

CASE STUDY

LOCH ARKLET DAM - REMEDIAL WORKS 2014



In 1885, further storage of water in Loch Katrine was planned by a scheme to raise the level of Loch Arklet, and carry the water to Loch Katrine by aqueduct. The original scheme was amended and the work was eventually carried out from 1909 - 14. The dam across Loch Arklet's outlet is 350 yards long and made of concrete faced with red freestone from Annan. It is 35ft high and 11ft wide at the top.

The site was remote from roads and the nearest railway was 12 miles away at Aberfoyle. The closest point of access was at Inversnaid, on Loch Lomond. Material had to be brought to Balloch and conveyed by barge up Loch Lomond and then by a specially constructed aerial cableway over the hill to the dam site. The cableway required the construction of a small hydro-generating station for its power supply and this was built at Inversnaid and fed by a pipeline from Loch Arklet.

Nowadays the dam is inspected at monthly intervals by the engineers to carry out visual checks, looking for indicators of change, for example, seepage location/rate and structural movement. As a result, CORECUT Ltd. have been involved in a major remedial project.



The project was won by CORECUT Ltd working for Expanded Ltd which is a part of the Laing O'Rourke Group, to undertake repair works to the existing dam between July - October 2014.

Initially CORECUT were given the order for drilling 64 nr 1m diameter core holes x 1100mm deep, and thereafter creating a squared recess 1400mm sq x 165mm deep to allow for the retensionable socket heads of 20m deep anchors.

The technically challenging problem of drilling a 1m diameter hole on a 45 degree slope was overcome by CORECUT designing and fabricating a hole starting device to stabilise the 1m core barrel on the 16 nr holes on the dam spillway. This unique solution ensured the holes were accurate with no damage to the remaining stone work.

Following that aspect of the project, CORECUT were then tasked to demolish a 7m x 3.5m x 450mm thick span of the dam using remote controlled ROBOLITION 160 equipment.

All works had to be carried out with the highest environmental awareness to prevent contamination of the water. This included bunding individual work locations and then pumping waste water to a Siltbuster for treatment. Constant vigilance was maintained to ensure that waste water was not seeping into fissures within the dam structure during the drilling process.

Ewan Crocker, Director at CORECUT said:

"This project, with all of its inherent challenges required attention to detail and the highest environmental awareness at all times."



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