

ABSTRACT

The measurement of Second Precise Levelling Network (PLN) for the Peninsular Malaysia which was completed in 2000 by Department of Surveying and Mapping Malaysia (DSMM) is set to replace the First Order Levelling Network of 1967. The new network consists of 113 levelling lines with more than 5000 bench marks and covers a total distance of over 5000 km. Precise levelling technique is used to establish the network where the allowable misclosure between fore and back levelling is less than 3 mm per root kilometre of length along a line. Its configuration is predominantly dictated by the land transportation pattern. The mean sea level (MSL) at Port Kelang, based upon a 10-year tidal observation (1984-93), was later being adopted as the new Peninsular Malaysia Geodetic Vertical Datum (PMGVD). A consistent and accurate set of adjusted heights of benchmarks has been achieved in the adjustment of the Precise Levelling Network of Peninsular Malaysia on the datum defined by MSL height at Port Klang. These adjusted heights are based on the Helmert orthometric height system. By fixing Port Kelang, the precision of the PLN can be expressed as $1.14 \text{ mm}\sqrt{\text{km}}$. This implies that for any of the 5,295 first-order levelling bench mark across the nation, a height precision of better than 3 cm can be expected.