POLITECNICO DI TORINO
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GEAM
GEORESOURCES AND ENVIRONMENT ASSOCIATION

ITALIAN TUNNELLING ASSOCIATION

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MECHANIZED TUNNELLING: CHALLENGING CASE HISTORIES

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PORTLAND OVERFLOW SEWER TUNNEL (U.S.A.)

Abstract

This important sewage project was appointed to Impregilo and its US subsidiary S.A. Healy in summer 2002.
The contractor mobilized two Herrenknecht Mixshield TBMs to drive the 5,600 m long, 4.2 m internal diameter tunnel in coarse and permeable alluvial formation, under 3.5 bar of water pressure.
The two TBMs were launched from an intermediate 16 m diameter, 40 m deep shaft, one driving northward for about 1,300 m, the other driving southward for the remaining 4,300 m.
At the staging area at the launching shaft, two Shauenburg 650 m³/h capacity separation plants have been erected, discharging on barges the excavated material which is currently utilized for the rehabilitation works of an old borrow pit.
Today the north tunnel TBM has completed its drive below the Willamette River and has broken though into Confluent Shaft, while the south tunnel machine is continuing the boring with good rate of advance.
The article explains the main reasons which have brought the contractor to the choice of the more suited equipment for this project and the major difficulties encountered during the TBM operation.