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June 15, 2019

VIA EMAIL: Kelsey.lindquist@slcgov.com

Historic Landmark Commission
SALT LAKE CITY CORPORATION
451 South State Street, Room 326
Salt Lake City, Utah 84111

cc: Holly Mullen, Communications and Engagement Manager (holly.mullen@slcgov.com)

Re: 4th Avenue Well – Applicable Salt Lake Ordinance Requirements – Supplemental Points and Authorities concerning Master Plan and Historical Precedents - HLC PLNHLC2018-00557 and PLNHLC2018-00558

Withdrawal of Comments related to Chlorination due to UAC R309-200-5(7).

Ms. Lindquist:

This letter supplements my comment to the Historic Land Commission of June 6 regarding how the applicant's (the DPU's) proposed 4th Avenue Pump fails to comply with Salt Lake ordinance requirements. This supplemental comment concerns additional applicable ordinances and the staff evaluations prepared for the June 6th hearing.¹ I am aware that the June 6th hearing has been postponed and that further negotiations may result in a revised design being submitted; however, the following authorities and points will be relevant regardless of any pump house design that is considered by this Commission.

Effect of Salt Lake Ordinance 21A.02.040. The Staff Special Exceptions Review makes reference to Salt Lake City Ord. 21A.52.060(A), providing that "[t]he proposed use and development will be in harmony with the general and specific purposes for which this title was enacted and for which the regulations of the district were established," and staff evaluated the relationship between the proposal and the Open Space zoning ordinance.

The effect of Salt Lake Ordinance 21A.02.040 should be included in those evaluations. The ordinance requires in part that "[a]ll master plans or general plans adopted by the planning commission and city council for the city, or for an area of the city, shall serve as an advisory

¹ Staff Special Exception Review Standards, Attachment "J" to the Commission's June 6th hearing briefing materials (hereafter "Staff Special Exceptions Review"); Staff to the Commission's June 6th hearing briefing materials (hereafter "Staff Special Exceptions Review");, Attachment "I" to the Commission's June 6th hearing briefing materials (hereafter "Staff New Construction Review").

guide for land use decisions.” In 1986, Salt Lake City adopted a master plan for City Creek Canyon that provided, in part, that the City would use regulations “*to ensure* that incompatible intrusions do not develop” into the historic Canyon Road residential pocket (emphasis added).² The Oxford Dictionary defines “ensure” as to “1 . . . make certain. 2 . . . secure (a thing for a person, etc.). 3 (usu. foll. By *against*) make safe.”

This guidance suggests that the Commission should not only look at development and performance standards³ of the existing proposal, but should also consider design alternatives that minimize the chemical treatment plant’s footprint within the pocket. One alternative is a small pump house that only contains a transmission pump that will send water to a chemical treatment plant outside of the residential pocket.

Historical Precedents: Analogous public water treatment facilities have been historically located in lower City Creek Canyon include a frame water settling tank at Pleasant Valley, a brick settling building with pumps, and a valve switching station. These are illustrated in an 1898 Salt Lake Tribune article.⁴ Former DPU director Hooton’s history of the City Creek water system⁵ indicates that the brick tanks were located near the 4,598 foot elevation (Figure 1)⁶ to the north and outside of the Memory Grove residential pocket.

Withdrawal of Comments Related to Chlorination: In parts of prior comments, I have suggested that there was a question concerning whether chlorination of well water is required for “high quality groundwater” under R309-505-8 (not requiring treatment) as compared to “low quality groundwater” under R309-505-7 (requiring treatment when in contact with surface waters). I withdraw those parts of prior comments. A separate Utah Office of Drinking Water regulation, R309-200-5(7), provides in part:

DISINFECTION Continuous disinfection is recommended for all water sources. It shall be required of all ground water sources which do not consistently meet standards of bacteriologic quality. Surface water sources or ground water sources under direct influence of surface water shall be disinfected and continuously monitored for disinfection residual during the course of required conventional complete treatment *for systems serving greater than 3,300 people. . . .* (emphasis added).

² City Creek Master Plan adopted April, 1986 (url: <http://www.slcdocs.com/Planning/MasterPlansMaps/CC.pdf>).

³ Salt Lake City Ord. 21A-04.010(C)(2).

⁴ Salt Lake Tribune. August 21, 1898. City’s Water System. Utah Digital Newspapers (url: <https://newspapers.lib.utah.edu/ark:/87278/s6sj2w7t>).

⁵ Hooton, Jr., LeRoy, J. (1986). Salt Lake City’s First Water Supply. Salt Lake City, Utah at 25, Figure 1 (url: http://www.slcdocs.com/utilities/pdf_files/story.pdf).

⁶ 40°47'02.3"N 111°52'57.5"W (url: <https://goo.gl/maps/6NmiUUEtwJKsWHX59>).

Proposed Fourth Avenue Well Drinking Water Chlorination Facility

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Please feel free to contact me with any questions that you may have by the means listed above.

Very Truly Yours

Kurt A. Fisher

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Attached: Salt Lake City Tribune Aug. 21, 1898.

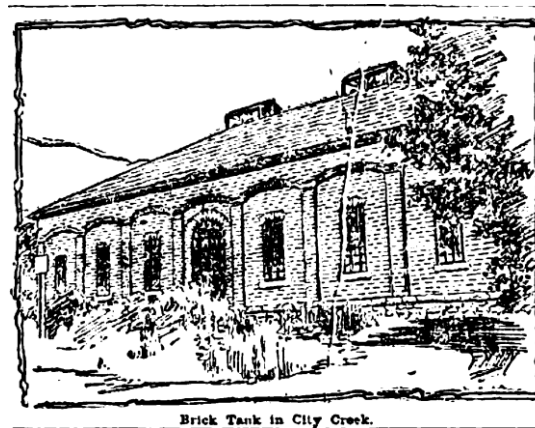


Figure 1 - Brick Tank House in City Creek Canyon from Salt Lake Tribune 1898

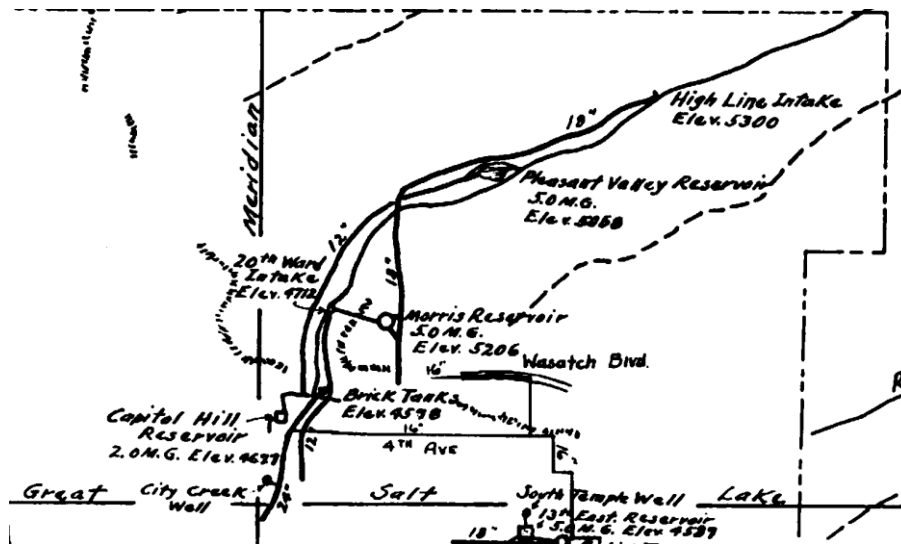


Figure 2 - - Location of Brick Tank House at Elevation 4,598 feet per Hooton (1986).

CITY'S WATER SYSTEM

Sources of Supply in City Creek, Parley's and Emigration Canyons--Methods of Distribution--Problem of Increased Supply.

Down in Kentucky, where they have a carving knife standing by the water cooler so that thirsty souls can cut the chocolate-colored beverage into steaming chunks before swallowing it, the question of a sufficient supply of the beverage does not enter into the calculation of the natives. Indeed, a very little water is popularly supposed to go a long way in the land of the big grass and "penny-ride."

Out here the sparkling rills are as sweet as those that flowed when Moses smote the rock in the wilderness and removed the dust from the throats of the Israelites. The solid rocks that form the foundation and the bone of the heavy peaks have each concealed within their fastnesses cool streams of fresh water so clear that it seems impossible for it to contain any impurities. Nature's system of filtration is here carried out on its most extensive scope. The system by which many of these streams are gathered into mains, pumping stations, reservoirs and relief tanks and distributed to Salt Lake housekeepers is intricate and interesting. From Parley's, Emigration and City Creek

mountain water go through here every twenty-four hours.

The reservoir is provided with a waste-gate. It is hardly necessary to state that at this season of the year the waste gate is about as useful as the nose-strings of a Zulu.

Further up the creek, beyond the dam, there is a low projecting point constructed a dam and a measuring weir. On the north side of the dam, where the water is deep and cool and still, dozens of handsome trout make their homes. They swim lazily around near the bottom and exhibit themselves as fearlessly as if they knew there is a law protecting them from fishery hunters.

The water comes all the way down from the head of the canyon. The creek stream is not very wide now. It is fed at intervals along its course by springs that trickle out of the sides of the canyon. During the spring and early summer, the water is entirely unimpaired, and if it were not for the springs the creek bed would be as dry as a powder magazine.

City Engineer Kelsey estimates that 4,000,000 gallons of water flow over the dam every twenty-four hours. The city, however, doesn't get anything like all this water. Under a contract with the municipality the farmers living above the Jordan and Salt Lake



Emigration Canyon, Looking North.

wherever they feel so inclined, and nobody says them nay. A careful estimate gives 1,000,000 gallons per day as the loss from the sources named.

EMIGRATION CANYON.

The features of Emigration canyon is the sump. Few people outside of the engineering profession know what a sump is. Webster's definition of the word "sump" is "the cluster or reservoir made at the lowest point of a mine, from which is pumped the water which accumulates there." The definition given by the greatly esteemed gentleman from Massachusetts does not exactly fit the city's sump, but it is close enough.

Emigration canyon is reached by a road that leads across the reservation and winds for three-quarters of a mile

Work on the line is being pushed as rapidly as possible under a handicap of quicksand that keeps sifting into the trench in spite of all precautions against it. City Engineer Kelsey hopes



The Emigration Pipe-Line.

to complete the job within the next week or ten days. The pump will then be abandoned, thus effecting a saving of the wages of two engineers and the cost necessary to keep the fire under the boiler. The money netted to the city in this way will amount to about \$15 daily.

The trench itself is 150 feet long. It ranges in depth from seven to thirty-one feet, and the pipe to be laid in it will have a diameter of twenty-four inches. The water will go from the pipeline into another line that cuts across the canyon and through the reservation. It has a carrying capacity of 2,000,000 gallons and has never been crowded. At the head of First South street the water flows into the Parley relief tank and from there takes the same course as the Parley water, forming part of the middle system.

Only a part of the Emigration canyon water is used for irrigation purposes. A few farmers along the line are entitled to one-seventh of the flow from Emigration creek, which does not connect with the pipeline. "The other six-sevenths are owned by the First, Second and Tenth ecclesiastical wards and are used here in irrigating on the East bench. A clean has been made by other residents below the sump to all the creek water from Saturday night to Monday morning, but until the matter is passed on by the courts, the validity of the claim will be in dispute.

CITY CREEK SUPPLY.

City Creek canyon is the point to which two of the three city systems look for water. It supplies the lower portion of Salt Lake and Capitol hill, the South bench and part of the East bench, the whole being known as the "high-line." The first station going up the canyon is the brick tank which supplies the lower system.

The high-line tank is the one of the most pretentious owned by the city. It is a handsome building, built of brick, as its name indicates, and containing two tanks, with smooth cement floors and

run down to a point below the brick tank. There it is divided in four valves into two lines, one running to Capitol hill and the other to the north and east benches. A reservoir on Capitol hill is filled from this line every night, thus insuring a plentiful supply of water to residents of that locality.

MAINS AND PIPES.

The water mains of Salt Lake hold end to end, would reach from this city to Provo, with enough left over for pipe to Ogden and Park City. In all there are 120 1/2 miles of mains. They run in size from three to thirty inches, although the three-inch size is now being discarded for the four-inch main, which gives better satisfaction, where a larger pipe is not practicable. The mains were laid under the supervision of the various waterworks superintendents. So far this year only a little more than half a mile of pipe has been laid. Superintendent Caine has not been given the appropriations necessary on account of the city's poor financial condition, and the



Frame Tankhouse in City Creek.

after leaky hydrants and broken stop-cocks calculated to waste water in order that their usefulness may not be impaired, Superintendent Caine prefers that his department remain inactive. From time to time laborers are employed in the department where stop-cocks are being made or other work done. Their numbers vary from one or two to forty or fifty at a time.

IRRIGATION.

The irrigation system of Salt Lake is as interesting in its way as the other. Nearly all the irrigating water comes from Utah lake by way of the Jordan and Salt Lake canal. It enters the city near Eleventh East street, a few rods south of Eleventh South. From that point it flows north to Ninth South street and Tenth East and thence in a northwesterly direction, as the deeds say, through the city. It passes through a covered flume on Brigham Street beginning at Fourth East and at the Eagle gate cuts over to North Temple street and connects with the city creek canyon aqueduct. From there the combined waters flow on down to the river.

It will be seen that an immense territory for irrigation is thus covered. A visit to the canal at its point of entrance on Thursday, showed it to be almost full of water. Before the stream reaches the point of junction at North Temple street, it is reduced to the level of a narrow brook.

There are hundreds of places along the route where the life-giving fluid is directed. On its passage it raises the heads of drooping trees and foliage, it causes grass to grow in waste places and gladdens the heart of the amateur gardener by assisting in the production of prize vegetables and fruit. The



View of City Creek Valvehouse.

Phillips, valve men, Thomas Allen; R. C. Brown, John Cassidy and Charles Seal, plombers, W. J. McDonald and assistant, Henry Goddard; emergency men, H. Thompson, Henry Barnes and Col. Henry Page; at the brick tank is James McKnight, Thomas Hill and Moses Evans; John Deary is in charge of Emigration canyon with James Barton as engineer. George Brown

system of irrigation is not a happy-go-lucky one by any manner of means. Watermaster Selden has a deputy for each municipal ward, whose duty it is to see that no one gets water he is not entitled to. The watermasters are in charge of the diverting dams in the districts. They turn the water into various ditches at specified times, and the people of that vicinity use the water at the rate of one minute for each square rod of ground. Certain districts have certain days for irrigating, and the householder who takes water on the wrong day intentionally is liable to arrest and prosecution.

THE QUANTITY.

The question of a sufficient supply of water looks up before Salt Lake every summer with a regularity as persistent as the ghost of Banquo, which is described as being non-downable. The specter walks more determinedly with each successive year in spite of the figures calculated to "lay" it.

City Engineer Kelsey is responsible for the statement that more water is wasted by the city itself than by careless consumers. He argues that the supply would be ample for all reasonable purposes if proper storage tanks were built and if the water thieves were sufficiently prosecuted.

If Salt Lake continues to grow, and all good citizens pin their reputations as prophets to the prediction that it will, a vigorous water campaign must some time soon be waged. An adequate water supply is a sine qua non of municipal growth and prosperity, and unless this is secured in some way, the progress of the city will be materially retarded.

It is stated that if a freak winter should come, that is, a winter with little or no snow in the mountains, Salt Lake would be practically as waterless as a Sahara. "To obviate such a possibility," however remote, determined steps must be taken. Today, in spite of the plentiful snow cover of the city, many sections of the city for several hours each day have no water.

A pipe-line down the Cottonwood canyon, where the abundant supply never fails, and the householder who has been seriously talked of. To make such a work possible, many water rights would have to be bought, but the end would seem to justify the trouble and expense. Other plans have been suggested but the city has been lately in no condition to put them in operation.

The fact remains, however, that unless something is done, and done soon, Salt Lake's chance for growth will be reduced to what the sporting fraternity would call "double or nothing."



General View of Parley's Canyon Entrance, Showing Sentinel Rock.

Parley's, the city is supplied with water.

PARLEY'S CANYON SUPPLY.

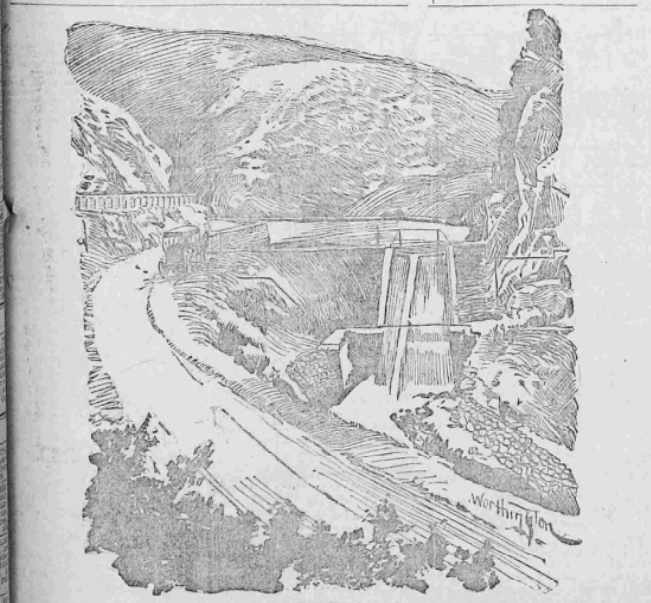
It is a long six miles over a hot and dusty road, from the city and county building to the mouth of Parley's canyon. Here, guarded by a great stone mound, aptly named "Sentinel rock," is the city's most abundant water supply. The tank, valve and screen house, built on the most improved plan, is in the shadow of the rock. To the left is the reservoir, a big basin recently constructed on the most improved plan. It is eighteen feet deep, a hundred feet long by forty feet wide at the point and curves gracefully with the canyon. The reservoir when full holds 10,000,000 gallons of water. At the south-

east are entitled to 17 1/2 per cent of the flow. The commissioners, in dividing the water, allow them 2 1/2 per cent for loss, leaving the city 9 per cent.

Two million gallons more go into Parley's creek, which runs across the Fort Douglas reservation, through the city cemetery and irrigation the North Bench. The balance, about three and one-half million gallons, goes into a conduit that opens from the screening tank. This conduit, which is thirty-six inches in diameter, cuts across country in a northwesterly direction and empties into a relief tank on the reservation at the head of Thirtieth East street. The water thus piped down is used to supply what is known as the "mid-

beyond. On the way you pass a garden that has a little summer bower with a stuffed deer that looks as if somebody had swatted it across the canyon. A few rods beyond the canyon begins, and a mile up the canyon is the sump.

This particular sump is a sort of wooden subvert, laid across the canyon with a pump in the middle of it. Engineer James Barton is in charge. By working night and day the city gets from 15,000 to 200,000 gallons of water from the sump. It is of the surface order, coming from springs further up the canyon. When there is plenty of water the sump is not used, for then it forces itself into the pipe-line by the gravity system.



The Parley's Canyon Reservoir.

most corner to a tunnel opening. This tunnel pierces Sentinel rock and empties into the screening house. Here the water runs, and rumbles and runs into a deep well. At both corners, and exits the fluid is guarded by a close screen which effectively keeps out any leaves, dead grass or other refuse and leaves that find their way down Parley's creek into the reservoir.

The screen house is as cool as the interior of a cold-storage warehouse, and here, used for his refrigerator, the water, butter, milk and other articles are as sweet and as fresh as if they had been kept in an "icehouse." Something like ten million gallons of ice-cold

die system." These lines of pipe run down First South to Fifth East, down Brigham to Second East, to Ninth East on Fifth South, and a part of the western section of the city. Considerable of the water is lost because, when there is an overflow, the tanks are being "outletted" by hold it. It is permitted to run into an unprotected hole in the ground near the reservation on Thirtieth East street. It is estimated that 10,000 gallons of water are daily thrown away on the account.

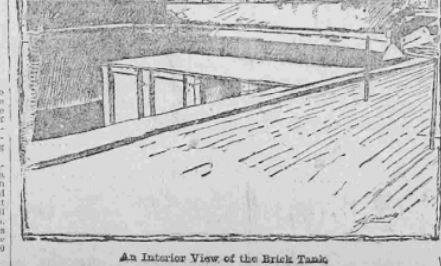
The canal of course loses from evaporation and seepage. There is another canal that causes considerable loss. This is the "leaky" canal. People along the line who have no earthly right to the water take it

sides. When full, these tanks hold nearly 100,000 gallons, but they are rarely, or never full at this season of the year. At 12:45 o'clock on Friday afternoon over a foot of water in either of them. The supply is drawn out as fast as it comes in during the day, and at night enough is taken to keep the tanks from being filled.

The high-line tank is three miles further up the canyon, although its pipe

watches over the high line and S. P. Brown, chief of Parley's, Ed Malquist in the department back-staff, with William Kepp as assistant. Kepp also takes care of the city homes. William H. Sells takes care of the farms.

In addition to the employees named, there are three temporary water detectives who keep tall on people who sprinkle out of hours. They also look



An Interior View of the Brick Tank.