D.M. 2553/53.

fB 36/102

DEPARTMENT OF MINES.

SOUTH AUSTRALIA.

REPORT ON SUBSURFACE DRAINAGE PROSPECTS, NATIONAL BANK, LOT 17, PT. SEC. 1400, HD. KAPUNDA.

This locality was inspected on 7/12/53.

REQUIREMENTS.

Advice on subsurface drainage from the National Bank offices and residence. There is an existing septic tank, the effluent from which passes into a shallow well, being from there pumped daily onto the surface soil at the rear of the premises. Ablutions water and other domestic effluent passes into a second well of unknown depth at the rear of the building, from which it escapes by soaking away into the subsoil. This latter arrangement is intended to be continued, as it is operating satisfactorily, and the only effluent which it is desired to dispose of by other than present means i s that from the septic tank.

GEOLOGY, HYDROLOGY.

The Bank premises are situated directly on the northern extension of the line of strike of the rocks exposed in Kapunda Mine, some 20 chains southwards. These consist of sandy siltstones and sandy and sometimes siliceous slates which strike North 10°-20° West and dip westward at 35° to 50°, being strongly jointed in three directions.

In the vicinity of the Mine the rocks have been kaolinised, but elsewhere this is not known to occur, and although in themselves they must be regarded as relatively impermeable, the presence of the very strongly developed jointing, with which some faulting is associated, would have a considerable bearing on the subsurface drainage prospects.

Slates, somewhat siliceous in nature, occur at the

Technical School, and a drainage bore at that point penetrated these rocks and obtained a satisfactory drainage. Another drainage bore at the Public School was drilled to 185 feet, passing through clays (believed to be weathered slate) for 175 feet and then into slate. This bore also appears to have been satisfactory.

Water is present in all the rocks at depths below surface which vary with the topography, but are usually between 75' and 175'. So far as is known, this water is not used for any household or domestic purposes, and so the possibility of pollution does not arise.

DRAINAGE.

Shallow drainage has been attempted by numbers of local residents, and except in locations where there is a fairly steep fall on the natural surface, it has not been successful. In some parts there do occur thin shallow sandy and gravelly clays in which a little drainage is possible, but on the areas of flatter relief the lateral percolation rate is too slow to dispose of domestic effluent.

At the Bank premises it has apparently been in the past found impossible to dispose of the septic tank effluent into the existing shallow well, and as the block slopes downwards very gently towards the Main Street, it seems likely that disposal in shallow trenches may cause a nuisance. The alternative is a bore.

CONCLUSIONS & RECOMMENDATIONS.

It is considered that there is a reasonably good chance of constructing a bore to take the effluent from the septic tank, because of the strongly jointed nature of the strata below.

Such a bore would probably have to be constructed to a depth of about 150 feet, at an estimated cost of £300.
As much open hole as possible below the casing shoe is advisable, to give the best possible soakage conditions.

It is not considered that the subsoil conditions are such

that the utilization of shallow trenches or wells can be recommended.

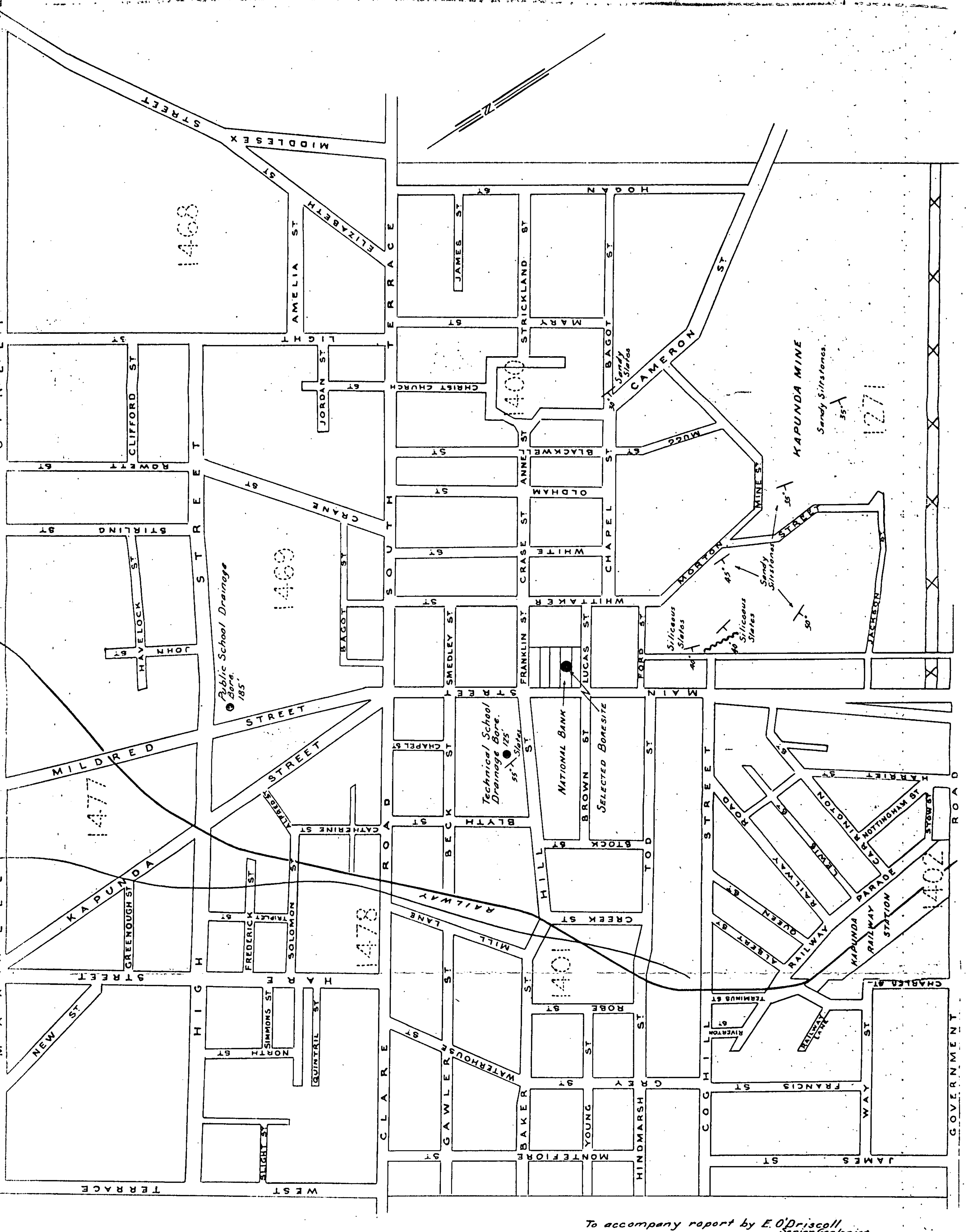
The ablutions and other household effluent should continue to be disposed of as at present, and not mixed with the septic tank effluent.

M. O'Driscoll

SENIOR GEOLOGIST.

HYDROLOGY

EPO'D:AK
11/12/53.



To accompany report by E. O'Driscoll
Senior Geologist.

S. A. DEPT. OF MINES

TOWN OF KAPUNDA
H^D KAPUNDA
SUB SURFACE DRAINAGE FOR NATIONAL BANK

Scale 5 Chns to 1 In.

53-293
GK 6

Date 11.12.53