

Appendix D Modification of p - y Curves for Battered Piles

a. Kubo (1965) and Awoshika and Reese (1971)¹ investigated the effect of batter on the behavior of laterally loaded piles. Kubo used model tests in sands and full-scale field experiments to obtain his results. Awoshika and Reese tested 2-inch diameter piles in sand. The value of the constant showing the increase or decrease in soil resistance as a function of the angle of batter may be obtained from the line in Figure D1. The “ratio of soil resistance” was obtained by comparing the groundline deflection for a battered pile with that of a vertical pile and is, of course, based purely on experiment.

b. The correction for batter is made as follows: (1) enter Figure D1 with the angle of batter, positive or negative, and obtain a value of the ratio; (2) compute groundline deflection as if the pile were vertical; (3) multiply the deflection found in (2) by the ratio found in (1); (4) vary the strength of the soil until the deflection found in (3) is obtained; and (5) use the modified strength found in (4) for the further computations of the behavior of the pile that is placed on a batter. The method outlined is obviously approximate and should be used with caution. If the project is large, it could be desirable to perform a field test on a pile installed with a batter.

¹References are listed in Appendix A.

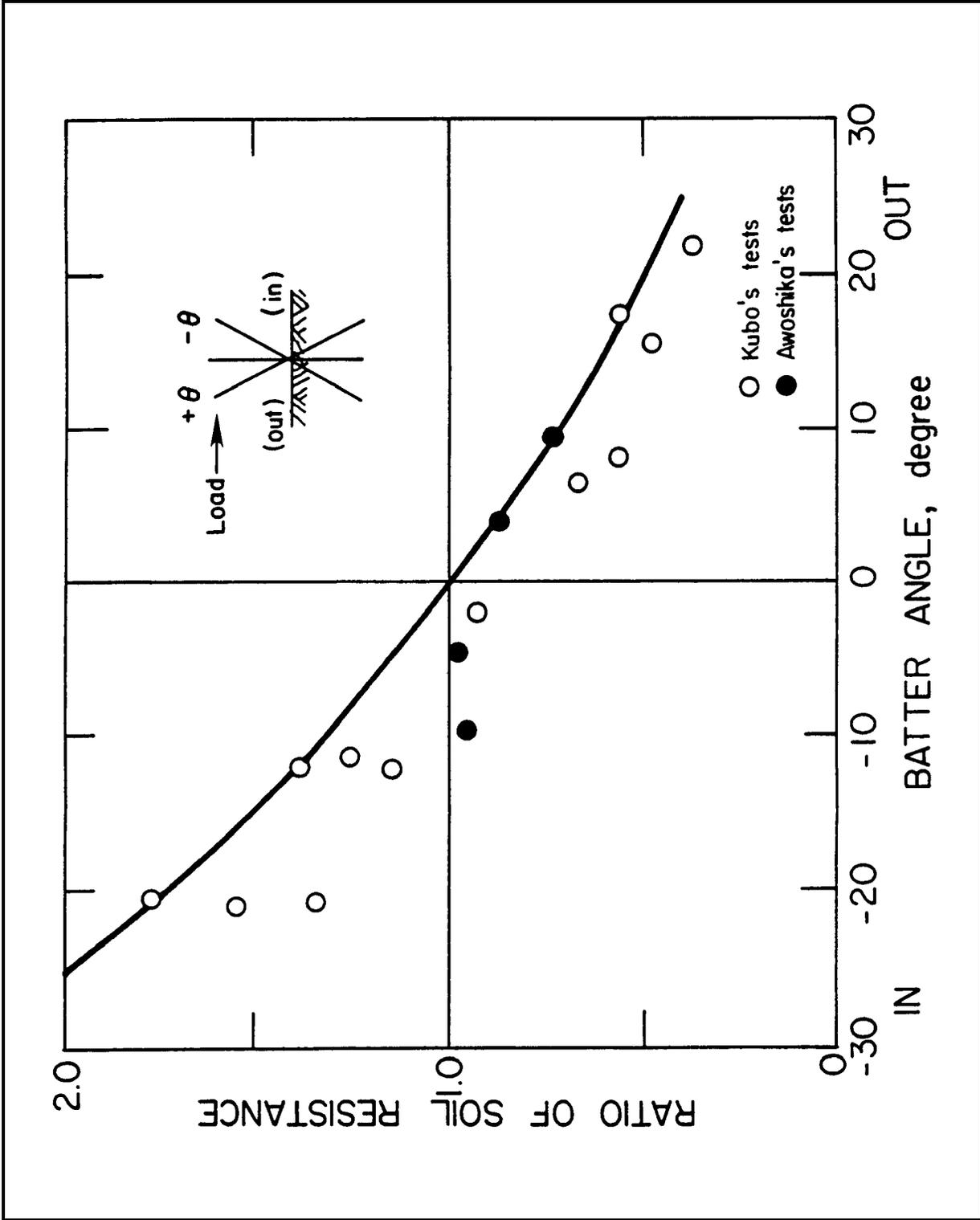


Figure D1. Modification of p-y curves for battered piles (after Kubo (1965), and Awoshika and Reese (1971))