

Your ref: R Bryant
Our ref: AGJ/Croydon

Date: 2nd June 2015

Hydrainer Pump Hire Ltd
Head Office
Rotherham Close
Norwood Industrial Estate
Killamarsh
Sheffield
S21 2JU

For the attention ofR Bryant
Dear Sirs

Re: Beddington to Rowdown Cable Tunnel

During the construction of the caisson for Beddington shaft (Shaft 1), a fully charged water-bearing fissure was encountered. Water completely flooded the shaft to within 1.5m of ground level. Site had already installed a steel pipeline for shaft drainage, supplied by Hydrainer Pump Hire, and was 700m long, being the nearest outfall manhole. However, this latest inundation completely swamped the pumps originally required by the Designer and production was halted to investigate the cause.

In the interim period, Hydrainer were able to supply a further two pipelines, and a number of 10" and 12" electric pumps, together with the manifolds and connectors.

Just over 4 weeks production was lost whilst the additional pumping capability was installed. Had it not been for Hydrainer and their extensive plant stockholding nationwide, the production loss would have been far greater, as it was only Hydrainer who had the necessary equipment to get Site moving again. All the equipment was "in-house", something no other plant company could offer at that time, and they worked with Site to acquire the equipment necessary to overcome the situation.

The diary extract below, shows how efficiently the process was executed.

12/09/2008	Mucking R18; Shaft flooded due to fissures
15/09/2008	Shaft dewatering
16/09/2008	Shaft dewatering; prepare for 2nd pipeline
17/09/2008	No dewatering; prepare for 2nd pipeline
18/09/2008	Installing 2nd pipeline
19/09/2008	Installing 2nd pipeline
22/09/2008	Installing 2nd pipeline

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23/09/2008 Installing 2nd pipeline
24/09/2008 Installing 2nd pipeline
25/09/2008 Installing 2nd pipeline
26/09/2008 Installing 2nd pipeline
29/09/2008 Pump trials
30/09/2008 Order 3rd pipeline
01/10/2008 Delivery of 3rd pipeline
02/10/2008 Installing 3rd pipeline
03/10/2008 Installing 3rd pipeline
06/10/2008 Installing 3rd pipeline
07/10/2008 Installing 3rd pipeline
08/10/2008 Installing 3rd pipeline
09/10/2008 Installing 3rd pipeline
10/10/2008 Installing 3rd pipeline
13/10/2008 Installing 3rd pipeline
14/10/2008 Fully dewater shaft
15/10/2008 Mucking R18;

The shaft was completed with no further issues, thanks to having the appropriate equipment in place.

Similarly, we encountered a fissure at the shaft at Lloyd Park (Shaft 2) which filled the Tunnel Boring Machine (TBM), Water was entering the shaft at a rate of between 300 and 500 litres per second. Notwithstanding the urgent need to clear the TBM of water the shaft inflow needed to be controlled to facilitate a repair. Hydrainer were able to supply and maintain a bank of hydraulic pumpsets which could handle the water being generated. In all, seven hydraulic pumps were used, two being on continuous standby in case of breakdown. Hydrainer staff provided a service engineer who rotated the use between the seven units whilst servicing the standby sets. Apart from the disruption to our construction programme, the whole hire event passed without a supply hitch. It is only due to the fact that Hydrainer had the type and quantity of available units that we were able to concentrate on the repairs and the resumption of tunnelling.

Yours faithfully

A G Jackson

Project Manager

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