

the south has been stabilised whilst accelerated erosion has resulted in the region of the caravan park to the immediate north.

- **Jetty Works** — The old jetty, having been removed by 1947 (Section 4) was of no interest to the study. The history of the new jetty was, however, found to be interesting, not only because of its impact, but also because it provided further proof of the recessional trend.

The jetty was constructed in 1929 and by 1938 major erosion problems were encountered. In August, 1939 an attempt was made to overcome the problem by nourishing the area with 35,000m³ of sand (Figure 5.8). The effects were short lived and by 1941 a stub wall between piers 81 and 82 had to be constructed. The success of this shore parallel breakwater at stabilising the jetty led to the construction of further walls in 1942, 1949 and 1950. Examination of Figure 5.8 indicates that the position of the contours held steady until 1954 when the jetty was badly damaged in a severe storm. As can be seen on Section "S" of Figure 5.5, the erosion rate since this time has been in the order of 3.7m/year. Thus, although the jetty was never intended as a beach protection structure, the efforts taken to combat erosion around the piles acted to stabilise a localised area of beach. Following the destruction of the jetty the fillet rapidly retreated until it was back in line with the adjacent regions which had been slowly retreating over the entire period.

- **Brunswick Heads Breakwaters** — Both Caton's (1975) and Rendel's (1975) reports point to the difficulties in quantifying the impact of these breakwaters on the shoreline recession rates. Prior to the breakwater construction, the meandering of the Brunswick River mouth combined with the beach re-alignment caused by the emergence of the rock outcrop on the northern side had resulted in complex interferences to the littoral drift in the region. That the breakwaters disrupted the littoral system more than the rock outcrop did at the time, is undeniable, however the problem in determining the degree and extent of this interference is related to a lack of necessary data. An analysis of the available information (Line H, Figure 5.5) indicated that prior to breakwater construction, the erosion rate at Sheltering Palms was 0.5m/year and following their construction, 2.6m/year. Hence the impact at Sheltering Palms was dramatic. Further north at New Brighton however, there was no detectable increase in the overall erosion rate of 1.1m/year during the entire period of analysis from 1947 to 1977 (Line G, Figure 5.6).

To the south of the breakwaters, Line I of Figure 5.5 shows that accretion was already taking place prior to 1960 at a rate of 1.1m/year. This was no doubt due to the effects of the rocky outcrop.

As it is unreasonable to propose that the shoreline south of the outcrop first receded to expose the rocks and then began accreting again without also pro-