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Further observations, Department of Mines site, Mornington.

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The results of a primary geological survey and seismic survey were presented by Leaman (1975). The interpretation of the seismic survey was not regarded as wholly reliable without some control due to the range of properties possessed by the gravel-talus overburden. Four drill holes were subsequently placed to evaluate the reliability of the survey (fig. 1).

Hole 1

Placed in the region of the main building where the seismic results suggested a substantial bedrock depression. The particular region is also marked by a small swamp and it was suspected that the velocity presumed overall was too high for the material in this zone. This would be especially so if piping had occurred.

A depth of about 6 m to rock was expected but only 3.7 m was recorded. It appears likely that the values in excess of 5 m as shown in the original plan reflect low velocity, texturally disturbed material. It is significant that a similar swampy zone occurs near the eastern end of the core store building where interpreted depths were also high.

Hole 2

Placed in the region of the main building. Expected depth to rock 2 m; observed depth ~3 m.

Hole 3

Placed in the region of the pilot plant. Expected depth to rock 3.5 m; observed depth ~3.5 m.

Hole 4

Placed adjacent to the drain just south of the property boundary and aligned with the southern wall of the main building this hole was used to give an indication of the maximum depth of talus materials. Expected depth to rock >8 m; observed depth ~7.7 m.

In each case the talus/gravel overburden was easily drilled and was self supporting but core recovery was often poor. There were zones where no core was obtained. The bedrock was in good condition and showed only minor weathering effects.

The interface between overburden and rock was found to be abrupt in each case.

At the time of the original surveys (late summer) the property was very dry although it was apparent that two regions were generally swampy with a high water table. The presence of piping features was also noted in all cuts and in collapse zones across the surface. All these features were confirmed at the time of drilling (mid-winter). The property is subject to sheet inundation from the steep slopes to the north and much of this runoff stays on the surface. The remainder appears to pass into the rock/talus junction near the northern boundary and in passing through the variable overburden causes considerable piping. As a result the property is very wet, in places very boggy and the overburden is subject to collapse and compaction under load.

Great care will be necessary to ensure adequate drainage, and drains along the northern side of the property are suggested. As a result of the partial destruction of the overburden all pier footings should be properly founded on bedrock which is never more than 4 m deep in the area marked for development.

REFERENCE

LEAMAN, D.E. 1975. Geological observations and seismic survey, Department of Mines site, Mornington. *Unpubl. Rep. Dep. Mines Tasm.* 1975/27.

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