

VSL innovative solution preserves three century-old chestnut trees



▲ Sliding of tree 32 and 33 in the Saski Business Park

As part of the Saski Business Park development, which includes the construction of two office buildings between Marszałkowska and Królewska Street in Warsaw, three century-old chestnut trees (called trees 12, 32 and 33) have been slid to save them from destruction.

Because of their size and ages the trees could not be displaced using conventional transplantation methods.

VSL's innovative solution consisted in sliding the trees, together with their entire environments in just one step, saving the roots from potentially fatal injury.

Before sliding, the trees were pruned and their trunks wrapped in rolls of jute bandages to reduce perspiration i.e. loss of water.

The first step of the project consisted in excavating the earth around the chestnut trees and over the sliding distance of 18 m for tree 12 and 32 m for trees 32 and 33.

To avoid the decompression of the ground and maintain the roots in their original environment, temporary steel and wooden retaining walls (Boliner type) were erected to form two giant pots.

As trees 32 and 33 were too close to be moved independently, a large perimeter frame of 16-m diameter was needed. For tree 12, the preservation perimeter frame was 10 m in diameter.

A concrete post-tensioned circular beam around each pot was created at the bottom of the Boliner walls to spread forces evenly during sliding.

Ski-shaped metal sheets acting as launching pads were thrust beneath the trees to separate the pots from the ground.

Given the characteristics of the ground, two sliding methods were implemented. A direct traction from anchor blocks was used to move the 400-t pot of tree 12. For the 1,500-t pot of trees 32 and 33, indirect traction using intermediate buttresses, connected to the circular beam was implemented.

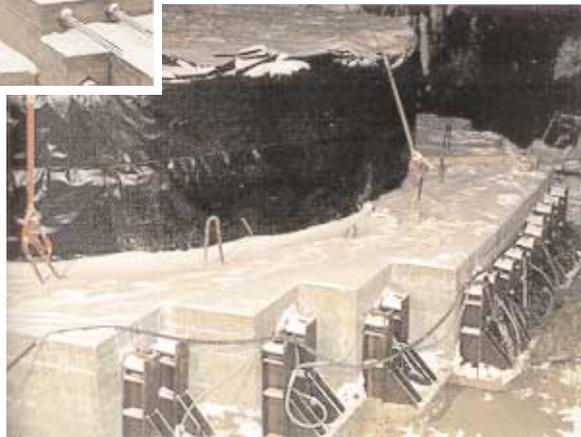
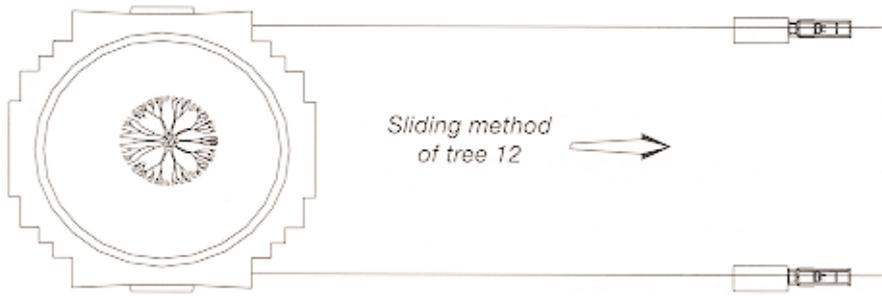


▲ The ski-shaped metal sheets acted as launching pads

Two 1,000-t capacity hydraulic jacks with nineteen (tree 12) and thirty seven (trees 32 and 33) 0.6" strands were used to pull the pots.

To ease the sliding along the ground, bentonite grout was regularly injected.

The average sliding speed was 4 m per hour.



Main Participants

Owner:
POLSKI BANK ROZWOJU and
AIG-LINCOLN POLSKA Company

Main Contractor:
BOUYGUES POLSKA

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Year: 1998

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