

UNDERGROUND CAR PARK PLACE D'ARVIEUX

MARSEILLE - FRANCE



Construction as a main contractor of a cylindrical underground car park comprising 7 basement levels



E. Goffard

Construction of the central core and installation of the helical ceilings

Soletanche Bachy was contracted by the Etablissement Public d'Aménagement d'Euroméditerranée to construct as a main contractor an underground car park under Marseille's Place d'Arvieux. The car park is located between two office blocks and a metro tunnel.

The structure

The structure is a cylinder of

OWNER:	EPA EUROMEDITERRANEE,
ENGINEER:	ATELIER DU PRADO (ARCHITECT) / ARCADIS ESG (GENERAL ENGINEERING) MA STUDIO (LIGHTING DESIGNER) CONSORTIUM
GENERAL CONTRACTOR:	SOLETANCHE BACHY
CONSTRUCTION PERIOD:	JULY 2006 - JULY 2008

MAIN WORKS QUANTITIES:

- Diaphragm wall: 0.80m thick, 28m deep, surface area 3,600m²
- Excavation: 28,000m³
- Reinforcement: 300t
- Concrete: 3,000m³
- Helical floor: surface area 8,200m²



Open-cut earth moving with concomitant construction of the reception building



M. Deruffi

Earth moving at the final depth

40 m diameter comprising the following :

- a circular diaphragm wall, excavated to a depth of 28m, in a marl soil,
- a cylindrical, reinforced-concrete central core 22m high, housing the vertical connections,



Helical ceilings

- a continuous helical ramp running down 7 levels and carried on radial beams, with about 40 parking spaces for light vehicles on each level on either side of the two-way ramp,
- a cover slab supporting the new architectural features and a new road across the square.

The works

Work began with the construction of the circular diaphragm wall, excavated using a hydrofraise in the gravelly alluvia and the marl. The capping

beam and a beam with a 30m span and 3.30 to 6.00m height and the ramp support, were formed and concreted. The massive second beam allowed the simultaneous construction of the reception building during the open-cut excavation.

The central core is carried on a footing. Eight successive lifts were required for its construction, using shuttering panels. The bottom level of the car park comprises a drainage slab with a permanent pumping system.

From the next level up to the exit into boulevard de Dunkerque, the slab consists of a continuous helical ramp, constructed independently for each tier and carried on radial beams with no intermediate support.

The structure was covered using precast and prestressed radial beams.

The horizontal formwork was completed by prestressed pre-slabs carried on the beams.

The slab was sealed following reinforcement and concreting.

The technical and secondary work was carried out after completion of the associated works (ventilation shafts, lift, operations room).



E. Gaffard

Completed structure