Piling up Efficiency

(Translation of the last paragraph of the article by David Redhead, managing director of BSP International Foundations, a pile driving equipment manufacturer)

(...)

Hydraulic hammers offer the contractor some real efficiency benefits. The stress wave analysis that, using a Pile Driving Analyzer, compares the potential energy of a hydraulic hammer with the energy transferred to the pile shows in some cases twice as much energy in the hydraulic than in diesel hammers. These results may be easily verified utilizing the stress wave equation (WEAP). Higher driving efficiencies means that piles are driven faster, increasing the profits obtained by the operator of a hydraulic hammer.

The Dynamics of Tests

Assuring that driving stresses are maintained at a safe level and determining pile capacity is the key for any foundation work. The civil engineering consulting company Goble Rausche Likins and Associates, has recently finished the testing of the foundations for the Tren Urbano project in San Juan, Puerto Rico.

The $1.7 billion mass transit system Tren Urbano includes tunnels, tracks and stations through the heart of metropolitan San Juan. GRL used a Pile Driving Analyzer (PDA) to make measurements as the piles were being driven into the ground. Strain gages and accelerometers attached to the pile were connected to a PDA that processed the information.