in excess of \$3m over importing it as only one 12m length of pipe will fit in a standard 40 foot container.

The use of our 65 ton Trencor Trencher with Gerard's custom designed screening belt, saved approximately \$900,000 for screening and obtaining suitable bedding, in comparison with using imported backfill material or screening separately.

main innovation however is not the cost saving, but the raising of the standard of installation in a practical way to lengthen the life of the scheme.

## THE IMPACT ON FUTURE SCHEMES

The impact on future schemes of using this customised technology is that schemes are installed more efficiently (cheaper and quicker), safer (with no manual labour in trenches) but most of all better!

The biggest single item which impacts in this regard is the perfect bedding system ensuring pipe longevity. Gerard's screening and backfill pipe vibration with the

plate compactor – does it better than conventional methods, well surpassing the AS/

The life of the scheme is expected to be 150 years instead of the standard 50 years. Put in the simplest form, THE SCHEME SHOULD LAST UP TO 3 TIMES AS LONG as

### COMMUNITY AND ENVIRONMENTAL BENEFIT

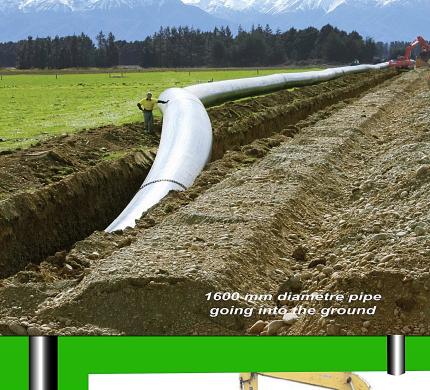
The piped Scheme has provided better water allocation and improved monitoring to farms. The return of approximately 50 hectares of arable land to the Valetta farming community provides Bosch and Aquaduct with a great deal of satisfaction. The Scheme saves water 1200 litres per second which has increased the irrigible area by 37.5%. Valuable access is returned to farms previously constrained by water races. Piping the Scheme eliminates in the order of over \$2 million in pumping costs and reduces the carbon footprint associated with these.

The flow on economic benefits in the wider community will be felt for decades to come. The more efficient of water through piping the scheme will benefit the ment saving this valuable resource.

Gerard van den Bosch was nominated for the Innovation in Irrigation Award by Alistair Morrison, Chairman of Valetta Irrigation Limited, for Gerard's work in leading Aquaduct and Bosch Irrigation in designing, supplying pipe and installing the ground breaking Valetta Scheme using several innovative concepts including the transportable pipe factory.

Aquaduct and Bosch takes this opportunity to thank the Valetta Board for their

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100 metre lengths towed to site by 8 wheel drive all-terrain truck.

