



Mangaio Mini Hydro Project

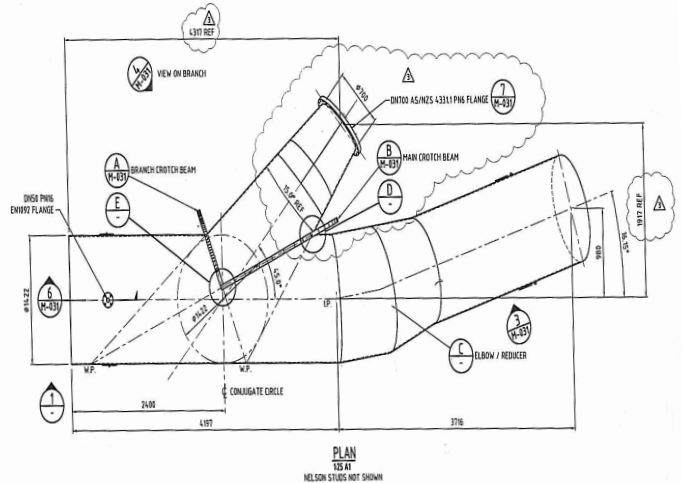
Client: Genesis Energy

Start Date: November 2006 **Completion Date:** 2007

This Mangaio Mini Hydro scheme for Genesis Energy is a single 2000 kW water turbine driven generating set located 10km North of Waiouru on the Mangaio Stream a tributary arm of Lake Moawhanga. PFS is responsible for the shop fabrication and onsite installation of the mechanical components as shown below.

Shop Fabrication:

- Tunnel Plug and approximately 200 meters of penstock piping
- Bifurcation and Outfall Transition
- Powerhouse Access Platforms and Walkways, Monorail and Roof.



Bifurcation – Complicated fabrication - Three way transition with two reducing lobster back bends to ASME B31.1, NDT Stress Relieving and Hydrotest all conducted at our workshop.



Penstock Piping ready for transport to the painters with Workshop in the background



Outfall Transition – Rectangular to round transition.

Site Installation

- Tunnel plug, penstock pipes, bifurcation and outfall transition during planned outage. Works presently in progress include underground penstock and structural steel within the powerhouse.



Penstock piping being lifted over the existing outfall channel ready to be pulled on the tunnel.



Penstock piping in the process of being winched up an existing tunnel. PFS design of temporary works.