

LITHOSTRATIGRAPHY OF THE EGEM MEMBER (YPRESIAN) SOUTH-EAST OF THE GENT AGGLOMERATION (BELGIUM)

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For the construction of the southern part of the Ring-canal around Gent and the Merelbeke lock, an intense soil investigation programme was carried out in the 1940's, consisting of cable-tool drilling with disturbed and undisturbed sampling and of cone penetration tests. The results of these investigations showed the Egem Member (Yd of the geological map) between the Aalbeke (Yc) and the Merelbeke Member (P1m) to be characterized by an alternation of fine sandy and clayey sediment packages (1).

Between 1975 and 1990 a great number of deep cone penetration tests (up to 30 m) were carried out for the soil mechanical maps of the Gent region. Especially the cone resistance versus depth logs confirmed the alternation of the fine sandy and clayey units within the Egem Member (fig. 1). Laboratory analyses (grain-size e.g.) of both disturbed and undisturbed samples enabled the division of the Egem Member into three sandy and three clayey deposits (2, 3, 4).

Hydrogeological investigations in the 1980's with direct rotary drilling and geophysical borehole logging to characterize the different aquifers, confirmed the alternation of sandy and clayey layers within the Egem Member (5, 6). Especially resistivity and point-resistance logging showed very characteristic patterns (fig. 2).

Cross-sections, particle size distribution curves, plasticity index versus liquid limit diagrams, cone penetration tests and borehole logs led to the following division of the Egem Member southeast of Gent (from bottom to top):

- unit Yd1c: alternation of thin stiff clay layers and fine sandy clay layers (perhaps to be correlated with the Kortemark Member); thickness up to 15 m
- unit Yd2: very dense packed fine sand with glauconite; very high cone resistance values; thickness of about 5 m
- unit Yd3: 1 to 2 m thick stiff clay
- unit Yd4a: up to 10 or 15 m fine sand with glauconite and shells (Nummulites)
- unit Yd4b: sandstone layer of about 0,5 m thick
- unit Yd5: stiff clay to sandy clay; thickness about 3 m
- unit Yd6: fine sand with glauconite and shells, up to 10 m thick.

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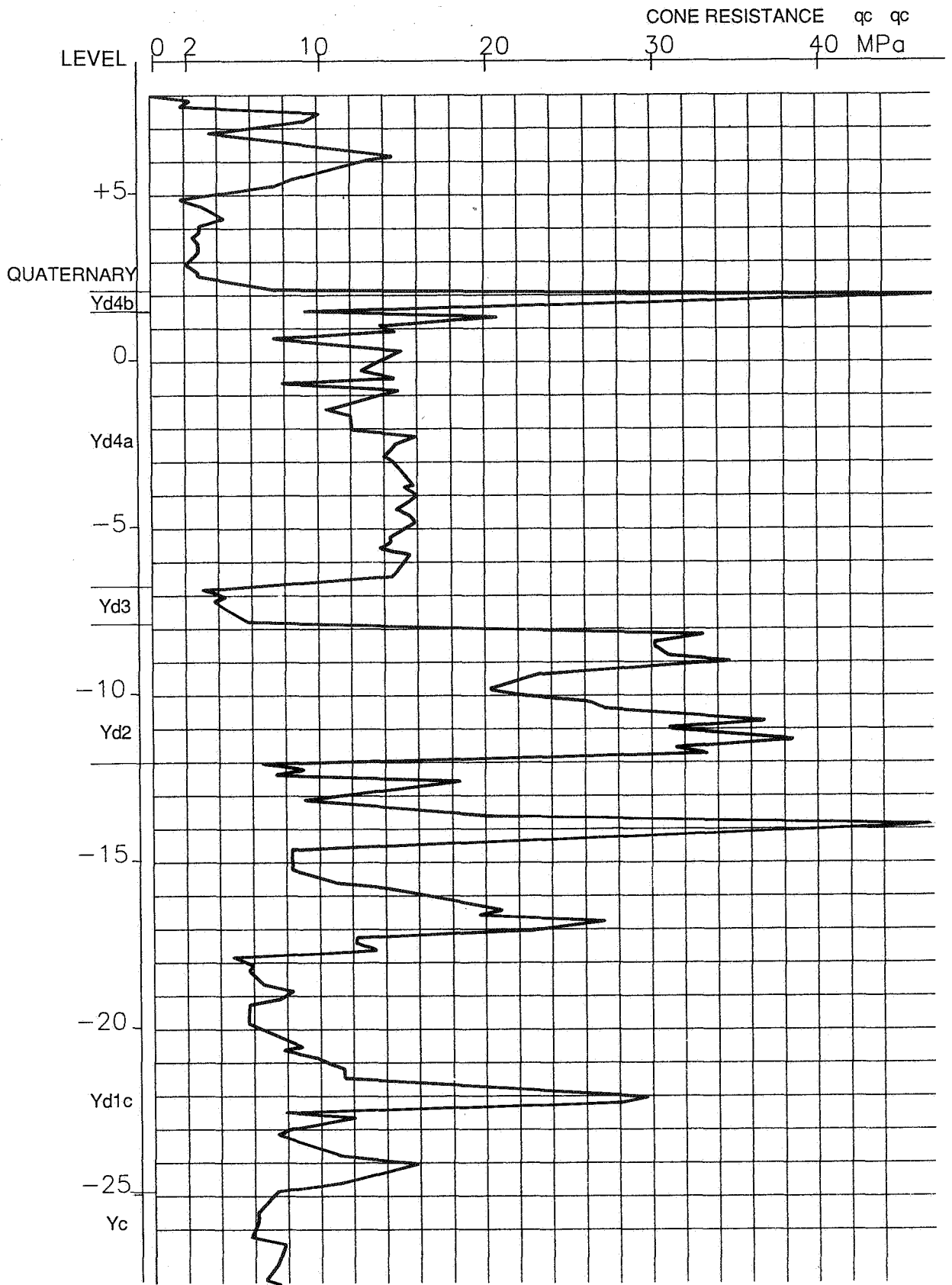


Figure 1. Cone penetration test in the Egem Member.

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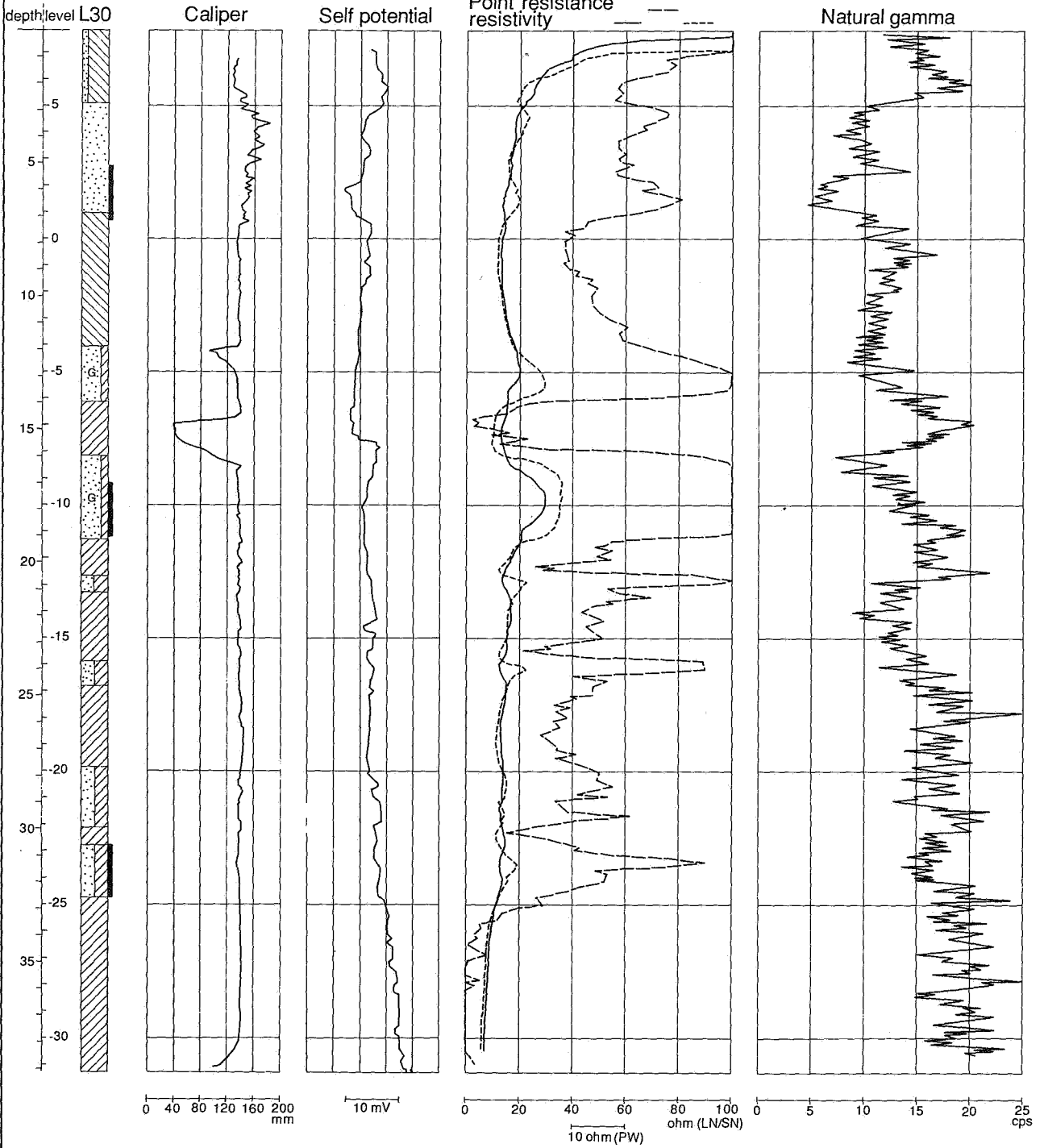


Figure 2. Borehole logs in the Egem Member.