

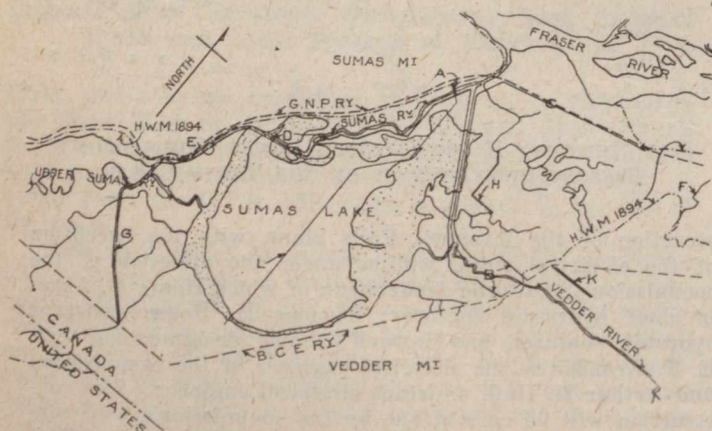
SUMAS LAKE RECLAMATION PROJECT*

THE huge dyking plan commonly known as the Sumas reclamation scheme is now attracting the attention of engineers all over the continent. The scheme, when carried out, will bring under intense cultivation 33,000 acres of fertile land, while its affects will be felt throughout the length and breadth of the Fraser Valley down to the coast cities, which will also reap their full share of the development of these wonderful lands.

The letting of the first contract marks the beginning of a new era of prosperity for British Columbia, the first real sign that the country is once more at peace, and the first real step towards the much-talked-of new development and reconstruction.

Two Phases of Work

The great task on hand can best be dealt with in two phases; and the first phase of work to be undertaken is the McGillivray intercepting ditch, which cuts the water off from running down on the site of the Vedder Canal. The Vedder Canal will be excavated by dry handling method with a machine specially designed by F. N. Sinclair, the chief engineer, to handle the material in one operation from the time it is taken from the trench to the time it is deposited on the mammoth dykes which run parallel to the canal. Two machines will be required to carry on the work, carried on standard railway flat cars on three lines of tracks. It is



MAP SHOWING SUMAS LAKE AND CANAL THAT WILL DIVERT VEDDER RIVER TO FRASER RIVER

A, Dam; B, Vedder Canal and dykes; C, Fraser dykes; D, Sumas Canal and dykes; E, Marshall Creek Canal; F, Atcheltitz dyke; G, Arnold Creek-Sarr Creek ditch; H, McGillivray ditch; K, Barrage dyke; L, Lake Canal.

planned that these machines shall construct the two dykes parallel to the canal between two high water periods of approximately 260 working days in duration.

Fraser River Dyke

This portion of the work will cost, approximately, \$600,000, and is about half of the amount of the present contract. The other half is the Fraser River dyke, the Sumas Canal, the Arnold Creek interception ditch, the Marshall Creek improvement canal, the Vedder River seepage ditch and the barrage dyke.

Work to Run Concurrently

The second phase of the work, for which the contract has not yet been let, will include the main Sumas River controlling dam with a battery of five 54-in. direct connected, electrically-driven centrifugal pumps with a maximum capacity of 1,000 cu. ft. per second, the McGillivray Creek dam carrying one pump similar to the main battery, the concrete slab protection work on the Vedder Canal, the improvement of the Vedder River above the intake of the canal, fencing the project, lateral drains and rough construction of roads.

The key to the situation is the excavation of the Vedder Canal and the approximate maximum cost of the entire

scheme is now estimated at \$1,800,000. The following is a synopsis of the conditions, and other matters in connection with the scheme:

Fifty Miles From Vancouver

The lands under this project are situated in the Fraser River basin, just north of the international boundary line, approximately at the head of navigation on the Fraser River and 50 miles from the city of Vancouver.

The district is traversed by the British Columbia Electric Railway and the Victoria, Vancouver & Eastern Railway.

The valley is also touched by the Canadian National Railway, the Canadian Pacific Railway, the Bellingham Bay & B.C. Railway, and is served by water transportation, giving exceptional transportation facilities.

Tract of 33,000 Acres

The tract comprises 33,000 acres, 10,000 acres of which are in the bed of Sumas Lake, which will be entirely drained.

The lands to be reclaimed are subject to overflow from the annual spring freshet in the Fraser River, caused by the rapid melting of the snow in the Rocky Mountains, and occasionally in the fall, by an abnormal run-off in the coast range.

The latter, when it occurs, is very severe, and coming at a time of low water in the Fraser River, often causes great damage.

Ownership of Land

The title to the land in the bed of Sumas Lake is vested in the Crown and 20,000 acres adjacent is privately owned. Some 2,100 acres of the tract lie on the United States side of the international boundary line, and although these lands receive all the benefits of reclamation, they are not subject to taxes for improvements.

The work of reclaiming the area will consist of: High level dykes, 12 miles; low level dykes, 13 miles; intercepting canals, 7 miles; drainage canals, 20 miles; lateral drains, 60 miles; river improvement, 20 miles; earth dams, 3; reinforced concrete dams, 2; roads, 65 miles; fences, 75 miles; stream control jetty, 1½ miles; stream control concrete slab, 1 mile.

Diversion of Vedder

The diversion of the Vedder River is the most important feature in the project, and will require a compensating canal, the excavated portion of which will be 270 ft. wide in the bottom, and 12 ft. deep. On each side of the canal there is a 100-ft. berm to the toe of the mammoth dykes, which are raised to an elevation of 25 ft. above the ground level.

During the freshet period this canal will raise over the 100-ft. berm and swell to a waterway 570 ft. wide, and after the flood-period is past will drop again to the protected low water channel which is designed to scour any material brought to the intake of the canal.

The Vedder Canal is 3¼ miles long and contains over one-half of the total excavation of 4,500,000 cu. yds.

Water Control

The Sumas River dam of reinforced concrete will carry five 54-inch centrifugal pumps, directly connected to 500 h.p. 3-phase, synchronous motors, capable of handling 120 c.f.s. each. Adjacent to this battery of pumps lies 125 square miles of drainage area, which will be gravity discharge excepting about two months, at the peak of the Fraser freshet; also the Sumas Lake area of 35 square miles, the surplus water of which basin will be exhausted through the Sumas dam at all times.

A small area of 12 square miles will be controlled through McGillivray Creek dam, a small structure of reinforced concrete, carrying one pump of 54 inches.

The area is divided into three distinct basins, and safeguarded by exterior dykes (high level) and interior dykes (low level).

The range of the flood water is from 10 to 25 feet, the extreme having been reached once, in 1894. The works will be built three feet higher than 1894 water, or to an extreme

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*From the Vancouver Daily Sun.