North Auckland Main Trunk Railway.

Rangiahua Section (24 m. 25 ch. to 38 m. 34 ch.).—The construction of this extension of the North Auckland Main Trunk Railway has been continued under the most difficult conditions, due to the unstable nature of the country. A certain amount of trouble was anticipated with slips in the first 6 m. of the section, as surface indications pointed in that direction, but it was expected that the remaining 8 m. would be reasonably stable. This has not been the case, and extensive slips have developed in all cuttings, often extending chains uphill, and a large number of banks have slumped away, carrying the foundation country away with them.

The original formation was completed during the year to 38 m. 10 ch., but so serious have been the slips that it has been necessary to deviate the line to a new centre-line over a total length of 2½ m.

Involved in the construction of the line are over 5 m. of main-highway deviations, and owing to the slippy nature of the country it has been necessary to keep this work as light as possible by the use of short grades and vertical curves. The whole of the earthwork on these deviations has been done and sufficient metal placed to keep the road open for traffic.

Permanent-way has been laid to 33 m. 36 ch., of which 3 m. 36 ch. was done during the current year.

A total of sixty-four culverts have been placed, varying from 10 ft. diameter down to 12 in.

Contracts have been let for the erection of station buildings and four platelayers' cottages at Waihou Station at 34 m. 9 ch.

A quarry has been opened up, served by a railway-track 1¼ m. long joining the main line at 25 m. 16 ch. The installation of bins, crushers, engine-house, and plant is now practically completed, and crushing of ballast will commence immediately. It is hoped to sell considerable quantities of metal from this plant to local bodies, and also to supply metal for main-highways construction and maintenance for roadmaking purposes.

Considerable work has been done during the year in stabilizing the embankments by means of large stone drains and small drainage-tunnels filled with stone. In the slipped cuttings the only thing to do is to keep taking away the material until the toe can be held with a stone wall. This sort of work upsets the whole original estimate of cost; indeed, it is humanly impossible to predict what the work will cost in this type of country. Steam-shovels have been used constantly in clearing slips, and without these it would be impossible to get the line open. Extensive willow-planting is being done in the broken country in order to assist in holding the ground against future slips.

Kirikopuni Section (107 m. 0 ch. to 121 m. 0 ch.).—This section was handed over to the Railway Department on the 15th May, 1928, and during this year the formation, bridging, and metalling of the Paradise access road was completed.

Tauraroa Quarry.

This quarry, which has now been in operation for twelve years, and has a total output of 560,000 cub. yd. of crushed metal and 22,000 cub. yd. of spalls, has been under continuous operation during the year, the output being 87,641 cub. yd. of metal. This metal has been used principally on the Dargaville Branch Railway, on the Oakleigh–Waipu Road, and on the Auckland–Maungaturoto Main Highway, these works being in the hands of the Public Works Department. In addition, considerable quantities have been sold to Rodney, Hobson, Otamatea, Mangonui, and Bay of Islands Counties, to the Borough of Dargaville, and the Kamo Town Board.

It is pleasing to note that very little time has been lost through mechanical breakdowns, and by careful management 2½ in. metal has now been made saleable f.o.r. Tauraroa at 4s. 6d. a cubic yard.

A heavy programme is anticipated for the coming year in ballast for the Dargaville Branch Railway, and the various grades of road-metal for the Auckland–Maungaturoto Main Highway.

Dargaville Branch Railway.

During the year the construction of the Dargaville Branch Railway has advanced rapidly. A few difficulties have been encountered owing to the river-flats not being sufficiently strong to carry enbankments. As the embankment sinks into the ground, there is a corresponding upheaval clear of the bank, and this condition is usually cured by spreading the weight of the embankment by the addition of "berms" outside the bank proper. A very large slip on the banks of the Wairoa River at 10 m. 70 ch., which has given trouble for years, is now being dealt with by trenching through it to a depth of 22 ft. into sandstone and filling this trench with stone; this trench crosses the toe of the slip and will have outlet drains leading to the river.

Generally the formation is of a light nature, and by the use of maximum grades and curves heavy work has been avoided where possible. Despite these precautions, several slight deviations of the line had to be made to avoid country which opened up badly.

A feature in the construction of the railway has been the great advantage of the proximity of the Northern Wairoa River. Transportation of material has in consequence been a very simple matter. Steam-shovels, drag-line, and locomotives have been loaded on to barges using their own power, towed to new locations, and then unloaded in the same manner.

Formation earthwork has been put in hand from 0 m. to 15 m. 60 ch., and, with the exception of bridge approaches at 1 m. 19 ch., 4 m. 35 ch., and 7 m. 0 ch., has been completed as far as 7 m. Formation requires widening in several places between 7 m. 12 ch. and 9 m. 40 ch. and is complete between 9 m. 50 ch. and 10 m.

Tangowahine and Wharau station-yards are under construction.