

TELEPHONE:
CENTRAL 1361



TELEGRAMS:
HYDROBOARD, EDINBURGH.

NORTH OF SCOTLAND HYDRO-ELECTRIC BOARD

16 ROTHESAY TERRACE
EDINBURGH,3

OUR REF.

YOUR REF.

C/2A/GDB

7th October, 1952

Rota

Dear Sir,

Many thanks for your letter of October 3. I am pleased to learn that you intend to send a cameraman to Glen Affric on October 11 and 12.

... The scheme is near Cannich village, about 28 miles from Inverness, and the attached sketch shows the main features. The power station is about 3 miles from Cannich village.

If I can be of any further assistance, please let me know.

Yours faithfully,

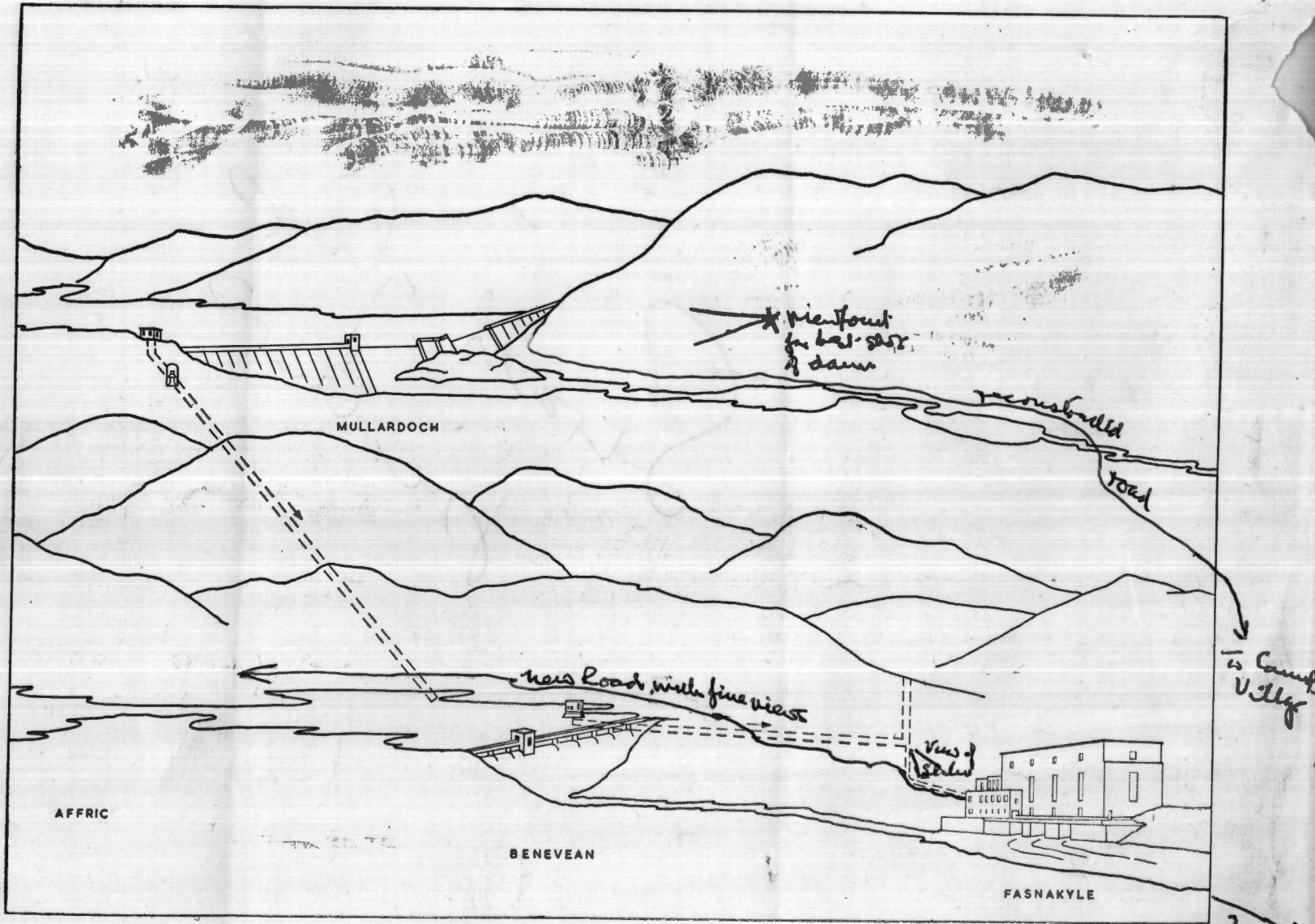
Georget Banks

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E.H.

THE GLEN AFFRIC HYDRO-ELECTRIC SCHEME



An Impression of the main features

3 miles
to
Cannich
Village
See Staff
House at
Cannich

NORTH OF SCOTLAND HYDRO-ELECTRIC BOARD

Notes on the Mullardoch-Fasnakyle-Affric Scheme

The Mullardoch-Fasnakyle-Affric hydro-electric scheme when fully operational will produce about 230,000,000 units of electricity annually from the water power resources of 124 square miles in Inverness-shire and Ross-shire. The principal works in the scheme are a dam nearly half a mile long at Loch Mullardoch in Glen Cannich, a tunnel $3\frac{1}{4}$ miles long from Loch Mullardoch to Loch Benevean in Glen Affric, a small dam at the eastern end of Loch Benevean and another tunnel $3\frac{1}{4}$ miles long from Loch Benevean to the main generating station at Fasnakyle. There is a subsidiary power station in the tunnel between Loch Mullardoch and Loch Benevean.

One of the many points of interest in the scheme is the way in which it was planned to preserve the amenities of the district. Glen Affric is one of Scotland's most beautiful valleys and two earlier schemes, promoted in 1929 and 1941, were successfully opposed partly because of their possible effects on the scenery. Both of these schemes proposed to convert Loch Affric and Loch Benevean in Glen Affric into one large sheet of water which, it was felt, would have ruined the beauty of the glen. In the Board's scheme, Loch Benevean has been raised by only 23 feet - a height which has left Loch Affric untouched - and the main storage has been derived from Loch Mullardoch in Glen Cannich, an isolated valley lying to the North.

The work started in 1947 and the first machine came into operation in 1951.

A peak number of 2,200 men were employed on the scheme. The main works in the scheme are as follows:-

Beauly Sub-station

This is an important link in the Highland grid system. Electricity produced by the stations of the Shin and Conon Basin group of schemes, in addition to the Affric scheme, will pass through it. The main building and the attendant's house nearby are built of red stone from Tarradale Quarry near Muir of Ord.

Cannich Staff Houses

The Board are building 17 houses at Cannich for the staff who will operate and control the Affric station. The houses are of stone from Covesea Quarry, Burghead, Moray.

Fasnakyle Sub-station

The power produced by the Affric scheme is led by underground cable from Fasnakyle generating station to the sub-station from which it is carried by overhead line to Beauly. From the sub-station, a 132 volt line has been built to Fort Augustus. This will be used initially to supply power during the construction of the Garry and Moriston hydro-electric schemes and when they are in operation, it will be used to transmit the electricity produced by the stations there back to Beauly and into the Highland grid. The Fasnakyle sub-station is built of golden yellow stone from Burghead.

Fasnakyle Generating Station

The generating station on the north bank of the River Glass at Fasnakyle has three 22,000 kilowatt generators, the first of which was commissioned in July 1951. The building, 232 feet long, 68 feet wide and 54 feet high, is a steel framed reinforced concrete structure. It is being faced with golden yellow sandstone from Burghead. The River Glass, which was diverted during the construction of the station, again flows in its natural course.

Roads

As a result of the Board's scheme, the roads from Cannich to Loch Mullardoch and from Fasnakyle to Loch Benevean have been greatly improved. The road along Loch/...

Loch Benevean has been widened and wooden bridges have now been replaced by stone structures. A better view of the surrounding country is obtained from parts of the road which has been built at a high level.

Benevean Dam

The Benevean dam is 516 feet long and 86 feet high and contains 65,000 cubic yards of concrete. At its base, it is approximately 80 feet thick. A footbridge is carried on concrete piers across the top of the dam which forms a spillway 456 feet long.

Mullardoch Dam

The Mullardoch dam, the biggest dam at present under construction in the Board's Area, is 2,385 feet long and 116 feet high. It will raise the level of Loch Mullardoch by 113 feet. The dam is of the mass-concrete gravity type and is about 100 feet thick at its base. It involved the excavation of 118,000 cubic yards of rock and contains 300,000 cubic yards of concrete. Possibly the most interesting feature of the Mullardoch dam is that it was changed as it was being constructed. Because of the Government cuts in capital expenditure, it was necessary in 1950 to reduce the height of the southern half of the dam by 20 feet. This involved the "remodelling" of the buttresses at the height which they had attained on the date of the change. The following year, however, it was found possible to review the position and take advantage of the presence of contractor's plant to go ahead with the whole dam to its full height. This has involved some unusual constructional problems.

Tunnels

The main tunnel bringing water from Loch Benevean to the power station at Fasnakyle is $3\frac{1}{4}$ miles long and is in three sections - an upper low-pressure tunnel 12,340 feet long, a high-pressure tunnel 4,224 feet long, and at the power station end, three steel-lined tunnels each 609 feet long. The low-pressure tunnel is horse-shoe in section with an equivalent diameter of 14 feet 6 inches and the circular high-pressure tunnel is 14 feet 6 inches in diameter. Each of the three steel lined tunnels are 8 feet 4 inches in diameter. The low-pressure and high-pressure tunnels are connected by a 341 feet vertical tunnel which continues upwards for a further 150 feet to form a 45 feet diameter surge shaft. More than 170,000 cubic yards of rock were excavated from the surge shaft and the main sections of the Benevean-Fasnakyle tunnel.

The Mullardoch-Benevean tunnel is $3\frac{1}{4}$ miles long. It is horse-shoe in section with an equivalent diameter of 15 feet 9 inches and for the most part is not lined with concrete. The tunnel was driven from both ends; more than 134,000 cubic yards of rock were excavated. A small generating station has been built near the intake of this tunnel to make use of the difference in level between Loch Mullardoch and Loch Benevean. It has a capacity of 2,400 kilowatts and it is estimated that it will produce 8,000,000 units of electricity annually.

Local Distribution

In the autumn of 1948, the hamlets of Tomich and Cannich were given a supply of electricity from the 3,500 kilowatt diesel engine station built at Cannich to provide power during the construction of the works. Supplies of electricity have since been brought to almost all the farms, houses and cottages in Strathglass.