Ma On Shan Area 77 Reclamation Failure

CONTENTS OF PRESENTATION

- Description of the Failure
- Construction History and Geological Profile of the Site
- Post-Failure Investigation and Analysis of the Failure
- Probable Cause of the Failure

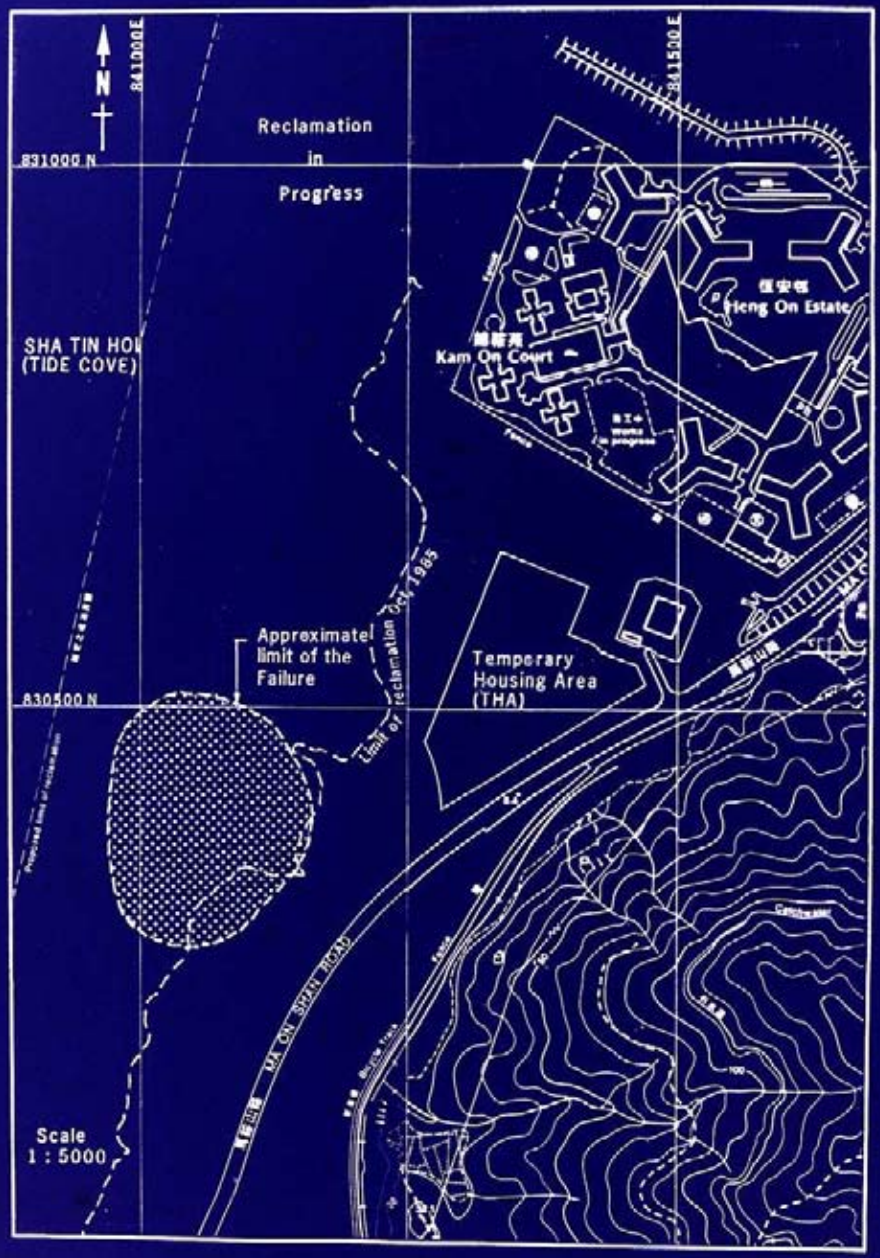


Figure 1 - Location of the Failure Site

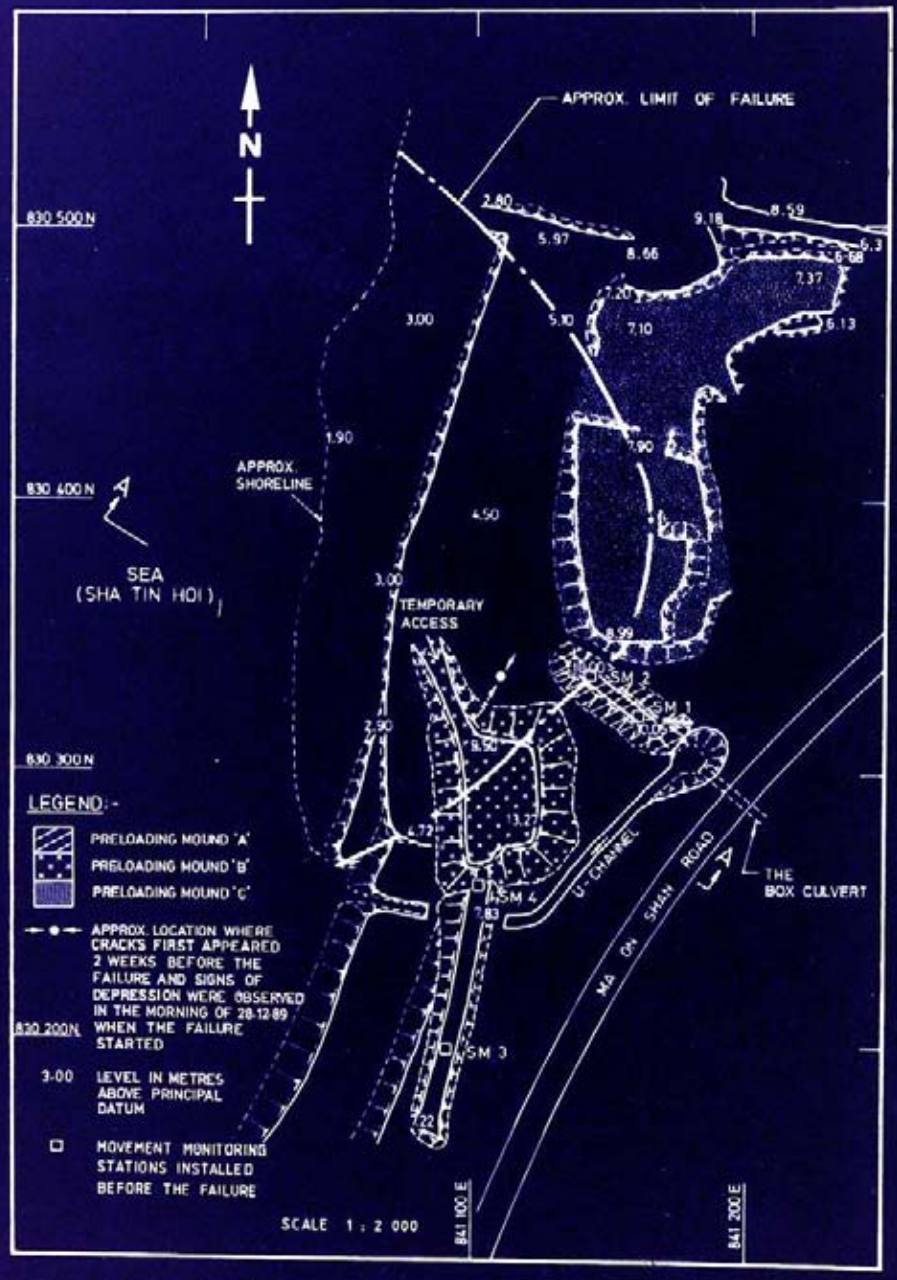


Figure 2 - Condition of the Site Immediately before Failure

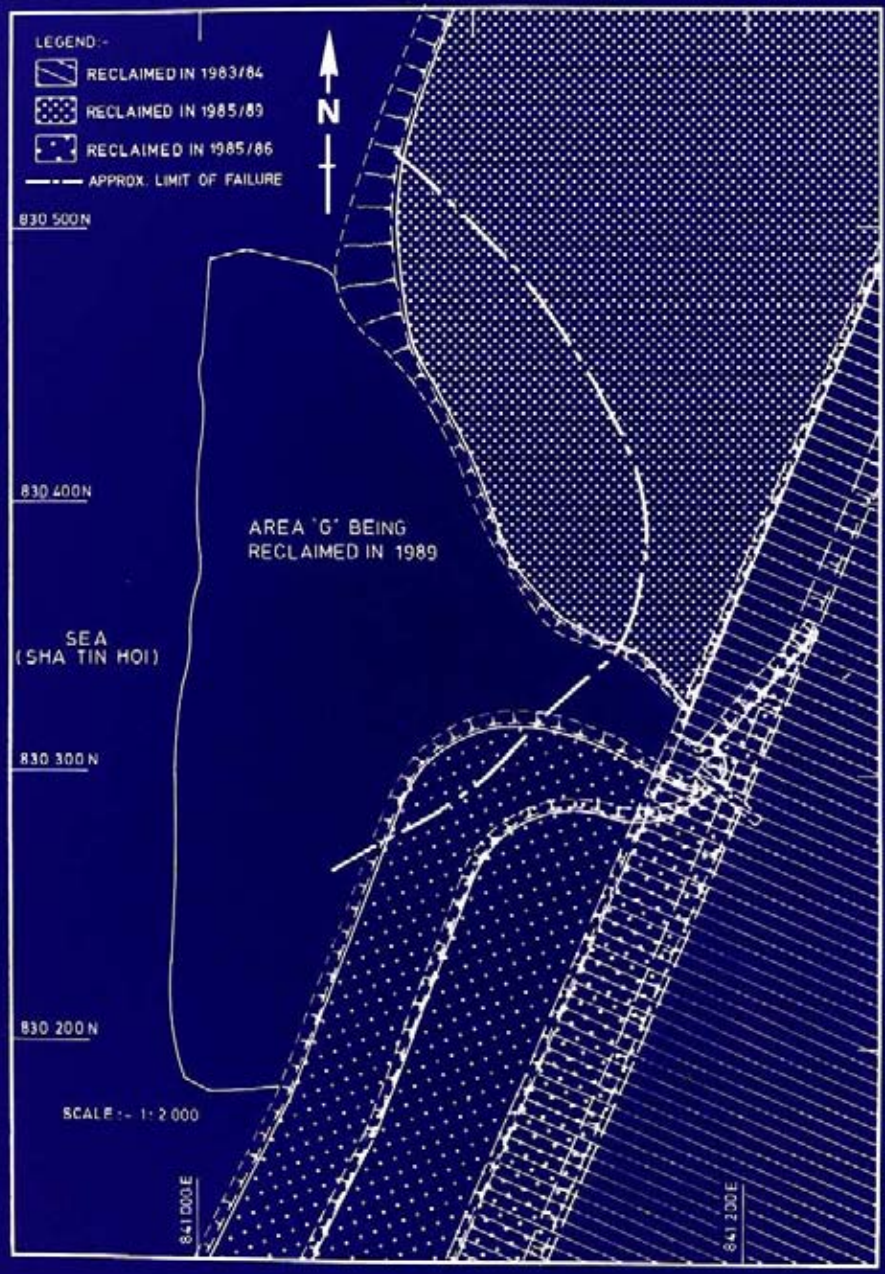
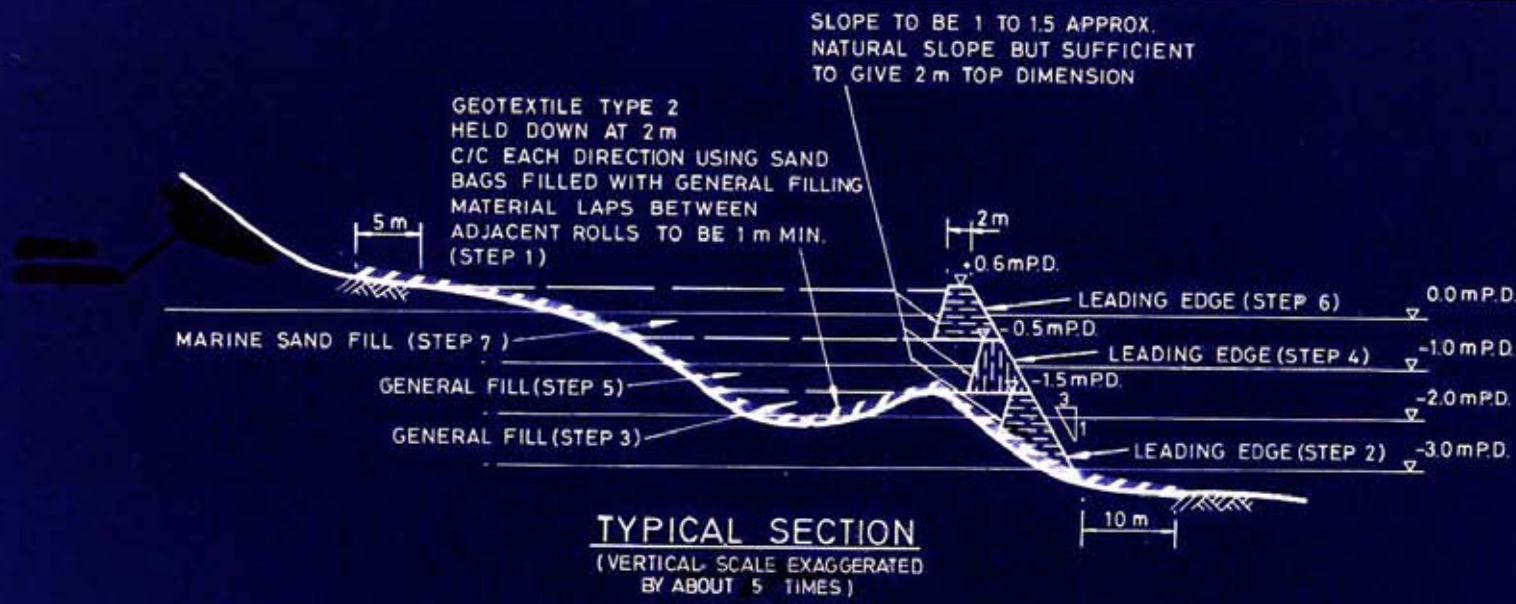


Figure 3 - Reclamation History of the Site



Notes :

(1) Rolls of geotextile should be minimum 9.5 m wide.

(2) Granular material (Type GM1) to be placed at edge of reclamation to form the leading edge.

(3) General filling material should be placed by marine placing (No end tipping from land).

(4) Marine sandfill should be hydraulically placed.

(5) Granular material type GM1 shall be rock-quarry waste or similar. The maximum size shall be 200 mm and the grading shall be such that not more than 35% by weight passes a 75 micron sieve.

Figure 10 - Typical Section Showing the Sequence of Reclaiming the Area G (After MCA Drawing No. 63486/1501)

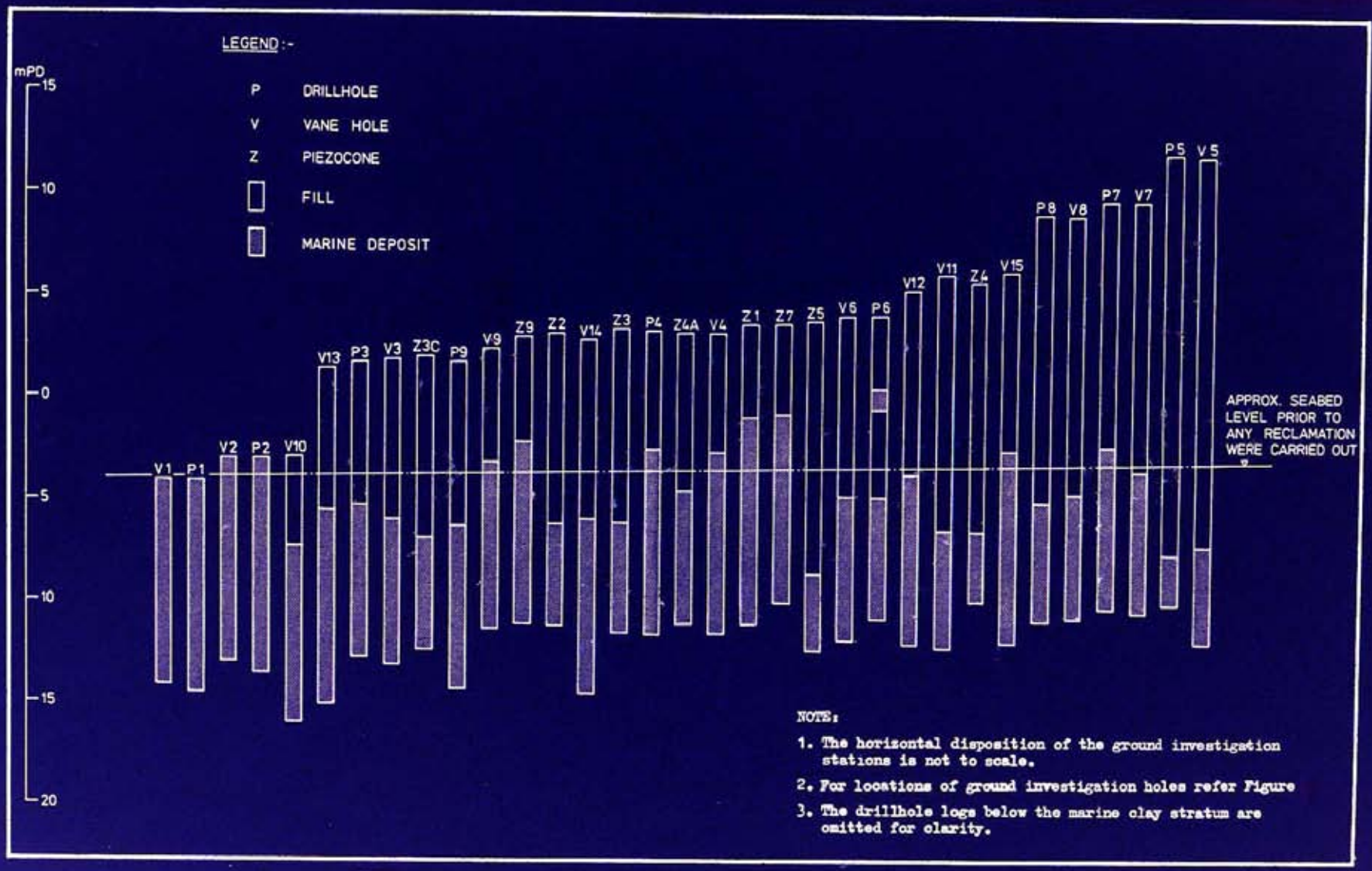


Figure 6 - Composit Profile of Fill/Marine Clay Stratum as Interpretated from the Post Failure Ground Investigation

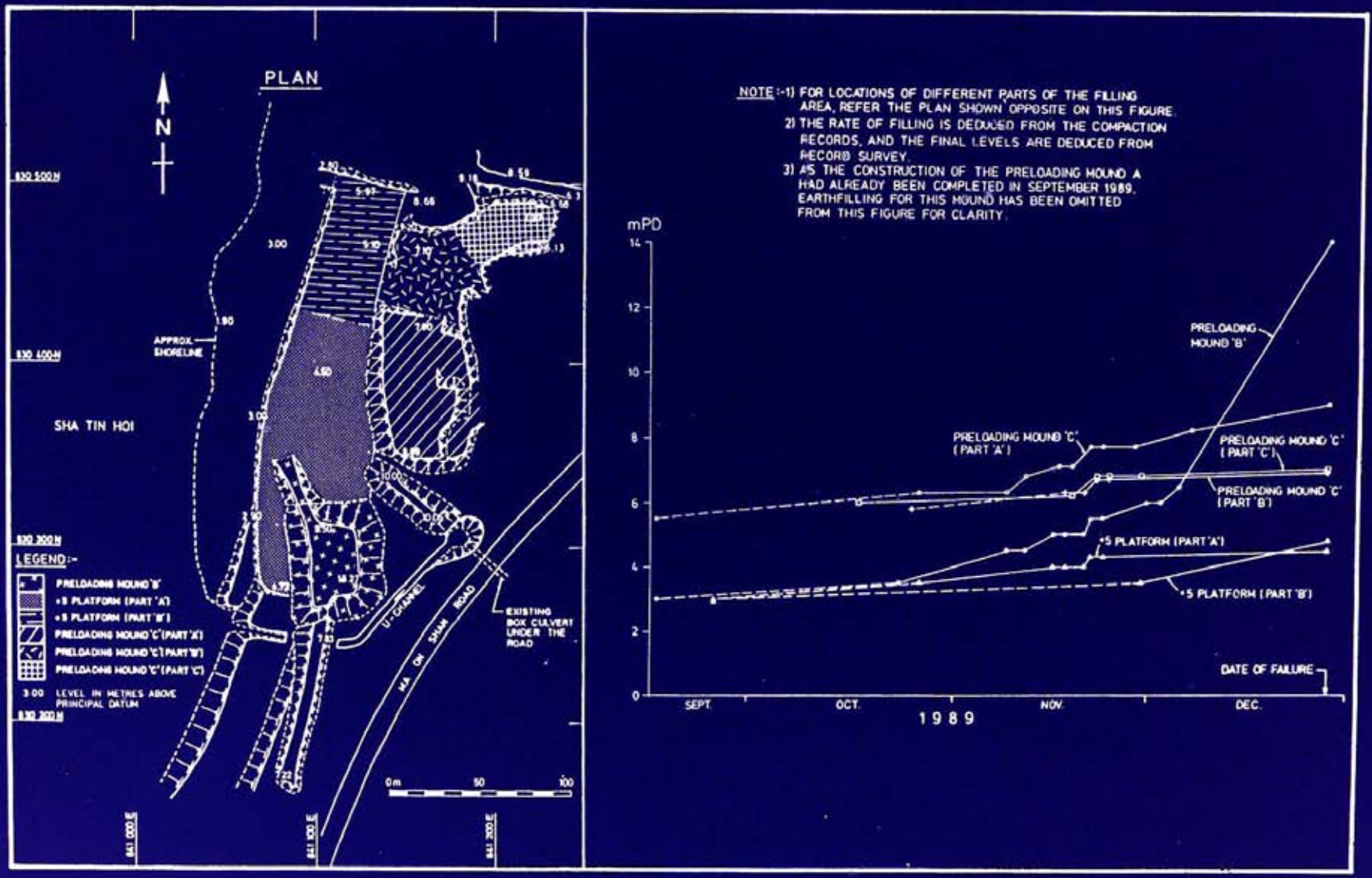


Figure 4 - Progress of Earthfilling for the Three Months Preceding the Failure

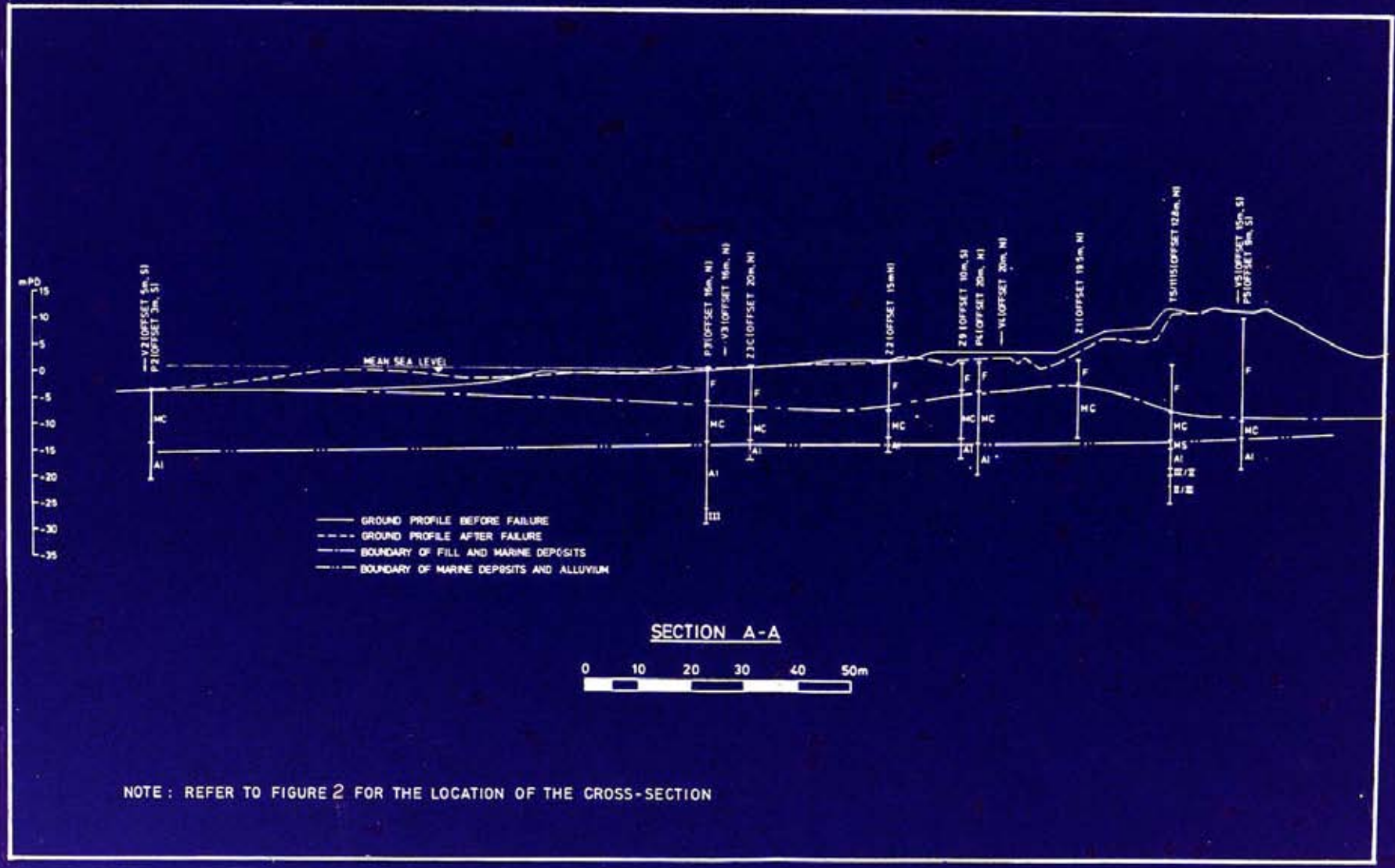


Figure 7 - Cross Section A-A


P6
8.60-9.60


MA ON SHAN AREA 77
RECLAMATION FAILURE
BH P9 DEPTH 14.0 - 15.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2

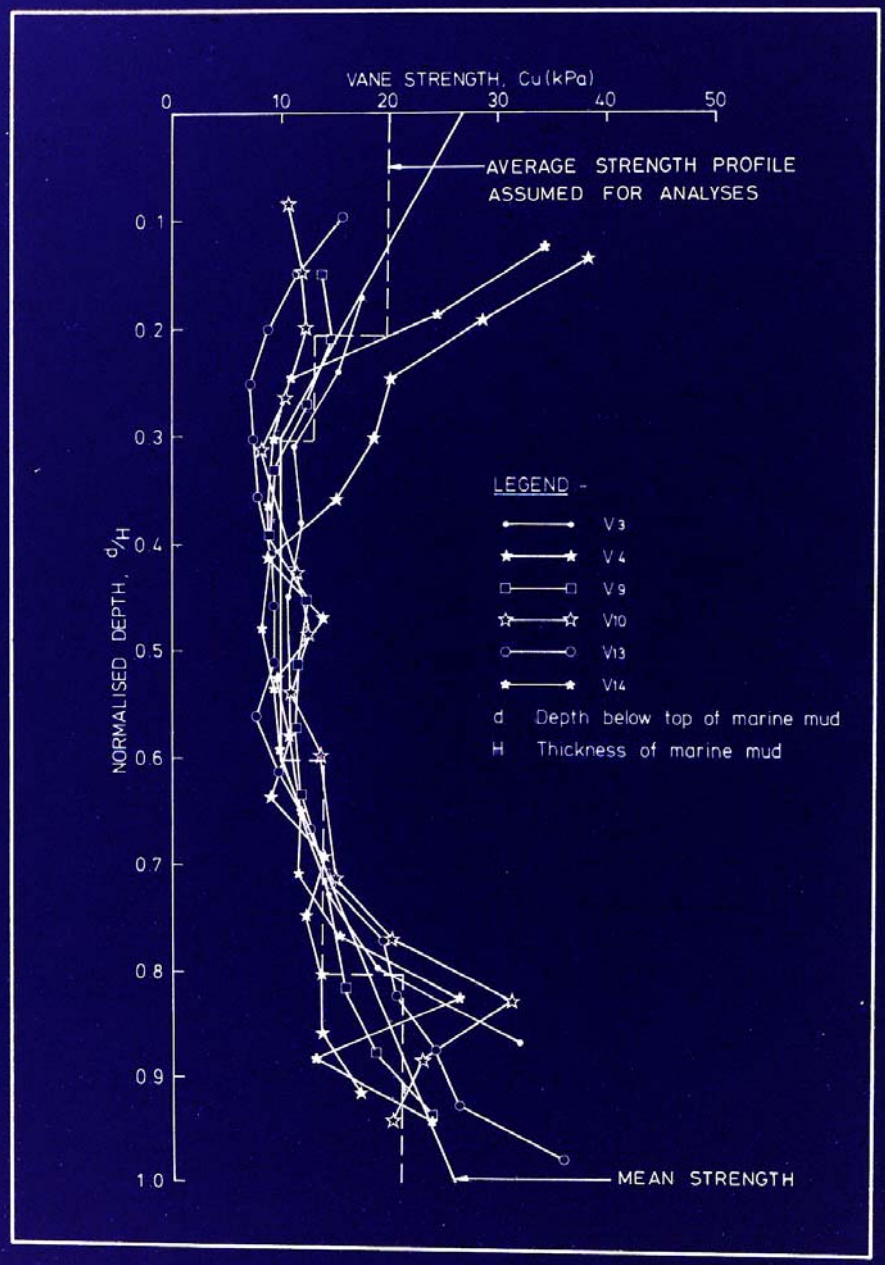


Figure 8 - Vane Strength Profile Versus Normalized Depth for Group B1 Vane Holes

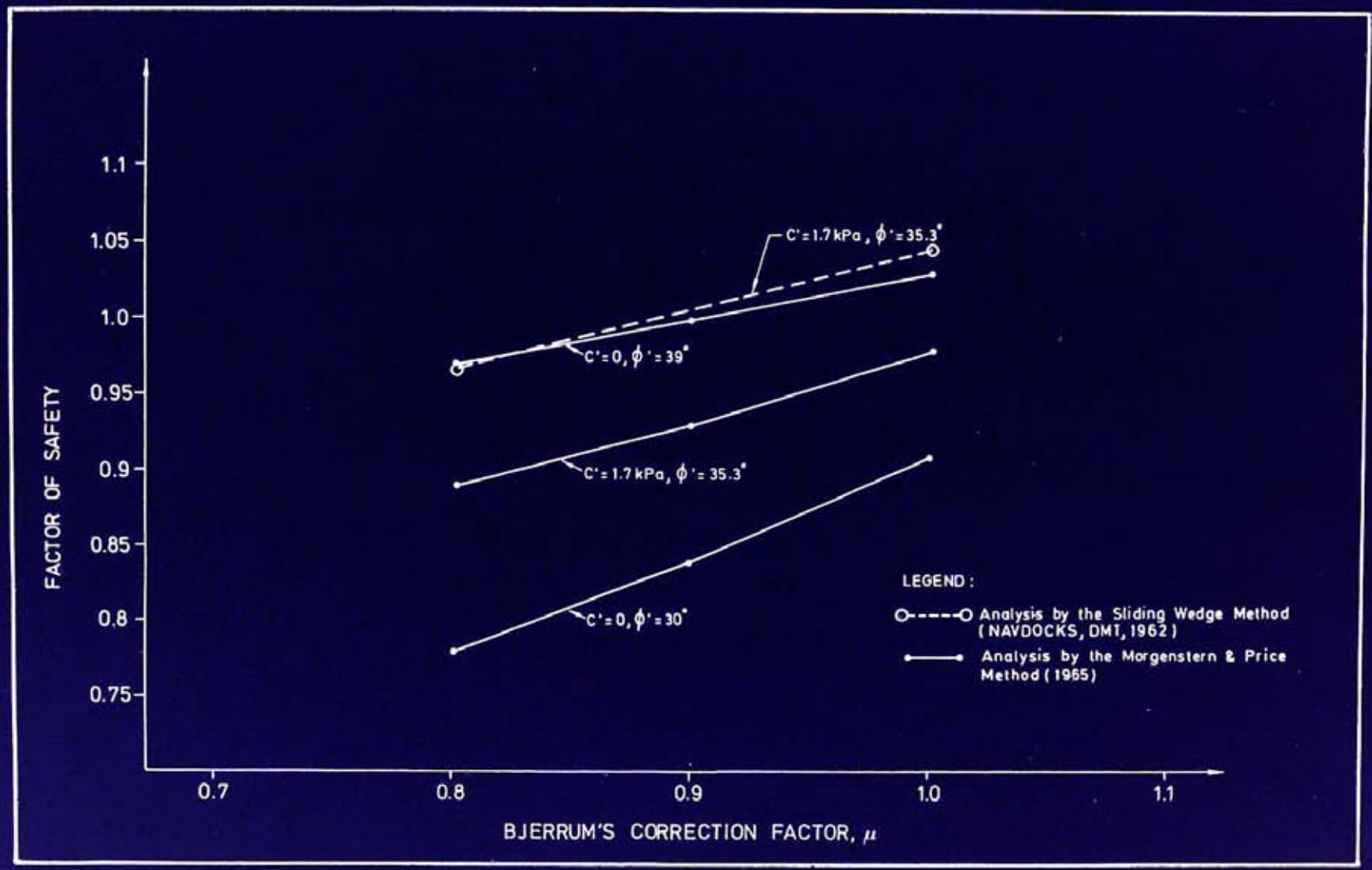


Figure 9 - Results of Sensitivity Analysis

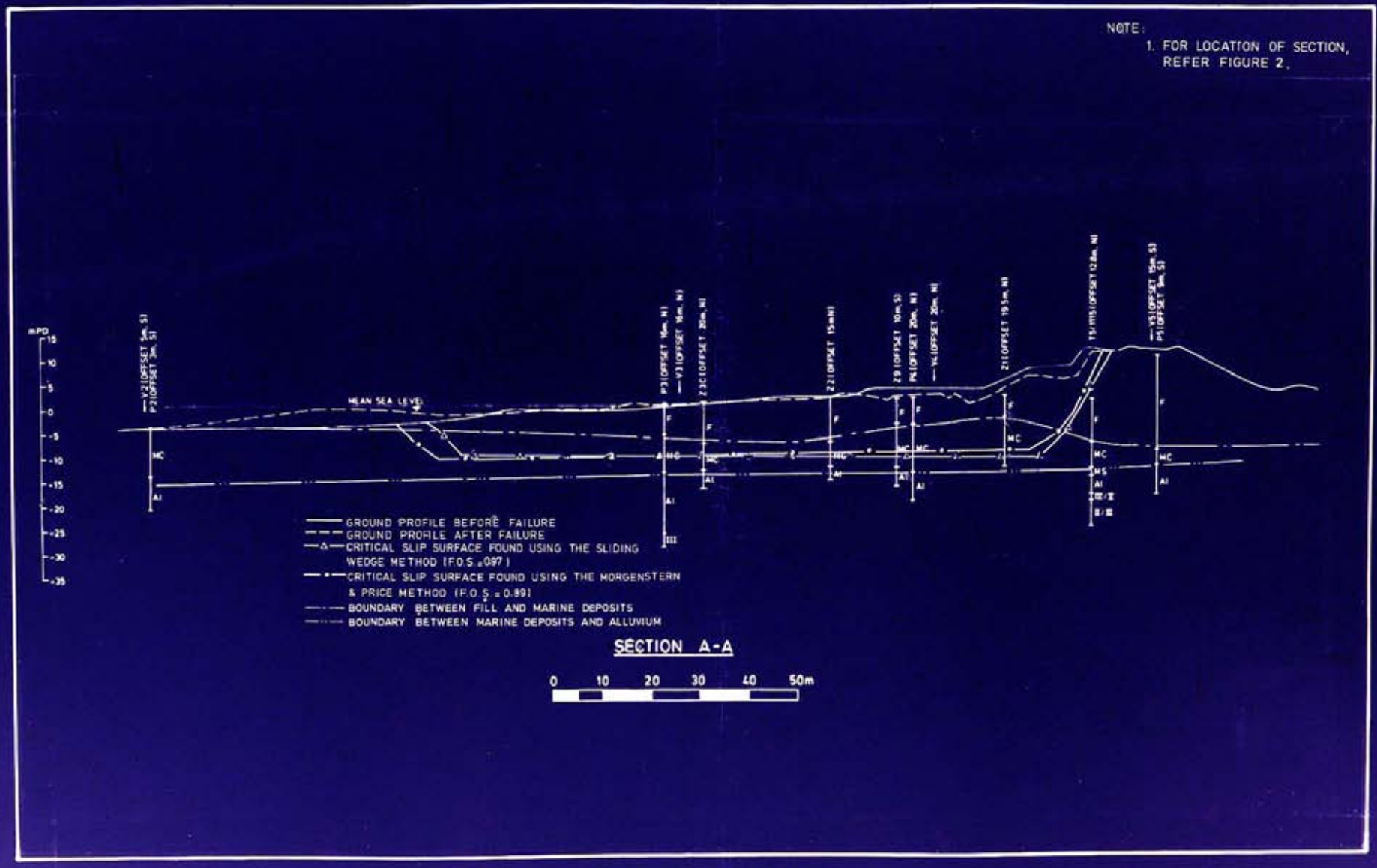


Figure 38 - Cross Section A-A with Critical Slip Surfaces

Conclusions

- Apparently rapid loading of the area due to earthfilling at the Preloading Mound B is the major factor contributing to the failure.
- The minimum FOS calculated was close to unity and the critical failure surface coincided approx. with the backscarp of the failure and the heaving at its toe.
- There were large variations in the thickness of the marine clay and there was evidence that the seabed might have been disturbed in the earlier reclamation processes. These disturbances, though difficult to quantify, might have contributed to the failure.
- No definite failure surfaces could be picked up in the detailed inspection of the clay samples.

END