

circular concrete-lined tunnel to the surge chamber, 9,600 ft. away, and from here twin 7-ft.-diameter steel penstocks carry the water to the power-house down a head of 360 ft. to the two vertical turbines, which drive 20,000 kVA. generators.

Work on this scheme was authorized in March, and permission to enter on the land was given in May, when work was commenced on clearing for a camp-site and forming of service roads. A temporary road about 41 ch. long was graded and metalled to the first camp, and from there on 20 ch. of permanent road-line was completed and metalled, and the necessary culverts installed.

The building of accommodation was put in hand immediately and foundations for twenty-five married quarters placed. The houses are being supplied in sections from Napier, and three were erected. A temporary cookhouse was built, and ten tents, housing twenty men, were erected. An office, bathhouse, and various service buildings were completed.

At the end of June the total number of employees, including staff, was 94, some of these being employed on No. 3 pipe-line.

Continuous wet weather and the condition of the roads leading to Tuai have held up the work considerably, and it will take till Christmas at least to complete the service roads.

KAIMATA DAM.

This dam, which formed part of the Grey Electric-power Board's power-supply scheme was taken over from that body on 23rd August, 1937, by the Public Works Department to form part of the Westland power-development scheme.

At the time of taking over by the Department work was in progress in connection with increasing the capacity by the erection of a series of automatic weirs and repairs to the apron. This work was in progress by the Department when it was discovered that the apron had collapsed under the hammering of the water, and the complete renewal of same was necessary. The new apron now being constructed is designed to give greater resistance than the former to the fall of water, and this, combined with additions to the face of the dam, is calculated to break up the fall of water and prevent the continual hammering on the apron.

The construction of this new apron is now completed over the two bays farthest from the intake, a distance of approximately 98 ft.

A coffer dam has been completed for the remaining three bays. This coffer dam is divided into two portions in order to provide better access to erosions and scour underneath. These erosions and scours are being repaired as the work proceeds, and any weak portions found are being made good.

Work has been recommenced on the weir-gates on the crest of the dam. This work had been suspended to allow of the urgent replacing of the apron and repairs.

A considerable amount of excavation has been carried out beyond the apron in order to give a good discharge for spill-water.

The work has required extensive use of plant, including pumping-gear, Sauermann excavator, petrol-loco., and winches, and the urgent nature of the repairs necessitated the working of shifts.

LAKE COLERIDGE SCHEME.

Harper Diversion Gates.—The construction of new gates to replace those damaged by water-borne boulders and shingle was completed during the period.

The new structure has been erected in a slightly different position from the old one in order to eliminate, if possible, a repetition of the trouble.

A light suspension bridge has also been erected over the Harper River, adjacent to the gate structure, to provide access to the groynes on the opposite bank of the river during floods.

The suspension bridge across the diversion race at the gauging-station has been repaired, and the road bridge giving access to the outlet structure on the lake has been strengthened with additional piles and cutwater piers.

CONSTRUCTION AND IMPROVEMENT OF ROADS AND BRIDGES.

WHANGAREI DISTRICT.

Kerikeri Inlet Road (Bay of Islands County).—This road, where construction was in hand during the last period, has been taken further, some 54 ch. of additional formation 14 ft. wide having been completed and 70 ch. of base-course metal placed 8 ft. wide. Two bridges, one of reinforced concrete 90 ft. long and the other a 20 ft. span in timber, have been erected. This new road gives vehicular access to a number of settlers on the southern shore of the Kerikeri Inlet who previously had only water access.

Motatau to Kaikou Road (Bay of Islands County).—This road gives access to a large area of Native country where development has been retarded considerably largely on account of the wet nature of the old road. During the period reconstruction and metalling was commenced over the lower length of 1 m., and although it has been necessary to suspend operations until next summer it is clearly apparent from the work which has been done that there will be much improvement showing this winter.