

Unreinforced curved stone masonry retaining walls for Garhwal-Chamoli region

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The Authors have described an interesting application of the curved stone masonry wall as earth retaining structure in hilly areas of Garhwal. In the paper the details regarding the design of the wall particularly the manner in which earth pressures, active pressure at the back of the wall and passive pressure in the front at the toe of the wall, are lacking. From the paragraph relating, design concept on page 117; it appears that classical Rankine earth pressure theory, has been used by the authors.

The Authors and the other members of the Indian Geotechnical Society are aware of the limitation of the Rankine theory particularly when applied to the rigid masonry wall with negative batter. The mode of yield of wall in such cases is that as the wall yields and downward slip occurs, the dead load from the upper parts of the wall act as a surcharge on the backfill, consequently producing additional pressures at lower levels. Several research workers, Odhe, Krynine and others have found that the point of action to be as high as $0.6 H$ from the base whereas the Rankine theory gives the point of application at $0.33 H$.

Similarly in the case of passive pressure, the Rankine Theory gives result on unsafe side. The Civil Engineering Code of Practice No. 2—Earth Retaining Structure, published by the Institution of Structural Engineers, London (1951), recommends adoption of different procedures in these cases; either using a lower value of angle or the non-triangular pressure distribution.

In view of the above, when the authors make the statement, "actual lateral earth pressure developed are not more that evaluated by using Classical Rankine's earthpressure theory". There must be other evidence with them, but not given in the paper. So it is requested that the authors may clarify the point that if their conclusion is based on the observations on prototype structures or on laboratory tests.

Reference

KRYNINE, D. B. 'Soil Mechanics—Its principles and structural applications'. Mc GRAW HILL BOOK CO. PUBLICATION IIND. ED. pp. 307

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