MEMORANDUM

ENGINEERING DIVISION
PUBLIC UTILITIES DEPARTMENT

TO: Kelsey Lindquist, SLC Planning Dept.

FROM: Blayde McIntire, P.E.

DATE: August 30, 2018

PROJECT: 4th Avenue Well Electrical/Brick Tank Improvements
Project No. 5132268, 5132269

SUBJECT: Open House Public Comment Responses

This memo is intended to respond to general comments made by the public at an Open House Event on August 16, 2018. It summarizes the response of the Salt Lake City Department of Public Utilities (SLCDPU) to many of the design considerations and constraints rather than to individual questions. Our intent is that individual questions will be answered by the response as a whole. The memo is organized by categories of questions with several of the design considerations listed in bullet points below.

Relocating all or some of the equipment to another site:

- Locating the well to another site gives up a known quantity for an unknown. The existing well is the largest producer in Salt Lake City. It is vitally important in providing water to downtown Salt Lake City. Northern areas of downtown receive 80-100% of their water from this well in the summer months. In addition, the well is vital to maintain adequate fire-protection pressure within the culinary distribution system. There is no guarantee that a new well with the same capacity could be drilled in the vicinity. SLCDPU has not investigated drilling a new well due to the expense and disturbance of drilling test holes.
- There are no available parcels in the immediate vicinity. In order to provide the same function, a new well would need to be located within the same neighborhood. A property acquisition has not been considered by SLCDPU because it is cost prohibitive and there is no indication that any nearby properties are available. The existing well resides on an SLC-owned parcel. It has been determined to not be fiscally responsible to relocate.
- A relocated well would be subject to review by the Utah Division of Water Rights. When a point of diversion is relocated, it must be reviewed for effects to other water rights. The LDS Church owns and operates a water well at the church office building. Relocating the SLCDPU well any further south would potentially interfere with this water right and therefore is unlikely to be approved.
- Relocating a portion of the building, such as the chemical storage, to another location is not feasible. The chemicals must be injected into the well water at the source to achieve the correct dosing and contact time. Either the well water would need to be pumped to the chemical building or the chemicals would need to be pumped to the well site. If the well water was pumped offsite, there would still be a pump house located at 4th Ave and Canyon Rd that would be roughly the same size as the proposed building. Pumping chemicals from offsite back to the well site is discouraged due to potential chemical leaks. Although the chemicals are safe when dosed correctly, having the chemicals concentrated in underground pipes endangers public health

because leaks or breaks in the chemical pipes are a potential likelihood over time. Both options would require property acquisitions, extensive piping, and duplicate pumps and above ground structures.

- The design which was submitted in the Planning Application was arrived at because it is fiscally responsible and from an engineering standpoint is feasible and has been designed to minimize the site footprint. The parcel is owned by Salt Lake City, the existing well is located on the parcel, and the pump house construction requires no other infrastructure improvements. SLCDPU is held accountable by all of its customers and the City Administration to be fiscally responsible.

Building footprint:

- Several alternative site plans were considered prior to arriving at the current design. Locating portions of the building underground was not feasible because that design conflicts with code requirements. An off-site portable generator was considered, but ultimately dismissed because in the event of a power outage it is essential to provide water to our customers in an expedient manner. Using an earthquake as an example, it is unlikely that a large generator could be transported to the site in a timely manner. Other site configurations and orientations are discussed in the points below.
- The room that houses the pump equipment has been designed to minimize the footprint yet still allows access and operation of the equipment, the size of the footprint and cannot be changed.
- The chlorine and fluoride rooms may be reduced in size if the chemical tank sizes are reduced. However, if tank sizes are reduced, the frequency of chemical deliveries would be increased. SLCDPU feels that the trade-off between room size and frequency of deliveries has been balanced.
- Chemical tanks cannot be placed underground because safety concerns. It creates a dangerous situation for SLCDPU maintenance workers because of the confined space with potential spills. With underground tanks, leaks and spills are much harder to detect, tank maintenance is much more difficult, and deliveries are more difficult.
- Trees would not be saved by placing any rooms underground because excavation would require removal of tree roots.
- The building location is dictated by the existing well location. It is not possible to pivot the building around the well to have it oriented in another direction. Other infrastructure in the vicinity limits the site orientation. There are two large storm drain pipes surrounding the building, one to the east and one to the west. In addition, the creek and roadways also limit the site layout. Therefore, there is not enough room to orientate the building in an east-west direction.
- One possibility to change the footprint is to move the fluoride room to the north. This would create a long, straight building rather than a T-shaped building. This option will be discussed with the Planning Department.
- The height of the building is dictated by the size of the pump and cannot be changed.
- The proposed fence surrounds the generator, transformer, and driveway for security reasons. It does not surround the whole property, and encloses the smallest feasible area.

Appearance:

- The outside appearance is the easiest part of the design to change. SLCDPU will comply with all comments of the Planning Department and the Historic Landmarks Commission and revise the design accordingly.
- Landscape design will be coordinated with Salt Lake City Urban Forestry and Parks Departments.
- The health of the existing trees on the parcel will be reviewed with Urban Forestry.

Noise:

- The pump house will be required to comply with Salt Lake County Health Department noise rules. The rules are as follows: In an area that consists of single-family residential structures, noise is limited to no more than 5 dBA above ambient sound, not to exceed 50 dBA between 10:00 PM and 7:00 AM and 10 dBA above ambient sound, not to exceed 60 dBA between 7:00 AM and 10:00 PM.
- Noise is anticipated from three sources on the site: 1) the HVAC system which is situated outside the building on pads, 2) the motor for the well pump located within the pump house and 3) the generator located outside the building. The HVAC is anticipated to be similar to residential A/C units outside homes in the neighborhood. The noise from the pump motor will be reduced by sound dampened louvers from the buildings and will meet the County sound requirements. The generator will be located inside a Level II Sound enclosure. According to Caterpillar (a manufacturer of the type of generator proposed), the sound approximately 21 feet from the sound enclosure will be about 75 dBA. At 50 feet, which is the back of the sidewalk on the west side, the sound would be approximately 60 dBA. The generator will be tested at a prescribed frequency (anticipated monthly). These tests will be during normal working hours. The only time we foresee the generator running at night will be in emergency situations if there is a power outage and the generator is needed for backup power to operate the pump.

Site Constraints:

- There is overall limited space for expansion because the site is located inside a small City-owned median/park adjacent to a residential neighborhood.
- The actual existing well location is fixed and can't be moved without abandoning the well. The proposed building must therefore be situated/oriented around that fixed point.
- A grouted rock lined storm water conveyance channel that generally runs north to south is located approximately 20-feet to the east of the well's fixed location. The well building cannot be constructed over this channel.
- A buried 5-feet diameter storm drain pipe that runs approximately northeast to southwest is locate approximately 7-feet to the east of the well's fixed location. The well building cannot be constructed over this pipeline.
- A buried 5-feet diameter storm drain pipe that runs approximately north to south is locate approximately 34-feet to the west of the well's fixed location. The well building cannot be constructed over this pipeline.
- The south property line is located approximately 10-feet south of the well's fixed location. This is outside of the typical 30-foot setback requirements. The allowable expansion to the south is therefore severely limited.
- The west property line is located approximately 29-feet west of the well's fixed location. This is less than the standard 30-foot setback. Any expansion to the west is more practical than to the south, however, any structure on the property would require a special exception to the standard setbacks.
- The only "open" expansion pathway is to the north. However, a number of large mature existing trees would have to be removed to expand north.
- No designated parking spaces are available at the park. In addition, street parking is not allowed along the park's boundaries. The nearest allowable parking is along the street on the opposite side of the street as the park. To facilitate maintenance and particularly chemical delivery vehicles servicing the well, a driveway is necessary to provide parking without obstructing the street. If street parking was allowed on the park side of the street, chemical delivery vehicles could potentially park there. However, access to the well building would be more difficult for

maintenance personnel/servicing of well equipment. It is expected there will be occasions when maintenance vehicles will have to drive up to the doors on the north side of the building.

- Typically, culinary well buildings are completely enclosed with fencing to reduce the threat from potential vandalism, theft, and terrorism. The limited space available significantly prevents the ability to properly secure the location.
- The chemical rooms should be in close proximity to the well to facilitate proper control of dosing and quick access to other well components.
- The chemical rooms were sized to provide reasonable storage tank sizes (balancing delivery scheduling and room size). In addition, space is provided for other chemical room appurtenances and working space. Door openings need to be large enough to accommodate removal of the tanks.
- The chemical rooms were separated from each other and the well room to improve safety in the event of a chemical spill. Furthermore, the fluorosilicic acid vapors could damage electrical equipment of other equipment in the event of a spill and should be isolated.
- The well mechanical room was sized to house the various electrical and mechanical equipment with the required frontal clearance safety requirements and to provide adequate working space around the piping for maintenance personnel.
- The height of the well building is dependent upon the chemical storage tanks and well pump (as illustrated on sheet M-02 of the plans). The well casing must be a minimum of 18-inches above the finish floor. The pump, pump discharge head, and necessary clearance from the ceiling compromise the remaining ceiling height total requirement. It should be noted that the chemical storage tank heights are larger than then door heights so removable transoms were added.
- The only available access points to the well are from 4th Avenue or Canyon Road (130 East) because of the existing storm water channel. If the driveway access was from the south (at 4th Ave) then the chorine room would have to be relocated to the north side of the remaining building footprint. The power transformer and power generator would have to then be located farther to the north due to the relocated chlorine room. The driveway should then extend along nearly whole building length to the relocated chlorine room (up to a 60-feet long driveway. Overall, the south side access alternative would appear to utilize more of the park's open space.
- With the driveway shown as proposed with access from 130 East, a door access is still necessary on the south side of the building. That south side door (in addition to the roof hatch over the well) will be relatively infrequently used during servicing of the pump/pump motor.

We hope that these points address most if not all questions presented at the Open House event. Should additional questions arise, we would be willing to provide responses to those as well.

Sincerely,

Blayde McIntire, P.E.
Project Manager

cc: file/B/Eng.

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