

DRINKING WATER FACILITIES PLAN

**INTERNAL DISTRIBUTION SYSTEM
IMPROVEMENTS**

FOR THE

**SPRING CREEK/COW CREEK SANITARY
DISTRICT**

REVISED

DECEMBER 2021

DRINKING WATER FACILITIES PLAN
REVISED FROM NOVEMBER 23, 2021
INTERNAL DISTRIBUTION SYSTEM IMPROVEMENTS
FOR THE
SPRING CREEK/COW CREEK SANITARY DISTRICT

PREPARED FOR
SPRING CREEK/COW CREEK SANITARY DISTRICT
HUGHES/SULLY COUNTY, SOUTH DAKOTA

DECEMBER 2021

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Date

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1.0 PROJECT EXECUTIVE SUMMARY

Spring Creek/Cow Creek Sanitary District (SCCCSD) serves 229 residential users, 600 RV lots and several other commercial and recreational facilities in both Hughes County and Sully County in central South Dakota. The system has one 57,000-gallon ground storage tank which is nearly 30 years old, nearing the end of its lifespan and has experienced several leaks in the last few years. Pressure in the system is provided by two vertical turbine pumps which are nearly 30 years old and nearing the end of their lifespan. Source water is purchased from Mid-Dakota Rural Water System (MDRWS) at a contracted rate of 100 GPM. Despite the rapid growth in the Spring Creek area in recent years, few upgrades or expansions to the existing SCCCSD infrastructure have been completed.

SCCCSD currently does not have adequate storage capacity to meet average daily consumption during a majority of the year. Disruptions, breakdowns or other issues in either the MDRWS source water or SCCCSD pump station seriously affect the ability of SCCCSD to provide potable water and adequate pressure to the system. Residents, businesses and recreational areas in the Spring Creek area rely on SCCCSD for potable water and so there is a significant need for a project to address these issues within the system.

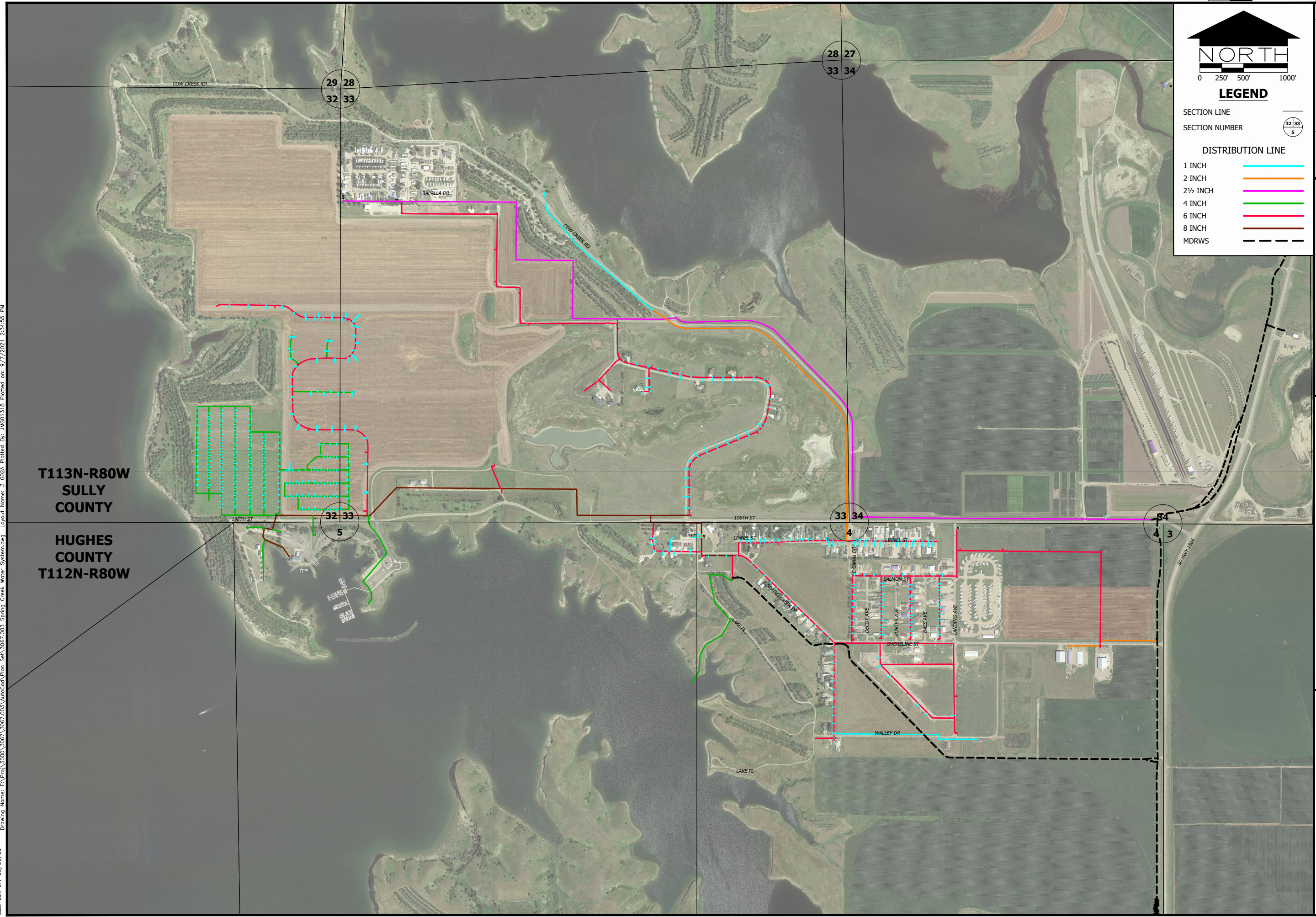
It is recommended to install system upgrades in the form of an elevated storage tank as per Alternative 3. This Alternative is estimated to have a total project cost of \$2,220,000 but has the lowest life cycle cost of the evaluated alternatives. Constructing adequate elevated storage will change the system to a gravity feed system thus eliminating the need for the existing pump station and ground storage. Elevated storage will assist in ensuring the health, safety, and economic wellbeing of the inhabitants in the area. Increasing the system's storage to 200,000 gallons will provide capacity to compensate for high-demand days and greatly increases the reliability of the system to provide potable water to customers in the event of power loss, disruptions or restricted incoming flows from the source water. The elevated storage can currently be filled by MDRWS incoming pressure, thus increasing the system's efficiency and reducing the operational complexity of the system.

It is also recommended that an alternate option for a larger 400,000-gallon tank be bid along with the recommended 200,000-gallon tank which meets the existing system needs. A larger alternative tank would assist with addressing the issue of future developments at the SCCCSD. To fund the upsized tank, it is understood that an arrangement is being pursued between the developers and SCCCSD, for the developers to pay the cost differences for upsizing the tank beyond the recommended 200,000-gallon tank.

2.0 INTRODUCTION & EXISTING FACILITIES

2.1 LOCATION & MAP

SCCCSD is located in both Hughes County and Sully County in central South Dakota. SCCCSD is located along Lake Oahe north of Pierre, SD and west of Hwy 1804. The existing location is shown in Figure 2.1.

[illegible]

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FIGURE 2.1: EXISTING SYSTEM LOCATION

2.2 EXISTING INFRASTRUCTURE & AGE

SCCCSD serves 229 residential users, 600 RV lots and several other commercial and recreational facilities such as restaurants, convenience stores and resort lodges. The original system was designed and constructed in the 1990's and consists of the existing storage tank, pump house and the 8" and 6" pipelines along 196th St and Shoreline St. Since then, additional developments and users have been added to this original system. SCCCSD buys water from MDRWS at a contracted rate of 100 GPM.

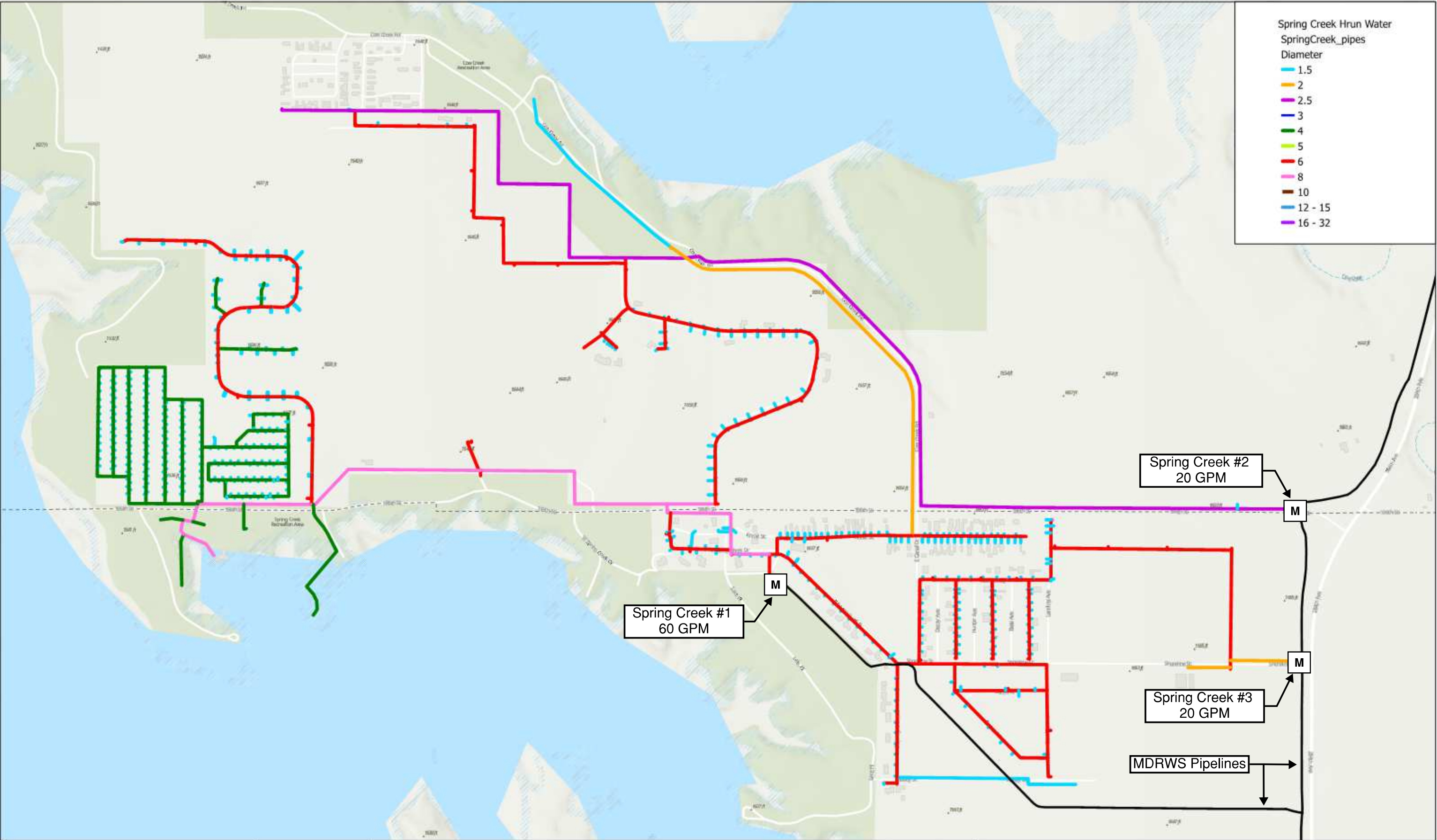
There are currently three connection points for delivery of water from MDRWS and each of these connections points has its own master meter. Figure 2.2 notes the location of each connection and the assigned flow rate.

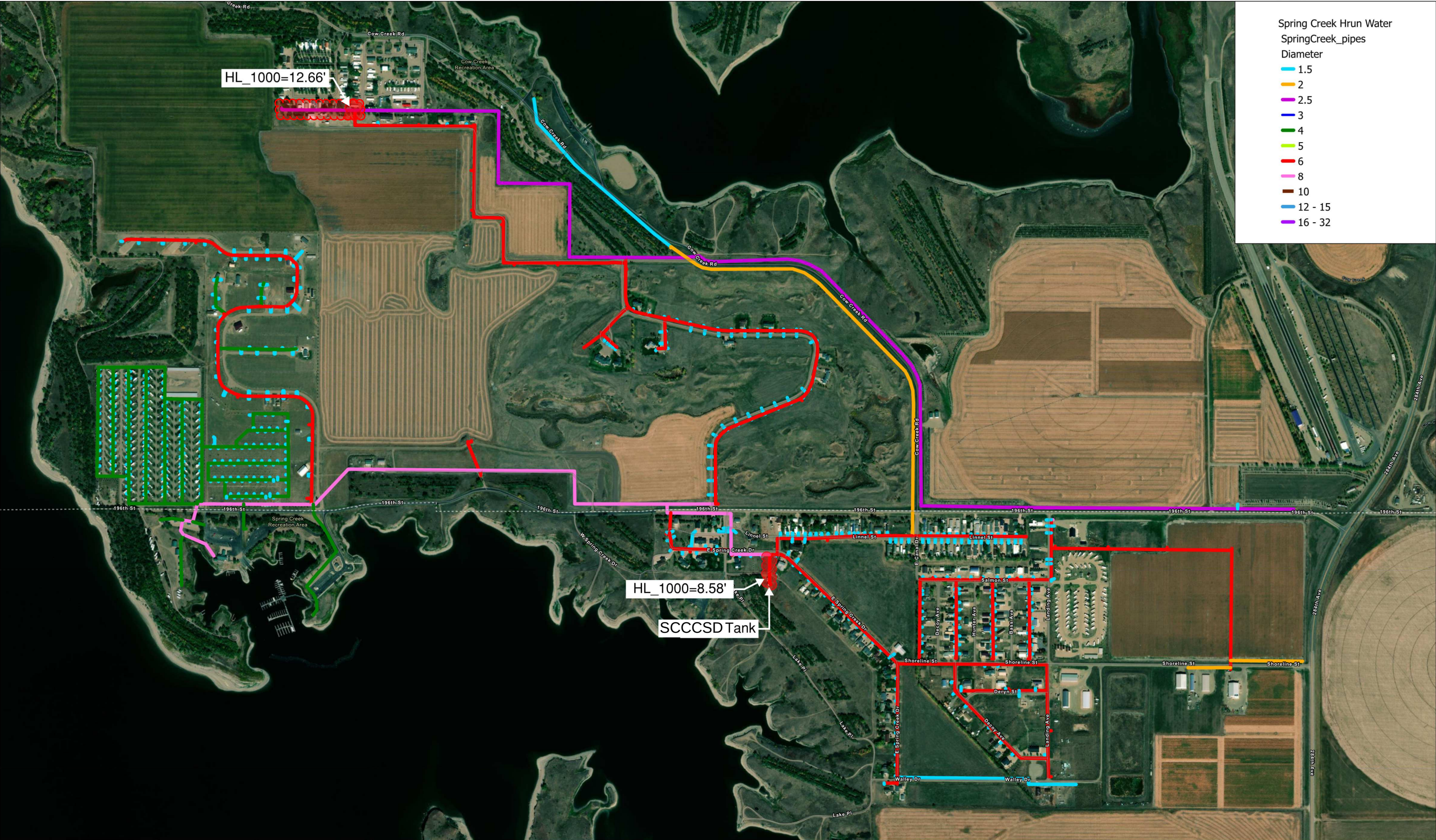
The system has one 25' tall 57,000-gallon ground storage tank which was constructed during initial system installation in the 1990's. This tank is undersized and sprang several leaks prior to being repaired and relined in 2020. This repair is estimated to last for 3 to 5 years. The water from the tank is required to be pumped to provide adequate pressure throughout the system. The pump house contains two vertical turbine pumps which are both original to the system and almost 30 years old. The VFDs in the pump house were replaced in 2009 and are nearing the end of their lifespan. The pump sequence generally runs one at a time, however during peak conditions they run in tandem. See Table 2.1 for the existing pump details. The vertical turbine pumps did have their impellers replaced in 2015, but due to the age of the pumps and motors, they are near the end of their useful life and are recommended to be replaced.

Existing Pumps	Description	Design Point (GPM)	Design Point (TDH)
Pump 1	6" Vertical Turbine, 10 HP, 3-phase	160	188'
Pump 2	6" Vertical Turbine, 10 HP, 3-phase	160	188'

Table 2.1 Existing SCCCSD Pumps

SCCCSD's current distribution pipelines currently encompass a roughly 1.6 square mile area and generally consist of 6" and 8" PVC pipelines. However, the pipeline on the north side of the system which serves the drag strip and the Cow Creek area is a 2.5" PVC pipeline. In general, the pipelines are in good condition and velocities and head losses are within acceptable limits. The exception to this would be the 6" pipeline out of the pump house and the 2.5" distribution pipeline on the north side of the system. Refer to Figure 2.3 which details the distribution pipe sizes and sections modeled with high head loss.





2.3 WATER USAGE

SCCCSD water usage is highly variable and depends on the season, weather and also weekdays verse weekends. Typically, summer weekends with hot weather corresponds to the highest water usage in the system. This is due to the recreational nature of the Spring Creek area which attracts the most residents, campers, fishermen and visitors during the summer weekends. Water usage for the summer of 2021 was historically high and Table 2.2 below displays water usage for the summer of 2021.

NUMBER OF DAYS	JUN	JUL	AUG	SEP
HOLIDAY WEEKEND	0	3	0	4
WEEKEND (F-SU)	12	11	13	9
WEEKDAYS (M-TH)	18	17	18	17
MONTH TOTAL	30	31	31	30

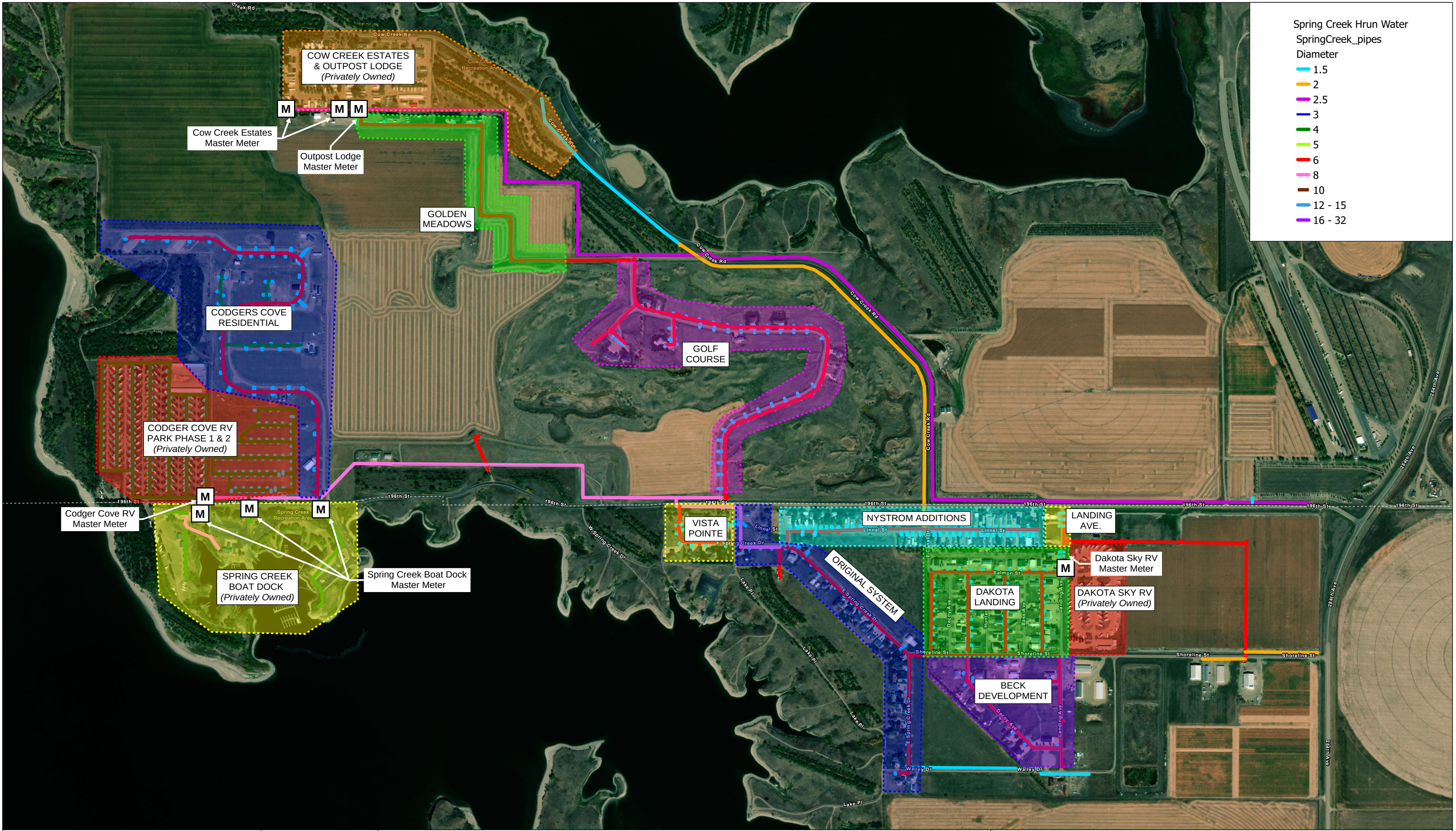
TOTAL GALLONS	JUN	JUL	AUG	SEP
HOLIDAY WEEKEND METERED	0	385,000	0	216,000
HOLIDAY WEEKEND HYDRANT	0	58,000	0	0
WEEKEND (F-SU)	1,227,000	1,209,000	980,000	460,000
WEEKDAYS (M-TH)	1,481,000	1,504,000	1,235,000	710,000
MONTH TOTAL	2,708,000	3,156,000	2,215,000	1,386,000

AVERAGE GALLONS PER DAY	JUN	JUL	AUG	SEP
HOLIDAY WEEKEND	n/a	147,667	n/a	54,000
WEEKEND	102,250	109,909	75,385	51,111
WEEKDAY	82,278	88,471	68,611	41,765
MONTH AVG	90,267	101,806	71,452	46,200

Table 2.2 SCCCSD 2021 Summer Water Usage

SCCCSD water usage exceeded 130,000 gallons per day 6 times in the summer of 2021 and peaked out on July 3rd with 149,000 gallons. Water usage is expected to increase in 2022 since there is substantial growth in several of the developments within the SCCCSD boundaries. These developments have been allocated water for each platted lot and the distribution pipelines and curb stops have been installed. As new houses are constructed, they are connected to the SCCCSD and start using water. In 2021, 23 new accounts came online and started using SCCCSD water. It is projected that a further 30-40 will be connected in 2022. There are roughly 190 platted lots in the SCCCSD service area that are currently not hooked up to service. The main developments that are experiencing new house construction are the Beck Development, Codgers Cove Residential, Golden Meadows and the Golf Course Development. Figure 2.4 on the next page details the location and extent of these developments.

The largest water users in the SCCCSD during the peak summer months are the RV/camper parks. Each of these RV/camper parks has their own master meter to record usage. Figure 2.4 details the locations of these users and the master meter. Water usage data shows that roughly 35% of the systems water usage is consumed by these 3 users (Codgers Cove RV, Dakota Sky RV and Cow Creek Estates) during summer months. However, during the winter months, the usage for these accounts drops significantly.



3.0 PROJECT DEVELOPMENT

3.1 EXISTING CONDITIONS

As per Section 2.2 above, the majority of infrastructure owned by SCCCSO is 25-30 years old. While some SCCCSO infrastructure, such as new pipelines and service lines for new developments, are in the early parts of their life span, SCCCSO does have some issues with aging infrastructure especially with their core facilities. Since initial system construction, additional users and developments have been added to the district increasing the demand required at peak conditions. This has specifically impacted the pump house and the existing ground storage tank.

The pump house was installed during the initial system construction and the two pumps and motors have never been replaced. To keep up with the increasing peak demands in the system, the pump impellers were replaced in 2015 and the pump operations have been adjusted to allow the pumps to run in tandem. This means that the pumps can keep up with peak demands but there is no standby pump during these conditions. The pumps and motors are at the end of their projected lifespan and are recommended to be replaced. The VFDs were replaced in 2009 and are nearing the end of their lifespan.

The 57,000-gallon storage tank capacity does not meet the system demands during the summer months. This tank is also nearing the end of its life span and has recently required repairs to keep the tank watertight and in compliance. Further repairs are projected to be required within a few years, therefore due to the age and inadequate size of the tank, replacement of the tank is recommended.

3.2 NEED FOR PROJECT

Currently SCCCSO operates as a pressurized system, providing its customers with potable water at a targeted pressure of at least 20 psi. The potable water is purchased from MDRWS and repumped to maintain a set discharge pressure of 50 psi. Disruptions, breakdowns or other issues in either the MDRWS source water or SCCCSO pump station seriously affect the ability of SCCCSO to provide potable water and adequate pressure to the system.

During the 4th of July weekend in 2021 one such issue occurred. The SCCCSO system experienced high demand for water due to the holiday weekend and the hot and dry conditions. This high demand drained the existing tank and without adequate suction pressure and water volume to pull from, the pumps were not able to meet the demand. This resulted in water outages and low pressures throughout the system. Additional system storage would have helped to keep the system operating during high demand conditions and this event highlights the inadequacies of the current SCCCSO storage tank.

A reduction in the flow provided by MDRWS could have similar impacts on the SCCCSO system as the July 4th event. The current SCCCSO storage of 57,000 gallons is undersized and only adequate to provide 1/3 of the systems usage during summer months. Emergency

flow reduction from MDRWS is a factor that cannot be controlled by SCCCS D and poses a serious risk to the health, sanitation, and security of SCCCS D customers.

Lacking consistent access to reliable potable water puts SCCCS D customers' health at risk. Not only do these customers depend on potable water to drink, but also for sanitary tasks such as flushing toilets, bathing, washing dishes and laundry. SCCCS D also provides water to multiple RV parks and recreational areas which contributes to a large portion of Spring Creeks water usage.

3.3 COMPLIANCE ISSUES

SCCCS D currently does not have adequate storage capacity. Section 7.0.1 of the Recommended Standards for Water Works details that the minimum storage capacity for systems shall be equal to the average daily consumption. Therefore, the system does not meet this minimum recommendation during a majority of the year. Additionally, the system's peak demand significantly exceeds the contracted flow from MDRWS. This means that once the systems storage is depleted, the incoming flow cannot meet peak demands, resulting in low pressure and lack of water throughout the system. Section 8.2.1. of the Recommended Standards for Water Works states that the system shall maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. So, without adequate storage for the system, the system is at risk of not meeting the minimum pressure recommendations.

Another issue that SCCCS D has experienced is that the systems only storage tank had developed several leaks. Section 7.0.10 of the Recommended Standards for Water Works details that the roof and sidewalls of all water storage structures must be watertight, with no openings. The leak issues were fixed in 2020 when the tank was relined, however this repair is estimated to last 3 to 5 years. This means that within a few years, further repairs to the tank will likely be required to keep the existing structure in compliance with the recommended standard.

4.0 ENVIRONMENTAL CONSIDERATIONS

4.1 ENVIRONMENTAL IMPACTS

Limited or no environmental impacts are anticipated due to the construction of this project. A review of environmental impacts will be completed as required prior to proceeding with construction of this project. Such a review will describe direct and indirect impacts on flood plains, wetlands and other land resources and endangered species. A historical and cultural review for the project area will be conducted as per the South Dakota State Historic Preservation Office (SHPO) criteria. Cultural Resources that are identified will be avoided, however based on much of the proposed tank location being previously disturbed, no adverse impacts are anticipated.

4.2 REVIEW AGENCY COMMENTS

Will provide upon receipt.

4.3 MITIGATION PLANS

Will provide if determined mitigation is required.

5.0 ALTERNATIVE DEVELOPMENT & SELECTION

5.1 ALTERNATIVES CONSIDERED

5.1.1 Alternative 1 – No Action

The “No Action” alternative consists of not making any improvements to the current water distribution system. The system will continue to operate off the existing ground storage and utilizing the existing pump house to provide pressure to the SCCCSD system. Storage will be limited to 57,000 gallon ground storage and will not be upgraded to provide adequate demand at peak conditions.

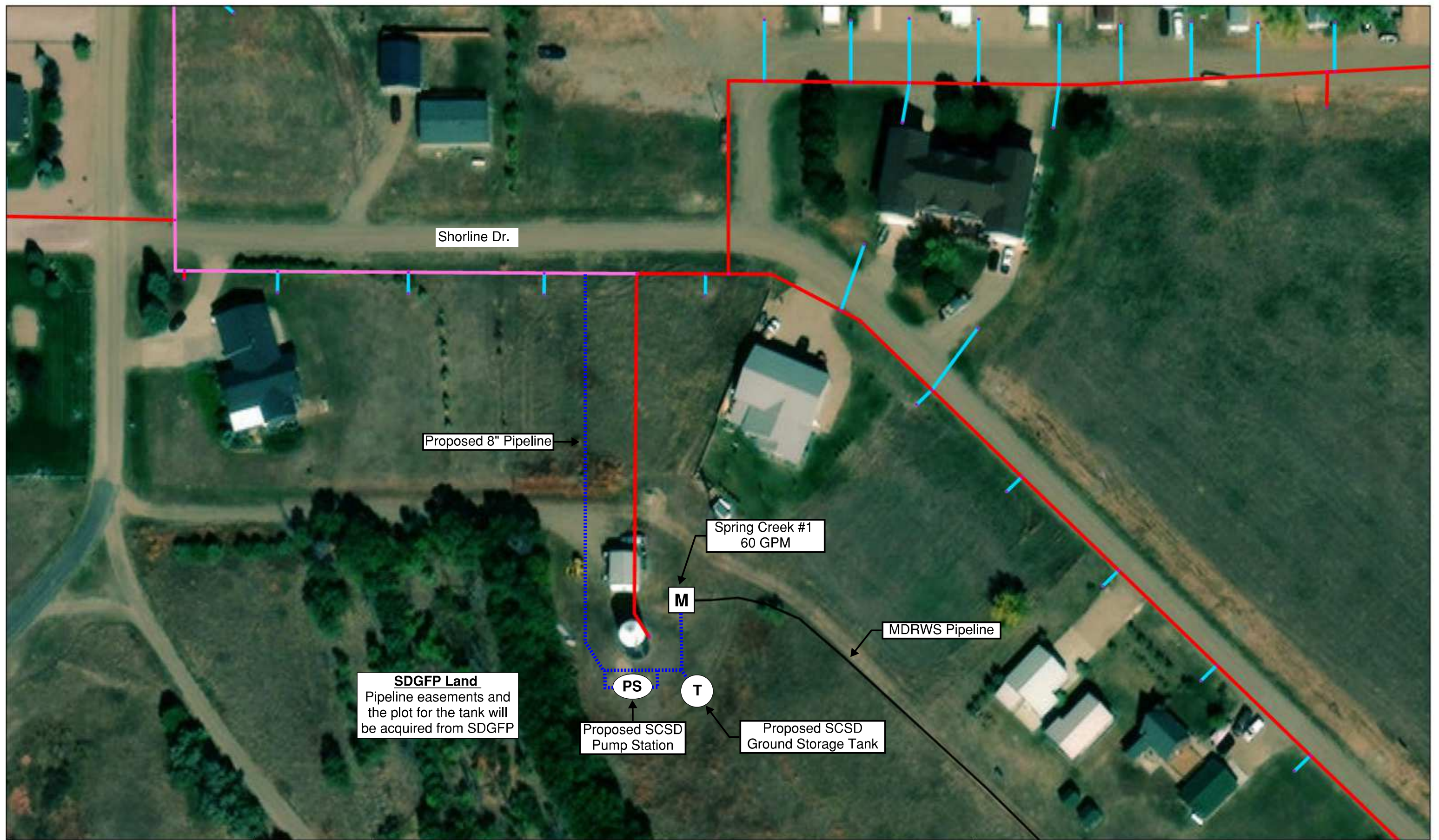
This option is viewed as insufficient since it does nothing to address the concerns to health and safety of the system’s users and does not improve the systems reliability or efficiency.

5.1.2. Alternative 2 – Ground Storage Tank & Pump Station

Alternative 2 consists of installing a new ground storage tank and a new pump station adjacent to the existing SCCCSD infrastructure. Additionally, a new 8” pipeline will connect the new tank and pump station to the existing distributions lines. This will allow for the existing SCCCSD tank and pump house to be bypassed, removed from service and demolished. The location of these proposed improvements is shown in Figure 5.1. This site is ideal due to the central location within the SCCCSD system and its proximity to 6” and 8” distribution lines, the existing MDRWS master meter and the 6” pipeline currently serving the system. Currently the South Dakota Game, Fish and Parks (SDGFP) owns all the land around the existing SCCCSD infrastructure. To accommodate the new tank and pump station, new plats and pipeline easements will need to be acquired from the SDGFP. The SDGFP has previously been approached regarding this and they have indicated they will work with SCCCSD to provide new easements and plats.

The ground storage tank will be 200,000 gallons and roughly 30’ tall. Water will pass through the existing MDRWS master meter vault and then be routed into the storage tank. The ground storage tank will not provide pressure to the system but act as storage for the system and provide buffer capacity for the new pump station to pull water from. The tank is sized to meet only the storage requirements of the existing SCCCSD system.

The pump station will be located downstream of the new ground storage tank and is anticipated to be a below ground vault design. Locating the pumps below grade will help to increase the suction side pressure and meet the net positive suction head



requirements even when the tank is low. The pump station will include 3 vertical turbine pumps, 2 peak demand sized pumps and a third smaller pump that is efficient for low flow conditions. The pumps will maintain a discharge pressure of 60 psi and run in alternate so that one is for stand-by. The pumps are sized to meet the existing SCCCSO system requirements. If future expansion of the system occurs, larger pumps can be configured to help meet increased demands.

A new 8" pipeline will be installed from the discharge side of the pump station and connect to the existing SCCCSO distribution pipeline on the south side of Shoreline St. This pipeline will bypass the existing SCCCSO infrastructure and is sized to accommodate the anticipated peak flows out of the new pump station.

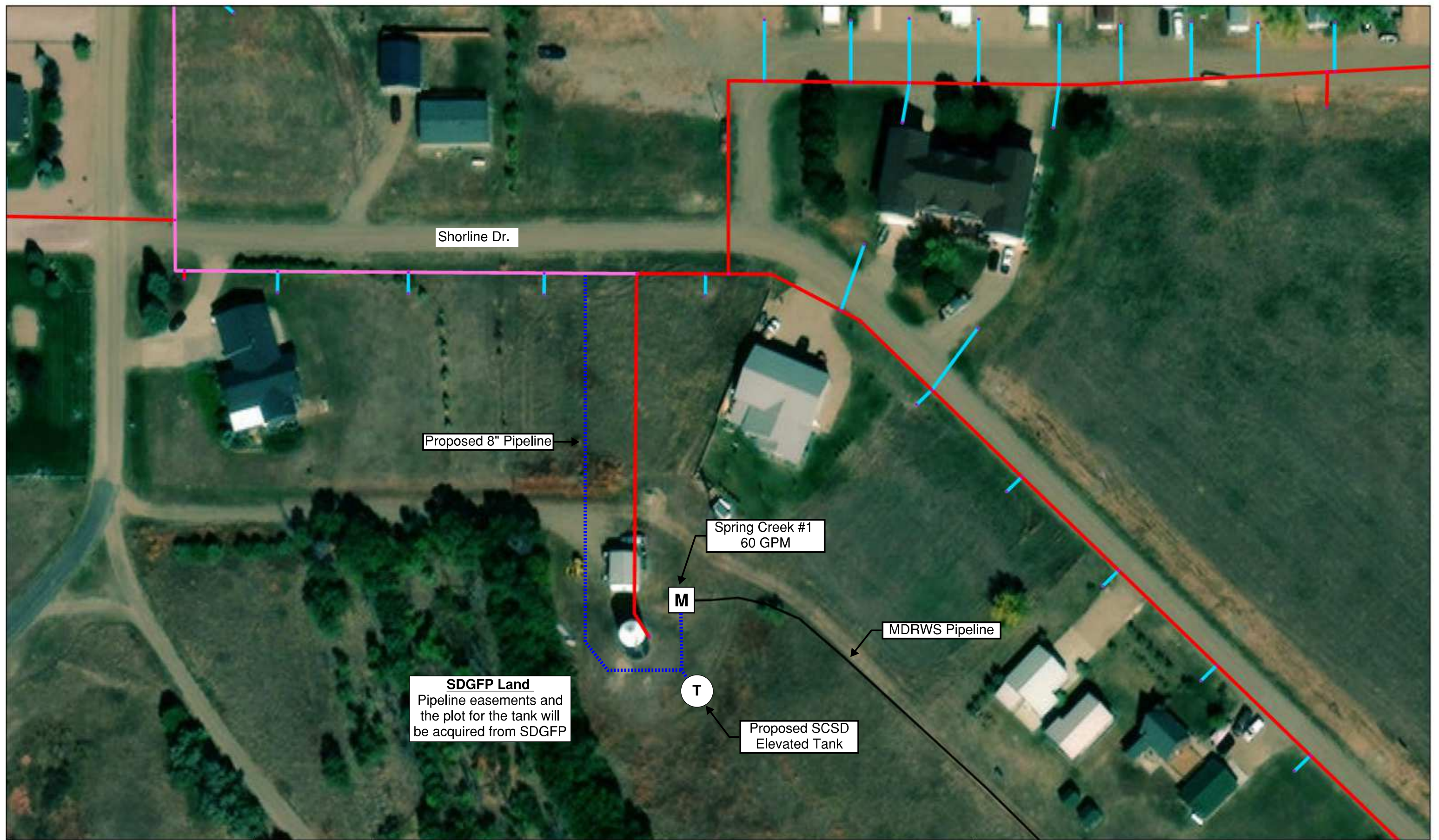
Increasing the systems storage to 200,000 gallons will provide adequate storage for the existing system to compensate for high-capacity days. Replacing SCCCSO's undersized and aging infrastructure will address health and safety concerns while also increasing the systems reliability.

The following are the design criteria for Alternate 2:

- Design Year: 2052 (30-year design life)
- Minimum Peak Demand Pressure at All Users: 20 psi
- Maximum System Pressure: 60 psi
- Modeled Pump Station Peak Flow: 320 GPM
- Transmission Flow (from MDRWS): 100 GPM
- Tank Storage Capacity: Minimum 1 Day for each user served.
- Pump Station capacity and Tank Storage capacity are designed to meet the existing system demands. Future Developments are not considered in the design.

5.1.3 Alternative 3 – Elevated Storage Tank

Alternative 3 consists of installing a new elevated storage tank and installing a new 8" pipeline to connect the new tank to the existing distributions lines. This will allow for the existing SCCCSO tank and pump house to be bypassed, removed from service and demolished. The location of these proposed improvements is shown in Figure 5.2. This site is ideal due to the central location within the SCCCSO system and its proximity to 6" and 8" distribution lines, the existing MDRWS master meter and the 6" pipeline currently serving the system. Currently the South Dakota Game, Fish and Parks (SDGFP) owns all the land around the existing SCCCSO infrastructure. To accommodate the new tank, a new plat of land and pipeline easements will need to be acquired from the SDGFP. The SDGFP has previously been approached regarding this and they have indicated they will work with SCCCSO to provide new easements and plats.



The proposed elevated storage tank would be 200,000 gallons and have an overflow height of 140'. The elevated tank is sized to provide 60 psi of pressure in the system and can currently be filled with pressure from MDRWS. Since the elevated tank will provide the system pressure, no pump station would be required. This would greatly improve the system's efficiency as re-pumping would not be required. The tank is sized to meet only the storage requirements of the existing SCCCSO system.

A new 8" pipeline will be installed from the elevated tank and connect to the existing SCCCSO distribution pipeline on the south side of Shoreline St. This pipeline will bypass the existing SCCCSO infrastructure and is sized to accommodate the anticipated peak flows out of the elevated tank.

Increasing the systems storage to 200,000 gallons will provide adequate storage for the existing system to compensate for high-capacity days. Replacing SCCCSO's undersized and aging infrastructure will address health and safety concerns while also increasing the systems reliability. Installing an elevated tank that can currently be filled with MDRWS pressure would greatly increase the system's efficiency and eliminate the O&M costs and operation complexities involved with utilizing a pump station to provide system pressure.

The following are the design criteria for Alternate 3:

- Design Year: 2052 (30-year design life)
- Minimum Peak Demand Pressure at All Users: 20 psi
- Maximum System Pressure: 60 psi
- Transmission Flow (from MDRWS): 100 GPM
- Tank Storage Capacity: Minimum 1 Day for each user served
- Tank Storage capacity are designed to meet the existing system demands. Future Developments are not considered in the design.

5.2 COST EVALUATION

To equally evaluate the costs of each alternative, more than the estimated construction costs for each alternative need to be analyzed. Additional costs to be evaluated for each alternative include O&M costs, life cycle costs and all non-construction related costs such as design and construction observation.

An Opinion of Probable Project Costs (OPPC) was developed for each Alternative. The OPPC consists of estimated construction costs, a 10% contingency and other non-construction related costs. Cost estimates for the construction of the project were developed from a combination of budget estimates obtained from known suppliers, estimated installation prices based on recent projects and comparisons to recent project bid prices. Costs for non-construction items and other project costs are based off experience on other similar projects. The OPPC for Alternative 2 is \$2,030,000 and the OPPC for Alternative 3 is \$2,220,000. A full detailed OPPC for each alternative can be found in Appendix A. Note that design, observation and administration costs are not equal between the

alternatives. Instead, the fees for each of these items is estimated based on the effort that will be required to complete each task for that specific alternative. Design, construction observation and contract administration are all estimated to be more costly on Alternative 2 due to this alternative requiring both a tank and a pump station.

Annual Operation and Maintenance costs are based on the estimated O&M costs for the facilities constructed in each alternative and are detailed below in Tables 5.1 & 5.2. Energy costs are significantly higher on Alternative 2 due to the requirement for all the system's water to be repumped to pressurize the system. Alternative 2 also has significantly higher costs for asset maintenance and replacement since this alternative will have both a pump station and a storage tank. A detailed table with the Short-Lived Asset costs for each alternative is included in Appendix B.

Expense	Costs
Administration Costs	\$0
Insurance	\$2,176
Energy Costs (Fuel and/or Electrical)	\$19,390
Short Lived Asset Maintenance/Replacement	\$40,350
Miscellaneous (Tools, spare parts, safety equipment)	\$100
O&M Total	\$62,016

Table 5.1 Alternative 2 Annual O&M Cost Estimate

Expense	Costs
Administration Costs	\$0
Insurance	\$2,554
Energy Costs (Fuel and/or Electrical)	\$13,697
Short Lived Asset Maintenance/Replacement	\$23,050
Miscellaneous (Tools, spare parts, safety equipment)	\$100
O&M Total	\$39,400

Table 5.2 Alternative 3 Annual O&M Cost Estimate

Based off Table 5.1 and 5.2, the largest costs over the life cycle of the proposed infrastructure are energy costs and maintenance/replacement costs. These costs between the alternatives are significantly different and this difference increases over the life cycle of the infrastructure. Table 5.3 below takes these annual O&M costs over the course of the projected 30-year lifespan and using a 3% rate converts this to present worth. The present worth of each alternative provides a clearer total life cost comparison between the alternatives. Table 5.3 shows that the Alternative 2 present worth is \$244,000 higher than Alternative 3.

Description	Total Capital Cost	O&M		Life-Cycle Cost (Rounded)
		Annual Costs	Present Worth @ 3%, 30 years	
Alternative 2 - Ground Storage Tank and Pump Station	\$2,030,000	\$62,016	\$1,216,000	\$3,246,000
Alternative 3 - Elevated Storage Tank	\$2,220,000	\$39,400	\$772,000	\$2,992,000

Table 5.3 Life Cycle Cost Analysis

5.3 NON-MONETARY FACTORS

While the project cost is a major factor in the selection of an alternative, there are other factors that need to be examined beyond the cost. These factors are provided in Table 5.4 below and consist of land requirements, expandability and operational complexity of each alternative. To evaluate this, each category was rated with a possible score of 5. The ease of future expansion was rated highest at 5 and lowest at 1, operational complexity was rated with 5 being the easiest and 1 being the most complex and land requirements was rated with the lowest land requirements at 5 and the most land required at 1. The construction costs, O&M costs and present worth life cycle costs are factored out of a possible score of 10 to reflect the higher priority given to project costs over other factors.

Project Costs	Alternate 2	Alternate 3
Project Costs	\$2,030,000	\$2,220,000
O&M Costs	\$62,016	\$39,400
Present Worth Life Cycle Costs	\$1,216,000	\$772,000
Criteria/Factors		
Project Costs	10.0	8.0
O&M Costs	6.0	10.0
Present Worth Life Cycle Costs	6.0	10.0
Land Requirements	2.0	5.0
Expandability	3.0	3.0
Operations Complexity	2.0	5.0
Total Weighted Score	29.0	41.0

Table 5.4 Non-Monetary Factors Matrix

Alternative 3 gets the best scores for land requirements and operation complexity. Alternative 3 only needs space for the tank while Alternative 2 needs space for a tank, pump station and bypass around the pump station. The footprint for the tanks in each alternative are assumed to be similar in diameter. The operations for Alternative 3 will be much simpler than Alternative 2. In Alternative 3, the elevated tank provides pressure to the system and can currently be filled from the incoming MDRWS pressure. Alternative 2 on the other hand will require additional operations to repump the water into the system

maintaining pressure and meeting system demands. Alternative 2 has more moving parts and therefore scores lower points due to its operational complexity.

Expandability is the same for both alternatives since once the tanks are built, adding additional storage will require constructing an additional storage tank. Building an additional ground storage tank would be cheaper than an additional elevated tank. However, this is offset by the fact that the pump station would require modifications to meet any increased flow demands in the system. The pump station in Alternative 2 could be modified to meet increased peak demands by having an additional pump or larger pumps installed. Alternative 3 would require no modifications to meet increased peak demands since pressure and flow is provided by the elevated tank. Therefore, the expandability of each alternative is evaluated as equal.

5.4 SELECTION OF AN ALTERNATIVE

5.4.1 Justification

After evaluating all project costs and non-monetary factors, it is recommended for SCCCS D to select Alternative 3 – Elevated Storage Tank. While Alternative 3 has a higher construction cost, this alternative has a lower present worth, scores the highest on the non-monetary factors matrix and is a more efficient alternative. Since the elevated tank can currently be filled off the incoming pressure from MDRWS, this pressure is not wasted like it is in Alternative 2 which requires repumping the water from the ground storage tank to pressurize the system. Elevated storage is also superior to a pressurized system since there is less operation complexity and pressure is maintained in the system during power outages without needing an onsite generator.

5.4.2 Proposed Financing & User Rate Changes

Funding for this project may come from a number of sources, but for ease of analysis, all funding is assumed to come from the SD DANR. Four funding scenarios are shown below for the purposes of illustration with the first scenario being for the entire project to be financed entirely through loan money. The other three scenarios are for a 70% loan, 30% principal forgiveness scenario, 50% loan, 50% principal forgiveness scenario and finally a 30% loan and 70% principal forgiveness scenario. In all scenarios, the loan is detailed with a 30-year term and with an estimated interest rate of 2.125%.

Scenario	Loan Principal	Interest Rate	Term	Monthly Payment	Yearly Payment
Scenario 1 100% Loan	\$2,220,000.00	2.125%	30-year	\$8,345.00	\$100,140.00
Scenario 2 30% Principal Forgiveness	\$1,554,000.00	2.125%	30-year	\$5,842.00	\$70,104.00
Scenario 3 50% Principal Forgiveness	\$1,110,000.00	2.125%	30-year	\$4,173.00	\$50,076.00
Scenario 4 70% Principal Forgiveness	\$666,000.00	2.125%	30-year	\$2,504.00	\$30,048.00

Table 5.5 Proposed Financing Repayment

To manage the loan repayment, SCCCS D would need to increase its revenue. This can either be done by increasing the water rates, increasing the minimum monthly fee or a combination of both. The following table shows the estimated SCCCS D billing increases required to cover each of the loan scenarios detailed in Table 5.5. The water rate increases are estimated based off projected SCCCS D 2022 water usage of 15,000,000 gallons and the 229 current users. For calculating the rate increase, the 1000 gallons included with the minimum bill are not considered leaving only 12,276,000 gallons for the rate increase to be applied to. Additionally, the rate increase is assumed to be a 55%, 45% split between commercial users and residential users to mirror water usage rates between the two user types.

Scenario	Term	Commercial Rate Increase (per 1000 gal)	Residential Increase (per 1000 gal)		User Minimum Monthly Increase	User Minimum Annual Increase
Scenario 1 100% Loan	30-year	\$8.57	\$7.75	OR	\$36.44	\$437.29
Scenario 2 30% Principal Forgiveness	30-year	\$6.00	\$5.43		\$25.51	\$306.13
Scenario 3 50% Principal Forgiveness	30-year	\$4.28	\$3.88		\$18.22	\$218.67
Scenario 4 70% Principal Forgiveness	30-year	\$2.57	\$2.33		\$10.93	\$131.21

Table 5.6 SCCCS D Water Rate and Minimum Increases

The increased rates or minimums to repay the project loan would be in addition to the current SCCCS D fees. Appendix C contains the 2022 SCCCS D water user rates and minimums.

5.4.3 O&M Costs

O&M Costs for Alternative 3 were detailed previously in Section 5.2. Since the proposed elevated tank can currently be filled off MDRWS pressure, a pump station is not currently required thus greatly reducing the O&M Costs. The operational costs would consist mostly of the energy costs to operate the tank mixer, SCADA system and heat tape on the riser. Maintenance costs would consist of yearly tank inspections and also the cost to repaint the tank after roughly 15 years.

5.4.4 Land Requirements

Land requirements for the proposed infrastructure is described in Section 5.1.3. The SDGFP is willing to provide new easements and plots for SCCCSD infrastructure. An initial layout for the infrastructure is detailed in Figure 5.2 showing the proposed tank location and proposed new pipelines to connect the tank to the existing SCCCSD system.

5.4.5 Potential Construction Problems

Potential Construction problems which may be encountered during construction are typically site dependent, such as: presence of cultural resources, poor or unstable soil conditions, Federal Aviation Administration (FAA) permitting; each of which should be investigated prior to proceeding with design of the tank. If cultural resources would be discovered, mitigation measures may be an option, or a different site may be required. A geotechnical exploration and review of the subsurface soil and water conditions would aid in determination of special foundation considerations and/or construction techniques. Since the tank is under 200' tall and over 14 miles from the closest airport, it is not anticipated that an FAA permit would be denied.

5.4.6 Permit Requirements

All local, state, and federal construction permits will need to be obtained prior to construction. Following is a preliminary list of potential permits:

- SD DANR Storm Water Discharge NPDES Permit
- FAA Aeronautical Study Determination
- SD Aeronautical Hazard Permit
- Hughes County Building Permit
- Other applicable local, county, state and federal requirements

5.4.7 Preliminary Project Schedule

A preliminary project schedule has been developed assuming that design can begin upon authorization from the owner and that the project can move forward upon notice of a funding package in March 2022. It is anticipated that construction of the elevated tank will take 2 seasons since the window for painting the tank is limited. The schedule, order of construction and timing of the project are all dependent on the available funding, contracting and seasonal timing of the construction.

Task	Estimated Completion Date
Submission of Facilities Plan Report & Funding Application	December 2021
Complete Review of Funding Application & Notice of Funding	March 2022
Design of Preferred Alternate	Upon Owner's Authorization
Submit Preliminary Plans/Specs	2 Months after start of Design
Submit Final Plans/Specs	1 Month after Preliminary Submittal
Advertise and Bid Publication	1 Month after Final Submittal
Begin Construction	Summer 2022
Complete Construction	Winter 2023

Table 5.7 Preliminary Project Schedule

5.4.8 Design & Material Selection

The storage tank in Alternate 3 is an elevated 140' 200,000 gallon storage tank. Acceptable elevated tank styles that will be allowed include spheroid, multi-legged and composite. A tank mixer is included for the purpose of circulating the water within the tank to prevent stratification and therefore maintain the chlorine residual.

For Alternate 3, new 8-inch diameter pipeline would need to be installed from the MDRWS master meter vault to the new elevated tank, and then from the tank north to the existing SCCCSD main distribution lines south of Shoreline Dr. ASTM-D2241 PVC Pipe is available in the required diameter and pressure classes for this application.

5.4.9 Other Requirements & Considerations

A further consideration for the project is regarding alternative bids. Allowing alternative bids for a larger tank than the base design could provide SCCCSD with additional storage capacity to help accommodate for future developments in the area. SCCCSD has recently passed Ordinance No. 2020-3 which is located in Appendix D and states in Article II, Section 1.C. that where hydraulic capacity of the existing system is not sufficient to provide the expected usage to a new development, the developer and the SCCCSD may enter into a cost sharing agreement to increase the hydraulic capacity. Therefore, to fund the upsized tank, it is understood that an arrangement is being pursued between the developers and SCCCSD, for the developers to pay the cost differences for upsizing the tank beyond the recommended 200,000-gallon tank. It should also be noted that the current contracted flow rate of 100 GPM for source water from MDRWS is sufficient for the existing system usage and a 200,000-gallon tank, however a larger size tank is only capable of providing the storage needs for the future development analyzed in this report and the current contracted flow rate from MDRWS would not be sufficient. To maintain adequate capacity an increase in contracted flow rate from MDRWS would be required. Our understanding is that MDRWS cannot provide any more flow rate than what SCCCSD is currently contracted for without upgrades to their system. It is our understanding that MDRWS would intend to change to one delivery point at the proposed tank site for all incoming source water.

6.0 PUBLIC PARTICIPATION

6.1 PUBLIC HEARING MINUTES

Will be provided upon completion.

6.2 SUMMARY OF COMMENTS

Will be provided as appropriate.

6.3 STEPS TO RESOLVE COMMENTS

Will be provided, if any.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The examples provided in Section 3.0 highlight the risks and impacts of SCCCSD operating their water system exclusively on pumps to provide pressure, without adequate storage capacity and with aging infrastructure. Residents, business and recreational areas in the Spring Creek Area rely on SCCCSD as their water source, therefore there is a significant need for a project to address these issues within the system

It is recommended to install system upgrades in the form of elevated storage as per Alternative 3. This alternative is estimated to have a total project cost of \$2,220,000 but has the lowest life cycle cost of the evaluated alternatives. Constructing adequate elevated storage will change the system to a gravity feed system thus eliminating the need for the existing pump station. Elevated storage will assist in ensuring the health, safety, and economic wellbeing of the inhabitants in the area. Increasing the system's storage to 200,000 gallons will provide capacity to compensate for high-demand days and greatly increases the reliability of the system to provide potable water to customers in the event of power loss, disruptions, or restricted incoming flows from the system's water supplier. The elevated storage can currently be filled by MDRWS incoming pressure, thus increasing the system's efficiency and reducing the operational complexity of the system.

It is also recommended that an alternate option for a larger 400,000-gallon tank be bid along with the recommended 200,000-gallon tank which meets the existing system needs. A larger alternative tank would assist with addressing the issue of future developments at the SCCCSD. To fund the upsized tank, it is understood that an arrangement is being pursued between the developers and SCCCSD, for the developers to pay the cost differences for upsizing the tank beyond the recommended 200,000-gallon tank.

APPENDIX A

OPINION OF PROBABLE PROJECT COSTS

ALL DESIGN ALTERNATIVES

**SPRING CREEK SANITARY DISTRICT
ENGINEER'S BUDGET ESTIMATE OF PROBABLE PROJECT COST
ALTERNATIVE 2 - GROUND STORAGE TANK & PUMP STATION SCENARIO**

ITEM #	Description	Units	Unit Cost	Quantity	Extension (Rounded Thousands)
	GROUND STORAGE TANK				
1	Ground Storage Tank (200,000 gal)	EA	\$525,000	1	\$525,000
2	SCADA	LS	\$50,000	1	\$50,000
3	Site Work	LS	\$50,000	1	\$50,000
4	Site Piping	LS	\$50,000	1	\$50,000
5	Cathodic Protection	LS	\$40,000	1	\$40,000
6	Tank Mixer	LS	\$25,000	1	\$25,000
7	Demolish Existing Tank & Pump House	LS	\$40,000	1	\$40,000
	SUBTOTAL				\$780,000
	PUMP STATION				
8	Booster Pump Station Vault	EA	\$225,000	1	\$225,000
9	Pumps, Motors, Suction Cans	LS	\$150,000	1	\$150,000
10	SCADA	LS	\$50,000	1	\$50,000
11	Site Piping, Bypass & Appurtenances	LS	\$50,000	1	\$50,000
12	Cathodic Protection	LS	\$40,000	1	\$40,000
	SUBTOTAL				\$515,000
	DISTRIBUTION IMPROVEMENTS				
13	8" CL. 200 PVC Pipe	LF	\$75.00	500	\$38,000
14	Misc. Appurtenances	LS	\$20,000	1	\$20,000
	SUBTOTAL				\$58,000
	TOTAL CONSTRUCTION COST				\$1,353,000
	OTHER PROJECT COSTS				
	Engineering Design @ 14%	LS	\$189,000	1	\$189,000
	Engineering Administration @ 9.0%	LS	\$122,000	1	\$122,000
	Construction Observation @ 9.0%	LS	\$122,000	1	\$122,000
	Construction Contingency @ 10.0%	LS	\$135,000	1	\$135,000
	Legal & Financial Administration	LS	\$60,000	1	\$60,000
	Cultural Resources/Environmental	LS	\$30,000	1	\$30,000
	Geotechnical	LS	\$15,000	1	\$15,000
	TOTAL OTHER PROJECT COST				\$673,000
	TOTAL PROJECT COSTS				\$2,026,000
				Rounded	\$2,030,000

*Includes: shallow foundation system, tank fabrication and erection, painting, fencing and electrical

**SPRING CREEK SANITARY DISTRICT
ENGINEER'S BUDGET ESTIMATE OF PROBABLE PROJECT COST
ALTERNATIVE 3 - ELEVATED TANK SCENARIO**

ITEM #	Description	Units	Unit Cost	Quantity	Extension (Rounded Thousands)
	ELEVATED TANK				
1	Elevated Storage Tank (200,000 gal) (140')	EA	\$1,300,000	1	\$1,300,000
2	SCADA	LS	\$50,000	1	\$50,000
3	Site Work	LS	\$50,000	1	\$50,000
4	Site Piping	LS	\$50,000	1	\$50,000
5	Tank Mixer	LS	\$30,000	1	\$30,000
6	Demolish Existing Tank & Pump House	LS	\$40,000	1	\$40,000
	SUBTOTAL				\$1,520,000
	DISTRIBUTION IMPROVEMENTS				
7	8"CL. 200 PVC Pipe	LF	\$75.00	500	\$38,000
8	Misc. Appurtenances	LS	\$20,000	1	\$20,000
	SUBTOTAL				\$58,000
	TOTAL CONSTRUCTION COST				\$1,578,000
	OTHER PROJECT COSTS				
	Engineering Design @ 10.0%	LS	\$158,000	1	\$158,000
	Engineering Administration @ 7.0%	LS	\$110,000	1	\$110,000
	Construction Observation @ 7.0%	LS	\$110,000	1	\$110,000
	Construction Contingency @ 10.0%	LS	\$158,000	1	\$158,000
	Legal & Financial Administration	LS	\$60,000	1	\$60,000
	Cultural Resources/Environmental	LS	\$30,000	1	\$30,000
	Geotechnical	LS	\$15,000	1	\$15,000
	TOTAL OTHER PROJECT COST				\$641,000
	TOTAL PROJECT COSTS				\$2,219,000
				Rounded	\$2,220,000

*Includes: shallow foundation system, tank fabrication and erection, painting, fencing and electrical

**SPRING CREEK SANITARY DISTRICT
ENGINEER'S BUDGET ESTIMATE OF PROBABLE PROJECT COST
ALTERNATE BID 400,000 GALLON ELEVATED TANK SCENARIO**

ITEM #	Description	Units	Unit Cost	Quantity	Extension (Rounded Thousands)
	ELEVATED TANK				
1	Elevated Storage Tank (400,000 gal) (140')	EA	\$2,000,000	1	\$2,000,000
2	SCADA	LS	\$50,000	1	\$50,000
3	Site Work	LS	\$50,000	1	\$50,000
4	Site Piping	LS	\$50,000	1	\$50,000
5	Tank Mixer	LS	\$30,000	1	\$30,000
6	Demolish Existing Tank & Pump House	LS	\$40,000	1	\$40,000
	SUBTOTAL				\$2,220,000
	DISTRIBUTION IMPROVEMENTS				
7	8" CL. 200 PVC Pipe	LF	\$75.00	500	\$38,000
8	Misc. Appurtenances	LS	\$20,000	1	\$20,000
	SUBTOTAL				\$58,000
	TOTAL CONSTRUCTION COST				\$2,278,000
	OTHER PROJECT COSTS				
	Engineering Design	LS	\$178,000	1	\$178,000
	Engineering Administration	LS	\$133,000	1	\$133,000
	Construction Observation	LS	\$133,000	1	\$133,000
	Construction Contingency @ 10.0%	LS	\$228,000	1	\$228,000
	Legal & Financial Administration	LS	\$60,000	1	\$60,000
	Cultural Resources/Environmental	LS	\$30,000	1	\$30,000
	Geotechnical	LS	\$15,000	1	\$15,000
	TOTAL OTHER PROJECT COST				\$777,000
	TOTAL PROJECT COSTS				\$3,055,000
				Rounded	\$3,060,000

*Includes: shallow foundation system, tank fabrication and erection, painting, fencing and electrical

APPENDIX B

SHORT-LIVED ASSET TABLES

ALL ALTERNATIVES

Alternative 2: Ground Storage & Pump Station																
Item #	Description	Useful Life (years)	Estimated Quantity	Replacement Cost	Total Cost	Annual Reserves to Fund from Cash Flows										Total Annual
						1-3 years	4-6 years	7-9 years	10-12 years	13-15 years	16-18 years	19-21 years	22-24 years	25-27 years	28-30 years	
1	SCADA	15	2	\$10,000	\$20,000					\$1,333					\$1,333	
2	Ground Storage Tank Recoating Outside	20	1	\$50,000	\$50,000							\$2,500				
3	Ground Storage Tank Recoating Inside	15	1	\$40,000	\$40,000					\$2,667					\$2,667	
4	Pump & Motor Replacement	15	2	\$40,000	\$80,000					\$5,333					\$5,333	
5	VFD Replacement	10	2	\$15,000	\$30,000				\$3,000			\$3,000			\$3,000	
6	Obstruction Lights	20	1	\$1,000	\$1,000							\$50				
7	Professional Inspection Service	3	1	\$2,500	\$2,500	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	
8	Cathodic Protection	20	2	\$18,000	\$36,000							\$1,800				
Annual Reserve Requirements for Short Lived Assets						\$833	\$833	\$833	\$3,833	\$10,167	\$833	\$8,183	\$833	\$833	\$13,167	\$40,350

Alternative 3: Elevated Tank																
Item #	Description	Useful Life (years)	Estimated Quantity	Replacement Cost	Total Cost	Annual Reserves to Fund from Cash Flows										Total Annual
						1-3 years	4-6 years	7-9 years	10-12 years	13-15 years	16-18 years	19-21 years	22-24 years	25-27 years	28-30 years	
1	SCADA	15	1	\$10,000	\$10,000					\$667					\$667	
2	Elevated Tank Recoating Outside	20	1	\$80,000	\$80,000							\$4,000				
3	Elevated Tank Recoating Inside	15	1	\$70,000	\$70,000					\$4,667					\$4,667	
4	Professional Inspection Service	3	1	\$2,500	\$2,500	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	\$833	
5	Obstruction Lights	20	1	\$1,000	\$1,000							\$50				
Annual Reserve Requirements for Short Lived Assets						\$833	\$833	\$833	\$833	\$6,167	\$833	\$4,883	\$833	\$833	\$6,167	\$23,050

APPENDIX C

SCCCSD WATER RATES

Table 1: Residential Water and Sewer Rates	
2022 Schedule	
New Service Connection Fees	
Water Hookup (Includes Inspection)	\$850.00
Meter assembly at cost + Labor	Determined at install
TOTAL CONNECTION FEE (Hookup + Meter + Labor)	VARIABLE
Sewer Hookup (inspection)	\$100.00
Total for Sewer Hookup	\$100.00
Sewer Deposit (2 months of minimum sewer)	\$50.56
Water Deposit (2 months of minimum water)	\$73.12
Total Utility Deposit	\$123.68
Transfer/Reconnect Fees	
Transfer/Reconnect Fee (New Account Fee)	\$25.00
Seasonal Disconnect Fee - Maximum fee shown (reconnect fee plus minimum monthly charges for up to 12 months)	\$767.08
Monthly Charges	
Minimum Water Rate (Includes 1000 gal)	\$36.56
Minimum Sewer Rate (Includes apprx. 5000 gal)	\$25.28
TOTAL (Water + Sewer)	\$61.84
Water Rate per/1000 gallons	\$5.07
Sewer Rate per/1000 gallons	\$2.52
Meter Testing Fee	\$45.00

Table 2: Commercial Water and Sewer Rates	
2022 Schedule	
New Service Connection Fees	
Sewer Hookup/Inspection Fee	\$500.00
Water Hookup, 1"	\$750.00
Water Hookup, 2"	\$1,200.00
Water Hookup, 4"	\$3,000.00
Total for Hookup, 1"	\$1,250.00
Total for Hookup, 2"	\$1,700.00
Total for Hookup, 4"	\$3,500.00
Meter assembly at Cost + Labor	Determined at install
TOTAL CONNECTION FEE (Hookup + Meter + Labor)	VARIABLE
Sewer Deposit	\$223.02
Water Deposit	\$147.44
Total Utility Deposit	\$370.46
Transfer/Reconnect Fee (New Account Fee)	\$25.00
Seasonal Disconnect Fee – Maximum Fee Shown (Reconnect fee plus minimum monthly charges for up to 12 months)	\$2,247.76
Monthly Charges	
Minimum Water Rate (includes 1000 gal)	\$73.72
Minimum Sewer Rate (incl appr 5000 gal)	\$111.51
TOTAL (Water + Sewer)	\$185.23
Water Rate per/1000 gallons	\$5.07
Sewer Rate per/1000 gallons	\$2.52
Meter Testing Fee	\$45.00

APPENDIX D

ORDINANCE No. 2020-3

ORDINANCE NO. 2020-3

REGULATION OF SYSTEM EXPANSION

AN ORDINANCE REGULATING THE EXPANSION OF THE EXISTING WATER DISTRIBUTION, WASTEWATER COLLECTION AND TREATMENT SYSTEM, AND PROVIDING FEE STRUCTURE AND PENALTIES FOR VIOLATIONS THEREOF, IN THE SPRING CREEK/COW CREEK SANITARY DISTRICT OF HUGHES COUNTY AND SULLY COUNTY.

BE IT ORDAINED AND ENACTED by the Board of Trustees of the Spring Creek/Cow Creek Sanitary District of Hughes County and Sully County, State of South Dakota, as follows:

Article I General Provisions

- Section 1 The area comprising the Spring Creek/Cow Creek Sanitary District of Hughes County and Sully County, South Dakota (SC/CCSD) shall be described as:
- T112N, R80W, HUGHES COUNTY, SOUTH DAKOTA
Sec. 4: NE $\frac{1}{4}$, NW $\frac{1}{4}$
Sec. 5: All of Lots 7, 8, 9 and 10; N $\frac{1}{2}$ N $\frac{1}{2}$ Lot 11 and E $\frac{1}{2}$ E $\frac{1}{2}$ Lot 14
Sec. 6: Lot 11
- T113N, R80W, SULLY COUNTY, SOUTH DAKOTA
Sec. 28: W $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$; S $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$
Sec. 29: S $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$
Sec. 32: SE $\frac{1}{4}$; NE $\frac{1}{4}$; E $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$
Sec. 33: SE $\frac{1}{4}$; SW $\frac{1}{4}$; NW $\frac{1}{4}$ EXC. Lot 1; All of Lot 2; SE $\frac{1}{4}$ NE $\frac{1}{4}$
Sec. 34: SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$; All of Tract E and that part of Tract C in the SE $\frac{1}{4}$ of Oahe Hills Subdivision and Tracy Subdivision
- Section 2 SC/CCSD (System) shall be operated as a public utility and the rates, fees, charges, rentals, regulations and provisions of this ordinance shall be and remain applicable thereto until duly amended. The SC/CCSD reserves the right and power to amend this ordinance as the need or propriety thereof arises, and the rates and charges herein specified may be increased or decreased, provided that as so amended, the gross receipts of said systems shall be sufficient each year to pay all costs of operation and maintenance, depreciation, principle and interest on indebtedness therefore, and reserves which may be required. The SC/CCSD is authorized to hire a Superintendent to oversee the operations of the SC/CCSD system.

ARTICLE II Definitions

- Section 1 Unless the context specifically indicates otherwise, the meaning of terms used in this ordinance shall be as follows:

- A. "Developer" shall mean the owner of the platted parcels installing the sewer main and/or water main and associated appurtenances.
- B. "Easement" shall mean an acquired legal right for the specific use of land owned by others.
- C. "Existing System" Shall mean all water distribution and wastewater collection and treatment systems in place and under operational control of the SC/CCSD on January 1, 2021.
- D. "Force Main" shall mean any piping operating under pressure.
- E. "May" is permissive (see "shall," Item L).
- F. "Person" shall mean any individual, firm, company, association, society, corporation, or group.
- G. "Sanitary Sewer" shall mean a sewer that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions together with minor quantities of ground, storm, and surface waters that are not admitted intentionally.
- H. "Service Connection" shall mean the point at which the water main or sewer main is tapped to provide a connection for an individual user.
- I. "Service Pipe" shall mean the piping between an individual user's first point of use and the water or sewer main.
- J. "Sewer" shall mean a pipe or conduit that carries wastewater or drainage water.
- K. "Sewer Main" shall mean the piping to which individual service connections are connected (tapped) and any force main piping used to convey wastewater.
- L. "Shall" is mandatory (see "may," Item E).
- M. "Superintendent" shall mean the superintendent of the water distribution system and/or wastewater facilities or an authorized deputy, agent, or representative.
- N. "User" shall mean any person with a service connection.
- O. "Water Main" shall mean the piping to which individual service connections are connected (tapped).
- P. "Wastewater" shall mean the spent water of a community. From the standpoint of source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions, together with any groundwater, surface water, and storm water that may be present.

ARTICLE III

General System and Application Requirements

Section 1 Water Main Requirements

- A. Pursuant to the Administrative Rules of South Dakota (ARSD) 74:53:05, the developer shall submit plans and specifications prepared by an engineer licensed in the State of South Dakota to the South Dakota Department of Environment and Natural Resources (DENR) for review and approval. A copy of the approved plans

and specifications and any approval letter from the DENR shall be provided to the Superintendent.

The Superintendent shall review the approved plans and shall approve or deny the plans in writing within 30 days of receipt. If denied, the developer shall make any necessary changes and shall resubmit plans to DENR as required. Once approval of any changes are received from the DENR, the developer shall submit such approval to the Superintendent for review and approval.

Once approved by the Superintendent, the developer has 180 days to commence construction. Once construction has commenced, construction must be completed within 365 days. If construction is not completed within 365 days, the Superintendent's approval is void. Notice shall be provided to the Superintendent when construction has commenced.

- B. The developer of any platted area shall provide and install the water main, service pipe, and all curb stops at their expense in accordance with the requirements of the SC/CCSD and as reviewed by the Superintendent. The Superintendent may require review by an engineer licensed in the State of South Dakota to ensure hydraulic capacity is maintained at the expected usage rates required by the new development. Expected usage shall be provided as part of the submission of plans and specifications and shall include average and peak usage rates using industry standard usage and peaking values.
- C. Where hydraulic capacity of the existing SD/CCSD is not sufficient to provide the expected usage to new development, the developer and the SC/CCSD may enter into a cost sharing agreement to increase the hydraulic capacity. SC/CCSD is not obligated to provide funding for upgrading the system to provide hydraulic capacity to developments not accepted by the SC/CCSD as of January 1, 2021.
- D. Upon completion of construction, the engineer of record shall provide as-built plans, signed and sealed in accordance with South Dakota Codified Law, and approved by the DENR as required, to the Superintendent. A copy of any approval letter from the DENR shall be submitted with the as-built plans. A Notice of Completion form, provided by the Superintendent shall be submitted by the engineer of record, or the engineer providing construction administration services, indicating construction conforms to the approved plans and specifications.

The Superintendent shall review the approved plans and shall approve or deny the plans in writing within 30 days of receipt. If denied, the developer shall make any necessary changes and shall resubmit plans to DENR as required. Once approval of any changes is received from the DENR, the developer shall submit such approval to the Superintendent for review and approval.

- E. Water service to newly installed water mains shall be restricted, except for water needed to test and flush lines, until such time as-built plans are approved by the SC/CCSD. Within 30 days of receipt the SC/CCSD shall approve or deny the as-built plans. Approval or denial will be provided in writing to the developer.

Approval shall not be unreasonably withheld, and denial may be contested in accordance with Article X of this ordinance.

Section 2 Sewer Main Requirements

- A. Pursuant to the Administrative Rules of South Dakota (ARSD) 74:53:04, the developer shall submit plans and specifications prepared by an engineer licensed in the State of South Dakota to the South Dakota Department of Environment and Natural Resources (DENR) for review and approval. A copy of the approved plans and specifications and any approval letter from the DENR shall be provided to the Superintendent.

The Superintendent shall review the approved plans and shall approve or deny the plans in writing within 30 days of receipt. If denied, the developer shall make any necessary changes and shall resubmit plans to DENR as required. Once approval of any changes is received from the DENR, the developer shall submit such approval to the Superintendent for review and approval.

Once approved by the Superintendent, the developer has 180 days to commence construction. Once construction has commenced, construction must be completed within 365 days. If construction is not completed within 365 days, the Superintendent's approval is void. Notice shall be provided to the Superintendent when construction has commenced.

- B. The developer of any platted area shall provide and install the sewer main and all individual service pipes at their expense in accordance with the requirements of the SC/CCSD and as reviewed by the Superintendent. The Superintendent may require review by an engineer licensed in the State of South Dakota to ensure hydraulic capacity is maintained at the expected flow rates being added by the new development. Expected flow rates shall be provided as part of the submission of plans and specifications and shall include average and peak flow rates using industry standard flows and peaking values.
- C. Where hydraulic capacity of the existing SD/CCSD is not sufficient to provide service for the expected flow from the new development, the developer and the SC/CCSD may enter into a cost sharing agreement to increase the hydraulic capacity. SC/CCSD is not obligated to provide funding for upgrading the system to provide hydraulic capacity to developments not accepted by the SC/CCSD as of January 1, 2021.
- D. Upon completion of construction, the engineer of record shall provide as-built plans, signed and sealed in accordance with South Dakota Codified Law, and approved by the DENR as required, to the SC/CCSD. A copy of any approval letter from the DENR shall be submitted with the as-built plans. A Notice of Completion form, provided by the SC/CCSD shall be submitted by the engineer of record, or the engineer providing construction administration services, indicating construction conforms to the approved plans and specifications.

The Superintendent shall review the approved plans and shall approve or deny the plans in writing within 30 days of receipt. If denied, the developer shall make any necessary changes and shall resubmit plans to DENR as required. Once approval of any changes is received from the DENR, the developer shall submit such approval to the Superintendent for review and approval.

- E. Sewer flows from newly installed sewer mains shall be restricted, except for water needed to test and flush lines, until such time as-built plans are approved by the SC/CCSD. Within 30 days of receipt the SC/CCSD shall approve or deny the as-built plans. Approval or denial will be provided in writing to the developer. Approval shall not be unreasonably withheld, and denial may be contested in accordance with Article X of this ordinance.

Section 3 Lift Station Requirements

- A. Lift stations shall be required where gravity flow of wastewater cannot be maintained to the existing system. Where lift stations are required, the developer and the design engineer shall coordinate with the Superintendent to match the type of controls, pumps, and other appurtenances to provide continuity with existing systems to the extent possible. Where new technologies or systems with improved performance can be installed, the Superintendent may recommend installation of such technologies or systems for approval from the SC/CCSD Board of Trustees. Approval shall not be unreasonably withheld, and denial may be contested in accordance with Article X of this ordinance.

Article IV Material and Equipment Specifications

Section 1 Water Main Requirements

- A. The minimum diameter of any water main shall be 6 inches unless approved by the SC/CCSD Board of Trustees.
- B. Water mains shall be looped to prevent dead end lines to the extent reasonably possible. Where dead end water mains are installed, a means for flushing shall be installed at the termination of the water main.
- C. Water mains shall be pressure tested in accordance with applicable plumbing code and shall comply with all rules and regulations set forth by the Department of Environment and Natural Resources (DENR). Pressure testing shall be completed or observed by a third-party inspector or the engineer of record. More stringent testing may be allowed and accepted by the Superintendent.
- D. Piping shall meet all applicable plumbing code and shall comply with all rules and regulations set forth by the Department of Environment and Natural Resources (DENR).
- E. Each platted parcel not serviced by the existing system shall be provided with at least one service pipe. The service pipe shall be tapped to the main and extended

to the property line and terminate at a curb stop. The curb stop shall be located as close as practicable to the property line on the individual parcel for which the service pipe is intended to be used. Prior to acceptance by the SC/CCSD a witness post shall be installed marking the curb stop.

- F. The minimum diameter of any service pipe shall be 1 inch and the piping shall be rated for a minimum of 300 psi.
- G. Tracer wire shall be installed for location purposes where any non-metallic piping is installed. Tracer wire shall be installed up to the curb stop at the time of tapping the water main.

Section 2 Sewer Main Requirements

- A. The minimum diameter of any force main piping shall be 4 inches. Force mains shall be pressure tested in accordance with the Recommended Design Criteria Manual, Wastewater Collection and Treatment Facilities available from the DENR. Pressure testing shall be completed or observed by a third-party inspector or the engineer of record. More stringent testing may be allowed and accepted by the Superintendent.
- B. The minimum diameter of any gravity sewer main shall be 8 inches. Gravity sewer mains shall be tested for leakage in accordance with the Recommended Design Criteria Manual, Wastewater Collection and Treatment Facilities available from the DENR. Leakage testing shall be completed or observed by a third-party inspector or the engineer of record. More stringent testing may be allowed and accepted by the Superintendent.
- C. Piping shall meet all applicable plumbing code and shall comply with all rules and regulations set forth by the Department of Environment and Natural Resources (DENR).
- D. Each platted parcel not serviced by the existing system shall be provided with at least one service pipe. The service pipe shall be connected to the sewer main through a wye. Saddle connections or connection of similar types will not be allowed for new construction. The service pipe shall extend to the property line and shall be capped with a watertight cap. Prior to acceptance by the SD/CCSD a witness post shall be installed marking the capped end of the service pipe.
- E. The minimum diameter of any service pipe shall be 4 inches and piping shall be a minimum of Schedule 40 PVC or equivalent respective to the pipe material installed.
- F. Tracer wire shall be installed for location purposes where any non-metallic force main piping is installed.

Article V
Transfer of Ownership

- Section 1 SC/CCSD will accept responsibility for water mains and sewer mains (system) that have been installed by a developer twelve months after the date that the Superintendent approves the installation. Written notice of such approval shall be provided to the developer. Any problems with the water mains or sewer mains that occur during the first twelve months must be resolved by the developer before SC/CCSD accepts control and responsibility. If a developer fails to receive approval of plans or fails to provide as-built plans, approved by DENR as applicable, and a Notice of Completion, the SC/CCSD may refuse to take over the installed system in question. Any improvements or repair shall then remain the responsibility of the respective developer until such time the SC/CCSD accepts responsibility. For the purposes of this section, sewer main and water main includes the individual service pipes to the curb stop and/or lot line.
- Section 2 Where transfer of ownership cannot be completed and the system has been placed into service, the developer shall install flow metering devices within 30 days of written notice on any water main and sewer main servicing the system. The system shall then be considered a private system operating as a commercial connection. For a connection of this nature, water service and sewer service shall be billed at prevailing rates to the developer utilizing flow data from the water meter(s) for the water service portion of the bill and the actual flow through the sewer as recorded by a flow meter(s) for the sewer portion of the bill.
- Section 3 Failure to install flow metering devices as outlined in Section 2 of this shall be deemed failure to comply with the terms of this ordinance. The Superintendent is authorized to disconnect any water and/or sewer service until such time the system can be accepted by the SC/CCSD or the developer installs the metering devices.

Article VI
Transfer of Easements

- Section 1 The developer shall obtain and cause to be recorded transferrable easements for all piping and appurtenances required to install, operate, and maintain the water distribution and wastewater collection and treatment system within a proposed development. Easements shall be perpetual easements running as a covenant with the land. Transfer of Ownership as described in Article V, Section 1 shall not occur until such easement are recorded.

Article VII
Applications/Expansions Approved by Others

- Section 1 Developers with plans and specifications approved by others for an expansion shall have 365 days from the effective date of this ordinance to complete construction. Upon completion of construction, the engineer of record shall provide as-built plans, signed and sealed in accordance with South Dakota Codified Law, and approved by the DENR as required, to the SC/CCSD. A copy of any approval letter from the DENR shall be submitted with the as-built plans. A Notice of Completion form, provided by

the SC/CCSD shall be submitted by the engineer of record, or the engineer providing construction administration services, indicating construction conforms to the approved plans and specifications.

The Superintendent shall review the approved plans and shall approve or deny the plans in writing within 30 days of receipt. If denied, the developer shall make any necessary changes and shall resubmit plans to DENR as required. Once approval of any changes is received from the DENR, the developer shall submit such approval to the Superintendent for review and approval. Transfer of Ownership and transfer of Easements shall follow the requirements of Article V and Article VI.

- Section 2 Where construction of expansions with plans and specifications approved by others is not completed with 365 days of the effective date of this ordinance, the developer shall submit plans and specifications for approval and follow the approval process for new expansion plans.

Article VIII Application and Inspection Fee

- Section 1 The developer shall submit the application form supplied by the Superintendent for all proposed improvements. The application fee for review of plans and specifications shall be \$250.00 payable when the application is submitted for approval.

ARTICLE IX Powers and Authority of Superintendent

- Section 1 The Superintendent and other duly authorized employees of the SC/CCSD bearing proper credential and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, or testing pertinent to the installation of any new water mains and/or sewer mains that are intended to be transferred to the ownership and operation of the SC/CCSD. The Superintendent shall make a reasonable effort to coordinate any inspection, observation, measurement, sampling, or testing pertinent to the installation with the developer.
- Section 2 No excavation may be initiated in the vicinity of infrastructure owned or operated by the SC/CCSD without advance notice to the Superintendent and the subsequent receipt of approval.

Article X Hearing Board

- Section 1 A Hearing Board shall be appointed by the Board of Trustees of the SC/CCSD as needed for arbitration of differences between the Superintendent and a developer on matters concerning interpretation and execution of the provisions of this ordinance by the Superintendent. The cost of the arbitration will be divided equally between the SC/CCSD and the developer.
- Section 2 The appointees to the hearing board shall be users with an active account with the SC/CCSD.

Article XI
Penalties

- Section 1 Any person found to be in violation of any provision of this ordinance shall be served by Hughes County or Sully County with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The ordinance offender shall, within the period of time stated in such notice, permanently cease all violations.

Article XII
Validity

- Section 1 This ordinance shall be in full force and effect from and after its passage, approval, record, and publication as provided by law.
- Section 2 The invalidity of any section, clause, sentence, or provision of this ordinance shall not affect the validity of any other part of this ordinance which can be given effect without such invalid part or parts.
- Section 3 Nothing in this Article, shall prohibit or otherwise limit the SC/CCSD from commencing a separate civil action, whether equitable or legal, to remedy a violation of this ordinance.

Article XIII
Ordinance in Force

Section 1 This Ordinance shall be in full force and effect from and after its passage, approval, recording and publication as required by law.

Section 2 Passed and adopted by the Board of Trustees of Spring Creek/Cow Creek Sanitary

District on the 30 day of SEPTEMBER, 2020, by the following vote:

Ayes: 3, Namely: UTECH. RUSSELL, WISEMAN

Nays: 0, Namely: _____

Passed First Reading: 9/23/2020

Passed Second Reading: 9/30/2020

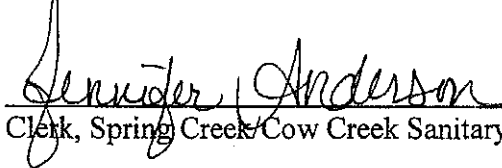
Published Hughes County: _____

Published Sully County: _____



President,
Spring Creek/Cow Creek Sanitary District

ATTEST:


Clerk, Spring Creek/Cow Creek Sanitary District

Published once in Hughes County at the approximate cost of \$ _____

Published once in Sully County at the approximate cost of \$ _____