

labor, with the exception of sub-contracts for the construction of concrete flow line, pressure pipe line, and other small portions.

The scheme constituted the conversion of Sooke Lake into a reservoir with a 12-ft. lift of water level; the laying of a 40-in. reinforced concrete pipe line 27.3 miles in length from thence to Humpback reservoir, about 10 miles outside the city, and the connection of Humpback reservoir with the Smith's Hill service reservoir, in the city, by a 36-in. steel pressure main. This service reservoir has a capacity of 16,000,000 Imperial gal. daily and is located at an elevation of 213 ft. above sea level.

spring on the west and Ferguson Creek on the east side. The watershed is bounded on the west, south and east by the Leech River, Esquimalt, and Goldstream Lake watersheds, the first and third having areas of 30.33 and 10 sq. miles respectively.

The Sooke Lake water supply scheme includes also the use ultimately of the Leech River supply. It is proposed to build a diversion dam and to bring the water to Sooke Lake through a 5-mile conduit. The dam will have a height of 45 ft. above the present low-water level and will divert a supply equal to 100 ft. per second.

Early construction work entailed the devastation of the shores of Sooke Lake, which were cleared to 15 ft. above low-water level, thereby effecting the destruction of 300 acres of thick forest. It should be stated that the entire watershed is densely wooded with Douglas fir.

The plan and elevation of the Sooke Lake dam, showing the intake tower and channel, is given in Fig. 5. The channel is excavated to 4 ft. below low-water. In the intake tower the water will be controlled by seven sluice gates, four of which are 24 in. x 30 in. and three are 30 in. x 42 in. The gates will be protected by bar screen cages anchored in the concrete. Two 40-in. riveted steel pipes will convey the water from the intake tower to the concrete screen house. In the latter a set of twelve screens of 40 mesh will be installed. Past the measuring weir the water will be conveyed over cascades to the conduit pipe at a grade elevation of 12 ft. below the low-water level of the lake.

The cross-section of the dam is given in Fig. 7, together with a section of the earth-filled portion indicated in Fig. 5. This earth embankment has a concrete core wall bonded into the natural rock.

To the east of the screen house an ogee weir section 200 ft. in length is being constructed. This is also bonded into the natural rock with a cut-off trench at the upstream face. It will average 15 ft. above the foundation.

The reinforced concrete flow line has a reinforcement of wire mesh. It is being built by the Pacific Lock Joint Pipe Company, of Seattle, in 4-ft. lengths with a 3-in. thickness of wall. The contract was awarded to this company in November, 1913, for the sum of \$329,760. The 40 in. in diameter is an internal measurement and is calculated to furnish a flow of 16,000,000 Imp. gal. per

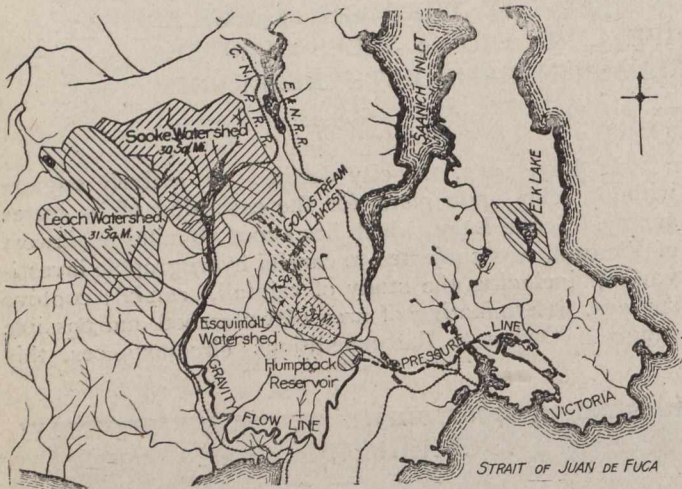


Fig. 4.—Watersheds Around Sooke Lake and General Layout of the Scheme.

Sooke Lake, as stated, is distant 18 miles from Victoria. It is long and narrow, being 4 miles in length and 1/2 mile in width at its widest point. It is in reality a series of three lakes, the farthest from the city being the largest and having a depth at several points of 150 ft. It has a remarkably pure and wholesome supply of water, outpointing in this respect the other two divisions of the lake. The three sections have an area of 964 acres and the watershed which they drain covers 31.35 sq. miles. At low-water the lake is 342 ft. above normal water level in the city service reservoir. Sooke Lake is fed by a large

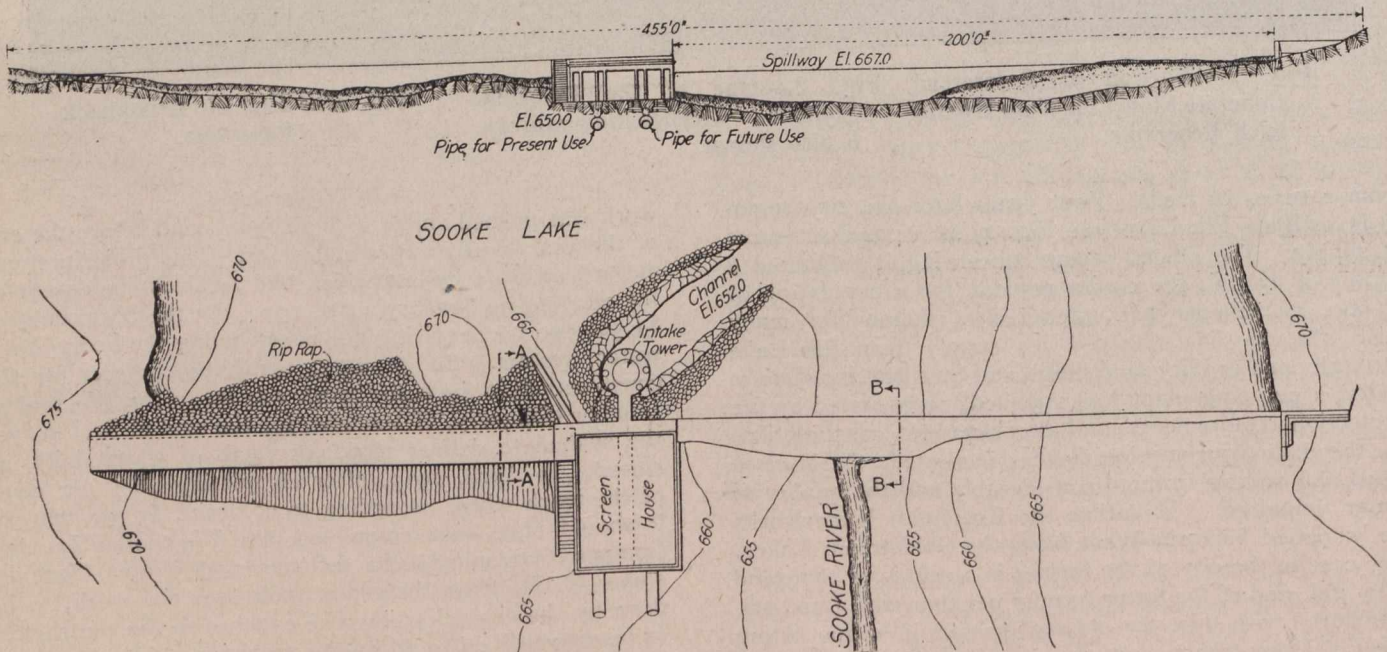


Fig. 5.—Sooke Lake Dam and Screen House.