

Mountain Sewer
Application for General Rate Increase
Docket No. 22-097-01

Engineering Information:

The attached report from Great Basin Engineering, dated September 25, 2020, describes the general design of Mountain Sewer's systems, including storage capacity and service quality.

Additions or improvements in the last five years, as indicated in the Annual Reports filed with the Division of Public Utilities:

2021: \$40,116

2020: none

2019: none

2018: none

2017: none

Service Deficiencies and Remedies:

See attached engineering report

Anticipated additions of improvements:

See attached engineering report

September 25, 2020

Mr. Ray Bowden

RE: MOUNTAIN SEWER CORPORATION - SYSTEM REPORT

The Mountain Sewer System is located just South of Pineview Reservoir along State Road 39 and Snow Basin Road in the Huntsville Area. This water system can also be described as being located in Sections 13, 23 and 24 of Township 6 North, Range 1 East, Salt Lake Base and Meridian.

The sewer system was established in the 1983 to the proposed development of approximately 250 acres of property that Dr. Ronald J. Catanzaro was developing. Dr Catanzaro is no longer involved with the project and several individuals and entities now own the undeveloped areas. The Mountain Sewer Corporation System has been upgraded several times and now consists of the following:

- 3 aerated sewage Lagoons with transfer structures, Blower / pumping building built in 1983.
- A 19.9 acre-foot winter storage pond – (earthwork / piping installed)
- A 1.0 acre tree farm – (test area for land application)
- 2 Sewage Lift Stations with automated control system and alarms
- Collection piping, with Manholes.

The sewer treatment facility is situated on 33.66 acres in the name of Mountain Sewer Corporation.

The initial approval of the 3 aerated sewage lagoons allowed for treatment and discharge through seepage and evaporation of 6800 gallons per day (gpd) The Utah State Department of Environmental Quality, Division of Water Quality (DWQ) allow 1 standard residential connection per 400 gpd or 17 connections. In February of 2000, DWQ approved phase 1 of the master sewer system design, which included the 19.9 acre-foot winter storage pond, a 7.35 acre tree farm with an initial 1.0 acre test area, pump, disinfection and filtration system, which would give the sewage treatment system a capacity of 49,600 gpd or 124 total connections. Due to low flow rates from the existing developments, not all of these improvements were completed. The earthwork portion of the winter storage pond and the piping through the pond walls (dikes) were complete in the summer of 2002. The installation of the rip-rap on the side slopes of the pond, the disinfection system, the pumps and filtration system were not constructed because of the low flow rates. The one acre test area for land application was constructed but could only be evaluated by using culinary water, because of the low levels of sewage effluent in the aerated ponds. In 2002, DWQ re-evaluated the required flow rates based on water and sewer usage studies, and reduced the required flow rate per connection from 400 gpd to 300 gpd. This would allow the approved phase 1 design to serve 165 connections.

On November 25, 2004, DWQ re-evaluated the Ski Lake Corporation (Mountain Sewer Corporation) and categorized it as a “Rated Capacity of Treatment Facility”, meaning the system should be based on a percentage of capacity of the final Winter Storage Pond. This means that “the rated capacity of the treatment system was amended to allow additional connections to the sewer system until the final storage pond is 75 percent full, allowing for the required 3-foot freeboard. Specifically, 75 percent of the 19.9 acre-foot storage in the Winter Storage Pond No. 1 is 14.9 acre-feet, which equates to a water surface depth of 14 feet.” When the capacity in the pond reaches that level, no more connections will be allowed until additional treatment and

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disposal capacity is reached. Long term sequences of additional expansions have also been submitted to the State Division of Water Quality as part of the approval process.

The Mountain Sewer Corporation currently serves the following developments:

- 86 condominiums (Lakeside Village)
- 33 condominiums (Edgewater Beach Resort),
- 17 lots in Ski-Lake Estates,
- 25 lots in the Summit at Ski Lake,
- 30 lots in the Chalets at Ski Lake,
- 1 Catholic Church connection.
- 1 Langeland Subd. connection

This yields a total of 193 active connections on the sewer system.

The following developments are currently approved for sewer connection:

- 86 condominiums (Lakeside Village)
- 63 condominiums (Edgewater Beach Resort),
- 21 lots in Ski-Lake Estates,
- 54 lots in the Summit at Ski Lake,
- 76 lots in the Chalets at Ski Lake,
- 1 Catholic Church connection.
- 1 Langeland Subd. connection
- 1 Schlaf Subd. connection
- 2 Samarel Subd. connections

This yields a total of 305 currently approved connections on the sewer system.

The number of connections allowed into the system is not exactly determinable. Connections to the system will be allowed until the 19.9 acre storage pond reaches 75% of its capacity.

With the completion of the storage pond and the 7.35 acre tree farm, the water budget which includes the sewage effluent inflow, precipitation on the open ponds, evaporation, seepage and water uptake from the tree farm, the overall system is anticipated to treat up to 49,600 gallons per day. The water and sewer flow monitoring over the past 10 years have ranged from 50 gpd to 180 gpd per connection.

The current level of effluent in the south lagoon (Cell #1) is approximately **3 feet** of the total design capacity depth of 14 feet (approx. **15% capacity**). There is a current depth of approximately **10 feet** in the middle aerated lagoon pond of a maximum depth of 14-feet (Approx. **55% capacity**) and there is no effluent in the North Lagoon. The current system is at less than 22% of the overall storage capacity of the aerated lagoons treatment system. The earthwork and piping for winter storage pond was completed several years ago, but the rip-rap, pump system and disinfection system have not yet been installed, because they would still be sitting dormant and subject to continual maintenance. These improvements can be installed in a 45 to 60 day period, possibly quicker, depending on the amount of equipment and workers available. Currently there are 193 existing connections on the system, which represents the condos/homes/structures which have been constructed as of July 2019.

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It is anticipated, based on the history of the overall development, that the projects will most likely be constructed at a relatively steady growth rate over a 2 to 5 year period, so the sewage flows could be monitored and make the appropriate upgrades or expansions to the sewer treatment system, as the projects develop.

The Mountain Sewer Corporation entered into an agreement with Weber County to provide the county with 100 sewer connections to the system in 20 connections per year increments over a five year period that started in January of 2011. These connections could be used at the County's discretion. Connections fees and usage fees will still be collected when these connections are used.

Proposed Developments

There are additional proposed developments within the sewer district boundaries currently pending approval and several other developable parcels. These are:

Samarel Property	--	2 connections
<u>Schlaf Subdivision</u>	<u>--</u>	<u>1 connection</u>
Sub-total	--	3 connections

Sundance Commercial property - 3.22 acre parcel
Snow Basin Commercial property - 1.77 acre parcel

Based on the "Rated Capacity of Treatment Facility", and the construction history of individual single family homes and condominiums, we anticipate a slow relatively steady growth rate within the Mountain Sewer Company Service Area. This will allow adequate time to complete the necessary construction stages of the winter storage pond, chlorination and filtration facilities and the land application system (tree farm). Construction funds will need to be set aside to allow for the completion of the Winter Storage Pond, the Chlorination System, Pumps, Filtration System, Additional Pumps and Land Application System, so they can be installed as trigger points (effluent levels) are reached in the lagoons and winter storage pond. The anticipated trigger points are as follows:

- When cells 1 and 2 of the sewer lagoons are at 100% capacity and effluent in cell 3 of the sewer lagoon system is at 80% -- completion of the Winter Storage Pond, Pumps and Chlorination system will need to begin construction and be completed within 45 to 60 days .
- When the Winter Storage Pond reaches 50 % capacity, construction of the filtration system, pumps, disinfection system and land application system will need to be constructed within 90 to 120 days.
- When the Winter Storage Pond reaches 75% capacity, no new connections will be allowed until additional treatment and disposal capacity is provided.

It is anticipated that based on current flow rates from the existing "Ski Lake Properties" and with the completion of the winter storage pond, pumps, disinfection system, filtration and land application system that the overall treatment system will handle the current 193 existing connections, the additional 109 approved connections that are pending construction, the connections in the proposed developments, and the 100 connections allocated to the county.

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Repairs and Maintenance

Several of the major components of the Sanitary Sewer System serving the Ski Lake Development were installed over 33 years ago. The Sewer Lift Station serving Lakeside Village and corresponding force main line were installed in 1982, while the Aerated Sewer Lagoons and Blower building were finished in 1984. These facilities are currently functioning adequately, however the motors for the pumps and the blowers are nearing their typical life expectancy and will need to be rebuilt or replaced in the near future. The sidewalls of the Lagoons will require some maintenance to remove weeds, due low storage volumes. This weed removal may create the need to repair significant portions of the clay liners.

Winter Storage Pond

To implement the 19.9 Acre-foot winter storage pond will require weed removal within in the pond area, installing a clay liner to seal the pond and rip-rap to minimize erosion due to wave action, installing pumps in the existing blower building and installing a chlorine disinfection system. Completion of the winter storage facility will cost about \$350,000.

The next phase of expansion is the installation of a filtration station for drip irrigation system used to water a tree farm that harvests mature trees. Initially, a 1-acre tree farm using a drip irrigation system was tested using culinary water, because not enough sewage was being generated to keep the trees alive. The following phase would be to expand the tree farm to about 7.35 acres. The estimated cost for the filtration system and tree farm is approximately \$325,000.

The overall master plan for the sewer treatment system includes the construction of another winter storage pond (with a capacity of at least 19.5 acre-feet) and a 7.5 acre tree farm on the 16.50 acres adjacent to the existing facility. (Note – 6.35 acres is needed to finish tree farm for Phase No. 1 which needs to come out of the 22.85 acres that surrounds the existing lagoons and winter storage pond). We are not anticipating the need for this expansion based on the flow rates from the existing development, for the current service area. If the service area is increased, then the need for this expansion may arise.

If the additional 19.5 acre-foot winter storage pond is needed to accommodate future developments, the pond will cost approximately \$500,000 to complete. The additional 7.5 acre tree farm is anticipated to cost approximately \$175,000 (additional filtration system is not anticipated).

Reserve funds should be set aside to accommodate scheduled maintenance and unforeseen repairs to the overall Sewer System.

Please contact me if you have any questions or need further information.

Sincerely,
GREAT BASIN ENGINEERING, INC.

Mark E. Babbitt, PE / PLS

Cc: Mountain Sewer Corporation
Attention: Ray Bowden, Pres.