RB 36/96

DEPARTMENT OF MINES

SOUTH AUSTRALIA

GEOLOGICAL INSPECTION FOR L. H. BRAITHWAITE PT. SECT. 479

HUNDRED - YATALA

PURPOSE:

To select a bore site on Pt. Sect. 479 to provide approximately 2000 g.p.h. of water suitable for the irrigation of vegetables and flowers.

LOCATION:

The section is located on the slopes of an old river terrace of the Torrens, approximately four miles north east of Adelaide.

GEOLOGY, HYDROLOGY:

Recent alluvial deposits cover the floor of the present valley of the Torrens, which flows south west, and the southern corner of applicant's property appears to extend out over the alluvium for some little distance.

Its depth at this point is not known with certainty, but is possibly less than 50 feet.

On the north-east flank of the alluvial filled valley the natural surface rises to an old river terrace at a higher elevation than the valley floor, the junction between the two series of rocks being gently indented by short spurs and valleys.

The Tertiary Rocks forming the terrace are older than the river alluvium, a generalised succession being:-

Recent -	Travertine forming a thin caprock.
Tertiary -	Stiff yellow - grey - red clays, sandy on top. White pipe clay.
Eocene ? -	Fine grained micaceous argillaceous sand.
Proterozoic -	Bedrock.

Water is obtained from three different types of rock in the area, the alluvials on the valley floor, the Tertiary fine grained sands, and bedrock. Of these, the alluvium is the only one which yields water of a quality that can be recommended for irrigation use.

The accompanying plan shows the location of several wells and bores, and it will be noted that in those penetrating the river alluvials the salinity varies between 80 and 115 grains per gallon, which in the existing conditions should be suitable for most garden uses. The exception is a bore in the bottom of a well owned by Mr. Webster, on Sec. 490. This bore has penetrated bedrock, from which it is apparently drawing water having a salinity of about 250 grains per gallon, which mixes with the better quality shallow well water to yield a supply of 108 grain water.

Bores constructed on the higher ground have not penetrated the alluvium but have obtained water from the older rocks, and these bores, including two sunk by applicant himself, have all yielded unserviceable water. An instance is the well on part Sec. 479 owned by Mr. Nadilo, which yields 167 grain water. The owner is watering fruit trees and vegetables with this, but a former occupant of the property is reported to have killed his fruit trees using water from the same well during a long dry summer.

That some residents are using water having a higher salinity than the accepted maximum, and doing so without apparent damage, can be attributed to the excellent subsurface drainage and the light soil. In general it may be said that the only satisfactory water being obtained in the vicinity occurs in the Recent alluvium of the river flats.

SUMMARY & CONCLUSIONS:

Drilling on applicant's block should be confined to the extreme southern corner, where the greatest depth of alluvium is expected to occur. Bores elsewhere will penetrate strata containing water too saline for satisfactory use.

Because the suggested site is higher than the flats, drilling may have to be taken to 70' - 80' if this depth of alluvium exists at that spot.

If the bore passes right through the alluvium and penetrates the underlying Tertiary clays, or also bedrock, drilling should be stopped.

Deepening the existing bores will serve no purpose, as the water quality may be expected to deteriorate with depth.

Any completed bore at the suggested site should be carefully pump tested for several hours and determine the supply, and a water sample sent to the Department of Mines for analysis as a check on quality.

There is some doubt as to whether a bore will yield 2000 g.p.h. but if the quality is satisfactory, a well would probably be warranted, and this would at least provide some storage in which water could be accumulated between pumping periods.

B. Fitzpatrick

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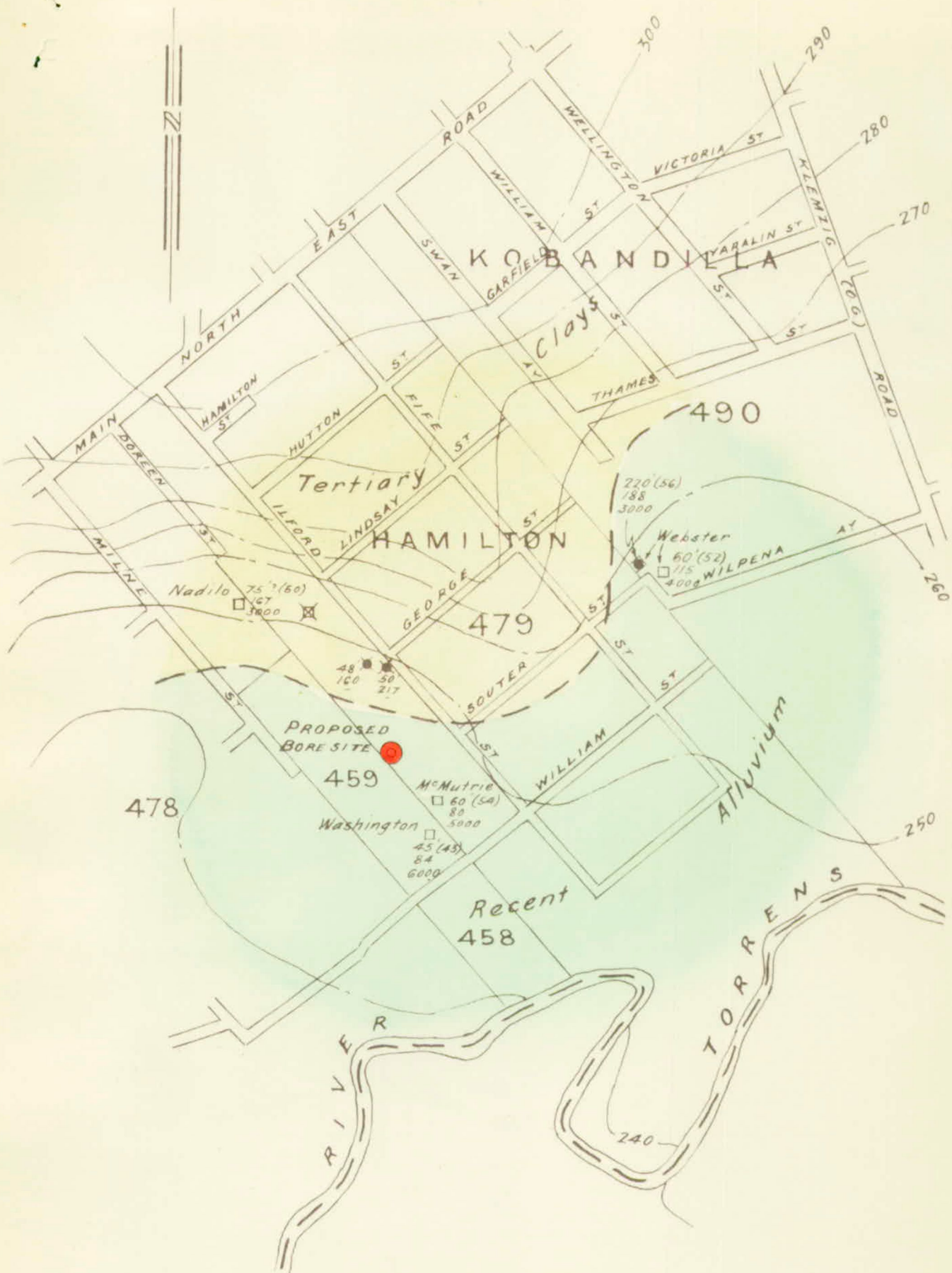
per Lob.

BF:EK
30/11/53



To accompany report by B. Fitzpatrick.

S. A. DEPT. OF MINES

Approved	Passed	Drn. R.R.	UNDERGROUND WATER SURVEY Hd YATALA PT SEC. 479 L.W. BRAITHWAITE	D.M.	Scale 10 Chns. to 1 Inch	
Director	C.D.	Trac. Chk. Lec.		Rec.	S 851 Ha 5 Date 26·11·'53	