

APPENDIX I

PROCEDURES FOR SELECTING EQUIPMENT FOR DEWATERING OPERATIONS

I-1. General Procedures. In order to predict whether or not draglines and other equipment can operate successfully on perimeter dikes, on interior berms composed of dewatered dredged material, or inside disposal sites, criteria have been developed relating vehicle ground pressure, with or without mats, and rating cone index (RCI) of the supporting soil, as shown in Figure T-1. The RCI can be obtained rapidly in the field by one or two technicians by hand-pushing a small cone penetrometer through the soil and determining the resistance to penetration. (Under some conditions, field penetration resistance data for remolded material must also be determined.) The critical layer RCI is the lower of the 0- to 6-inch or 6- to 12-inch layer resistance values encountered in the field; for, if the dragline (or other type of vehicle or equipment) breaks through these layers, soil strength usually decreases even further, and the vehicle will become immobilized. Caution should be exercised when selecting a vehicle whose ground pressure just equals that obtained from Figure I-1 for the available RCI, because of possible undetected soft spots in the area or possible vehicle operation errors that could cause immobilization. WES Technical Report D-77-7 (item 37) should be consulted for more exact procedures.

I-2. Effects of Trenching. Once the dragline has moved onto the interior berms to continue the periodic trench deepening operation, criteria are also available, as shown in Figure I-2, to predict the rate at which trenching operations may be conducted. In this figure, which shows linear trenching in feet per hour versus RCI, the RCI is for the soil supporting the dragline. The relationships in Figure I-2 are, at this stage, based on limited data. However, in the absence of better data, they may be used for approximate preliminary estimates of expected behavior.

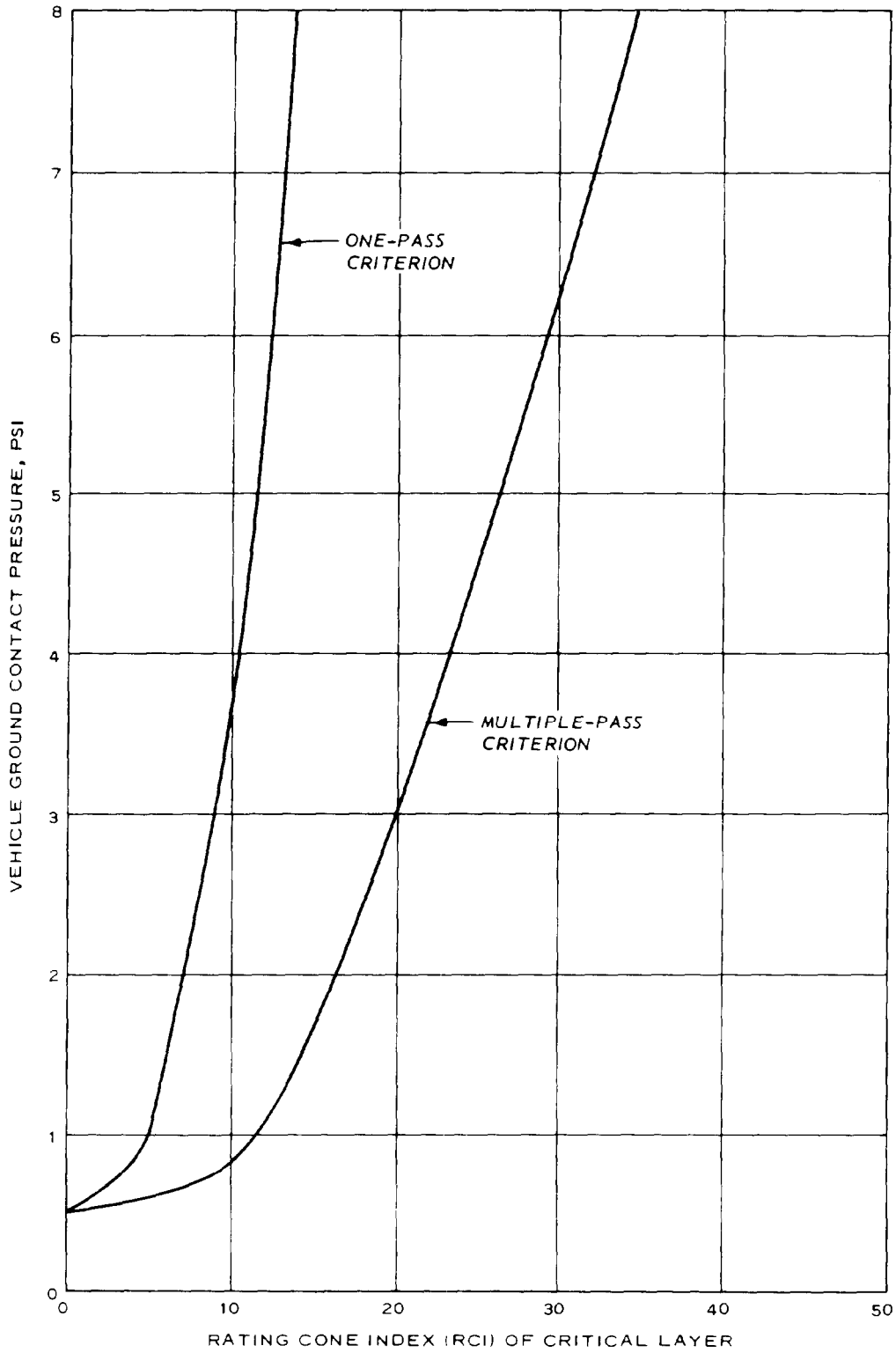


Figure I-1. Relationship between RCI necessary to ensure adequate mobility and vehicle ground pressure for single- and multiple-pass operations in confined dredged material disposal areas

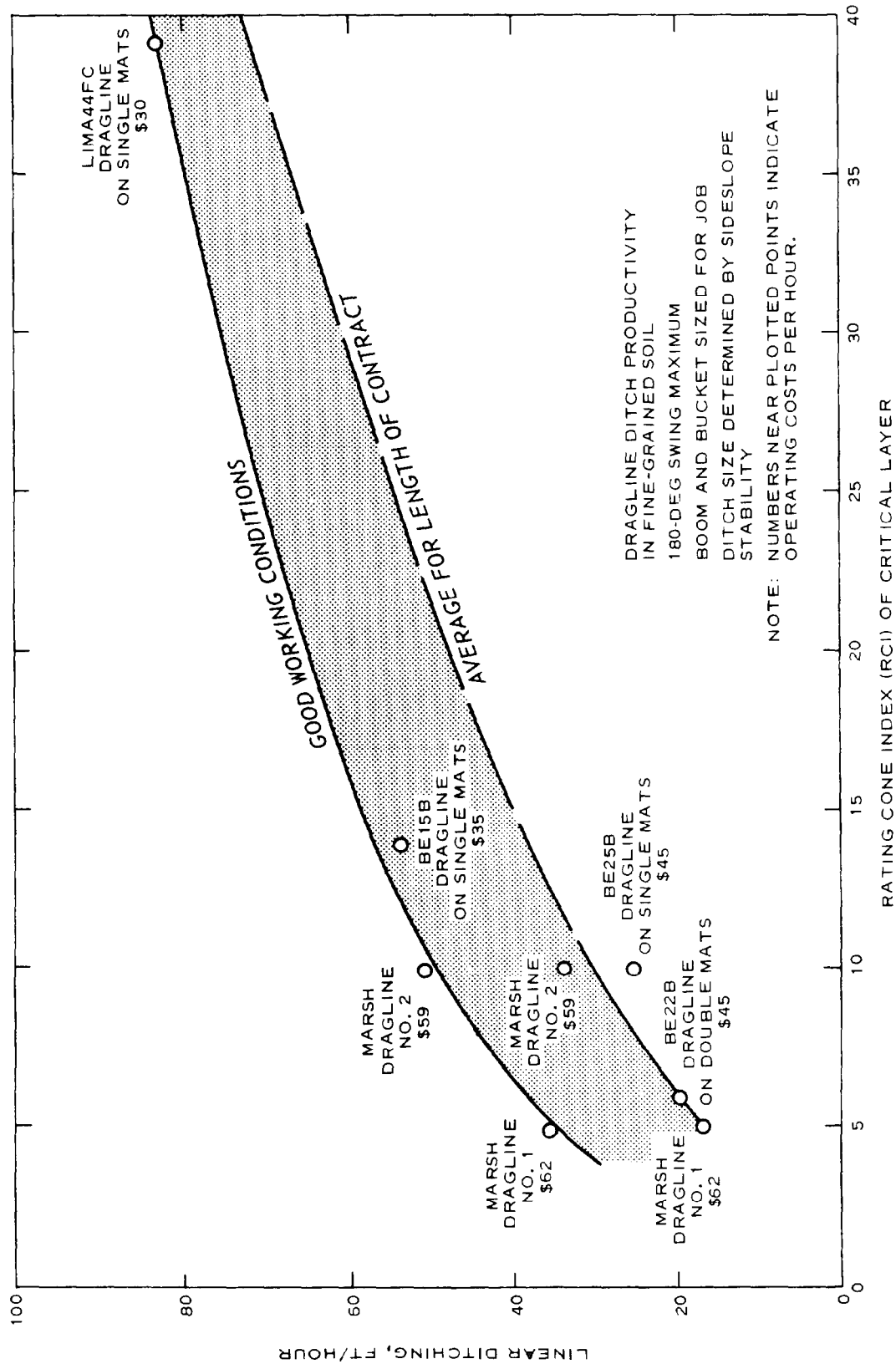


Figure I-2. Relationship between RCI of confined disposal area surface crust and linear trenching rate obtainable by dragline equipment