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# CASE STUDIES

IMPORTANT INFORMATION FROM CONJET

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The Conjet Robot 230 at work in the carpark.

## ERICSSON CAR PARK RESTORED BY A CONJET HYDRODEMOLITION ROBOT 230

**T**he leading Swedish specialist hydrodemolition contractor NCC Waterjet, with its fleet of seven Conjet Robot high pressure water jetting machines, has been employed by Sweden's giant electronics and telecommunications company Ericsson to carry out SKr7M of repairs to one of its reinforced concrete multistorey

carparks at its head office just a few kilometres south of Stockholm. The four storey carpark was built in the 1970s and a combination of frost and de-icing salts, brought into the carpark when vehicles are parking, has since caused extensive decay to the two intermediate floors and many supporting columns.

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### **Concrete damage is inconsistent, varying between 50mm and 120mm**

The bulk of the repair is to the 220mm thick reinforced concrete floor slabs where NCC Waterjet is using one of its remotely operated, computer controlled Conjet Robots to selectively remove only the badly decayed concrete down to an average depth of 80mm. But damage is so inconsistent the Conjet Robot is taking out sub-standard concrete to depths varying between 50mm and 120mm and in some instances even cutting right through the floor slab.

### **The equipment and how it works**

The NCC Waterjet's Conjet Robot 230 uses a jet of high pressure water exiting from a special nozzle at supersonic speed and forcing its way into the damaged concrete's porous and cracked surface. The water creates an hydraulic overpressure in the concrete which breaks when this pressure rises above the tensile strength of the concrete. Water at a pressure of 1050bar and flow of 240litres/min is fed through a 100m long flexible hose to the Conjet Robot's nozzle from a high pressure pump driven by a 550kW diesel engine housed in a silenced 20ft long ISO container at ground level.

The nozzle, set at a predetermined angle of attack to the concrete, is mounted on an oscillating cassette, which is attached to a traversing cradle running back and forth along a feed beam. When the cradle reaches the end of its travel the nozzle swivels over to maintain the same angle which enables the jet to operate with a sweeping action to cut away concrete behind reinforcement. At the same time the machine moves back a predetermined distance ready to make the next adjacent cut. The entire nozzle assembly is covered by a protective safety shroud.

### **The scope of the project**

NCC Waterjet has to restore approximately 1350m<sup>2</sup> of deck in a sequence of 50m<sup>2</sup> bays. After the decayed concrete has been cut out from each bay, fresh concrete, with a strength of 40Mpa, is poured in to complete the repair. The contractor has supplemented its Conjet Robot with a high pressure hand held lance to cut out similarly decayed concrete from around the bases of about 150 columns, which are being strengthened with short cast insitu concrete collars.

<b>Technical specifications</b>
1 Conjet Robot 230
1 Conjet Power pack 540

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