Chapter

6

Thorndon Container Wharf: Temporary Works for Recovery of Container Operations (New Zealand)

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Abstract
The Thorndon Container Wharf sustained severe damage in the November 2016 M7.8 Kaikoura earthquake. Substantial works, of a temporary nature, were required to restore the wharf for container handling operations. The temporary securing works included gravel columns within the reclamation fill and restraining and underpinning of the wharf. All of these works were designed and constructed over a 9-month period to provide a temporary facility for container handling operations for a period of up to 3 years. The temporary securing works were required to secure the container cranes, maintain support to the wharf structure, and ensure the reclamation behind the wharf had sufficient strength to support lateral loads imposed by the restraining system. This was to enable container operations to recommence and to maintain business continuity, pending action on replacement or reinstatement of the container wharf. This paper outlines the development of the design of the temporary works to secure and return to operations a 125- m working length of wharf and reclamation.

Keywords: wharf, seismic damage, assessment, repair, existing reinforced concrete structures, structural analysis

6.1 Introduction

The Thorndon Container Wharf (TCW) is a marginal wharf that forms the eastern edge of the CentrePort container terminal operational area in Wellington, New Zealand (*Fig. 6.1*). The wharf provides approximately 585 m of berth for vessels for the loading and unloading of containerized cargo, using two 750-tonne Liebherr ship-to-shore gantry container cranes positioned on the wharf.

The wharf was constructed in stages from the late 1960s by the Wellington Harbour Board. Precast concrete driven piles, cast *in situ* reinforced concrete main beams, and precast, prestressed concrete deck units make up the typical wharf structure. The area behind the wharf was reclaimed as part of container port expansion works, which included construction of the wharf structure.