For some years past the Department's operations have been equally divided between land development and construction connected with drainage, flood-control, and roading. As increased farm production is the ultimate object of all these activities, they must be adjusted to the war situation without impeding progress. Equal in importance to active new development is the problem of maintaining that which has already been created, and in this connection I have to direct attention to two matters of importance. These are the maintenance of the tidal stop-banks on the foreshore and river-mouths, and the maintenance of the improved river and stream channels.

Two years ago a phenomenon having the characteristics of a tidal bore caused extensive damage to the stop-banks on the Hauraki Gulf and inundated thousands of acres of land. The damage done to these stop-banks was not entirely repaired, and past experience has shown that the stop-banks must be periodically raised because they sink into their mud foundations. Overflow of these banks by a high spring tide this summer indicates that they require immediate attention. These stop-banks should at least be restored to, and maintained at, their original dimensions.

Graphical comparison of the 1939 flood stages with prior floods indicates some deterioration of the recently improved river-channel. There is evidence of shoaling at bends and bank accretion, and the time has arrived when financial arrangements must be made for maintenance dredging.

The rainfall at Kerepeehi in 1939 was 45·15 in. The average rainfall over a period of twenty-four years is 44·257 in. The wettest month was June, with a fall of 7·66 in., and the driest March, with a fall of 0·46 in.

Rainfall records of daily precipitation at Kerepeehi, Hauraki Plains, since 1916 are as follows:—

Records of Daily Precipitation, Kerepeehi, Hauraki Plains.

Year.	Number of Days, with given Daily Precipitation in Inches.												Total Days.	Total Fall.	Wettest Month.		Driest Month.	
	0·00 to 0·49.	0·50 to 0·74.	0·75 to 0·99.	1·00 to 1·24.	1·25 to 1·49.	1·50 to 1·74.	1·75 to 1·99.	2·00 to 2·49.	2·50 to 2·99.	3·00 to 3·99.	4·00 to 4·99.	5·00 to 5·99.	6·00 to 7·00.					
1916 ..	109	12	9	7	2	3	..	1	..	..	1	..	..	144	52·19	Nov.	6·65	Feb.	1·05
1917 ..	131	11	4	4	3	..	1	1	1	..	..	..	..	156	45·61	Feb.	6·26	Jan.	0·65
1918 ..	145	14	6	4	..	1	..	..	1	..	..	..	..	171	44·06	Oct.	7·47	May	2·24
1919 ..	122	9	1	3	2	..	..	..	..	..	..	..	..	137	27·36	July	4·52	Dec.	0·89
1920 ..	85	7	10	3	1	1	3	2	..	..	..	..	..	112	43·16	Feb.	6·10	July	1·73
1921 ..	93	12	5	3	2	..	..	1	..	..	..	..	..	116	34·43	Oct.	5·89	Feb.	0·72
1922 ..	101	17	9	3	..	1	1	..	1	..	..	..	..	133	42·81	Feb.	6·62	April	1·73
1923 ..	151	6	5	4	..	1	1	..	..	..	..	..	1	169	47·04	April	9·76	March	1·72
1924 ..	132	8	10	5	2	5	1	1	..	2	..	..	..	166	60·37	April	8·55	July	1·87
1925 ..	142	15	4	2	..	..	..	1	..	..	..	..	..	164	37·64	June	6·67	April	0·84
1926 ..	149	15	6	4	5	2	2	..	..	..	..	..	..	183	55·53	May	8·86	Feb.	1·79
1927 ..	159	10	6	5	..	4	..	..	..	..	..	..	..	184	45·33	July	6·29	April	2·01
1928 ..	125	7	9	2	3	2	2	1	..	..	..	..	..	151	47·30	May	7·52	Jan.	0·01
1929 ..	124	19	8	3	1	..	..	..	..	..	..	..	..	155	41·05	April	5·09	Feb.	0·74
1930 ..	131	4	2	2	3	..	2	2	..	..	..	..	..	146	37·72	Jan.	6·87	Dec.	0·80
1931 ..	144	10	7	..	4	..	..	..	..	2	..	..	..	167	43·23	July	7·80	March	0·98
1932 ..	126	7	5	4	..	1	..	..	..	..	..	..	..	143	32·05	Feb.	4·95	Nov.	0·93
1933 ..	152	13	1	4	3	..	..	1	..	..	..	..	..	174	38·93	Feb.	6·54	March	1·20
1934 ..	138	11	6	5	2	2	..	1	..	1	..	..	..	166	43·23	June	6·15	Oct.	2·05
1935 ..	163	15	6	4	2	2	..	1	..	1	..	..	..	194	53·42	July	9·56	Jan.	0·93
1936 ..	127	11	6	3	..	1	..	..	..	2	..	..	..	150	40·62	Feb.	5·83	May	1·63
1937 ..	76	21	8	5	1	1	1	1	..	..	..	..	..	114	45·51	May	5·89	Feb.	0·51
1938 ..	54	19	13	6	4	2	1	2	..	..	..	..	..	101	58·43	Feb.	9·42	Oct.	0·84
1939 ..	94	12	6	4	6	..	..	1	..	..	..	..	..	123	45·15	June	7·66	March	0·46
1940* ..	19	1	1	5	..	..	..	..	..	..	..	..	..	26	10·74	Jan.	7·00	March	0·70

* First three months of year only.

Average rainfall over twenty-four years is 44·257 in.

The following is a general review of the works carried out during the year:

Dredges.

One floating dredge and three bank-operating excavators have been in commission during the year.

No. 15 Bucyrus Drag-line Excavator completed Piako River improvement work on the reach between 12 miles 40 chains and 13 miles 15 chains in April, 1939. After an extensive overhaul carried out at the Kerepeehi depot, the machine redredged the Mangawhero Stream for a distance of 65 chains from the Piako River. Since February this plant has been operating on a punt and constructing a stop-bank along the southern side of the Kaihere Road, where, owing to continuous subsidence of the road embankment, further protection against flood overflow is now required. In 125½ working-days the machine excavated 31·564 cubic yards of material at cost of 1s. 9·2d. per cubic yard. The high unit cost is due to heavy expenditure on the complete overhaul of the plant.

No. 16 Bucyrus Drag-line Excavator has been continuously employed widening the Waitakaruru–Maukoro Canal, and during the year completed the reach between the State Highway bridge and the mouth and also, working upstream again, has partially completed the canal-construction between pegs 0 m. and 1 m. Using a ½-yard bucket on 50 ft. boom, the machine handled 64,607 cubic yards of material in 224 working-days at unit cost of 7·3d.