

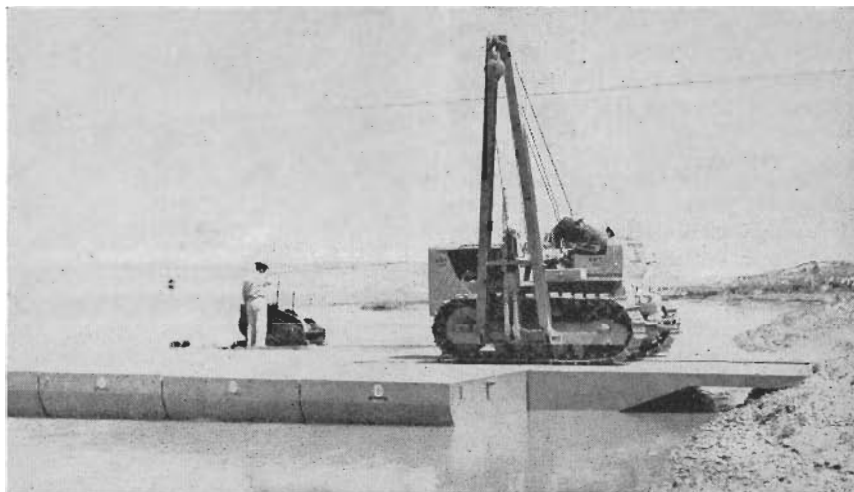
# SECTIONAL FERRY SAVES MILES on Pacific Northwest Spread

By **ELTON STERRETT**  
Engineering Editor

**T**O the pipe line contractor, there are river crossings and the crossings of rivers. It is this latter that can add heavily to the cost of moving spread equipment where a deep or swift stream crosses the right-of-way and no available highway route is at hand.

On the spread of Associated Pipeline Contractors, Inc., where the line of Pacific Northwest encounters the Green River in the vicinity of Manila, Utah, it appeared that some 80 miles of mountain road travel would be necessary to get equipment and pipe in for some 18 miles of the job. This long and hazardous haul could be avoided if the river could be ferried near the site of the pipe line crossing, but available floating equipment could not be strengthened to take a 78,000-pound pipelayer, for instance, nor was sufficient length available for handling a tractor and trailer loaded with 40-foot joints of 26-inch line pipe.

To form a ferry, five pontoons, known as Flexifloats, and a patented unit made by Robishaw Engineering, of Houston, were combined with the necessary auxiliaries to make a unit which would navigate the stream and which is



Illustrating the sloping construction of the ramp section, enabling it to offer firm support on the graded bank of the stream.

now making the 400-foot river traverse in about four minutes.

The Flexifloats are steel pontoons, with  $\frac{1}{4}$ -inch plate sides and bottoms, and a decking of  $\frac{1}{4}$ -inch floor plates. The pontoons are 30 feet long, deck measurement, 7' 6" in width, and 3' 6" in depth. Empty, each unit requires 8 inches of water to float its weight of 10,000 pounds. Each foot of submergence will support 14,000 pounds of useful load. Thus the 5-unit ferry at

the Green river crossing has a net capacity of 140,000 pounds with 10 inches of freeboard.

The pontoons are made with one side equipped with spearhead locking devices, the opposite side carrying sockets into which the spearheads nest. The locking devices are set in pairs, at deck line and base of sides, and spaced 55 inches apart along the sides of the pontoons. Split keys, sliding in vertical slots, lock over the spearhead members, and prevent accidental disengaging. At each pair of locking devices a truss within the hull of the pontoon provides transverse rigidity and strength and acts as load-bearing member.

The entire ferry unit is composed of five pontoons locked side by side, with a ramp unit at each end. These ramp units are equipped with standard locking devices, and extend over four such pairs to give rigid attachment to the side of the pontoon. The outer ends of the 14-foot long ramps are beveled and the river bank at the ferry landings graded to the same slope so that firm contact is attained between ramp and bank for transferring heavy loads from land to float. A guide cable, carried on towers at each bank, holds the ferry against the 10-mile-per-hour



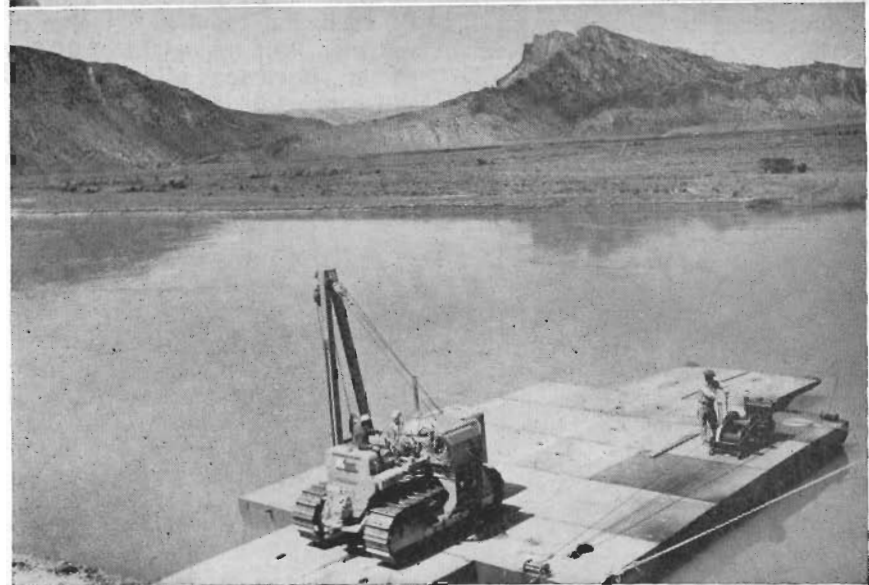
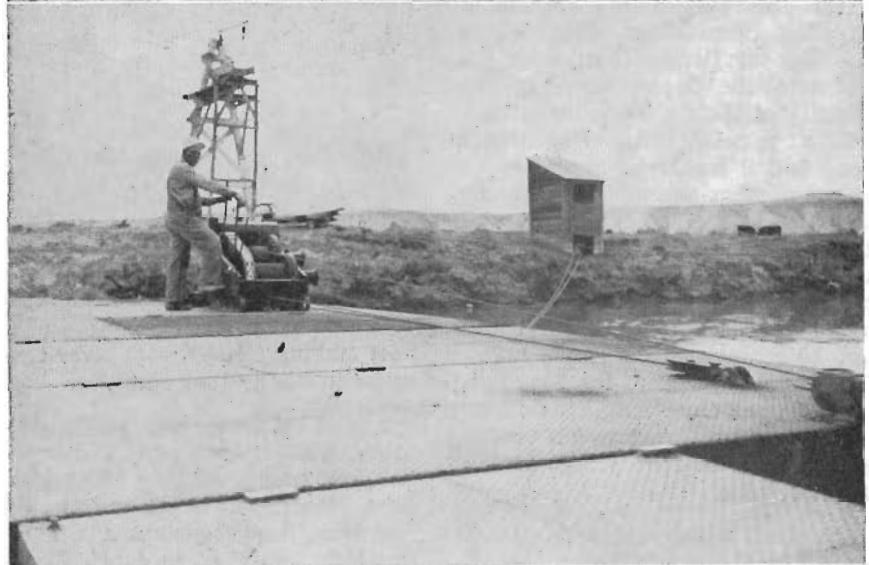
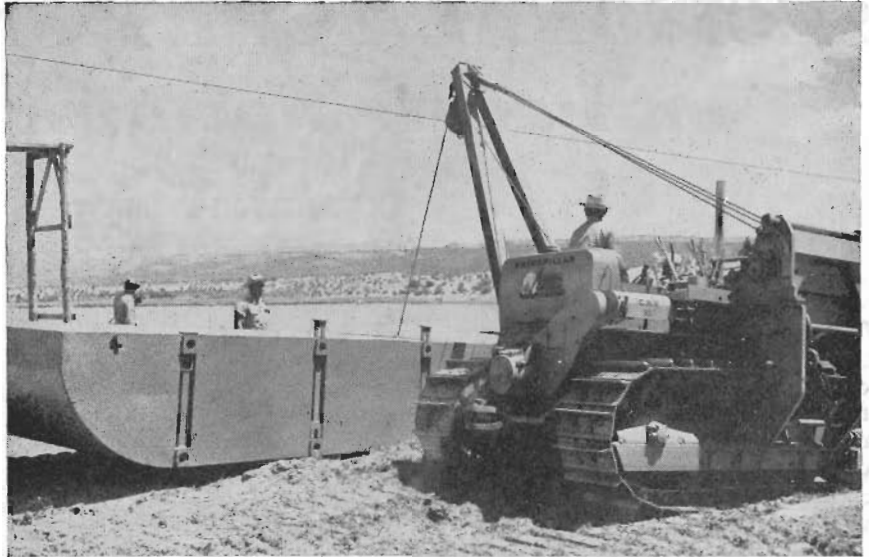
The five pontoon units and two ramp sections make a 65-foot long ferry which readily carries a truck and trailer or, as here, two vehicles.

current and maintains ferry alignment, while a 16 hp. engine drives a double-drum winch for moving the load across the stream.

At the ferry site there is a tendency for the river to form a sandbar midway of the crossing. To "dredge" this clear, the ferry is moved out into the stream during periods when there is no traffic to handle, and held in position over the bar. Wash of the swift current against the sloping end of the ferry directs a part of the stream downward against the sandbar, effectively washing out the necessary clearance for the craft when fully loaded.

The portable ferry units, each—measured over the locking devices—falling within the 8-foot highway limit, can be loaded on a flatbed truck and two such units stacked to form a load which does not exceed legal dimensions or weight, yet which can be readily transported to the next site where it is to be used.

At the center of each pontoon a rectangular well is formed by welding plate between deck and hull and cutting out the enclosed metal of each. This hole, placed at the center of balance of each Flexifloat unit, enables it to be handled with a line without requiring slings, and at the same time permits a line to be worked through the aperture if it is desired to use the float as a pontoon for supporting a line being carried out into deep water for laying as a submerged crossing.



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(Top): A sideboom tractor prepares to lift a unit of the "Flexifloat" and launch it after removal from a truck. (Center): The two-drum winch which provides motive power for the ferry. (Bottom): With a tractor aboard, the ferry moves out into the swiftly flowing Green River.