

Infilling of underground void

Grouting

CONCORDE ZAC

VITRY-SUR-SEINE - FRANCE



Infilling of underground quarries for the construction of 7 floor buildings with shallow foundations



Support pillars in a mine

A large part of the Ile de France area is undermined by old underground quarries that require the use of specialist ground treatment to allow development of these plots of land. As part of the Concorde zone project in Vitry sur Seine (94), Solétanche Bachy has carried out underground consolidation works which have allowed developers to build a shopping centre and blocks of flats comprising a ground floor and 7 upper floors on this 15,000m² site using noly shallow foundations.

CLIENT:	VILLE DE VITRY-SUR-SEINE
DEVELOPER:	SADEV 94
CONSULTING ENGINEER:	SEMOFI
STATUTORY EXTERNAL CHECKER:	IGC
CONTRACTOR:	SOLÉTANCHE BACHY
DURATION OF THE WORKS:	2008 - 4 MONTHS

MAIN QUANTITIES:

- 1,077 x 150mm diameter and 25m deep (average) boreholes or 27,000m of drilling,
- 16,800m³ of cement mortar for the gravity infill,
- 1,700m³ of cement mortar for consolidation,
- 1,500m³ of cement grout for the treatment.

The works consisted in treating between two and three levels of old limestone mine workings found at depths of between 18 and 26m below ground level. Precisely targeted treatment of collapsed rock zones and superficial material eliminated the need for deep foundations.

The contract specified:

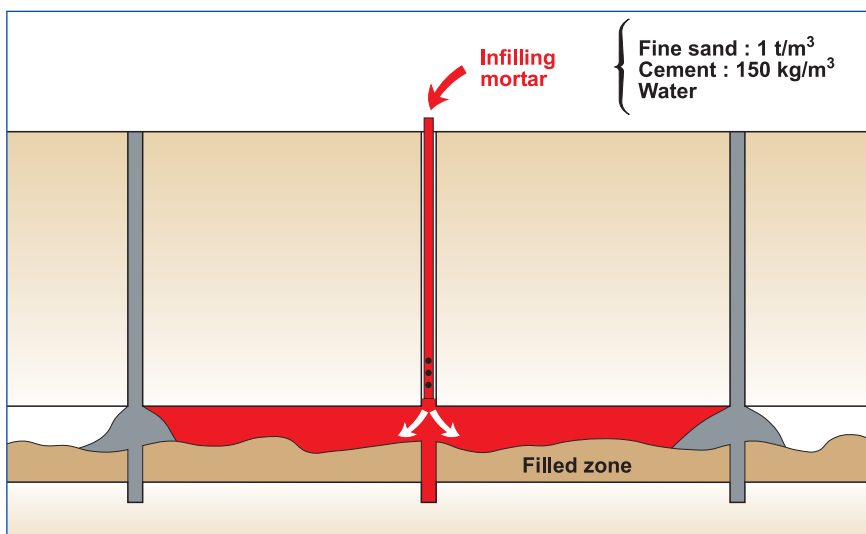
- Gravity placement of infill mortar.
- Pressure grouting to consolidate the top of the in-filled voids.
- Pressure grouting of previously backfilled mine voids, areas of surface settlement and any crown pillar failure.

For the treatment to meet its objectives the drilling grid was reduced from 5m x 5m to 4m x 4m beneath the planned buildings, hence increasing drilling quantities by almost 60%. These boreholes were then fitted with two grouting tubes; one, a simply perforated liner, for the gravity filling of the void, the other a tube à manchette for the pressure grouting at the top of the void. After completion of these works, a systematic pressure grouting treatment was carried out in the areas of, crown pillar failures, sink holes and superficial soils that had been loosened.

The contract included a performance requirement in terms of the engineering properties of the soil on completion of



Mortar Plan

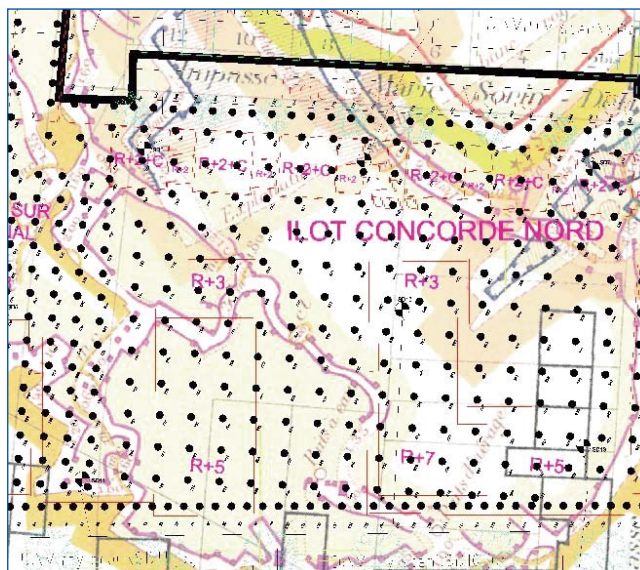


Infilling in progress

the works. These properties were substantiated by 110 test boreholes sunk after the lapse of four weeks from completion of the grouting works, as required by the specifications.



View of a brick lined tunnel



Drilling plan