

TR7-46-48

10. GEOLOGICAL INVESTIGATIONS IN THE LAUNCESTON AREA

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(a) LAUNCESTON GRAMMAR SCHOOL SITE

At the request of the architect, Mr. L. H. Howroyd, two sites for proposed extensions were inspected on the school grounds at Mowbray Heights. The proposed site is NW of the existing building and the alternative site SW of the main building. Both sites are on steep slopes facing the Tamar River.

The partially consolidated sediments underlying the sites are interbedded greywacke, ferruginous sandstone and clay similar to rocks in the Lawrence Vale district. In this area the beds dip towards the river at 15° and are at least 100 feet and possibly as much as 500 feet thick.

Proposed Site

This site is geologically unsuitable because:—

1. As the dip of the beds is similar to the slope of the land surface, the existing natural balance will be upset and the clay beds will form potential slip planes with the excavation and dumping of material and the erection of the building on the site.

2. This site is across a small gully, carrying natural runoff and domestic garden water, probably indicating that the underlying rock is saturated with water and the clay bands lubricated. This condition would be aggravated by the obstruction to natural flow offered by the building and slipping would occur on the clay bands.
3. Conditions in this area are almost identical to those of the landslip area at Lawrence Vale, with similar rock type, rock structure and topography.

Alternative Site

Geologically this site is similar to the main site, but is not situated in a gully. However, conditions 1 and in part 2 (above) still apply and this site is not recommended.

(b) PROPOSED SEWERAGE TUNNEL

At the request of the Consulting Engineers, Fowler and England, the site of the proposed sewerage tunnel at Launceston, parallel to the Cataract Gorge, between First Basin and the Council Quarry was investigated in order to estimate the amount of lining required.

The rock in this area is well jointed dolerite and the major joints, which are parallel and perpendicular to the tunnel line, are vertical, strike at 035° and 125° and are zeolite lined. Other minor joints, strike 080° , 100° , 140° , 165° and dip 30° N, 50° N, 70° SW and vertically respectively.

As the proposed tunnel is mainly 200 feet below the surface, lining of only the large joints, which may be weathered for several hundred feet, the entrance and the exist will be required. Well defined weathered joints appear on the surface at $3\frac{1}{2}$, 6, 8, $9\frac{1}{2}$, 12, 13, 15, 18, 20, $21\frac{1}{2}$ and 23 chains from datum at the southern wall of the Council Quarry. In practice, lining on weathered joints may vary from 0-10 feet, so on the available information 5%-10% of the tunnel may need lining. However, if streamlined flow is required it will be necessary to line the whole tunnel with extra support at the above distances as dolerite parts along joints when blasted, leaving irregular surfaces.

(c) QUARRY SITE, MOWBRAY

At the request of Launceston Quarries Pty. Ltd. a survey was made to determine the quantity of dolerite available on their lease.

Location

The quarry is situated $\frac{1}{2}$ mile east of Mowbray Racecourse and is connected to the main highway by $\frac{3}{4}$ mile of bitumen and gravel road.

Geology

The rock in the area is Jurassic dolerite overlain to the west and south by semiconsolidated Tertiary sediments. As the dolerite in the quarry shows remnants of a chilled upper surface the full thickness of the dolerite sill, approximately 1,000 feet, would occur in this area. The overburden, 0-1 foot thick, is decomposed dolerite and soil.

Quantity

The quantity of material available depends upon economic rather than geological factors as about 1½ million cubic yards of dolerite exist above the level of the creek.