

# **HOBAS® CC-GRP Relining Pipe Systems**

## **for renovation of a sewer at Amsterdam**

### **Airport Schiphol**

In June 2002 the rainwater sewer pipes under the runway 09-27 on Amsterdam Airport Schiphol were renovated using HOBAS® CC-GRP Pipe Systems. The existing pipes under the runway were concrete pipes, almost 40 years old, that had suffered severely in static capability. 20 years of air traffic – landing airplanes – had deformed the round DN 1000 concrete pipe to a non-circular pipe of down to 750 mm height. Only concrete plates above the pipes to spread the traffic loads guaranteed the safety.



In June 2002 the runway was closed for all air traffic for total maintenance of the runway (new asphalt, lightning, landing equipment etc.). Only 17 days were allowed to close the runway, so the team worked 24 hours per day, workdays and weekends.

In this short time, totally 73 meters of HOBAS® CC-GRP Relining Pipe Systems of DN 700, 380 meters of DN 800, 120 meters of DN 1000 and 186 meters of DN 1200, all PN 1 SN 16000 were relined for 8 rainwater sewer pipelines crossing below the runway. The reduction in pipe diameter (as opposed to DN 1000 of the old concrete pipeline) was accepted due to better flow capacities of HOBAS® CC-GRP Pipe Systems on the one hand and less flow through needed on the other hand.

The high stiffness was necessary due to high airplane landing and take-off loads and was calculated by a consultant. HOBAS® CC-GRP SewerLine was chosen because of the stiffness higher than 10,000, the flexibility for renovation and the possibility to cut the pipe in the field without special equipment.

The total renovation was easily done. There were no problems with the deformation of the concrete pipes. The space between HOBAS® CC-GRP Relining Pipe Systems and the concrete pipe was filled up with lightweight concrete.

The rainwater could flow through the pipes even during the renovation. So there was no operational disturbance for the waterflow and only a minimum disturbance for the air-traffic, thanks to HOBAS®.



The Schiphol group is now using HOBAS® CC-GRP Pipe Systems with stiffness of SN 16000 or higher for more renovation projects as well as for new pipelines, the reason being the high operational life time of HOBAS® Products and the high statical loads occurring on air fields.



Make things happen. **HOBAS**<sup>®</sup>

| Overview             |   |
|----------------------|---|
| Year of Construction | 2002  |
| Length of Pipe       | 759 m   |
| Pressure Class       | PN 1  |
| Stiffness Class      | SN 16000  |
| Diameter             | DN 700 -1200  |
| Installation method  | Relining  |
| Application          | rainwater sewer   |
| Client               | Schiphol Group nv,<br>Schiphol Amsterdam Airport            |
| Contractor           | BAM HBG civiel bv   |
| Advantages           | HOBAS as System Supplier,<br>high stiffness, leak tightness |