

The GeoGauge & CBR Related via Modulus

Since the GeoGauge provides a determination of modulus, it also can provide an estimate of CBR. A relationship between CBR and modulus exists. It is apparently dependent on local geology and geotechnical experience from the number of variants in use. A few are listed below. It is by no means complete. Independent confirmation of this ability of the GeoGauge is underway by at least Ohio University/ODOT, MnDOT, TXDOT, FDOT, Rutgers University/NJDOT and the University of Massachusetts/FHWA.

Considering how long it takes organizations to publish results, interested users would be best advised to see firsthand how well the GeoGauge estimates CBR. Fifteen to thirty GeoGauge measurements on each major class of local soil would be needed. The CBR data can be obtained either from existing resources or measurements made in companion with the GeoGauge. The user may select any variant of the CBR-modulus relationship. As with most geotechnical measurements, the values of modulus derived from the GeoGauge and CBR will not be identical. However, there will be a highly correlated, one-to-one correspondence between them. This means that each GeoGauge measurement can be translated in to an estimate of CBR with a simple calculation. At no cost, Humboldt will assist in the determination of this calculation or the analysis of the data in general.

Relationship Variant Modulus (E) =	Units	Used By	Reference
17.6 (CBR ^{0.64})	MPa	MNDOT	Powell, W.D., Potter, J.F., Mayhew, H.C., & Nunn, M.E., 1984, "The Structural Design of Bituminous Roads," TRRL Report LR 1132, 62pp.
1500(CBR)	psi	INDOT Province of Alberta	TRB
1200(CBR)	psi	ODOT	TRB
750(CBR) to 3000(CBR) for CBR < 10	psi	VADOT	TRB
10 ^(0.851logCBR + 2.971)	psi	ALDOT	TRB