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1979/6. Sand resources at 'Native Point', Perth.

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Abstract

It is estimated that approximately 200 000m^3 of sand in deposits up to 400mm thick is located on 'Native Point' property at Perth. The sand is of limited use for concrete manufacture but could be used for some other purposes if markets were available.

INTRODUCTION

The Forestry Commission proposes to purchase about 63 ha of the 'Native Point' property [EP165975] for proposed extensions to the Perth Nursery (fig. 1). The subject of this report is the value of sand in the area.

GEOLOGY

Bedrock in the area is Permian mudstone and sandstone which crop out on the northern margin of the property about 20m above river level. Some dolerite may also be present as dolerite fragments occur on the surface. A thin soil cover a few centimetres thick overlies fine sand of alluvial origin, although possibly with some redistribution by wind. The thickness is variable but averages less than 500mm and grades into a clayey sand layer near bedrock.

QUANTITY OF SAND

Six hand auger holes were drilled by Forestry Commission silviculturalist G. Davis and bottomed at depths of 600mm, 300mm, 500mm, 200mm and 300mm, giving an average of 380mm.

In separate submissions by E.S. Gibson, the landowner, the depth of sand was recorded as 1.5m minimum and later as 3m. The evidence was provided in the form of a sketch map (Appendix 1), but no drill logs or samples were provided. A groundwater study at the Perth Nursery (Sloane, 1977) indicated only 500mm of sand from 200 auger holes in geologically similar conditions.

It is estimated that about 75% of the 63 ha would contain sand to a depth of 400mm, a total volume of about 189 000m^3.

QUALITY OF SAND

The sand is well sorted and fine-grained with a median diameter of 0.1-0.2mm. As such, it has limited application in concrete manufacture where fine aggregate should range from 0.3-2mm. This material would therefore have to be blended with coarser sand to meet specifications (fig. 2).

MARKETING

Sand of this quality is used as a bedding sand for laying concrete slabs and pipes, to a limited extent as ready mined concrete fine aggregate and in roofing tiles. Its grain size distribution makes it unsuitable for sand filtration, concrete pipe and block manufacture and

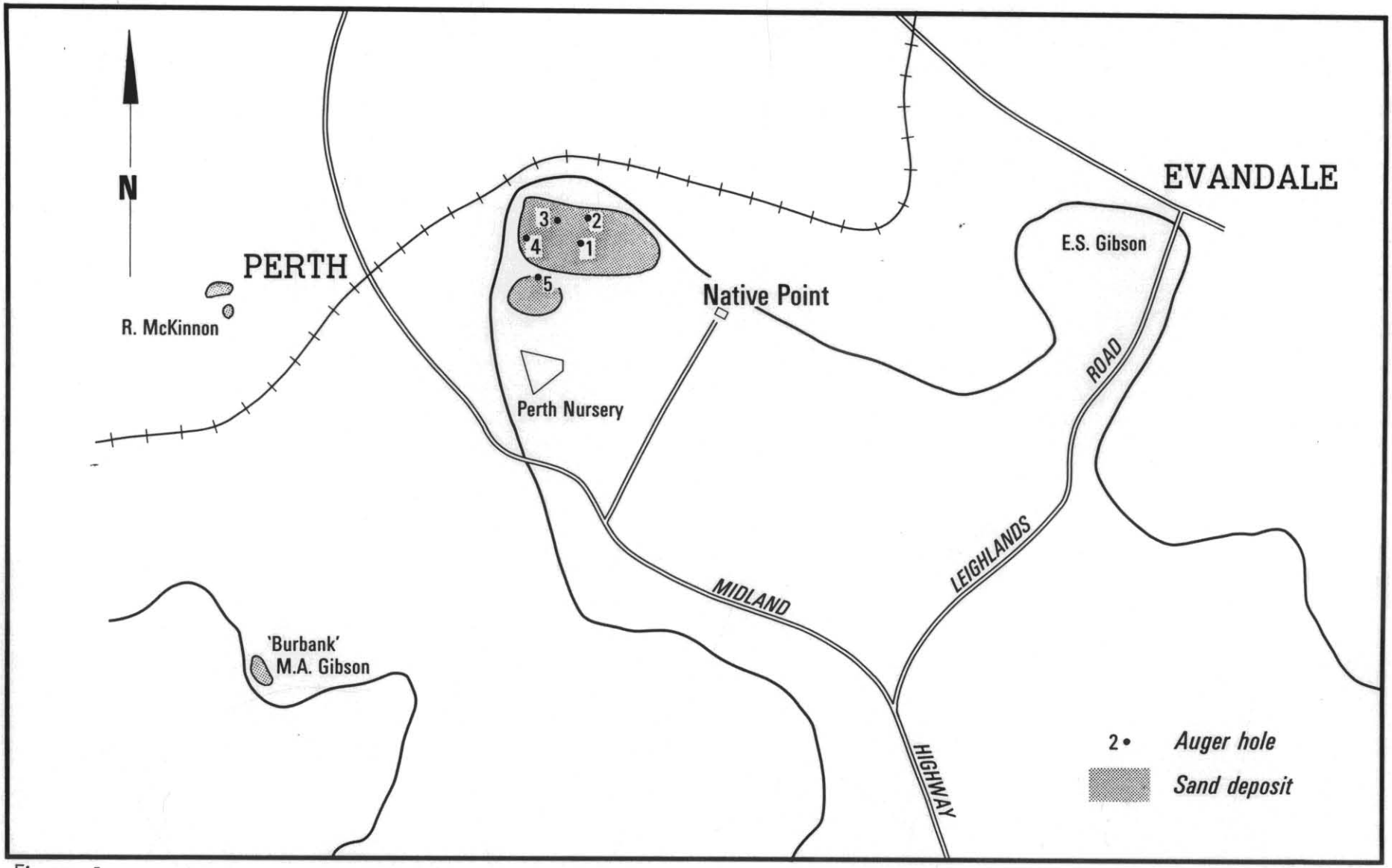


Figure 1. *Location of sand deposits, Perth area*

for road surface coarse, but it is usable as fine sand for hot mix bitumen.

The purposes for which this sand is usable are already supplied from other deposits and there seems little likelihood under present conditions of finding additional markets or entering present ones until these other deposits are exhausted. It is also doubtful if a deposit of 500mm or less in thickness is a practical mining proposition and the value of the sand may lie only in the purpose for which the Forestry Commission require the land.

Royalty payments on crown land are currently 30 cents/m^3, but royalties for materials from freehold properties are usually much higher, sometimes \$1/m^3 for sand or gravel of high quality. Mr. Gibson has indicated that he has received \$1.04/m^3 and more recently 60 cents/m^3. It is stressed, however, that the sand has no value until a market can be found for it.

CONCLUSIONS

An assessment of this deposit for economic purposes would require a systematic drilling, sampling and testing programme which did not appear warranted on the results of the augering done by G. Davis.

The conclusion reached is that the deposit contains no more than 200 000m^3 of sand with a market value of 60cents/m^3 if a market can be found.

REFERENCE

SLOANE, D.J. 1977. Drainage conditions at the Forestry Commission nursery, Perth. *Tech. Rep. Dep. Mines Tasm.* 20:226-234.

[20 February 1979]

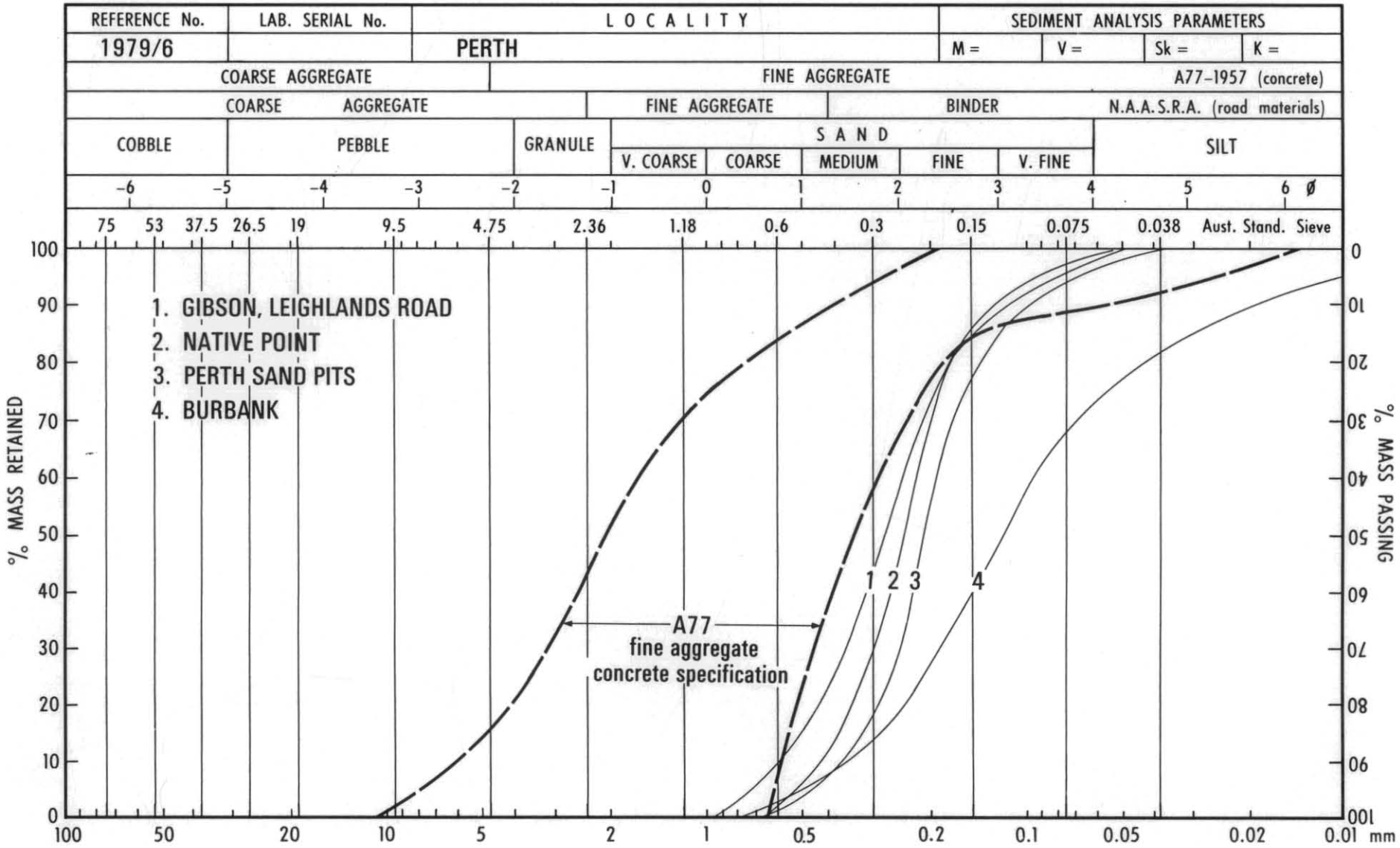
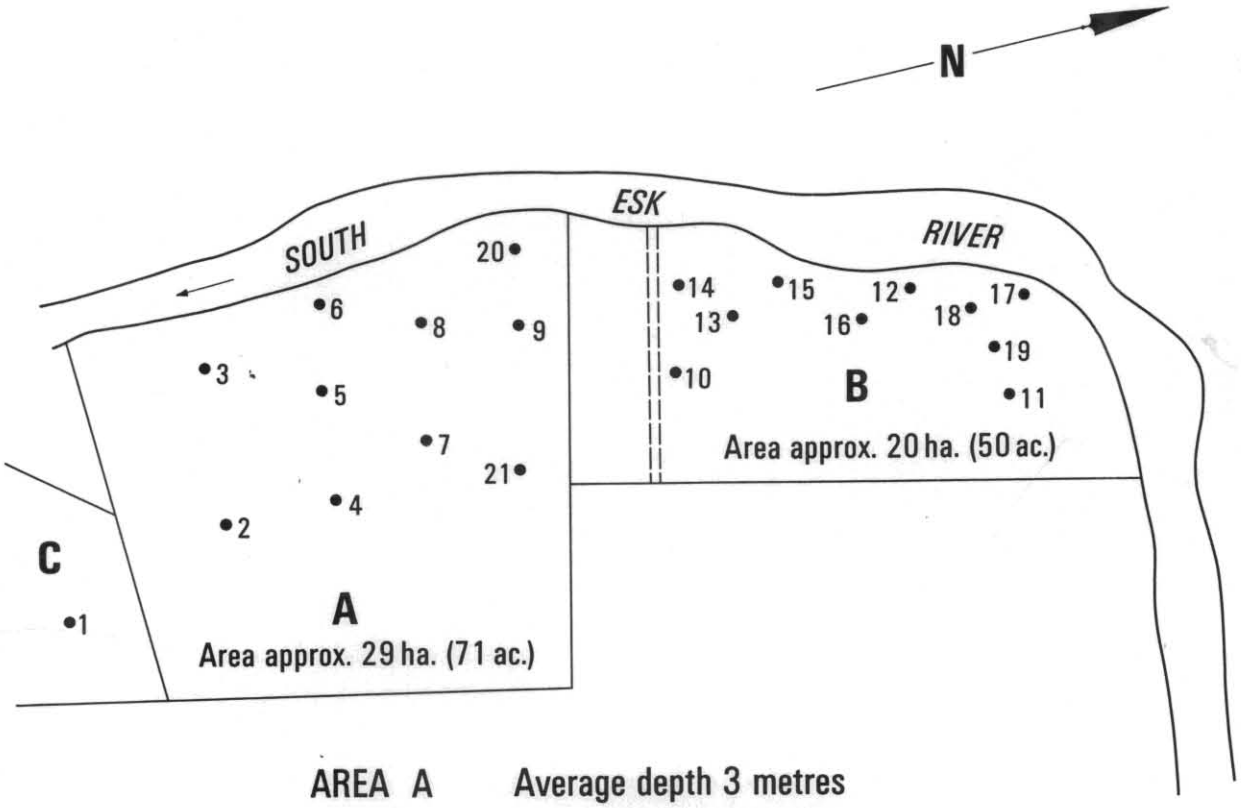


Figure 2. *Grading curves, Perth sand deposits*

APPENDIX 1

Test drilling at Native Point



AREA A Average depth 3 metres

AREA B Average depth 3.5 metres

AREA C Average depth 1 metre

Total estimated reserves of sand on approximately 49 ha. (121 acres) = 600 000 m^3

Information supplied by E.S. Gibson