



# New Plymouth City Wastewater Treatment Plant

## NEW PLYMOUTH CITY WASTEWATER TREATMENT PLANT

The completion of the new Wastewater Treatment Plant in the Waiwakaiho Basin spells the end of an interesting, if somewhat traumatic, chapter in New Plymouth's history.

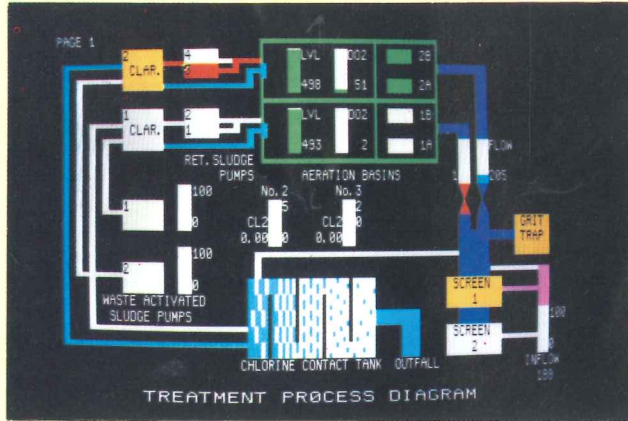
In 1964, the New Plymouth City Council realised a new system would be required to replace the raw sewage discharge via a short outfall at Eliot Street. In engineering terms, that system had served the City well for nearly 40 years.

Many options, including traditional primary and secondary treatment and a 1,600 metre outfall with comminution or milliscreening were contemplated. Eventually in 1981, after considerable community interest and involvement, Council resolved to construct a carrousel type treatment plant that offers New Plymouth and surrounding districts a viable, economic, reliable and effective method of secondary treatment of waste water.

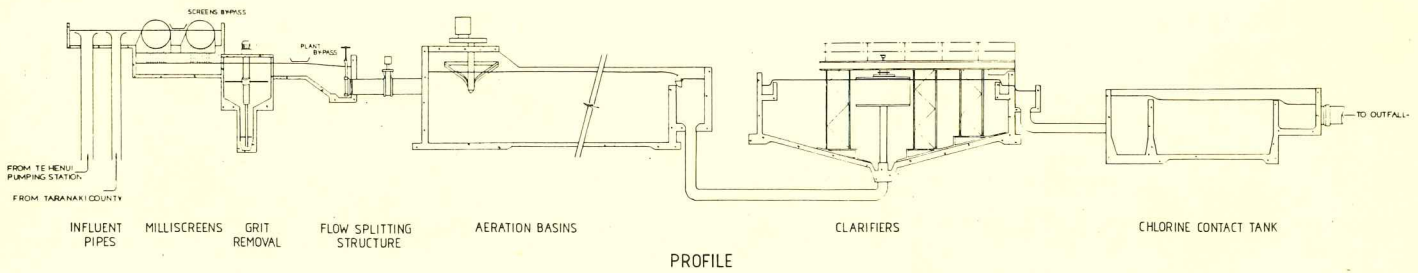
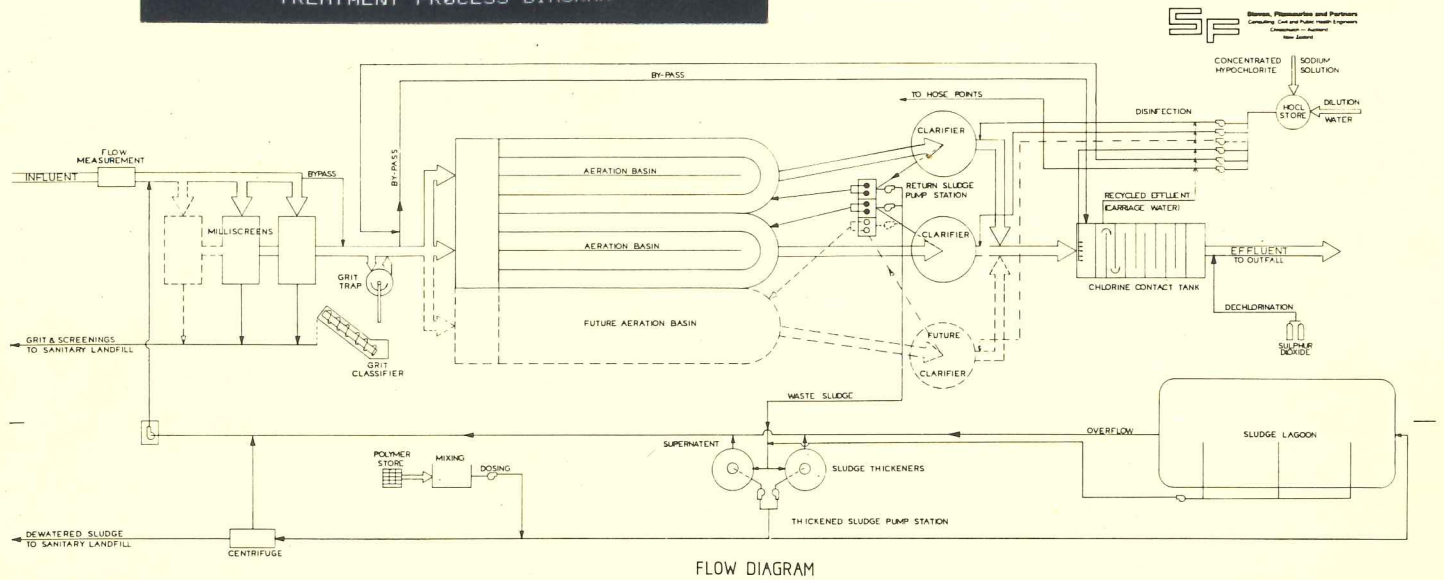
It is the first plant of its kind in New Zealand and the Citizens of New Plymouth have every reason to be proud of this "state of the art" method of waste water disposal.



David Lean  
MAYOR



Graphics Display on the Visual Display Unit showing the complete process schematic.



SEI General, Plastics and Paints  
Contracting, Civil and Public Health Engineers  
New Zealand



## MARINE OUTFALL

---

*The Marine Outfall, of 950 mm diameter concrete lined steel, has external coal-tar enamel coating, a reinforced concrete weightcoat and cathodic protection to counter corrosion.*

*The outfall extends 450 metres offshore to a 30 metre multi post diffuser.*

*The outfall was launched in four separate sections using an overhead gantry system and was placed within 10 mm of the design location despite the severe sea conditions prevalent on this coast.*

## WASTEWATER TECHNICAL DATA

### SCHEME OUTLINE

The city sewer system is connected by gravity sewer to Te Henui Pumping Station and hence by pressure sewer to the New Plymouth Wastewater Treatment Plant adjacent to the Waiwakaiho River. Treated effluent is discharged through an ocean outfall to the Tasman Sea. Provision exists for connection of the Bell Block area of the city. This is currently being constructed.

### WASTEWATER TREATMENT PLANT

#### Plant Capacity

Stage 1 55 000 persons (70 000 pop. equiv.) 19 300 m<sup>3</sup>/d DWF  
Stage 2 82 000 persons (105 000 pop. equiv.) 28 700 m<sup>3</sup>/d DWF

#### Plant Description

The plant is an extended aeration activated sludge carousel type treatment plant designed to produce a high quality disinfected secondary effluent.

Treatment facilities at the plant comprise:

- fine screening through 3 mm aperture Contra-Shear milliscreens
- grit removal
- extended aeration in Carousel aeration basins
- secondary clarification
- chlorination and dechlorination, this is currently being reviewed.

— sludge thickening and mechanical dewatering  
Dewatered sludge is disposed of off-site to sanitary landfill. A sludge lagoon is provided on site for emergency sludge storage.

The outfall, of 950 mm diameter in concrete lined steel with external concrete weightcoat, extends 450 metres offshore to a 30 metres multi-port diffuser.

#### Capital Cost of Scheme

	Current forecast is
Trunk Sewers	\$2,550,000
Te Henui Pumping Station	1,165,000
Wastewater Treatment Plant	9,424,000
Outfall and Outfall Sewer	4,884,500
Administration Costs	190,000
	\$18,213,500

Loan authority is \$19.3M.

## CREDITS:

### DESIGN AND PRINCIPAL CONSULTANTS:

Steven, Fitzmaurice and Partners

### ARCHITECTS:

Robinson Boon Cowie Harding and Partners

### PROJECT MANAGEMENT WASTEWATER TREATMENT PLANT:

P.A. Management Consultants Ltd

### CONTRACTORS: Wastewater Treatment Plant—

INITIAL SITEWORKS—John McLachlan Ltd

AERATION BASINS AND CLARIFIERS—

Equipment: Mason Engineers Ltd (Envirotech Australia Pty)

Structures: Hawkins Construction (Taranaki) Ltd

Clarifier walls: Emmett Bros. Ltd

PRETREATMENT BUILDING—

Hawkins Construction (Taranaki) Ltd

ADMINISTRATION BUILDING—Lyndsay Sole Ltd

SLUDGE STRUCTURES—

Equipment: Dormarg Equipment Ltd

Structures: Jones and Sandford Ltd

ANNEXE BUILDING—Jones and Sandford Ltd

FINAL SITEWORKS—Hurlstone Earthmoving Ltd

ELECTRICAL—New Plymouth City Council Electricity Dept.

DISINFECTION BUILDING—

Structures: Jones and Sandford Ltd

Mechanical: Isotech Constructors Ltd

### Te Henui Pumping Station:

PUMPS AND MOTORS—

Mason Engineers Ltd (Weir Pumps Ltd)

STRUCTURE—H.F. Snowden Construction Ltd

Gravity Sewer: A.G. Dryden Ltd

Pressure Sewer: Brian Perry Ltd

Outfall: Brian Perry Ltd

### THE COUNCIL AT THE TIME OF COMMISSIONING:

H.W. the Mayor: D.L. Lean

Deputy Mayor: Cr. R.M. Barclay

Chairman Wastewater Committee: H.W. the Mayor

Councillors: J.G. Armstrong, B.S.E. Bellringer,

E.T. Collins, E.K. Fletcher, E.G. Gundesen, L.W. Hannan,

I.J. Honnor, J. Davidson, L. Bublitz, D.K.L. Lyall,

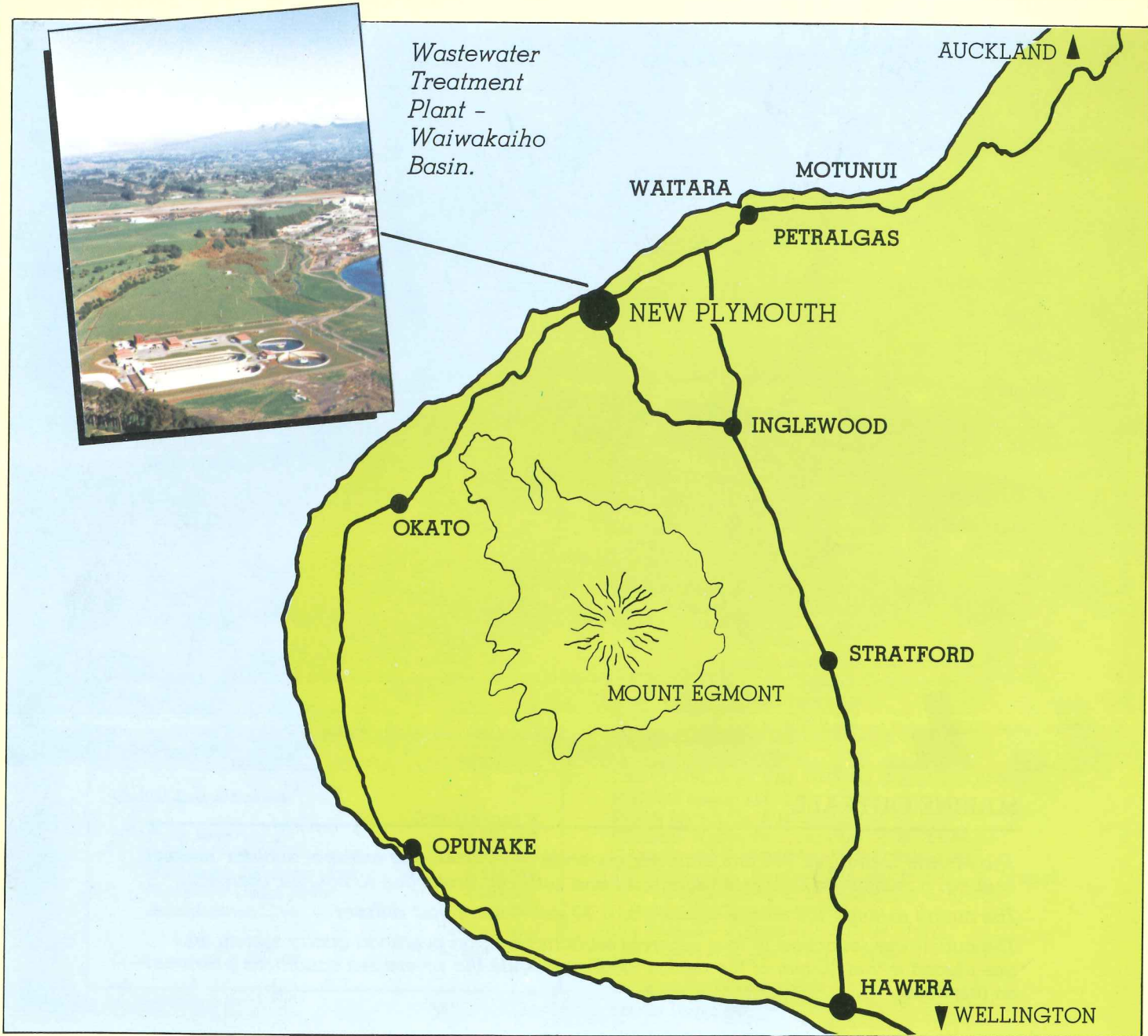
H.D. Moss, A.C. Squire, W. Still.

City Engineer: J. Kettlewell, B.E., M. IPENZ

Town Clerk: K.N. Sampson J.P., A.C.I.S.

Commissioned October 1984

Reprint Dec. 1986



Masterprint