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REPORT ON LOGOS [redacted]

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(1) QUANTITY OF [illegible] ANNUALLY

(2) VALUE TO [illegible] VALLEY [illegible] COMPANY

G. A. Elliott.

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DESCRIPTION:

Lobos Creek rises in a spring about seven hundred feet West of Mountain Lake, flows West about three thousand feet, thence North about one thousand feet, emptying into Golden Gate Straits. The normal flow of the creek amounts to about two and one-half million gallons daily, and is constant throughout the year. Only a small percentage of the full flow is supplied at the source, the remainder coming from the numerous springs that line the South bank of the creek, in the first two-thousand feet. Many of these springs, especially the larger ones, have their origin some distance South of the bank of the stream on land owned by the Spring Valley Water Company. There is absolutely no surface run-off tributary to the creek, owing to the sandy nature of the immediate watershed. On the North bank, there are comparatively few springs emptying into the stream.

WATERSHED AREA:

The area of the sandy watershed through which the water percolates slowly, eventually appearing in the creek, has been variously estimated by different engineers:

Colonel Mendell in his Report of 1877, calls it 2.5 square miles;

C.E.Grunsky, Municipal Report of 1901-1902, 2.8 square miles;

Storrow in his report, "The Water Supply of the Presidio Military Reservation of San Francisco", 4 square miles;

Charles Gilman Hyde in "Report on Methods and Cost of Purifying the Waters of Lobos Creek" estimates the watershed to be from 2.9 to 4.6 square miles.

About three square miles would be a fair estimate, as it is extremely doubtful if the rainfall on that part of the watershed South of Golden Gate Park reaches Lobos Creek.

WATERSHED, - NATURE OF:

The characteristic geology of the watershed is a layer of sand of varying depth overlying impervious rock, probably of volcanic origin. The sand is exceedingly fine, apparently being beach sand. The channel of Lobos Creek occupies the lowest part of the watershed, the sand at this point thinning out, probably due to the action of the water, and the water appears on the surface. As might be expected from the relative areas of the watershed on either side of the creek, the greater number of the springs feeding Lobos Creek are on the South bank owned by the Spring Valley Water Company.

HISTORY OF LOBOS CREEK:

Lobos Creek as a source of water supply for San Francisco was first used in 1858, when a flume was constructed along the coast line of the Presidio which delivered the water through a pipe and tunnel under Fort Mason to Black Point at the North end of Van Ness Avenue. On September 16, of that year, these pumps raised the water

to Francisco Street Reservoir and Lombard Street Reservoir, from whence it was delivered to consumers. This method of delivery was used until March 10,1893, when a landslide carried away a large portion of the flume in the Presidio. As this slide kept on moving, the flume was not rebuilt. (See letter H.Schussler, MunicipalReport 1901-02, Page 862.)

In the year 1901, a pumping plant was built on the West bank of Lobos Creek by the Spring Valley Water Company, and the water was pumped through a 16-inch force main to Lake Street, and delivered directly into the pipe system. After somewhat less than two months' operation, the plant was shut down and the use of Lobos Creek was discontinued as a domestic supply for the City by Resolution 2112 of the Board of Supervisors, which said in part:-

> "Resolved; That the Spring Valley Water Works be, and it is hereby directed to discontinue at once supplying the people of the City and County of San Francisco with water for drinking purposes obtained from Lobos Creek."

A full account of the proceedings attendant on the prohibition of the use of Lobos Creek is contained in the Municipal Reports 1901-02, pages 861-863.

CAPACITY OF LOBOS CREEK:

The flow of Lobos Creek has never been measured over a long period of time, but the pumpage reports and isolated measurements made at various times are sufficiently in detail to show that at least two and one-half million gallons can be obtained

daily throughout the year.

The fine beach sand of which the watershed is composed, is packed so closely that it undoubtedly takes the water a considerable time to percolate through it from the surface to the rock and thence to the creek. The regularity of the flow in Lobos Creek can be attributed to this fact.

The rainfall in San Francisco over a period of sixty seasons averages a little over twenty-five inches annually. All of this rainfall, excepting that lost by evaporation, or that which falls on the roofs of houses or bitumined streets and enters the sewers, eventually finds its way to Lobos Creek. As against this loss, there are the frequent fogs tending to decrease evaporation, which would in any case be slight, owing to the sandy soil rapidly absorbing moisture, and the leakage from water mains and sewers.

The following table shows the quantity of water either pumped from the creek or measured in it, on the dates mentioned. It must be remembered that the pumpage does not represent the actual flow in the creek, as water was probably being wasted through the spillway; and from the flume neither does it take into account the water used in the boilers. During the time the second pump was used in 1902, the entire flow of the creek was taken. This occurred in the months of November and December, when the seasonal rainfall would have not yet had time to affect the flow of the creek. No account was taken of the water used for boilers.

DAILY RATE OF FLOW IN MILLION GALLONS IN CREEK BY MONTHS

BASED ON PUMPING RECORD AT BLACK POINT.

Mos.	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888
Jan.	2.3	2.3	2.55	No pumping	No pumping	2.3	2.28	2.05	1.85	2.0	2.0	2.3	2.15	2.05	1.95	2.0	1.75	1.9	1.9
Feb.	2.3	2.4	2.35	"	"	2.34	2.2	2.2	2.05	2.0	2.0	2.4	2.15	2.0	1.8	2.0	2.2	1.9	1.9
Mar.	2.3	2.2	Very little pumping	"	"	2.32	2.2	2.2	2.3	2.1	2.0	2.4	2.1	2.0	1.95	1.95	2.2	2.0	1.9
Apr.	2.3	2.15	"	"	Very little pumping	2.25	2.3	2.2	2.3	2.1	2.0	2.4	2.15	1.9	2.0	1.95	2.25	2.0	1.9
May	2.3	2.05	"	2.2	2.4	2.2	2.25	2.1	2.3	2.1	2.1	2.4	2.1	A 1.9	2.0	1.90	2.2	2.0	1.9
June	2.3	2.15	"	2.2	...3	2.2	2.15	2.05	2.25	2.25	2.1	2.4	2.1	1.7	2.1	1.85	2.25	1.9	1.9
July	2.25	2.2	2.4 "	2.2	2.2	2.1	2.15	2.0	2.15	2.0	2.1	2.3	2.05	1.7	1.95	1.85	2.4	1.9	1.9
August	2.3	2.05	2.4	2.2	2.2	2.1	2.05	2.0	2.15	2.0	2.1	2.3	2.05	1.55	1.95	A 1.80	2.4	1.9	1.9
Sept.	2.2	2.0	2.4 "	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.05	1.55	1.95	1.75	2.4	1.9	1.9
Oct.	2.2	2.1	2.4 "	2.1	2.1	2.0	2.05	2.0	2.15	2.0	2.0	2.1	2.0	2.05	1.90	1.75	2.4	1.9	1.9
Nov.	2.15	2.1	2.2 " 2.2	2.1	Not much pumping	2.0	2.05	2.0	2.15	2.0	2.1	2.1	2.0	1.7	1.90	1.75	2.2	1.9	1.9
Dec.	2.3	2.2	No pumping	2.2	2.25 " 2.3	2.0	2.2	1.8	2.1	2.0	2.1	2.2	2.05	1.8	1.95	1.75	2.3	1.9	1.9

*NOTE: This pumping record does not include excess in creek running to waste or water for steam boildrs and condensers.

Sept. 5,1868 .....2.548 M.G.
Supt.23,1868 .....2.562 " "
Oct. 21,1908 .....2.67 " "
Nov. 12,1908 .....2.99 " "
Jan. 1, 1909 .....2.16 " "
Dec. 1910 .....2.50 " "
March 14,1911 .....2.42 " "

(5/25) 23 hrs 2.085 24=2.18

(few) days near end of month = 2.2

(note: Seems to be an estimated amount.

LOCATION OF WATERSHED WITH RESPECT TO CREEK:

The greatest part of the watershed from which Lobos Creek derives its water lies on the South side. Of the total watershed amounting to three square miles or 1920 acres, only 240 acres lie on the North or Presidio side of the stream; that is only 12½ per cent of the watershed area lies on the North bank of the creek. As the entire flow of the stream depends for its continuance, on the rainfall which percolates through the sandy drainage area, the amount derived from any portion of it depends on the proportion that part bears to the whole. An examination of the stream bears out this statement, as it is apparent that practically all of the water enters the channel from the South side owned by the Spring Valley Water Company.

In 1858, the Engineers of the Mountain Lake Water Company determined by sinking shafts between Mountain Lake and the head of Lobos Creek, that there was no flow between the two. (Alta, Calif., Aug. 25, 1857).

> "The Mountain Lake Company, impressed with the belief that their pond was the source of the stream known as Lobos Creek, and from which the supply of water is to be furnished for the city consumption, have sunken a number of shafts at various points in the bed of the creek, between the Lake and the head of the aqueduct. These experiments have in every instance, only confirmed the reports of the engineers, who have conclusively shown that the springs in the underlying hills, and not the lake, fill the channel of Lobos Creek. The bottom of these shafts are

> scarcely covered with water, and one or two of them are almost entirely dry. If there had been any doubt in the minds of any as to the source from which this stream derives its supply, the experiment of the Mountain Lake Company affords the most triumphant proof of the assertions of Mr.Bonsley and his associates."

Many of the larger springs have their origin some distance South of the South bank of the stream, and could be diverted on the Spring Valley Water Company's property.

QUALITY OF LOBOS CREEK WATER:

The waters of Lobos Creek owing to their origin, are necessarily open to contamination from the sewers of the Richmond District. Chemical and Bacteriological Analyses reveal the fact that the untreated water is not safe for human consumption. A bacteriological analysis conducted for one week, showed Colon Bacillus in 2½ cubic centimeters of water. Chemical analyses show that the water would not be considered dangerous to health. In the present state of efficiency of sand filtration, this water does not present any unusual difficulty to treatment by filtration. Charles Gilman Hyde, Professor of Sanitary Engineering at the University of California, a recognized authority on filtration, has gone into the question of purifying Lobos Creek waters. A digest of his report says "in part":

QUALITY OF WATER. The water is rarely, if ever, turbid, and such suspended matters as are present at any time, can apparently be entirely removed by rapid straining through sand without the use

of a coagulent. Definite bacterial contamination of the water is shown by analyses which demonstrates that B.Coli, a representative sewage bacterium, is always present in the water. If B.Coli are present, pathogenic germs may be, if cases of intestinal and perhaps other infectious diseases should occur among the residents of the watershed. (See pp.8-13).

ADAPTABILITY TO PURIFICATION. The water of Lobos Creek is at all times adaptable to complete purification by well-exploited, modern processes of treatment. The very excessive degree of contamination with sewage germs, make it necessary to adopt a process of purification which shall yield a practically sterile effluent. This can be done by chemical sterilization, employing a calcium hypochlorite as a disinfecting agent. By means of rapid straining through sand, possibly with the use of a coagulentfor brief intervals, the water can be rendered perfectly clear and entirely satisfactory from aesthetic and industrial standpoints.. The complete removal of bacteria by filtration and sterilization, will render the water entirely safe and satisfactory from a hygenic or sanitary point of view. (See pp. 10-11).

RECOMMENDED PROCESS OF TREATMENT. Straining through rapid sand filters coupled with chemical sterilization, is recommended as the cheapest and probably the most rational, completely effective process of treatment which can be applied to the water of Lobos Creek under

the particular conditions which obtain. A very excellent and inherently very reliable process of treatment, would be slow sand filtration followed by chemical sterilization and the effluent.

VALUE OF LOBOS CREEK TO SPRING VALLEY WATER COMPANY:

Due to the position of the City of San Francisco, with respect to available supplies of potable water, the value of a nearby source of supply cannot be overestimated. With the exception of Lakes Merced yielding three million gallons daily, and Lobos Creek yielding two and one-half million gallons daily, the remainder of the City supply has to be conducted through long and costly conduits for a distance varying from fourteen to sixty miles. In time of war, the protection of the supply conduits might easily become impossible, leaving the inhabitants dependent entirely on the above-mentioned five and one-half million gallons.

The proximity of Lobos Creek to the distributing mains of the Lake Honda system in the Richmond District, makes it a comparatively simple and inexpensive matter to put this source in service. A filter, pump and appurtenances, and a force main would cost but little compared to the sum of money necessary to add a million and a quarter gallons daily to the present capacity of the plant from any other available source. The only objection that has ever been urged against the use of Lobos Creek water, was the contamination resulting from its peopled watershed. This can be overcome by the use of filtration at comparatively small cost (see report of Hyde), and in fact has been done by the Presidio authorities within the past few months, when they

began filtering and pumping, for use in the local army posts, one-half the flow of Lobos Creek.

The Spring Valley Water Company by the use of a rapid sand filter coupled with sterlization, could completely rid this water of all of its objectionable characteristics, rendering it absolutely safe for human consumption. At a very reasonable cost an electrically driven, four-stage centrifugal pump can be installed on the site of the former steam pumps, and a sixteen inch cast iron force main can be laid to connect with the pipe system at Lake Street and 24th Avenue. A duplicate installation would be unnecessary, owing to the fact that the pump would discharge into the Lake Honda District supplied by a reservoir of 30 million gallons capacity, which would supply that portion of the district that might derive its supply from Lobos Creek, in the event of a shut-down on the pump for repairs.

The estimated itemized cost and yearly charges are given below. The costs are the result of experience and should be very close.

FILTRATION PLANT

General Capacity of Plant = 1,500,000 gallons per day
Estimated output of plant =460000,000 " " annum

ITEMS		EST. CONST. COSTS
Earth Work-	General grading, sodding, seeding, planting, etc.....	$1000.00
	Excavation and backfilling	800.00
Structures-	Reinforced concrete filters and sterilizing basin	1700.00
	Reinforced concrete pipe gallery	700.00
	Reinforced concrete building, complete	4000.00
	Reinforced concrete wash water tank	1100.00
	Reinforced concrete sterilized and filtered water basin	2600.00
Piping----	Intake, supply pipe and wash water drain	2000.00

Filter piping, specials, valves, controllers, etc .	$3500.00
Filter Equipment- Troughs and underdrains	750.00
Sand	250.00
Operating, indicating and sampling devices	1000.00
Sterlizing solution application system, complete, in duplicate ..	1500.00
Coagulant application system, complete, in duplicate	500.00
	$21,400.00
Add 15% for engineering and contingencies	3,200.00
Total Cost of Works	$24,600.00

Cost per million gallons general daily capacity	$ 10,400.00
Cost per million gallons assumed average daily output	19,700.00

ESTIMATED COST OF MOTOR, PUMP, FORCE MAIN AND APPURTENANCES

150 HP-2300 volt-1150 R.P.M. incl. motor complete	$ 1,000.00
4-stage, 1150 R.P.M. 6" Centrifugal Pump complete	1,250.00
Foundations and installation	500.00
Building, wiring, etc.	5,000.00
1500'-12" C.I. Force Main	5,000.00
Engineering 10%	1,275.00
	$ 13,970.00

Pump etc., complete	$ 13,970.00
Filter Plant complete	24,600.00
	$ 38,570.00

ANNUAL CHARGES

Interest on $38,750.00	$ 1,928.50
Taxes, Insurance, Depreciation, etc. at 3%	1,157.00
Operating Labor	3,600.00
Bacteriological Examinations	500.00
Supplies	700.00
Wash Water	1,000.00
Power at $.01 per HP Hour	10,336.80
Total	$19222.40

Annual Pumpage 460,000,000 Gallons
Cost per million gallons $41.78

The following table, based on the books of the Spring Valley Water Company and the reports turned in to the Supervisors and incor-

porated in the Municipal Reports, gives the data necessary to obtain the cost and value of one million gallons of water in San Francisco for the years 1902-10 inclusive. In compiling these figures, the 15 per cent collected under the injunction was omitted. Depreciation, Obsolesence, Contingencies and Insurance which have never been allowed in the rates, but which have been asked for since 1906, were figured in at the amounts asked for in these years. In addition to these, the Operating Expenses and Taxes as shown by the yearly reports were used. Previous to 1908, Replacements, whenever reported, were added to the charges against the cost of water delivered in that year. The sum of all these charges, when subtracted from the revenue from Water Sales leaves a certain amount, designated in the table as surplus, which, divided by the number of millions of gallons used, gives surplus per million gallons sold in San Francisco. This surplus per million gallons varied greatly between the years 1902-08, for various reasons. The years 1909 and 1910, are very close, and as these years more nearly approximate conditions at this time, they have been used in the valuation of Lobos Creek as a part of the Spring Valley system.

	WATER USED IN GALLONS	REVENUE FROM WATER SALES	OPERATION, MAINTENANCE, TAXES, DEPRECIATION, INSURANCE, CONTINGENCIES	TOTAL	SURPLUS PER M.G.
1902-	10,101,843,000	$ 1,914,781.41	$ 690,842.74	$ 1,223,938.67	$ 121.00
1903 -	11,532,142,000	2,020,334.90	840,978.76	1,179,356.14	102.00
1904 -	12,378,755,000	2,070,765.38	920,358.94	1,150,406.44	93.00
1905 -	12,745,891,000	2,226,260.00	946,319.00	1,279,941.00	100.00
1906 -	10,657,514,000	1,492,322.50	1,003,177.98	489,145.00	46.00
1907 -	11,181,013,000	1,670,560.33	1,257,507.00	613,053.00	52.00
1908 -	11,574,126,936	2,155,832.21	1,574,985.10	540,937.00	47.00
1909 -	12,464,965,918	2,374,585.97	1,287,636.19	1,086,949.00	87.00
1910 -	12,995,770,860	2,507,354.49	1,392,252.04	1,115,202.00	86.00

In order to use Lobos Creek water in connection with the Spring Valley system, it would be necessary to spend $36,570.00. The annual charge against the plant would be $19,222.40 less interest on capital, which would be paid out of profits, or $17,293.90. In the year 1910, the profit per million gallons was $86., and 12,996,770,860 gallons of water was used. The consumption for the year 1911, will undoubtedly increase by more than 1-1/4 million gallons daily. If Lobos Creek was developed and put into use, the amount used would be 13,455,770,860 gallons, and the operating expenses would be increased by $17,293.90. Based on 1910 returns, we would have the following:

WATER USED	REVENUE	CHARGES	SURPLUS	SURPLUS PER M.G.
13,455.7 M.G.	$2,596,234.49	$1,409,545.94	$1,186,688.55	$88.00

On the basis of using 460,000,000 gallons per year at a profit of $88.00 per million, the total profit from Lobos Creek would be $40,480.00 Deducting from this amount the interest on the value of the improvements (pumping and filtration plant) amounting to $1,928.50 leaves $38,552.20, which capitalized at 5% gives $771,050.00 as the value of one half the flow (1-1/4 M.G.D.) of Lobos Creek.

In this connection it is of interest to note the amount paid the Spring Valley Water Company for water used by the Army Posts and the Navy.

YEAR	ARMY	NAVY	TOTAL
1907	$14,938.71	$10,141.80	$25,080.51
1908	18,865.51	10,435.13	29,298.66
1909	22,930.36	15,329.86	38,260.22
1910	23,674.75	12,251.59	35,926.34

LAND VALUE OF LOBOS CREEK:

Competent authorities have placed the value of Lobos Creek lands owned by the Spring Valley Water Company at $75,000. (See letter of Baldwin).

Respectfully submitted,

C O P Y

BALDWIN AND HOWELL

San Francisco, February 7, 1911.

Spring Valley Water Company,

John E. Behan, Secretary,

375 Sutter Street, City.

Dear Sir:-

I have examined the property owned by the Spring Valley Water Company situated along the line of Lobos Creek, in the City and County of San Francisco, containing between 13 and 14 acres, as per blue print furnished me by your engineer, Mr. Elliott, and beg leave to report that the land as a whole is in my opinion worth $75,000. I have made no appraisement of the improvements as I understand you do not require one.

Yours very truly,

Signed. A. S. Baldwin.

EXTRACT FROM A REPORT UPON METHODS AND COST OF PURIFYING THE WATER OF LOBOS CREEK FOR THE USE OF THE SPRING VALLEY WATER COMPANY, SAN FRANCISCO, CALIFORNIA.

By Charles Gilman Hyde.

March 3, 1911.

SUMMARY AND CONCLUSIONS:

INTRODUCTION. The foregoing report is intended to outline the general character and composition of the water of Lobos Creek; to state what methods of purification can rationally be applied to this water; to describe the process and plant which are recommended as being best able, at the lowest reasonable cost, to meet the conditions involved; and to set forth the figures of estimated cost of construction and operation. (See pp. 1-3).

DESCRIPTION OF LOBOS CREEK. Lobos Creek is a stream or channel without surface tributaries, fed entirely by springs and underground seepage. Its watershed boundaries are quite impossible to determine. The area of the drainage basin may be anywhere between 2.5 and 4.6 square miles. From 70 to 76 per cent of the apparent drainage basin is comprised by streets and residence property. The

population now dwelling on the watershed is large and eventually will number many thousands of persons. Due to leaky sewers, to cesspools (?), and to street wastes which seep into and through the ground, the waters of Lobos Creek are grossly polluted. (See pp.5-7).

RATES OF FLOW. Various authorities seem to agree in placing the minimum yield of Lobos Creek at 2,000,000 gallons per day. For the purposes of this report, the minimum yield has been taken as 2,000,000 gallons per day, the maximum rate of flow as 3,000,000 gallons per day, and the mean or average rate as 2,500,000 gallons per day. One-half of the flow of the creek is available to the Spring Valley Water Company for water supply purposes. (See pp. 4-6).

QUALITY OF WATER. The water is rarely, if ever, turbid and such suspended matters as are present at any time can apparently be entirely removed by rapid straining through sand without the use of a coagulant. Definite bacterial contamination of the water is shown by analyses which demonstrates that B. Coli, a representative sewage bacterium, is always present in the water. If B. Coli are present, pathogenic germs may be if cases of intestinal and perhaps other infectious diseases should occur among the residents of the watershed. (See pp. 8-13).

ADAPTABILITY TO PURIFICATION. The water of Lobos Creek is at all times adaptable to complete purification by well-exploited, modern processes of treatment. The very excessive degree of

contamination with sewage germs make it necessary to adopt a process of purification which shall yield a practically sterile effluent. This can be done by chemical sterilization employing calcium hypochlorite as a disinfecting agent. By means of rapid straining through sand, possibly with the use of a coagulant for brief intervals, the water can be rendered perfectly clear and entirely satisfactory from aesthetic and industrial standpoints. The complete removal of bacteria by filtration and sterlization will render the water entirely safe and satisfactory from a hygienic or sanitary point of view. (See pp.10-11)

RECOMMENDED METHOD OF TREATMENT. Straining through rapid sand filters coupled with chemical sterilization, is recommended as the cheapest and probably the most rational, completely effective process of treatment which can be applied to the water of Lobos Creek under the particular conditions which obtain. A very excellent and inherently very reliable process of treatment would be slow sand filtration, followed by chemical sterilization of the effluent. (See pp. 14-18)

OUTLINE OF PURIFICATION WORKS. The proposed purification works comprehend a permanent intake and cast iron supply pipe, a coagulating and sterilizing basin, 2 rapid sand filters, a pipe gallery, a 2-story superstructure, including floors for the operation of the filters and for the storage and mixing of the coagulant and hypochlorite, a wash water tank and a filtered and sterilized water

storage tank. The plant would be in all respects of a durable and substantial type of construction, and would be complete in every detail. (See pp. 16-18).

ESTIMATED CONSTRUCTION COST. The estimated total cost of construction of the proposed purification works is $24,600.00 equivalent to $16,400.00 per million gallons general daily capacity and $19,700.00 per million gallons estimated average daily output. (See pp. 19-20)

ESTIMATED ANNUAL COSTS. The estimated total annual costs, including all fixed and operating charges, are $5100. equivalent to $11.10 per million gallons of water filtered and sterilized. (See pp. 21-22)

Respectfully submitted,

(Signed) Charles Gilman Hyde,
Sanitary and Hydraulic Engineer.

Berkeley, Cal., Mar. 3,1911.

EXTRACT FROM REPORT OF COLONEL MENDELL

MADE ON AUGUST 6, 1877.

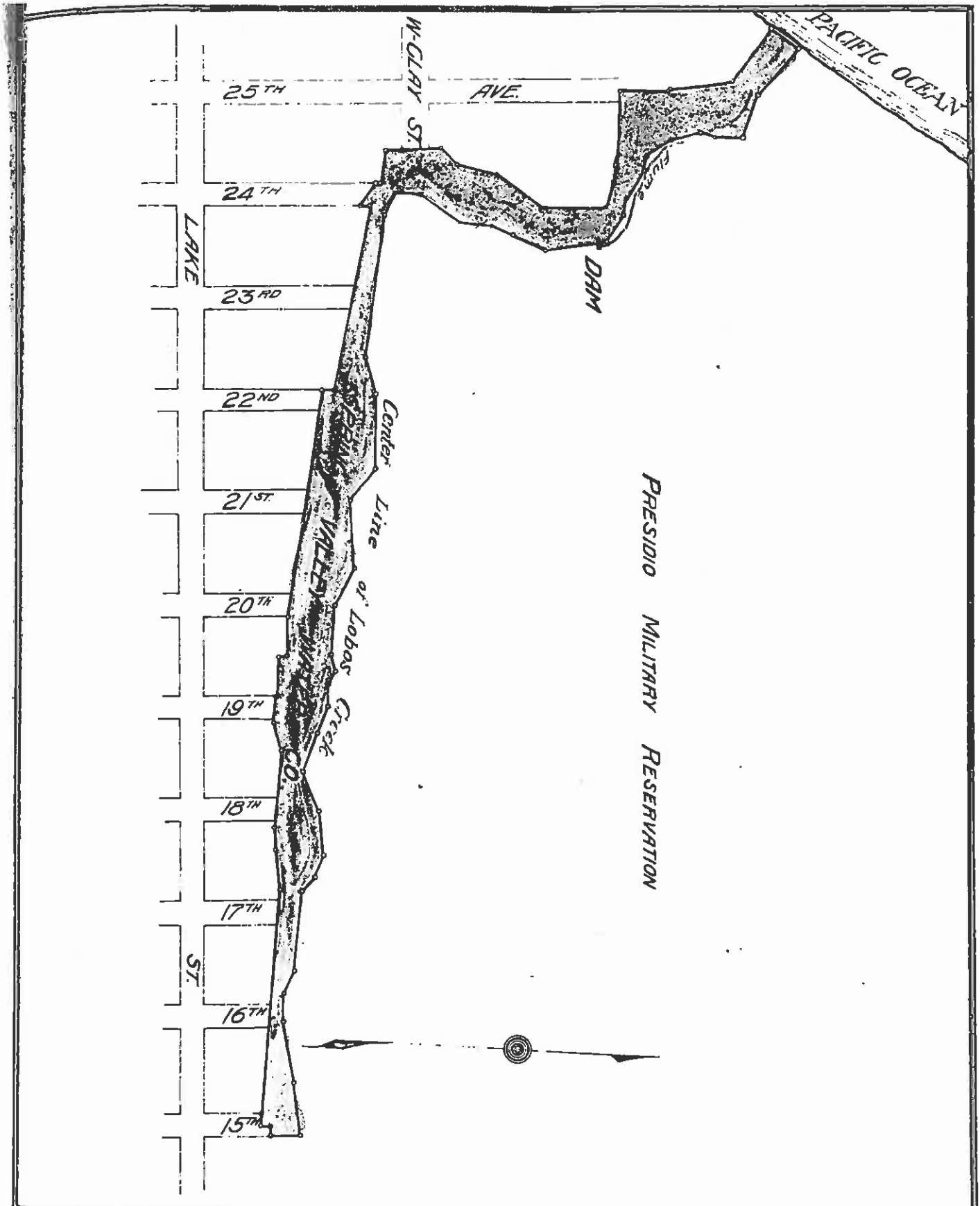
The nearest source is Lobos Creek, which drains a part of the area of the City and County of San Francisco. This source supplies about two millions of gallons daily, drained from about 2½ square miles of land. This quantity is conveyed by a conduit partly of wood and partly of masonry, 23,700 feet long, from the Creek to Black Point, where it is delivered at about the level of the City zero. It is there pumped into two reservoirs, one-third of it to the Lombard Street Reservoir on Russian Hill, which is 306 feet above the city base, and two thirds of the Francisco Street Reservoir, which has an altitude of 139 feet. These reservoirs can contain 3,700,000 gallons respectively.

The supply from Lobos Creek is comparatively reliable. It results from the slow percolation of water through the sand, and is similar to that afforded by Laguna Merced. While it cannot be independent of the amount of rainfall, the circumstances under which it is afforded protect it in some degree from evaporation and hold it back, delivering it at a nearly regular rate. The sand hills may be considered in the light of a reservoir.

EXTRACT FROM REPORT OF T.R.SCOTT

APRIL 19, 1875.

MOUNTAIN LAKE AND LOBOS CREEK. These sources are found near Presidio Reservation in San Francisco, and yield 2,250,000 gallons daily. The water is delivered by flume to Point Lobos pumps, thence forced through two 12-inch and two 10-inch mains into the several reservoirs, viz: Lower Russian Hill, Upper Russian Hill or Clay Street Tank.



OVED BY				
Dillman G.E.Fonning Apr. 23, 1911 200'=1"	LOBOS CREEK TRACT. SPRING VALLEY WATER CO. CITY DISTRIBUTING SYSTEM.			SUPERSEDES SUPERSEDED BY A-87