

RESERVES OF LIMESTONE ON THE GOLIATH CEMENT
COMPANY'S PROPERTY AT RAILTON

A series of Gemco auger holes was drilled for the purpose of determining the thickness of clay overburden over limestone which is being quarried for cement manufacture. Sufficient holes were drilled to indicate the trends in overburden thickness and diamond drilling is recommended in selected areas, those with a maximum of 15 m overburden, to prove limestone reserves.

GEOLOGY

Gordon limestone crops out in several restricted localities in the Railton area, the two largest are the Blen⁷horn's disused quarry on the east side of the Latrobe Railton road and the present Goliath Cement Company quarry. Other minor outcrops extend for 6 km north-west from this quarry. The underlying Moina Sandstone does not occur in contact with the limestone at the surface anywhere in the area but can be seen in road cuttings immediately to the north on the Latrobe road. All bedding in limestone outcrops and quarry exposures dips at low to moderate angles to the west and south-west. Moina sandstone outcrops east and west of Railton and suggests a synclinal structure with the axis to the west of the cement works.

The overburden is predominantly clay with some pebbles and basalt fragments and boulders. It varies in thickness up to 50 m. Much of this material has been derived from limestone due to solution weathering leaving the non-calcareous fraction of the original limestone as a residual deposit which accumulated in the synclinal basin. Additional clay and detritus from other sources includes Permian sediment, Jurassic dolerite and Tertiary basalt which overlay the basin in earlier times. Pebbles and basalt boulders have been recorded from many of the diamond drill holes on the property. The overburden on the average is a uniform yellow brown and red plastic clay which has been tested for ceramic properties, the results of which are appended to this report.

THE DRILLING PROGRAMME

Test drilling of the property has been carried out intermittently since 1927 using diamond drills, churn drills and augers. The current programme consists of 24 auger holes to test the overburden depth; a one metre diamond drill core sample was taken from the bottom of each hole. Three diamond drill holes were also drilled in the floor of the quarry (No. 5 level) to prove reserves.

The drilling results and surface levels supplied by the company have been used to prepare Figure 1 (contour map of the area); Figure 2 (contour map of subsurface, top of limestone). Figure 3 (isopach map of overburden) and Figure 4 (cross sections of area). Company levels are given with respect to an arbitrary datum. A factor of +93.07 ft (28.37 m) is needed to convert to height above sea level.

The detailed configuration of the limestone surface is more irregular than shown in Figure 2. This is due to solution weathering along joints and fissures which has led to the formation of a network of residual pinnacles of limestone surrounded by and overlain by the clay overburden. Disregarding these irregularities, there is a general north-westerly drainage direction which is sub-parallel to the surface drainage. Of special note is the steep sided gully in the limestone surface immediately to the west of the quarry. Bore holes shown on Figure 2 with circles are those which recorded gravel, basalt boulders and broken limestone and did not bottom on solid limestone. This drainage line may represent a line of sink holes along a major fault or joint plane, its southerly extension is not at present known.

LIMESTONE RESERVES

Accepting 15 m as the maximum acceptable overburden thickness, three areas are suggested as extensions of present workings: Area A has the advantage of being adjacent to the quarry and plant but its eastern extremity lies close to the southern extension of the steep sided gully in the buried limestone surface. Furthermore, one half to one third of Area A is occupied by the overburden dump.

Area B is not so conveniently placed with respect to the primary crusher and plant. It has not been drilled sufficiently for proper assessment and is adjacent to the railway which may limit the area available for overburden dumping.

Area C is not at present available as it is traversed by the railway. It is included as the overburden is 15 m or less.

These areas have been idealised to simplify the calculations.

| Reserves | Area | million tonnes | Overburden (million m ³) |
|----------|-----------------------|----------------|---|
| A | 22 ha (54.5 acres) | 32 | 9 |
| B | 21 ha (52 acres) | 30 | 7 |
| C | 16 ha (49.5 acres) | 22 (approx) | 5 (approx) |

The calculations are based on 15 m faces and benches to 90 m depth.

RECOMMENDATIONS

It is noteworthy that the plant and services layout and the overburden dump location would have been differently situated had present knowledge been available to the original planners. It is important therefore that a diamond drilling programme be implemented to verify the estimated reserves of limestone. Area A needs a test hole near the apices of the triangle and one in the centre. Area B requires a line of three holes along the long axis.

Area A is an obvious first choice for a new site but consideration should be given to preparing Area B for quarrying as a reserve should delays occur in production from A.

The attached plans are in draft form at present and are awaiting details of some of the drill holes before final drafting.

REFERENCES

- JENNINGS, I.B. 1959. Geology and site investigations in the vicinity of the Goliath Portland Cement Company works, Railton, Tasmania. *Tech.Rep.Dep.Mines Tasm.* 4:62-90.
- JENNINGS, I.B. 1959. Geology of the area around the site. Zone 7 Sheet 37. *Department of Mines, Tasmania.*