

1945/18  
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COMMONWEALTH OF AUSTRALIA.

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DEPARTMENT OF SUPPLY AND SHIPPING.  
**MINERAL RESOURCES SURVEY.**

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**REPORT No.** 1945/18 .  
Plan No. 1191.

THE POSSIBILITIES OF OBTAINING UNDERGROUND WATER  
AT THE STOCK SALEYARDS, GUNGAHLIN DISTRICT, ACT.

By

H.B. Owen, Geologist.

**CANBERRA.**

2nd March, 1945.

DEPARTMENT OF SUPPLY & SHIPPING.  
Mineral Resources Survey Branch,  
Report No. 1945/18. Plan No. 1191.

THE POSSIBILITIES OF OBTAINING UNDERGROUND WATER  
AT THE STOCK SALEYARDS, GUNGAHLIN DISTRICT, A.C.T.

The stock saleyards comprise Block 41, Gungahlin district and are on the southeastern side of Federal Highway,  $3\frac{1}{2}$  miles north from Civic Centre.

The block has an area of  $41\frac{1}{2}$  acres and of this area a portion amounting to  $9\frac{1}{2}$  acres occupying the western extremity of the block is enclosed by fences and pine plantations. This smaller area includes the stock pens, huts etc. and is without water supply.

On the eastern side of the block more than half the area is occupied by a broad depression which trends to the southwest. On its western side the depression is flanked by a gentle slope rising only about 6 feet. This slope becomes steeper as it crosses the block from northeast to southwest and has developed into a moderately steep bank outside the southern boundary of the yards.

The entire surface is covered with soil and alluvium but it is believed that the cover of Recent sediments is very thin over at least that portion of the area west of, and including, the dam which is fairly centrally placed.

Evidence of the depth to, and the nature of, the underlying rocks is afforded by spoil from the excavated tank, and from soil and gravel in other parts of the block.

On 28th February, 1945, the tank contained water lying at a level of 5 feet 6 inches below the natural ground surface. The walls of the tank, above water, consist of alluvium containing a thin gravel bed, but for a foot or so above the water-level, the sides are mostly obscured by mud. It is not known to what depth the tank was excavated originally but it is apparent from the spoil, which now forms a dam across the depression below the tank, that the excavation entered weathered porphyry.

Near the extreme western corner of the block, and along the southern boundary for a distance of 5 chains, the soil contains angular pieces of quartz and, less commonly, fragments of silicified slate. At places on the high ground inside the northwestern boundary a few pieces of quartz and slate may be found, and at the northern corner of the block ironstone gravel occurs in the soil.

From the descriptions in the foregoing paragraphs it appears that the cover of alluvium does not exceed 10 feet in thickness on the western half of the block, and is probably less on the higher ground adjacent to Federal Highway. It may also be inferred that porphyry underlies the central part of the block, with an area underlain by slate roughly coinciding with the higher ground just mentioned.

The nearest outcrop of rock that has been noted occurs on the northwestern side of the highway and about 35 chains north-northwest from the saleyards gate. The outcrop is of slate which strikes towards the western end of the saleyards. From the presence of ironstone immediately to the east of the outcropping slate it is considered that the exposure lies a short distance to the west of a contact with intrusive porphyry; a similar condition to that suspected at the saleyards.

It is very unlikely that any useful quantity of water could be recovered from such a thin cover of alluvium in flat ground where the sluggish movement of water would permit it to sink into the bedrock.

As the bedrock is not exposed on the area it is not known whether textural and structural features of the rocks are favourable for the accumulation or free passage of water. It is likely, however, that the area is occupied by slate and porphyry.

In the absence of positive information it is considered that neither of these rocks are favourable for the occurrence of water unless special conditions exist. Both rocks are dense and lacking in porosity and the slate on weathering is likely to yield relatively impervious clay which would block any free spaces that might otherwise afford a passage for water.

It is considered that the slate offers a better chance of yielding water than the porphyry and, if a bore is sunk at the saleyards, it should be located on the higher ground adjacent to the road. It would be advisable however to await the results of any test boreholes drilled through slate and porphyry elsewhere in the Capital Territory as recommended in an earlier report on the Hog Farm, block 66, Gungahlin district (Mineral Resources Survey Report No. 1945/17).



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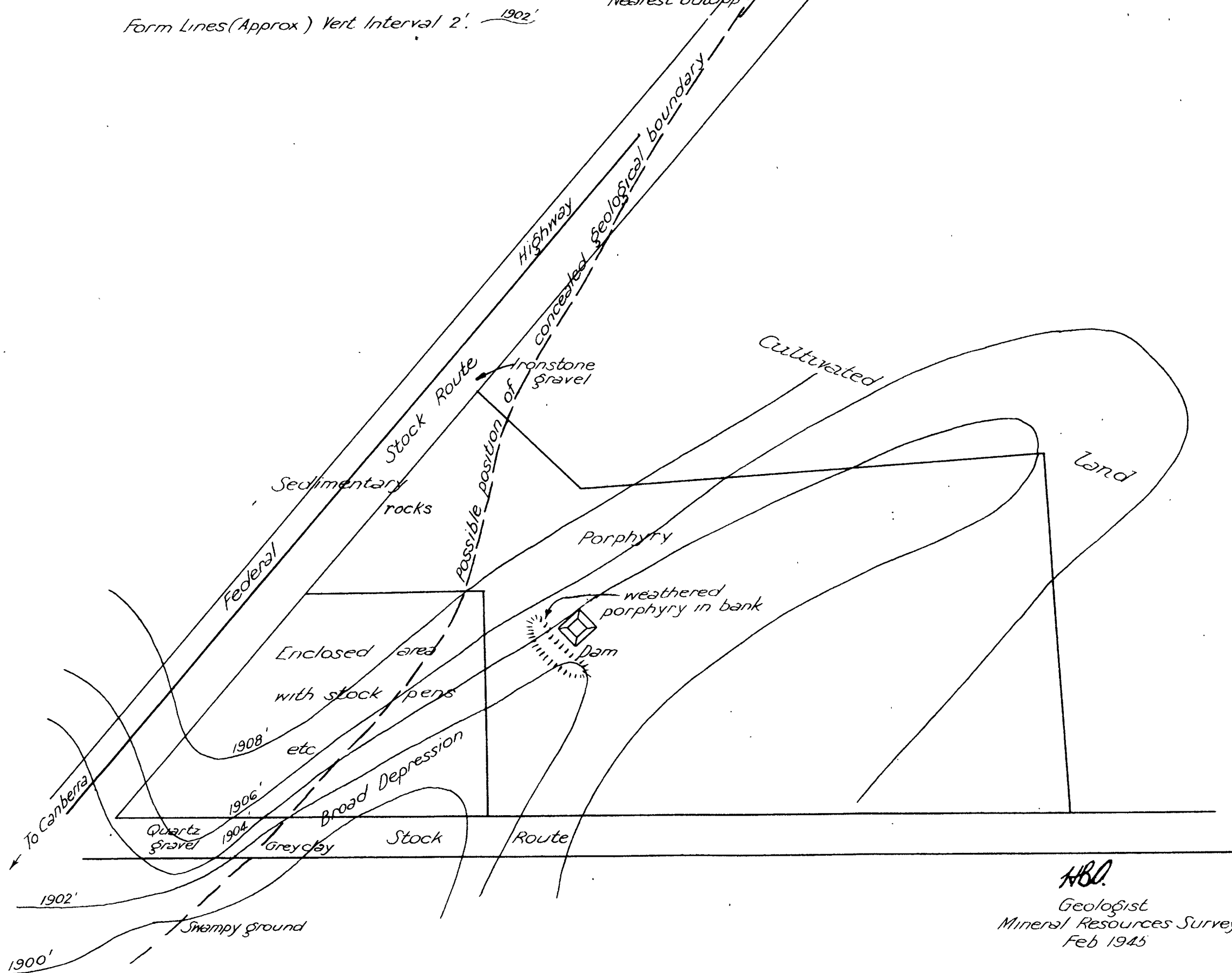
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# SALE YARDS, GUNGAHLIN DISTRICT, A.C.T.

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Form Lines (Approx) Vert Interval 2'. 1902'

Strike of slate  
Nearest outcrop



ABD.

Geologist  
Mineral Resources Survey  
Feb 1945