

PRELIMINARY ENGINEERING REPORT  
WASTEWATER COLLECTION AND  
TREATMENT PLANT IMPROVEMENTS  
LINN VALLEY, KANSAS



OCTOBER 2020

20-1142L

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## SECTION 1

### PROJECT PLANNING

#### 1.1 REPORT OBJECTIVE

The primary objective of this report is to evaluate the City's wastewater collection and treatment system. This evaluation will help community leaders create a program of capital improvements and upgrades considered necessary to provide a safe and more reliable wastewater system to the citizens of the Community.

#### 1.2 LOCATION

The City of Linn Valley is located approximately 2 miles northwest of the intersection of U.S. Highway 69 and KS Highway 152 in Linn County, Sections 23, 24, 25, and 26, Township 19 South, and Range 24 East. Topography and City Maps are located in the Appendix.

#### 1.3 ENVIRONMENTAL RESOURCES

A general summary of typically encountered environmental issues is located in the Appendix. This report is not a comprehensive environmental review; however, these typical environmental conditions have been taken into consideration when evaluating each project alternative. Additional environmental reviews may be necessary depending on project scope and funding.

#### 1.4 BACKGROUND

Linn Valley is a community that has developed around Linn Valley Lake. The development began in the 1970s and was established with a Property Owners Association (POA). Prior to incorporation, the POA acted similar to a municipal government providing utilities and other services. In 1998, the City incorporated. Since the POA predated the establishment of the City, the POA continued to provide services such as utilities. The City has experienced relatively rapid growth and existing utilities including the wastewater system are becoming limited. In recent years, the community is transitioning to City control of utilities.

Wastewater is collected in Linn Valley utilizing a hold and hauls system and a low pressure sewer system. The hold and haul system is operated by the POA. Homeowners own and maintain concrete sewage holding tanks and pay the POA to haul sewage to the City's discharging lagoon.

#### 1.5 POPULATION TRENDS

US Census results from 2000 to 2010 shown in the table below indicate that the population of Linn Valley has increased at a rate of 4.31% per year, the community was not incorporated for the 1980 and 1990 censuses and therefore data is not available. For the purposes of this report, the current population of the City of Linn Valley is considered to be 905. The annual growth rate for Linn Valley is anticipated to be 6% of the current population based on input from City Officials and recent growth rates (Straight-line growth based on 6% of 1,014 residents or approximately 54.3 people per year). The design population for 2040 is 2,100.



**Table 1: Population of the City of Linn Valley (US Census Bureau)**

City	Year			
	1980	1990	2000	2010
Linn Valley	N/A	N/A	562	804

### 1.6 WASTEWATER FLOWS

Typically, projected wastewater flows are based on the winter month water consumption. However, Linn Valley is a recreational community, and water use in the winter would account for increased use during the summer due to seasonal population variability. In addition, unaccounted for water is often not included in wastewater flow approximations. Linn Valley has a high unaccounted for water rate. Based on input from the City, unaccounted for water is not due to leaking water mains, rather water that is not metered. For this report, total water use will be utilized to approximate wastewater flows including unaccounted for water. The 2015 through 2019 Water Use Report's for the City are included in the appendix.

Based on the 2015 – 2019 Water Use Reports, Linn Valley diverts and purchases on average 34,400 gallons of water per day. Water use has steadily increased from 2015 to 2019. The average 2019 water diverted and purchased was approximately 40,410 gallons of water per day. However, this does not include all users on Linn Valley's Wastewater Collection and Treatment System. Approximative 95 users purchase water from the rural water district and utilize Linn Valley's wastewater system. When accounting for these users, the average daily flow is approximately 46,400 gallons of water per day.

Based on this approximation, the average person in Linn Valley uses 46 gallons per capita per day (gpcpd) over the course of a year.

Design flows are anticipated to increase on a per capita basis over time. Linn Valley is seeing a shift in demographics from part time individuals to full time residents. In addition, Linn Valley is pursuing a project to provide water service to all residents. Once water service is provided, increased sewer production is anticipated.

**Table 2: Summary of Municipal Water Use Reports**

	Water (1,000 Gallons)					
	2015	2016	2017	2018	2019	Average
Raw Water Diverted	7,499	9,203	9,297	9,040	10,050	9,018
Water Purchased From All Sources	2,592	2,103	3,413	4,814	4,700	3,524
Water Sold to Other Public Suppliers	-	-	-	-	-	-
Water Sold to Bulk Customers	5,132	5,201	5,254	6,558	5,618	5,553
Water Sold to Commercial & Residential	1,709	2,162	2,258	2,752	2,727	2,322
Metered Water Provided Free	905	818	584	909	583	760
Unaccounted for Water	2,345	3,125	4,614	3,635	5,822	3,908
<b>Total Water Used</b>						
	10,091	11,306	12,710	13,854	14,750	12,542
Average Month	841	942	1,059	1,155	1,229	1,045
Maximum Month	1,444	1,427	1,429	1,760	1,564	1,525
Percent Loss	23.24%	27.64%	36.30%	26.24%	39.47%	30.58%

END OF SECTION



## SECTION 2

### EXISTING FACILITIES

#### 2.1 LOCATION MAP

An existing system map outlining the location of major collection and treatment units can be found in the appendix.

#### 2.2 HISTORY

Sewage has traditionally been held in concrete tanks and hauled to a lagoon system. The hold and haul collection and lagoon treatment system began in the 1970s. The lagoon was initially a two cell discharging lagoon. In 1997 to 1998, the third non-conforming lagoon cell was added to the treatment system.

Currently, some users are connected to a low pressure wastewater collection system. The system utilizes grinder pumps and small low pressure forcemains. The construction of the low pressure system began in 2013 and is continually expanding.

#### 2.3 CONDITION OF EXISTING FACILITIES

##### 2.3.1. **Wastewater Collection System**

Linn Valley utilizes a pressure sewer system and a hold and haul system to collect wastewater. The pressure sewer system consists of grinder pump stations and a pressurized sewer piping system. Users on the hold and haul system own a wastewater storage tank. The POA provides hauling service to dispose of the wastewater.

The low pressure collection system is in good condition. Infrastructure was installed beginning in 2013. However, the typical useful life of the grinder pumps is 10-years. The City should include a maintenance plan to replace grinder pumps at 10-year intervals.

Sewage holding tanks are not owned by the City. The Property Owner's Association (POA) operates haul trucks. Holding tanks are owned by individual property owners. The condition of holding tanks and haul trucks is unknown, and their replacement is not the responsibility of the City. However, the City should require inspection of tanks and replacement if they are compromised.

Pumped and hauled sewage is transferred to a treatment facility utilizing a main lift station and forcemain. The condition of the main lift station is poor. Equipment requires replacement and flow meters need to be installed to measure wastewater from the hold and haul system versus the low pressure system.

##### 2.3.2. **Wastewater Treatment System**

A three cell discharging lagoon is utilized to treat sewage. The existing lagoon capacity is 30,000 gallons per day. Treated sewage is discharged from the facility into an unnamed tributary of Linn Valley Lake.

The condition of the lagoon treatment system is poor. The facility is approximately 23-years old. Lagoons have lost 33% of their capacity due to sludge build up, based on a letter from the Kansas



Rural Water Association (KRWA) dated August 20, 2019 located in the appendix. Additionally, the lagoon banks have experienced significant erosion. The third lagoon cell accepts runoff and does not conform to the Kansas Department of Health and Environment (KDHE) Standards.

2.4 EXISTING RATE STRUCTURE

A copy of the current wastewater use rate is included in the Appendix. These rates were last modified by the City Council in 2020. The rates are effective January 2021. The wastewater user rates are a flat fee.

- A rate of \$56.00 per month per connection.

Currently, a city resident with an average monthly water usage of 5,000 gallons per month would have a monthly wastewater bill of \$56.00.

2.5 ANNUAL OPERATION AND MAINTENANCE BUDGET

The annual expenses for the water system were taken from budgets that were provided by the City. The table below shows a summary of the expenditures for 2015-2020. The actual budgets are located in the Appendix.

**Table 3: Expenditure Summary**

Year	2016	2017	2018	2019	2020	Average
<b>Debt Payment</b>	\$71,280.00	\$109,182.00	\$109,219.00	\$109,182.00	\$109,182.00	\$101,609.00
<b>Operations</b>	\$48,115.00	\$25,825.00	\$37,762.00	\$38,950.00	\$100,000.00	\$50,130.40
<b>Short Lived Assets</b>	\$0.00	\$12,579.00	\$53,503.00	\$41,000.00	\$100,000.00	\$41,416.40
<b>Maintenance</b>					\$50,000.00	\$50,000.00
<b>Total O&amp;M</b>	\$119,395.00	\$147,586.00	\$200,484.00	\$189,132.00	\$359,182.00	\$193,155.80

Since completion of the low pressure sanitary sewer collection project, the City budget has been increasing annually. Some operations and maintenance items were underfunded. Additionally, short lived assets were underfunded. Proposed budgets are included in the appendix based on input from the City. The following opinion of O&M is the minimum recommendation to the City:

- **O&M Budget: \$144,000**
- **Short Lived Assets: \$135,000**

The City currently has a loan with USDA-RD for the pressure sanitary sewer improvements. The interest rate is 2.75%. The principal balance as of October 2020 is approximately \$2,434,209 and is scheduled to be repaid in 2055.

2.6 METERS AND EQUIVALENT DWELLING UNITS

According to information provided by the City, there are approximately 721 active sewer users within the City. Many users utilize the hold and haul system, and an exact accounting of usage for residential and commercial properties is not available. BG Consultants recommends the EDU be set at 721 sewer users.

END OF SECTION



## SECTION 3

### NEED FOR PROJECT

#### 3.1 HEALTH, SANITATION, AND SECURITY

The pressurized sanitary sewer collection system does not pose any atypical health, safety, or security problems. Sanitary sewer holding tanks could become susceptible to leakage. Sewage leaking from the tanks could enter Linn Valley Lake. Linn Valley Lake is a recreational lake and a drinking water supply. Leaking tanks could pose a significant health and safety risk. Tanks should be monitored for leakage.

Monitoring data suggests that effluent from the existing lagoons meets permitted discharge limits. However, runoff is directed into the third cell of the lagoon, and evidence suggests that significant dilution occurs. Monitoring data indicates that ammonia is non-detectable in the effluent. Ammonia is typically found in lagoon effluent ranging from 2-10 mg/L. The detection limit for ammonia is 0.1 mg/L. Dilute lagoon effluent masks potential contaminant loadings prohibiting the evaluation of potential impacts. Linn Valley Lake is a recreational water body and a water supply. Organic material, suspended solids, bacteria, and nutrients from a lagoon discharge pose a serious health and safety risk. Additionally, contaminants could significantly damage the environment.

Degradation of organic material in water requires consumption of dissolved oxygen in water. Depletion of oxygen within the lake could kill fish and other organisms. Suspended solids can be harmful to fish and reduce light penetration within the lake. Wastewater contains disease causing bacteria that is harmful to human health. Nutrients can cause harmful algae blooms (i.e. blue green algae) in water bodies contributing to eutrophication.

#### 3.2 AGING INFRASTRUCTURE

The low pressure collection system is in good condition. Infrastructure was installed beginning in 2013. However, the typical useful life of the grinder pumps is 10-years. The City should include a short lived asset and maintenance plan to replace grinder pumps at 10-year intervals.

Sewage holding tanks are not owned by the City. The Property Owner's Association (POA) operates haul trucks. Holding tanks are owned by individual property owners. The condition of holding tanks and haul trucks is unknown, and their replacement is not the responsibility of the City.

The condition of the lagoon treatment system is poor. Two of the lagoon cells date back to the 1970s. The third cell was constructed in 1997-1998. Lagoons have lost 33% of their capacity due to sludge build up, based on a letter from the Kansas Rural Water Association (KRWA) dated August 20, 2019. Additionally, the lagoon banks have experienced significant erosion. The third lagoon cell accepts runoff and does not conform to the Kansas Department of Health and Environment (KDHE) Standards.

#### 3.3 REASONABLE GROWTH

The pressurized sanitary sewer collection system currently has adequate capacity. Additionally, the hold and haul system currently functions. Linn Valley's population is estimated to grow at 6% of the 2018 population (non-compounding) over the next 40-years. Sewage collection utilizing piping systems is more cost effective than hold and haul for a certain population density. Eventually,



construction of sewage collection infrastructure will become more reliable, practical, and cost effective than hauling sewage.

The existing lagoon capacity is 30,000 gallons per day. Average water use in Linn Valley in 2019 was approximately 46,400 gallons per day. Data suggests the lagoon's capacity has already been exceeded. Water and corresponding sewer use is anticipated to increase after constructing the water improvements. Additionally, Linn Valley's population is growing. The existing lagoons are inadequately sized to meet the current and future population of Linn Valley.

END OF SECTION



## SECTION 4

### ALTERNATIVES CONSIDERED

Sanitary sewer collection and treatment are divided into separate alternative groups. Both collection and treatment alternatives have been identified in this section. Collection alternatives include work involved in distributing sewage to the main lift station. Treatment alternatives include improvements to the main lift station, onsite lift stations, sewage metering provisions, and sewage treatment improvements. Collection and treatment alternatives are described in the sections below.

#### 4.1 WASTEWATER COLLECTION ALTERNATIVES

##### 4.1.1. DESCRIPTION

Four wastewater collection alternatives are explored in this PER. The first two rely on pumped sewage alone, while the second two utilize gravity sewer mains and pumped sewage. Providing all gravity sewer mains was not practical.

Two pumped/pressurized sewer options were considered. The first utilizing grinder pump stations. Existing holding tanks would be abandoned, and new grinder pumps installed at each house. The second used a septic tank effluent pump (STEP) system. Existing wastewater holding tanks would be inspected for leaks. Defective tanks would be replaced. A septic tank effluent pump system would be installed in tanks. The existing collection system will remain for all options. Four alternatives were identified based on these parameters:

- Collection Alternative 1 – Grinder Pump Station Build Out: Construct new pressure pipe throughout the City and add grinder pumps to houses with holding tanks.
- Collection Alternative 2 – Septic Tank Effluent Pump (STEP) Addition: Construct new pressure pipe throughout the City and add STEP systems at houses with holding tanks.
- Collection Alternative 3 – Gravity with Grinders: Construct gravity sewer mains and lift stations where practical. Add grinder lift stations at other houses with holding tanks.
- Collection Alternative 4 – Gravity with STEP: Construct gravity sewer mains and lift stations where practical. Add STEP systems at other houses with holding tanks.

##### 4.1.2. DESIGN CRITERIA

Minimum design criteria for all design options will be based on meeting the Minimum Design Standards of the Kansas Department of Health and Environment.

##### 4.1.3. MAP

Two maps of improvements can be found in the appendix. Exhibit 2 illustrates collection alternatives 1 and 2. Exhibit 3 illustrates collection alternatives 3 and 4.



#### **4.1.4. ENVIRONMENTAL IMPACTS**

A general summary of typically encountered environmental issues is located in the Appendix. This report is not a comprehensive environmental review; however, these typical environmental conditions have been taken into consideration when evaluating each project alternative. Additional environmental reviews may be necessary depending on project scope and funding.

#### **4.1.5. LAND REQUIREMENTS**

Proposed improvements are on existing City Owned property or right of way.

#### **4.1.6. POTENTIAL CONSTRUCTION PROBLEMS**

Preliminary analysis of proposed improvements suggests that the improvements can be constructed utilizing typical practices and means and methods. The primary concern for the proposed site is the presence of rock. The potential for encountering rock is relatively high.

#### **4.1.7. SUSTAINABILITY CONSIDERATIONS**

Maintaining infrastructure with sound rehabilitation or replacement methods is always considered a sustainable action. The materials and techniques that will be specified for both infrastructure improvement options are based on industry standards that have been deemed of the highest quality focused on longevity and durability. All options considered offer a balance between longevity and economics.

#### **4.1.8. OPINION OF PROBABLE COST**

Detailed Engineer's Opinion of Probable Costs (EOPC) are included for each alternative in the Appendix.

#### **4.1.9. ANNUAL OPERATING BUDGET**

Proposed improvements are anticipated to increase O&M costs. An opinion of O&M costs is in the appendix and summarized below.

- Collection Alternative 1: \$122,000
- Collection Alternative 2: \$132,450
- Collection Alternative 3: \$153,080
- Collection Alternative 4: \$159,805

### **4.2 WASTEWATER COLLECTION ALTERNATIVES**

#### **4.2.1. DESCRIPTION**

Four wastewater treatment alternatives are explored in this PER. The following list describes the four alternatives:



- Treatment Alternative 1 – Expand Existing Treatment Facility: Construct a discharging lagoon system utilizing existing lagoon as a cell. **During evaluation it was determined that this is not practical, and this option does not meet the long term planning goals of the City. Proposed improvements would only provide treatment for Linn Valley’s 2024 population.**
- Treatment Alternative 2 – Phased Construction of Discharging Lagoons: Phase 1 includes construction of a new discharging lagoon sized for 20-year population growth. Phase 2 includes construction of a second discharging lagoon for 40-year population growth. **This option considered a discharging lagoon. A discharging lagoon was determined to be not feasible for the following reasons:**
  - A discharging lagoon will be more difficult to permit. KDHE has indicated that this option is not preferred.
  - The lagoon system discharges to Linn Valley Lake. Linn Valley Lake is a recreational body and a water supply. Exposure to under treated wastewater could cause human health impacts.
  - Nutrient removal is limited in a lagoon system. Nutrients can cause harmful algae blooms (blue green algae). Harmful algae blooms pose an environmental concern and health risk.
- Treatment Alternative 3 – Phased Construction of Discharging Lagoons with Wetlands for Disposal: Phase 1 includes construction of a new intermittently discharging lagoon sized for 20-year population growth. Phase 2 includes construction of a second intermittently discharging lagoon for 40-year population growth.
- Alternative 4 – Mechanical Treatment: Construction of a mechanical treatment facility.

**4.2.2. DESIGN CRITERIA**

Minimum design criteria for all design options will be based on meeting the Minimum Design Standards of the Kansas Department of Health and Environment. The following table shows the population and flow utilized in preliminary lagoon sizing:

**Table 4: Preliminary Flow Approximation**

Phase	Year	Population	Average Daily Flow*
1	2040	2,208	124,000
2	2060	4,380	246,000

\*Flows utilize a higher per capita rate due to planned water system improvements and changing demographics in the community.

**4.2.3. MAP**

Exhibits 4-7 found in the appendix illustrate Treatment Alternatives 1-4.





#### **4.2.4. ENVIRONMENTAL IMPACTS**

A general summary of typically encountered environmental issues is located in the Appendix. This report is not a comprehensive environmental review; however, these typical environmental conditions have been taken into consideration when evaluating each project alternative. Additional environmental reviews may be necessary depending on project scope and funding.

#### **4.2.5. LAND REQUIREMENTS**

Alternatives 1 and 4 do not require property purchase. Alternative 2 requires approximately 60 acres of property purchase. Alternative 3 requires approximately 96 acres of property purchase.

#### **4.2.6. POTENTIAL CONSTRUCTION PROBLEMS**

Preliminary analysis of proposed improvements suggests that the improvements can be constructed utilizing typical practices and means and methods. The primary concern for the proposed site is the presence of rock. The potential for encountering rock is relatively moderate.

#### **4.2.7. SUSTAINABILITY CONSIDERATIONS**

Alternatives 1, 2, and 3 utilize lagoons to treat wastewater. Lagoons mimic natural processes to remove contaminants from sewage. Additionally, lagoons utilize relatively low electricity. Constructed wetlands provide habitats for wildlife.

#### **4.2.8. OPINION OF PROBABLE COST**

Detailed Engineer's Opinion of Probable Costs (EOPC) are included for each alternative in the Appendix.

#### **4.2.9. ANNUAL OPERATING BUDGET**

Proposed improvements are anticipated to increase O&M costs. An opinion of O&M costs is in the appendix and summarized below.

- Treatment Alternative 1: \$40,000
- Treatment Alternative 2: \$40,000
- Treatment Alternative 3: \$42,000
- Treatment Alternative 4: \$150,000

END OF SECTION



## SECTION 5

### SELECTION OF AN ALTERNATIVE

#### 5.1 LIFE CYCLE COST ANALYSIS

Four feasible collection alternatives were considered. The full life cycle cost analysis for collection alternatives can be found in the appendix. Collection Alternative 2 was found to be the most cost effective. The life cycle cost of each option is summarized below.

- Collection Alternative 1: \$14,992,421
- Collection Alternative 2: \$13,300,599
- Collection Alternative 3: \$17,178,614
- Collection Alternative 4: \$15,571,068

Two feasible treatment alternatives were considered. The full life cycle cost analysis for treatment alternatives can be found in the appendix. Treatment Alternative 3 was found to be the most cost effective. The life cycle cost of each option is summarized below.

- Treatment Alternative 3: \$6,784,782
- Treatment Alternative 4: \$9,453,752

#### 5.2 NON-MONETARY ANALYSIS

Grinder pump and STEP systems have similar operation principals, but unique benefits. Grinder pumps are housed in a small HDPE enclosure. The enclosure is less susceptible to inflow and infiltration (I/I) than a STEP tank. However, STEP tanks have more capacity than grinder pumps. So, during power outages, STEP tanks allow for wastewater production, while grinder pumps will back up more quickly. Maintenance on STEP and grinder lift stations is comparable but considered a monetary concern.

Gravity collection generally has more non-monetary benefits compared to pumped options. Gravity wastewater collection does not rely on electricity. Lift stations within a gravity system typically have backup generators for power outages. However, gravity collection is more susceptible to I/I.

Generally, Collection Alternatives 3 and 4 have a greater non-monetary benefit due to gravity collection. Collection Alternatives 1 and 2 have a similar non-monetary benefit.



Four non-monetary benefits were considered for Treatment Alternatives. The following table shows the considered non-monetary benefit and the applicability to each alternative.

**Table 5: Treatment Alternative Non-Monetary Benefits.**

Non-monetary Considerations	Alternative			
	1	2	3	4
Does not Require Property Purchase	X			X
Meets Long Term Planning Goals		X	X	X
Less Pollutant Load in Lake			X	
Is Simple to Operate	X	X	X	

Alternative 3 has the greatest non-monetary benefit. Alternative 1 is not feasible because it does not meet the City’s long term goals and continuously discharges sewage. Alternative 2 is not feasible because it continuously discharges sewage. Alternative 4 is feasible but will have a higher pollutant loading into the lake since it is continuously discharging.



## SECTION 6

### PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

#### 6.1 RECOMMENDATIONS

Four Collection Alternatives were considered in this report. After evaluation, the City determined that it would be cost prohibitive to pursue an alternative at this time. As the City grows, centralized wastewater collection will become more cost effective. Wastewater collection alternatives can be considered when practicable.

Four Treatment Alternatives were considered in this report. Treatment Alternative 3 had the greatest monetary and non-monetary benefit. BG Consultant’s recommends the City pursue Treatment Alternative 3.

#### 6.2 PROJECT SCHEDULE

The following is a project schedule for the above recommended alternative:

- Final Engineering Report Submittal November 2020
- Submit for Project Funding November 2020
- Notice to Proceed with Engineering March 2021
- Submit Final Engineering Plans to KDHE December 2021
- Advertise for Bids February 2022
- Substantial Completion of Construction February 2023
- Final Completion of Construction March 2023

#### 6.3 PERMIT REQUIREMENTS

The permits that will likely be required for this project are as follows:

- Kansas Department of Health and Environment (KDHE)

#### 6.4 FUNDING SOURCES

The City should consult with a registered municipal financial advisor for recommendations on funding sources as the City could have several options available for funding this project. BG CONSULTANTS INC is not recommending an action to the City. BG CONSULTANTS INC is not acting as an advisor to the City and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to the City with respect to the information and material contained in this communication. The City should discuss any information and material contained in this communication with any and all internal or external advisors and experts that the City deems appropriate before acting on this information or material.

The following is a brief description of typical funding options:

##### 6.4.1. **Community Development Block Grant**

This grant is administered through the Kansas Department of Commerce within the Community Development program. It is a competitive program with multiple Cities applying for a pool of money. One requirement of this program is that the City makes the Low to Moderate Income



requirement of 51% or better. The maximum grant possible is \$600,000 with a ceiling of \$2,000 per beneficiary. A local match is generally required to be competitive with other applications.

#### **6.4.2. KDHE – State Revolving Loan Fund**

The Kansas Department of Health and Environment State Revolving Loan Fund (KDHE-SRF) is a 20 year loan with an interest rate and service fee of around 1.5%-3%. This loan is competitive with other Cities and the qualifications are that you can repay the loan and make the priority list. Projects are typically selected for funding in May of each year and placed on the priority list. The application for funding is a three month process and works very well with CDBG.

#### **6.4.3. Rural Development-USDA**

This funding will have a loan and possible grant paired together. The Rural Development (RD) loan is a 40 year loan with an interest rate that may vary from 1.75%-4.5%. Rates vary depending on the median household income (MHI) of the community. If the City qualifies, Rural Development has a grant program that combines with the loan. The grants are based on a percentage of the project and generally do not exceed 45%, however under certain circumstances grants may go up to 75%. The Rural Development funding is from a federal pool of money that typically becomes available in October of each year. A pre application must be submitted to Rural Development.

#### **6.4.4. Private Sector Bonds**

These bonds are similar to a loan and are funded through the private sector. Competitive rates are ensured by bidding on the financing of the bond. These bonds require a minimum of 45 days to prepare the application and can be applied for throughout the year.

### **6.5 PROJECT COSTS**

The opinion of probable cost for Treatment Alternative 3 is **\$6,169,140**. O&M and short lived assets are anticipated to change as a result of the project. The opinion of O&M costs for the proposed project is \$143,520. The opinion of short lived asset costs is \$134,260. The existing debt payment is \$109,182. This payment may be refinanced into the proposed project if desirable.



The options below are a combination of different grants and loans that the City may be eligible to fund the recommended project. The cost impact is calculated based on the average rate impact per month per active sewer user based on **721 active sewer users**.

**Table 6: Possible Funding Options**

	<b>KDHE Loan</b>	<b>USDA RD Loan and 45% Grant</b>	<b>USDA RD Loan and 20% Grant</b>	<b>USDA RD Loan</b>
Project Cost	\$ 6,169,140.00	\$ 6,169,140.00	\$ 6,169,140.00	\$ 6,169,140.00
CDBG Grant	\$ -	\$ -	\$ -	\$ -
USDA Grant	\$ -	\$ 2,776,113.00	\$ 1,233,828.00	\$ -
Loan Amount Financed	\$ 6,169,140.00	\$ 3,393,027.00	\$ 4,935,312.00	\$ 6,169,140.00
Annual Interest (%)	1.48%	1.750%	1.750%	1.750%
Terms of Loan	20	40	40	40
Annual Loan Payment	\$ 358,618.06	\$ 118,661.25	\$ 172,598.18	\$ 215,747.73
Existing Debt	\$ 109,182.00	\$ 109,182.00	\$ 109,182.00	\$ 109,182.00
Annual O&M	\$ 143,520.00	\$ 143,520.00	\$ 143,520.00	\$ 143,520.00
Annual SLA	\$ 134,260.00	\$ 134,260.00	\$ 134,260.00	\$ 134,260.00
Total Annual Expenses	\$ 745,580.06	\$ 505,623.25	\$ 559,560.18	\$ 602,709.73
Number of Active Services	721	721	721	721
Average Monthly Fee	\$ 86.17	\$ 58.44	\$ 64.67	\$ 69.66

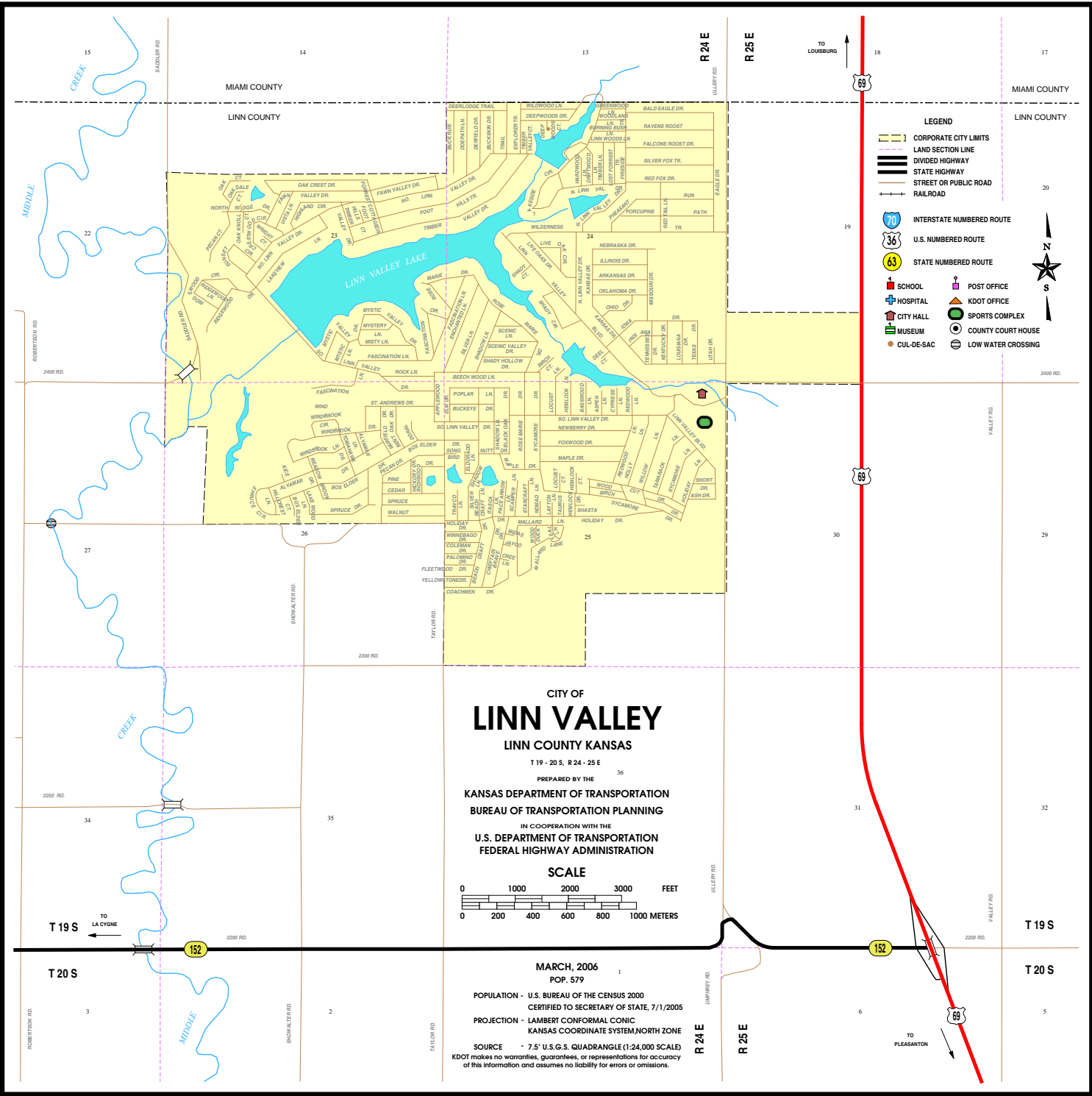
END OF SECTION



## **SECTION 7**

### **APPENDIX**

- City Map
- Topographic Maps
- Typical Environmental Concerns
- Water Use Reports
- Rate Ordinance
- Wastewater Fund Budget Information & Debt Repayment
- KDHE & KRWA Correspondence
- NPDES Permit
- Exhibits
- EOPCs
- O&M, Short Live Assets, and Present Worth

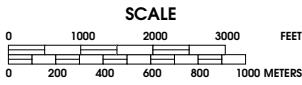


CITY OF  
**LINN VALLEY**

LINN COUNTY KANSAS

T 19 - 20 S, R 24 - 25 E

PREPARED BY THE  
**KANSAS DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF TRANSPORTATION PLANNING**  
IN COOPERATION WITH THE  
**U.S. DEPARTMENT OF TRANSPORTATION**  
**FEDERAL HIGHWAY ADMINISTRATION**



MARCH, 2006  
POP. 579

POPULATION - U.S. BUREAU OF THE CENSUS 2000  
CERTIFIED TO SECRETARY OF STATE, 7/1/2005  
PROJECTION - LAMBERT CONFORMAL CONIC  
KANSAS COORDINATE SYSTEM, NORTH ZONE  
SOURCE - 7.5' U.S.G.S. QUADRANGLE (1:24,000 SCALE)  
KDOT makes no warranties, guarantees, or representations for accuracy  
of this information and assumes no liability for errors or omissions.





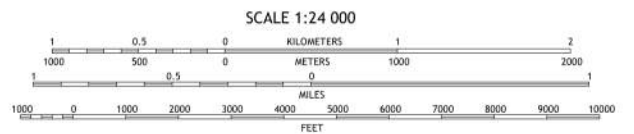
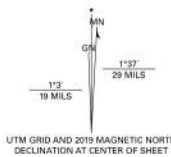




**Produced by the United States Geological Survey**

North American Datum of 1983 (NAD83)  
 World Geodetic System of 1984 (WGS84). Projection and  
 1 000-meter grid: Universal Transverse Mercator, Zone 15S  
 This map is not a legal document. Boundaries may be  
 generalized for this map scale. Private lands within government  
 reservations may not be shown. Obtain permission before  
 entering private lands.

Imagery.....NAIP, August 2017 - September 2017  
 Roads.....U.S. Census Bureau, 2015 - 2018  
 Names.....GNIS, 1978 - 2016  
 Hydrography.....National Hydrography Dataset, 2000 - 2018  
 Contours.....National Elevation Dataset, 2006 - 2008  
 Boundaries.....Multiple sources; see metadata file 2016 - 2017  
 Public Land Survey System.....BLM, 2016  
 Wetlands.....FWS National Wetlands Inventory 1986



SCALE 1:24 000  
 CONTOUR INTERVAL 10 FEET  
 NORTH AMERICAN VERTICAL DATUM OF 1988  
 This map was produced to conform with the  
 National Geospatial Program US Topo Product Standard, 2011.  
 A metadata file associated with this product is draft version 0.6.18

## **TYPICAL ENVIRONMENTAL CONCERNS**

The US Army Corps of Engineers will be contacted if the proposed project includes the discharge of dredged or fill material into waters of the United States.

If the proposed project includes construction beneath state highways or within its right of way the Kansas Department of Transportation will be contacted.

If during construction any oil field related problems or wells are located or encountered, the district supervisor for the Kansas Corporation Commission will be contacted.

The State Historical Preservation Office will be contacted. However, a historical determination cannot be made until final plans are issued for review by the State Historic Preservation Office. Final plans will be delivered before construction begins.

If the proposed project includes converting any farmlands into non-agricultural uses, a Farmland Conversion Impact Rating for the Natural Resources Conservation Service will be completed and authorization will be obtained before construction begins.

Should the proposed project include the removal of any structures, the structures will first be inspected for the presence of asbestos materials and a Demolition Form will be sent to the Kansas Department of Health and Environment.

Should the proposed project include the removal of any paint, a lead based paint inspection will be performed. Should any lead based paint be discovered or the possibility of lead based paint exists, all proper permits and authorization will be obtained before construction/demolition begins.

Should the proposed project impact any crucial wildlife habitats, current state-listed threatened and endangered species, species in need of conservation, or public recreation areas the Kansas Department of Wildlife and Parks will be contacted.

If the proposed project should occur during the migratory bird nesting season in habitat capable of supporting bird nesting, as requested by the US Department of the Interior-Fish and Wildlife Service, a field survey during the nesting season of the affected habitats and structures shall be conducted to determine the presence of active nests. If the presence of nesting is discovered, all reasonable measures shall be taken to protect the migratory birds.

Should any suspected cultural or historical resources be discovered during construction, all activities will be halted until the proper authorities and agencies are contacted and the cultural or historical significance of the resources is determined.

2015  
MUNICIPAL WATER USE REPORT (PUBLIC WATER SUPPLY)

**PART B: MONTHLY WATER USE SUMMARY**

NOTE: REPORT WATER PUMPED, PURCHASED, AND SOLD FOR THE MONTH OF ACTUAL USE. REPORT ALL AMOUNTS IN UNITS OF **1000 GALLONS**.

- Column 1: The amount of water diverted, by month, from all points of diversion (wells or intakes). If possible, raw water meters should be read at the same time of the month as customer meters. The total amount in this column should equal the total of the amounts reported in PART A.
- Column 2: The amount of water purchased, by month, from all other public water supply systems or the Kansas Water Office. Please provide further detail in PART E.
- Column 3: The amount of water sold, by month, to all other public water supply systems. Please provide further detail in PART E.
- Column 4: The amount of water sold, by month, to all industrial, pasture, stockwater, feedlot, and bulk water service connections. For rural water districts, include the amount of water sold to farmsteads using at least 200,000 gallons of water per year. Also include metered power plant usage, even if this water is supplied free.
- Column 5: The amount of water sold, by month, to your residential, commercial and institutional customers (include hospitals, schools and prisons).
- Column 6: The amount of water used, by month, that is metered at individual service connections and supplied free, such as for public service, treatment processes, and connections receiving free water. Please record metered power plant usage with industrial water use in Column 4.
- Column 7: The amount of unaccounted for water, by month. The gallons reported in this column are found by adding the numbers in Columns 1 and 2 and subtracting the numbers in Columns 3, 4, 5, and 6. If you do not sell water to your customers, this column simply represents the total amount of water that you diverted or purchased.

Month	Column 1 Raw Water Diverted Under Your Rights (1000 Gallons)	Column 2 Water Purchased From All Sources (1000 Gallons)	Column 3 Water Sold to Other Public Water Suppliers (1000 Gallons)	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers (1000 Gallons)	Column 5 Water Sold to Your Residential and Commercial Customers (1000 Gallons)	Column 6 Metered Water Provided Free (1000 Gallons)	Column 7 Unaccounted For Water (See Above Explanation) (1000 Gallons)
Jan.	817.2	18.2		438.4	131 136.7	9.0	257.3
Feb.	83 82.5	349 348.8		342 341.7	108.2	5.4	23 24.1
Mar.	303 302.7	583 582.8		402.0	118 117.4	14.2	352 351.4
Apr.	593 592.5	141.4		436 435.5	114.1	30 29.5	154 154.8
May	222 221.7	598 597.8		413.2	110 109.7	109 108.7	188 187.9
June	731 730.7	0		382 381.6	184 183.6	156 155.6	9 9.9
July	1,101.2	54 53.8		489 488.8	166 165.7	161.2	339.3
Aug.	987.0	457 456.6		519.1	176 175.5	192.1	557 556.9
Sept.	86 85.9	351.4		409 408.8	159 158.7	73 72.5	-205.9 -204
Oct.	878 877.5	11.1		494 493.7	177 176.9	25 24.8	193.2
Nov.	838.1	0		410 409.6	138 137.5	26.1	-264.9 264
Dec.	860 859.7	30.4		398.3	128 127.5	105.2	259.1
Total	7499 7498.5	2,592.3		5132 5130.7	1,706.8	907.3	2345

**PART C: POPULATION, SERVICE CONNECTIONS, AND WATER RATES**

1. Population served: 774 Estimate the number of persons served directly by your distribution system (Columns 5, 6, and 7). LINN VALLEY LAKE PROPERTY OWNERS ASSN
2. Number of ACTIVE water service connections as of December 31: 29765
- a. 94 Residential                      c. \_\_\_\_\_ Industrial                      e. 1 Other (specify) Bulk Haul Station
- b. 6 Commercial/Institutional                      d. \_\_\_\_\_ Pasture/Stockwater/Feedlot                      f. 101 Total ACTIVE Service Connections
3. If you are a city, how many of the active residential water service connections shown in 2a. are located outside of your city limits. \_\_\_\_\_
4. Date of last water rate change (Month and Year); 3/1/15 If rates changed during the previous year, please attach a copy of new rate structures that apply to residential users.

KS DEPT OF AGRICULTURE

MAR 14 2016  
WATER RESOURCES RECEIVED

2,344.8



MUNICIPAL WATER USE REPORT (PUBLIC WATER SUPPLY)

2016

PART B: MONTHLY WATER USE SUMMARY

NOTE: REPORT WATER PUMPED, PURCHASED, AND SOLD FOR THE MONTH OF ACTUAL USE. REPORT ALL AMOUNTS IN UNITS OF 1000 GALLONS.

- Column 1: The amount of water diverted, by month, from all points of diversion (wells or intakes). If possible, raw water meters should be read at the same time of the month as customer meters. The total amount in this column should equal the total of the amounts reported in PART A.
- Column 2: The amount of water purchased, by month, from all other public water supply systems or the Kansas Water Office. Please provide further detail in PART E.
- Column 3: The amount of water sold, by month, to all other public water supply systems. Please provide further detail in PART E.
- Column 4: The amount of water sold, by month, to all industrial, pasture, stockwater, feedlot, and bulk water service connections. For rural water districts, include the amount of water sold to farmsteads using at least 200,000 gallons of water per year. Also include metered power plant usage, even if this water is supplied free.
- Column 5: The amount of water sold, by month, to your residential, commercial and institutional customers (include hospitals, schools and prisons).
- Column 6: The amount of water used, by month, that is metered at individual service connections and supplied free, such as for public service, treatment processes, and connections receiving free water. Please record metered power plant usage with industrial water use in Column 4.
- Column 7: The amount of unaccounted for water, by month. The gallons reported in this column are found by adding the numbers in Columns 1 and 2 and subtracting the numbers in Columns 3, 4, 5, and 6. If you do not sell water to your customers, this column simply represents the total amount of water that you diverted or purchased.

WATER RESOURCES RECEIVED

MAR 01 2017

KS DEPT OF AGRICULTURE

Month	Column 1 Raw Water Diverted Under Your Rights (1000 Gallons)	Column 2 Water Purchased From All Sources (1000 Gallons)	Column 3 Water Sold to Other Public Water Suppliers (1000 Gallons)	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers (1000 Gallons)	Column 5 Water Sold to Your Residential and Commercial Customers (1000 Gallons)	Column 6 Metered Water Provided Free (1000 Gallons)	Column 7 Unaccounted For Water (See Above Explanation) (1000 Gallons)
Jan.	695.1	11 10.6		318.8	125 124.9	15 14.5	248 247.8
Feb.	797.8 798	0		390 389.9	101.4	10 9.9	297 296.4
Mar.	872.4	0		431 430.7	168.1	12.4	261.0
Apr.	900.7 901	27.1		438 437.5	173 172.5	30.4	287.3
May	1066.2	361.0		448.4	235.0	136 135.8	608 607.8
June	608.1	569.0		594.6	312.1	200 199.5	71 70.7
July	930.7 931	78 77.7		446 445.7	213.1	163 162.8	187 186.7
Aug.	906.8 907	86 85.9		452.2	196 195.6	168.3	177 176.4
Sept.	742.6 742	171 170.8		383.4	163 162.8	41.3	326 324.8
Oct.	728.0	177.5		442 441.7	172 171.5	24.0	267 268.2
Nov.	491.3	242.4		405.0	149 148.6	14 13.9	165 166.0
Dec.	464.4	381.3		454 453.6	155.3	5 4.9	231.8
Total	9,203.1	2,103.3		5,201.0	2162 2,161.5	818.4	3,125.4

PART C: POPULATION, SERVICE CONNECTIONS, AND WATER RATES

- Population served: 774 Estimate the number of persons served directly by your distribution system (Columns 5, 6, and 7). LINN VALLEY LAKE PROPERTY OWNERS ASSN
- Number of ACTIVE water service connections as of December 31:
  - a. 94 Residential
  - b. 6 Commercial/Institutional
  - c. \_\_\_\_\_ Industrial
  - d. \_\_\_\_\_ Pasture/Stockwater/Feedlot
  - e. 1 Other (specify) BULK HAUL STATION
  - f. 101 Total ACTIVE Service Connections
- If you are a city, how many of the active residential water service connections shown in 2a. are located outside of your city limits. \_\_\_\_\_
- Date of last water rate change (Month and Year): 3/1/15 If rates changed during the previous year, please attach a copy of new rate structures that apply to residential users.



MUNICIPAL WATER USE REPORT (PUBLIC WATER SUPPLY)

2017

PART B: MONTHLY WATER USE SUMMARY

NOTE: REPORT WATER PUMPED, PURCHASED, AND SOLD FOR THE MONTH OF ACTUAL USE. REPORT ALL AMOUNTS IN UNITS OF 1000 GALLONS.

- Column 1: The amount of water diverted, by month, from all points of diversion (wells or intakes). If possible, raw water meters should be read at the same time of the month as customer meters. The total amount in this column should equal the total of the amounts reported in PART A.
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- Column 4: The amount of water sold, by month, to all industrial, pasture, stockwater, feedlot, and bulk water service connections. For rural water districts, include the amount of water sold to farmsteads using at least 200,000 gallons of water per year. Also include metered power plant usage, even if this water is supplied free.
- Column 5: The amount of water sold, by month, to your residential, commercial and institutional customers (include hospitals, schools and prisons).
- Column 6: The amount of water used, by month, that is metered at individual service connections and supplied free, such as for public service, treatment processes, and connections receiving free water. Please record metered power plant usage with industrial water use in Column 4.
- Column 7: The amount of unaccounted for water, by month. The gallons reported in this column are found by adding the numbers in Columns 1 and 2 and subtracting the numbers in Columns 3, 4, 5, and 6. If you do not sell water to your customers, this column simply represents the total amount of water that you diverted or purchased.

Water Resources  
Received  
MAR 02 2018  
KS Dept Of Agriculture

Month	Column 1 Raw Water Diverted Under Your Rights (1000 Gallons)	Column 2 Water Purchased From All Sources (1000 Gallons)	Column 3 Water Sold to Other Public Water Suppliers (1000 Gallons)	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers (1000 Gallons)	Column 5 Water Sold to Your Residential and Commercial Customers (1000 Gallons)	Column 6 Metered Water Provided Free (1000 Gallons)	Column 7 Unaccounted For Water (See Above Explanation) (1000 Gallons)
Jan.	<del>464.3</del>	<del>402.8</del> 403		395.2	135.3	5.1	<del>331.3</del> 332
Feb.	<del>302.7</del> 303	416.4		<del>386.7</del> 387	127.2	<del>8.6</del> 9	<del>196.5</del>
Mar.	<del>551.7</del> 552	189.3		408.4	<del>142.8</del> 143	8.4	<del>181.3</del> 182
Apr.	<del>687.7</del> 688	<del>28.5</del> 29		<del>380.6</del> 381	<del>150.8</del> 151	15.1	<del>169.5</del> 170
May	<del>638.0</del>	428.3		480.3	199.2	89.6 90	<del>297.1</del>
June	1,007.2	<del>358.8</del> 359		483.4	214.4	<del>139.8</del> 140	<del>528.3</del> 529
July	<del>1,019.6</del> 1020	171.2		550.2	284.3	153.4	<del>202.8</del> 204
Aug.	<del>880.9</del> 881	<del>222.6</del> 223		273.2	197.2	74.5 75	<del>558.5</del> 559
Sept.	<del>932.0</del>	228.0		<del>490.7</del> 491	232.0	53.8 54	<del>383.4</del>
Oct.	1,020.1	343.3		464.3	200.1	18.0	<del>680.9</del> 681
Nov.	<del>843.7</del> 844	143.0		<del>468.9</del> 469	193.1	10.2	<del>314.5</del> 315
Dec.	948.2	481.1		<del>472.5</del> 473	<del>182.6</del> 183	6.7 7	<del>767.3</del> 766
Total	<del>9,296.1</del> 9297	3,413.3		5,254.2	<del>2,259.6</del> 2,258	<del>583.7</del> 584	<del>4,611.8</del> 4,614

PART C: POPULATION, SERVICE CONNECTIONS, AND WATER RATES

CITY OF LINN VALLEY

- Population served: 900 Estimate the number of persons served directly by your distribution system (Columns 5, 6, and 7).
- Number of ACTIVE water service connections as of December 31:
  - a. 114 Residential
  - b. 6 Commercial/Institutional
  - c. \_\_\_\_\_ Industrial
  - d. \_\_\_\_\_ Pasture/Stockwater/Feedlot
  - e. 1 Other (specify) BULK HAUL STATION
  - f. 121 Total ACTIVE Service Connections
- If you are a city, how many of the active residential water service connections shown in 2a. are located outside of your city limits. 0
- Date of last water rate change (Month and Year); 3/1/15 If rates changed during the previous year, please attach a copy of new rate structures that apply to residential users.

## Part B: Monthly Water Use Summary

*(all amounts are in 1000 gallon units)*

	Column 1 Raw Water Diverted	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Public Suppliers	Column 4 Water Sold to Industrial, Stock Bulk Customers	Column 5 Water Sold to Residential and Commercial Customers	Column 6 Metered Water Provided Free	Column 7 Unaccounted for Water	Column 8 % of Unaccounted for Water
Jan	488	579	0	442	166	7	452	42
Feb	597	20	0	380	159	7	71	12
Mar	1,153	22	0	1,175	184	11	-195	-17
Apr	836	924	0	456	204	14	1,086	62
May	198	777	0	564	258	123	30	3
Jun	681	777	0	566	309	198	385	26
Jul	243	1,019	0	639	329	227	67	5
Aug	741	399	0	518	261	205	156	14
Sep	961	80	0	465	251	79	246	24
Oct	1,121	121	0	451	246	21	524	42
Nov	970	78	0	434	196	9	409	39
Dec	1,051	18	0	468	189	8	404	38
Total	9,040	4,814	0	6,558	2,752	909	3,635	26

**Part B: Monthly Water Use Summary**  
*(all amounts are in 1000 gallon units)*

	Column 1 Raw Water Diverted	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Public Suppliers	Column 4 Water Sold to Industrial, Stock Bulk Customers	Column 5 Water Sold to Residential and Commercial Customers	Column 6 Metered Water Provided Free	Column 7 Unaccounted for Water	Column 8 % of Unaccounted for Water
Jan	947	275	0	424	187	10	601	49
Feb	875	146	0	379	167	17	458	45
Mar	955	238	0	395	187	19	592	50
Apr	920	200	0	473	202	17	428	38
May	500	738	0	436	219	55	528	43
Jun	1,055	509	0	517	254	153	640	41
Jul	893	515	0	573	347	136	352	25
Aug	638	483	0	511	280	96	234	21
Sep	817	352	0	470	226	37	436	37
Oct	891	348	0	480	220	22	517	42
Nov	821	433	0	453	223	9	569	45
Dec	738	463	0	507	215	12	467	39
Total	10,050	4,700	0	5,618	2,727	583	5,822	39



ORDINANCE NO. 166

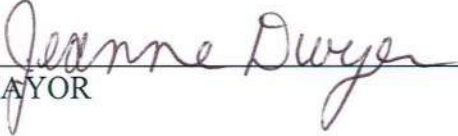
AN ORDINANCE OF THE GOVERNING BODY OF LINN VALLEY, KANSAS, ESTABLISHING A RATE TO BE PAID BY CUSTOMERS OF THE LINN VALLEY SEWER SYSTEM AND LAYING OUT CERTAIN PROCEDURES AS TO THE COLLECTION OF THOSE PAYMENTS.

IT IS HEREBY ORDAINED BY THE GOVERNING BODY OF THE CITY OF LINN VALLEY, KANSAS:

1. A monthly rate of \$44 per month per connection is hereby set as the rate to be paid by each customer of the Linn Valley sewer system, commencing with the close of the first billing cycle for each customer.
2. The billing cycle for each customer shall conclude on the 20<sup>th</sup> day of each month, with bills to be sent to customers by the 25<sup>th</sup> day of the month. Bills shall be due by the 5<sup>th</sup> day of the month following the close of the billing cycle, and shall be considered late if not paid by the 10<sup>th</sup> day of the month following the close of the billing cycle.
3. Late fees, penalties, and other costs as approved by the City Council by regular action, are hereby authorized to be assessed against any customer whose bill is not paid by the 10<sup>th</sup> day of the month.
4. The owner of the premises served and the occupant thereof and the user of the sewer service shall be jointly and severally liable for the cost of the sewer service provided said premises.
5. All sewer charges levied pursuant to ordinance shall constitute a lien upon the premises served and if not paid within sixty days after due date, those charges shall be certified to the County Clerk and County Treasurer and shall be collectible in the same manner as taxes.
6. All revenues and moneys derived from the operation of the sewer system shall be held by the City in funds and accounts that are separate from other City funds and which are designated the "Sanitary Sewer Fund". The City Council and its agents shall administer said fund in the manner provided by the Statutes of Kansas and all other laws pertaining thereto.
7. The City shall establish a system of accounts and records to manage the Sanitary Sewer Fund according to Statute and shall cause said records to be included in the annual audit of the City's finances.
8. All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed as to the conflicting portions.

9. This ordinance shall become effective upon its approval and its publication in the official newspaper of the City.

ORDAINED THIS 11<sup>TH</sup> DAY OF AUGUST, 2014.

  
MAYOR

ATTEST:

  
CITY CLERK

ORDINANCE NO. 218

AN ORDINANCE AMENDING ORDINANCE NO. 166 AND CHANGING THE RATE TO BE PAID BY CUSTOMERS OF THE LINN VALLEY SEWER SYSTEM.

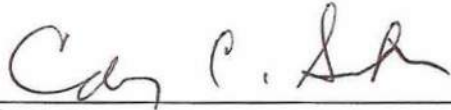
IT IS HEREBY ORDAINED BY THE GOVERNING BODY OF THE CITY OF LINN VALLEY, KANSAS:

Section 1. Ordinance No. 166, Section 1 is hereby amended to read in its entirety:

1. A rate of \$56.00 per month per connection is hereby set as the rate to be paid by each customer of the Linn Valley sewer system, commencing with the January 2021 billing cycle for each customer.


Section 2. This ordinance shall take effect upon the publication of a summary in the official newspaper of the City and the publication of the entire ordinance on the official website of the City at [www.cityoflinnvalley.com](http://www.cityoflinnvalley.com) for at least one week.

PASSED AND APPROVED THIS 12<sup>th</sup> DAY OF OCTOBER 2020.



\_\_\_\_\_  
Mayor

Attest:



\_\_\_\_\_  
City Clerk

City of Linn Valley

2017

**FUND PAGE FOR FUNDS WITH NO TAX LEVY**

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Capital Improvements</b>	Actual for 2015	Estimate for 2016	Year for 2017
Unencumbered Cash Balance Jan 1	0	25,000	35,000
Receipts:			
Transfer from General Fund	25,000	10,000	10,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>25,000</b>	<b>10,000</b>	<b>10,000</b>
<b>Resources Available:</b>	<b>25,000</b>	<b>35,000</b>	<b>45,000</b>
Expenditures:			
Programs	0	0	45,000
Cash Forward (2017 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>0</b>	<b>0</b>	<b>45,000</b>
Unencumbered Cash Balance Dec 31	25,000	35,000	0
2015/2016/2017 Budget Authority Amount:	25,000	20,000	45,000

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Sewer Utility</b>	Actual for 2015	Estimate for 2016	Year for 2017
Unencumbered Cash Balance Jan 1	1,442	62,530	64,279
Receipts:			
Customer Income	62,262	174,029	177,750
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>62,262</b>	<b>174,029</b>	<b>177,750</b>
<b>Resources Available:</b>	<b>63,704</b>	<b>236,559</b>	<b>242,029</b>
Expenditures:			
Debt Payment	0	71,280	106,257
Short lived assets	0	41,000	62,000
Operations	1,174	60,000	73,772
Cash Forward (2017 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>1,174</b>	<b>172,280</b>	<b>242,029</b>
Unencumbered Cash Balance Dec 31	62,530	64,279	0
2015/2016/2017 Budget Authority Amount:	6,790	160,200	242,029

See Tab C



City of Linn Valley

2018

FUND PAGE FOR FUNDS WITH NO TAX LEVY

Adopted Budget	Prior Year	Current Year	Proposed Budget
Capital Improvements	Actual for 2016	Estimate for 2017	Year for 2018
Unencumbered Cash Balance Jan 1	25,000	62,142	64,642
Receipts:			
Transfer from General Fund	37,142	2,500	10,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>37,142</b>	<b>2,500</b>	<b>10,000</b>
<b>Resources Available:</b>	<b>62,142</b>	<b>64,642</b>	<b>74,642</b>
Expenditures:			
Programs	0	0	74,642
Cash Forward (2018 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>0</b>	<b>0</b>	<b>74,642</b>
Unencumbered Cash Balance Dec 31	62,142	64,642	0
2016/2017/2018 Budget Authority Amount:	20,000	45,000	74,642

Adopted Budget	Prior Year	Current Year	Proposed Budget
Sewer Utility	Actual for 2016	Estimate for 2017	Year for 2018
Unencumbered Cash Balance Jan 1	62,530	122,910	135,423
Receipts:			
Customer Income			
Debit Reduction	110,186	113,985	113,985
Operations	48,598	26,200	37,600
Short Lived Aassets	10,340	28,710	27,000
Infrastructure Grant	39,151	38,861	42,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>208,275</b>	<b>207,756</b>	<b>220,585</b>
<b>Resources Available:</b>	<b>270,805</b>	<b>330,666</b>	<b>356,008</b>
Expenditures:			
Debt Payments	71,280	109,182	117,000
Operations	48,115	29,200	55,000
Short Lived Assests	0	18,000	58,000
Infrastructure Grant	28,500	38,861	52,651
Cash Forward (2018 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>147,895</b>	<b>195,243</b>	<b>282,651</b>
Unencumbered Cash Balance Dec 31	122,910	135,423	73,357
2016/2017/2018 Budget Authority Amount:	160,200	242,029	282,651

City of Linn Valley

2019

**FUND PAGE FOR FUNDS WITH NO TAX LEVY**

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Capital Improvements</b>	Actual for 2017	Estimate for 2018	Year for 2019
Unencumbered Cash Balance Jan 1	62,142	79,142	99,142
Receipts:			
Transfer from General Fund	17,000	20,000	10,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>17,000</b>	<b>20,000</b>	<b>10,000</b>
<b>Resources Available:</b>	<b>79,142</b>	<b>99,142</b>	<b>109,142</b>
Expenditures:			
Programs	0	0	109,142
Cash Forward (2019 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>0</b>	<b>0</b>	<b>109,142</b>
Unencumbered Cash Balance Dec 31	79,142	99,142	0
2017/2018/2019 Budget Authority Amount:	45,000	74,642	109,142

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Sewer Utility</b>	Actual for 2017	Estimate for 2018	Year for 2019
Unencumbered Cash Balance Jan 1	112,259	199,567	198,331
Receipts:			
Customer Income			
Debit Reduction	116,034	118,500	125,000
Operations	31,216	37,616	38,530
Short Lived Assets	48,783	44,010	44,220
Infrastructure Grant	38,861	39,000	39,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>234,894</b>	<b>239,126</b>	<b>246,750</b>
<b>Resources Available:</b>	<b>347,153</b>	<b>438,693</b>	<b>445,081</b>
Expenditures:			
Debt Payments	109,182	109,182	109,182
Operations	25,825	35,700	125,000
Short Lived Assets	12,579	17,619	65,000
Infrastructure Grant	0	77,861	90,000
Cash Forward (2019 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>147,586</b>	<b>240,362</b>	<b>389,182</b>
Unencumbered Cash Balance Dec 31	199,567	198,331	55,899
2017/2018/2019 Budget Authority Amount:	242,029	282,651	389,182

CPA Summary

City of Linn Valley

2020

**FUND PAGE FOR FUNDS WITH NO TAX LEVY**

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Capital Improvements</b>	Actual for 2018	Estimate for 2019	Year for 2020
Unencumbered Cash Balance Jan 1	79,142	79,142	2,142
Receipts:			
Transfer from General Fund			18,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>0</b>	<b>0</b>	<b>18,000</b>
<b>Resources Available:</b>	<b>79,142</b>	<b>79,142</b>	<b>20,142</b>
Expenditures:			
Programs		77,000	20,142
Cash Forward (2020 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>0</b>	<b>77,000</b>	<b>20,142</b>
Unencumbered Cash Balance Dec 31	79,142	2,142	0
2018/2019/2020 Budget Authority Amount:	74,642	109,142	20,142

Adopted Budget	Prior Year	Current Year	Proposed Budget
<b>Sewer Utility</b>	Actual for 2018	Estimate for 2019	Year for 2020
Unencumbered Cash Balance Jan 1	201,024	236,494	283,135
Receipts:			
Customer Income			227,000
Debit Reduction	120,189	119,463	
Operations	50,011	40,830	
Short Lived Aassets	58,770	45,480	
Infrastructure Grant	42,994	40,000	38,000
Interest on Idle Funds			
Miscellaneous			
Does miscellaneous exceed 10% of Total Rec			
<b>Total Receipts</b>	<b>271,964</b>	<b>245,773</b>	<b>265,000</b>
<b>Resources Available:</b>	<b>472,988</b>	<b>482,267</b>	<b>548,135</b>
Expenditures:			
Debt Payments	109,219	109,182	109,182
Operations	37,762	38,950	100,000
Short Lived Assests	53,503	41,000	100,000
Maintenance			50,000
Infrastructure Grant	36,010	10,000	90,000
Cash Forward (2020 column)			
Miscellaneous			
Does miscellaneous exceed 10% of Total Exp			
<b>Total Expenditures</b>	<b>236,494</b>	<b>199,132</b>	<b>449,182</b>
Unencumbered Cash Balance Dec 31	236,494	283,135	98,953
2018/2019/2020 Budget Authority Amount:	282,651	389,182	449,182

CPA Summary
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AS OF DATE: 05/14/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115402-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015B BI # 5650052115402  
 05/14/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called	Interest Round	Activity Type
05/21/2016	565002AA1	2.750%	05/21/2055	200,000.00		5,500.00	E		
		*PAYMENT DATE TOTAL*		200,000.00		5,500.00			5,500.00
05/21/2017	565002AA1	2.750%	05/21/2055	200,000.00	2,925.00	5,500.00	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		200,000.00	2,925.00	5,500.00			8,425.00
05/21/2018	565002AA1	2.750%	05/21/2055	197,075.00	3,005.44	5,419.56	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		197,075.00	3,005.44	5,419.56			8,425.00
05/21/2019	565002AA1	2.750%	05/21/2055	194,069.56	3,088.09	5,336.91	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		194,069.56	3,088.09	5,336.91			8,425.00
05/21/2020	565002AA1	2.750%	05/21/2055	190,981.47	3,158.62	5,251.99	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		190,981.47	3,158.62	5,251.99			8,410.61
05/21/2021	565002AA1	2.750%	05/21/2055	187,822.85	3,259.87	5,165.13	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		187,822.85	3,259.87	5,165.13			8,425.00
05/21/2022	565002AA1	2.750%	05/21/2055	184,562.98	3,349.52	5,075.48	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		184,562.98	3,349.52	5,075.48			8,425.00
05/21/2023	565002AA1	2.750%	05/21/2055	181,213.46	3,441.63	4,983.37	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		181,213.46	3,441.63	4,983.37			8,425.00
05/21/2024	565002AA1	2.750%	05/21/2055	177,771.83	3,522.88	4,888.73	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		177,771.83	3,522.88	4,888.73			8,411.61
05/21/2025	565002AA1	2.750%	05/21/2055	174,248.95	3,633.15	4,791.85	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		174,248.95	3,633.15	4,791.85			8,425.00
05/21/2026	565002AA1	2.750%	05/21/2055	170,615.80	3,733.07	4,691.93	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		170,615.80	3,733.07	4,691.93			8,425.00



AS OF DATE: 05/14/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115402-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015B BI # 5650052115402  
 05/14/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called	Interest Round	Activity Type
05/21/2027	565002AA1	2.750%	05/21/2055	166,882.73	3,835.72	4,589.28	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		166,882.73	3,835.72	4,589.28			8,425.00
05/21/2028	565002AA1	2.750%	05/21/2055	163,047.01	3,928.92	4,483.79	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		163,047.01	3,928.92	4,483.79			8,412.71
05/21/2029	565002AA1	2.750%	05/21/2055	159,118.09	4,049.25	4,375.75	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		159,118.09	4,049.25	4,375.75			8,425.00
05/21/2030	565002AA1	2.750%	05/21/2055	155,068.84	4,160.61	4,264.39	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		155,068.84	4,160.61	4,264.39			8,425.00
05/21/2031	565002AA1	2.750%	05/21/2055	150,908.23	4,275.02	4,149.98	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		150,908.23	4,275.02	4,149.98			8,425.00
05/21/2032	565002AA1	2.750%	05/21/2055	146,633.21	4,381.54	4,032.41	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		146,633.21	4,381.54	4,032.41			8,413.95
05/21/2033	565002AA1	2.750%	05/21/2055	142,251.67	4,513.08	3,911.92	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		142,251.67	4,513.08	3,911.92			8,425.00
05/21/2034	565002AA1	2.750%	05/21/2055	137,738.59	4,637.19	3,787.81	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		137,738.59	4,637.19	3,787.81			8,425.00
05/21/2035	565002AA1	2.750%	05/21/2055	133,101.40	4,764.71	3,660.29	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		133,101.40	4,764.71	3,660.29			8,425.00
05/21/2036	565002AA1	2.750%	05/21/2055	128,336.69	4,886.07	3,529.26	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		128,336.69	4,886.07	3,529.26			8,415.33
05/21/2037	565002AA1	2.750%	05/21/2055	123,450.62	5,030.11	3,394.89	E		PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		123,450.62	5,030.11	3,394.89			8,425.00

AS OF DATE: 05/14/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115402-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015B BI # 5650052115402  
 05/14/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2038	565002AA1	2.750%	05/21/2055	118,420.51	5,168.44	3,256.56	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		118,420.51	5,168.44	3,256.56		8,425.00
05/21/2039	565002AA1	2.750%	05/21/2055	113,252.07	5,310.57	3,114.43	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		113,252.07	5,310.57	3,114.43		8,425.00
05/21/2040	565002AA1	2.750%	05/21/2055	107,941.50	5,448.48	2,968.39	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		107,941.50	5,448.48	2,968.39		8,416.87
05/21/2041	565002AA1	2.750%	05/21/2055	102,493.02	5,606.44	2,818.56	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		102,493.02	5,606.44	2,818.56		8,425.00
05/21/2042	565002AA1	2.750%	05/21/2055	96,886.58	5,760.62	2,664.38	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		96,886.58	5,760.62	2,664.38		8,425.00
05/21/2043	565002AA1	2.750%	05/21/2055	91,125.96	5,919.04	2,505.96	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		91,125.96	5,919.04	2,505.96		8,425.00
05/21/2044	565002AA1	2.750%	05/21/2055	85,206.92	6,075.39	2,343.19	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		85,206.92	6,075.39	2,343.19		8,418.58
05/21/2045	565002AA1	2.750%	05/21/2055	79,131.53	6,248.88	2,176.12	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		79,131.53	6,248.88	2,176.12		8,425.00
05/21/2046	565002AA1	2.750%	05/21/2055	72,882.65	6,420.73	2,004.27	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		72,882.65	6,420.73	2,004.27		8,425.00
05/21/2047	565002AA1	2.750%	05/21/2055	66,461.92	6,597.30	1,827.70	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		66,461.92	6,597.30	1,827.70		8,425.00
05/21/2048	565002AA1	2.750%	05/21/2055	59,864.62	6,774.21	1,646.28	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		59,864.62	6,774.21	1,646.28		8,420.49

AS OF DATE: 05/14/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115402-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015B BI # 5650052115402  
 05/14/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2049	565002AA1	2.750%	05/21/2055	53,090.41	6,965.01	1,459.99	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		53,090.41	6,965.01	1,459.99		8,425.00
05/21/2050	565002AA1	2.750%	05/21/2055	46,125.40	7,156.55	1,268.45	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		46,125.40	7,156.55	1,268.45		8,425.00
05/21/2051	565002AA1	2.750%	05/21/2055	38,968.85	7,353.36	1,071.64	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		38,968.85	7,353.36	1,071.64		8,425.00
05/21/2052	565002AA1	2.750%	05/21/2055	31,615.49	7,553.19	869.43	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		31,615.49	7,553.19	869.43		8,422.62
05/21/2053	565002AA1	2.750%	05/21/2055	24,062.30	7,763.29	661.71	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		24,062.30	7,763.29	661.71		8,425.00
05/21/2054	565002AA1	2.750%	05/21/2055	16,299.01	7,976.78	448.22	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		16,299.01	7,976.78	448.22		8,425.00
05/21/2055	565002AA1	2.750%	05/21/2055	8,322.23	8,322.23	228.86	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		8,322.23	8,322.23	228.86		8,551.09
		**GRAND TOTAL**			200,000.00	134,118.86		334,118.86

AS OF DATE: 05/13/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115401-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015A BI # 5650052115401  
 05/13/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2016	565001AA1	2.750%	05/21/2055	2,392,000.00		65,780.00	E	
		*PAYMENT DATE TOTAL*		2,392,000.00		65,780.00		65,780.00
05/21/2017	565001AA1	2.750%	05/21/2055	2,392,000.00	34,977.00	65,780.00	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,392,000.00	34,977.00	65,780.00		100,757.00
05/21/2018	565001AA1	2.750%	05/21/2055	2,357,023.00	35,938.87	64,818.13	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,357,023.00	35,938.87	64,818.13		100,757.00
05/21/2019	565001AA1	2.750%	05/21/2055	2,321,084.13	36,927.19	63,829.81	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,321,084.13	36,927.19	63,829.81		100,757.00
05/21/2020	565001AA1	2.750%	05/21/2055	2,284,156.94	37,770.59	62,814.32	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,284,156.94	37,770.59	62,814.32		100,584.91
05/21/2021	565001AA1	2.750%	05/21/2055	2,246,386.35	38,981.38	61,775.62	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,246,386.35	38,981.38	61,775.62		100,757.00
05/21/2022	565001AA1	2.750%	05/21/2055	2,207,404.97	40,053.36	60,703.64	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,207,404.97	40,053.36	60,703.64		100,757.00
05/21/2023	565001AA1	2.750%	05/21/2055	2,167,351.61	41,154.83	59,602.17	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,167,351.61	41,154.83	59,602.17		100,757.00
05/21/2024	565001AA1	2.750%	05/21/2055	2,126,196.78	42,126.40	58,470.41	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,126,196.78	42,126.40	58,470.41		100,596.81
05/21/2025	565001AA1	2.750%	05/21/2055	2,084,070.38	43,445.06	57,311.94	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,084,070.38	43,445.06	57,311.94		100,757.00
05/21/2026	565001AA1	2.750%	05/21/2055	2,040,625.32	44,639.80	56,117.20	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		2,040,625.32	44,639.80	56,117.20		100,757.00



AS OF DATE: 05/13/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115401-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015A BI # 5650052115401  
 05/13/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2027	565001AA1	2.750%	05/21/2055	1,995,985.52	45,867.40	54,889.60	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,995,985.52	45,867.40	54,889.60		100,757.00
05/21/2028	565001AA1	2.750%	05/21/2055	1,950,118.12	46,981.82	53,628.25	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,950,118.12	46,981.82	53,628.25		100,610.07
05/21/2029	565001AA1	2.750%	05/21/2055	1,903,136.30	48,420.75	52,336.25	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,903,136.30	48,420.75	52,336.25		100,757.00
05/21/2030	565001AA1	2.750%	05/21/2055	1,854,715.55	49,752.32	51,004.68	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,854,715.55	49,752.32	51,004.68		100,757.00
05/21/2031	565001AA1	2.750%	05/21/2055	1,804,963.23	51,120.51	49,636.49	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,804,963.23	51,120.51	49,636.49		100,757.00
05/21/2032	565001AA1	2.750%	05/21/2055	1,753,842.72	52,394.19	48,230.67	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,753,842.72	52,394.19	48,230.67		100,624.86
05/21/2033	565001AA1	2.750%	05/21/2055	1,701,448.53	53,967.17	46,789.83	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,701,448.53	53,967.17	46,789.83		100,757.00
05/21/2034	565001AA1	2.750%	05/21/2055	1,647,481.36	55,451.26	45,305.74	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,647,481.36	55,451.26	45,305.74		100,757.00
05/21/2035	565001AA1	2.750%	05/21/2055	1,592,030.10	56,976.17	43,780.83	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,592,030.10	56,976.17	43,780.83		100,757.00
05/21/2036	565001AA1	2.750%	05/21/2055	1,535,053.93	58,427.36	42,213.98	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,535,053.93	58,427.36	42,213.98		100,641.34
05/21/2037	565001AA1	2.750%	05/21/2055	1,476,626.57	60,149.77	40,607.23	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,476,626.57	60,149.77	40,607.23		100,757.00

AS OF DATE: 05/13/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115401-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015A BI # 5650052115401  
 05/13/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2038	565001AA1	2.750%	05/21/2055	1,416,476.80	61,803.89	38,953.11	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,416,476.80	61,803.89	38,953.11		100,757.00
05/21/2039	565001AA1	2.750%	05/21/2055	1,354,672.91	63,503.49	37,253.51	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,354,672.91	63,503.49	37,253.51		100,757.00
05/21/2040	565001AA1	2.750%	05/21/2055	1,291,169.42	65,152.56	35,507.16	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,291,169.42	65,152.56	35,507.16		100,659.72
05/21/2041	565001AA1	2.750%	05/21/2055	1,226,016.86	67,041.54	33,715.46	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,226,016.86	67,041.54	33,715.46		100,757.00
05/21/2042	565001AA1	2.750%	05/21/2055	1,158,975.32	68,885.18	31,871.82	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,158,975.32	68,885.18	31,871.82		100,757.00
05/21/2043	565001AA1	2.750%	05/21/2055	1,090,090.14	70,779.52	29,977.48	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,090,090.14	70,779.52	29,977.48		100,757.00
05/21/2044	565001AA1	2.750%	05/21/2055	1,019,310.62	72,649.16	28,031.04	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		1,019,310.62	72,649.16	28,031.04		100,680.20
05/21/2045	565001AA1	2.750%	05/21/2055	946,661.46	74,723.81	26,033.19	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		946,661.46	74,723.81	26,033.19		100,757.00
05/21/2046	565001AA1	2.750%	05/21/2055	871,937.65	76,778.71	23,978.29	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		871,937.65	76,778.71	23,978.29		100,757.00
05/21/2047	565001AA1	2.750%	05/21/2055	795,158.94	78,890.13	21,866.87	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		795,158.94	78,890.13	21,866.87		100,757.00
05/21/2048	565001AA1	2.750%	05/21/2055	716,268.81	81,005.64	19,697.39	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		716,268.81	81,005.64	19,697.39		100,703.03

AS OF DATE: 05/13/2015

Office of the Kansas State Treasurer  
 AMORTIZATION SCHEDULE  
 5650052115401-LINN VALLEY  
 CITY OF LINN VALLEY  
 GENERAL OBLIGATION BONDS  
 SERIES 2015A BI # 5650052115401  
 05/13/2015-05/21/2055

Date	Cusip #	Int Rate	Maturity	Principal Outstanding	Principal Amount to Pay	Full Term Interest	ICM Called Interest Round	Activity Type
05/21/2049	565001AA1	2.750%	05/21/2055	635,263.17	83,287.26	17,469.74	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		635,263.17	83,287.26	17,469.74		100,757.00
05/21/2050	565001AA1	2.750%	05/21/2055	551,975.91	85,577.66	15,179.34	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		551,975.91	85,577.66	15,179.34		100,757.00
05/21/2051	565001AA1	2.750%	05/21/2055	466,398.25	87,931.05	12,825.95	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		466,398.25	87,931.05	12,825.95		100,757.00
05/21/2052	565001AA1	2.750%	05/21/2055	378,467.20	90,320.64	10,407.85	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		378,467.20	90,320.64	10,407.85		100,728.49
05/21/2053	565001AA1	2.750%	05/21/2055	288,146.56	92,832.97	7,924.03	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		288,146.56	92,832.97	7,924.03		100,757.00
05/21/2054	565001AA1	2.750%	05/21/2055	195,313.59	95,385.88	5,371.12	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		195,313.59	95,385.88	5,371.12		100,757.00
05/21/2055	565001AA1	2.750%	05/21/2055	99,927.71	99,927.71	2,748.01	E	PRINCIPAL PAY
		*PAYMENT DATE TOTAL*		99,927.71	99,927.71	2,748.01		102,675.72
		**GRAND TOTAL**			2,392,000.00	1,604,238.15		3,996,238.15

Division of Environment  
Southeast District Office  
308 W 14th Street  
Chanute, KS 66720



Phone: 620-431-2390  
Fax: 620-431-1211  
KDHE.SEDOADMIN@KS.GOV  
www.kdheks.gov

Lee A. Norman, M.D., Secretary

Laura Kelly, Governor

September 4, 2019

Linn Valley Wastewater Treatment Facility  
c/o Mike Page  
22412 E. 2400 Rd.  
Linn Valley, KS 66040

RE: Inspection of wastewater treatment facilities  
Permit No.: M-MC67-0001

Dear Mr. Page:

On August 23, 2019, Jason Schultz and I conducted a routine inspection of the wastewater treatment facility that serves Linn Valley. We sincerely appreciate the courtesy extended to us during the inspection. This inspection is part of our program to determine compliance with Kansas Water Pollution Control (KWPC) permits. This letter and attached inspection report are to confirm and supplement items noted during the inspection.

**Compliance:**

During the inspection on August 23, 2019 the facility was determined to be **In Compliance** with the KWPC permit. However, there are **Operation and Maintenance (O&M) Action that are required.**

1. Tall vegetation, saplings and aquatic plants were observed around the wastewater treatment facility lagoon cells. Tall vegetation must be mowed, and any saplings/aquatic vegetation must be removed either by cutting and/or the use of herbicide. The cells need to be maintained in order for the operator to inspect and make a proper assessment of the facility.
2. During the inspection, erosion issues were observed along the berms of Cell 1 and Cell 2. Erosion issues include but are not limited to, wave action, soil settling and animal burrowing. Any erosion damage found on or around the cells must be repaired by shaping the area to the original design plan and reestablishing perennial groundcover.
3. The fence surrounding the lagoon system is being compromised by the presence of trees. To address this issue all trees growing within the fence and any branches overhanging the fence line must be removed. Any damage to the fence must be repaired to restrict public access.
4. Warning signs stating the nature of the facility need to be in place around all four sides of the fences surrounding the lagoon cells.



**A written response and photo documentation must be submitted, to this office, by December 4, 2019.** The response must summarize what corrective actions you have taken to address these items. If additional time is required, please provide a specific date for when the corrective actions will be taken.

**Recommendations:**

Recommendations of Kansas Department of Health and Environment (KDHE) are in line with the most recent recommendations of Kansas Rural Water Association (KRWA) assessment completed on July 17, 2019, letter dated August 20, 2019. Although the most recent effluent samples were determined to be in compliance with permit effluent limits the city should start to financially prepare for desludging operations for Cells #1 and #2. KDHE also recommends that before the city makes any costly decisions on desludging operations or modifications to the facility, the city should allow sufficient time to gather quarterly effluent samples and utilize this data to base their decisions on future operation.

**Comments:**

We appreciate the courtesy extended to us during the inspection and we also appreciate Mike Page, Dan Donham and Lewis Donelson working with KDHE in an effort to improve and correct any issues with the facility.

**Reminders:**

**Immediate reporting of all wastewater bypasses is required.** Any diversion or bypass of wastewater from the treatment facility or collection system must be reported to the KDHE District Office in Chanute (phone 620-431-2390 or fax 620-431-1211) within 24 hours of discovery. In addition to the telephone notification, the permittee is required to provide written notification to the Chanute office explaining what caused the spill or bypass and what corrective actions have been taken to prevent recurrence. The written notification must be provided to the Chanute office within five days of the permittee becoming aware of the bypass.

**Ten hours of training are required during every two-year renewal period for Class I - IV water and wastewater operators.** Five hours of training are required every two years for Small Systems operators. Failure to attain the required continuing education will result in non-renewal of an operator's certificate. Please contact Ms. Teresa Schuyler at (785) 296-5511 or myself if you need a list of training classes and dates.

Should you have any comments or questions concerning this letter please contact me by telephone at [(620) 431-2390] or by fax at [(620) 431-1211].

Sincerely,



Morgan S. Pearman  
Environmental Compliance/Regulatory Specialist  
Bureau of Environmental Field Services

pc: KDHE-BOW  
SEDO, Chanute  
Dan Donham  
Jason Solomon

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

# Waste Stabilization Lagoon Inspection Report

## I. General Information

Facility Name: Linn Valley Wastewater Treatment Facility

Design Capacity: 0.03 MGD

Current Population: 863 (League of Kansas Municipalities)

Facility Address: 24235 Ullery Rd., Linn Valley, KS 66040

Primary Mailing Address: 22412 E. 2400 Rd., Linn Valley, KS 66040

KDHE Representative: Morgan S. Pearman / Jason Schultz

KWPC Permit No. M-MC67-0001

Inspection Date: August 23, 2019

Previous Inspection Date: January 6, 2016

	Yes	No	N/A
Is there a schedule of compliance in the permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If yes, are they in compliance with the schedule?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there an enforcement order against the permittee for this facility?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If yes, are they in compliance with the enforcement order?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were samples collected, and/or split with the facility?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

## II. Contacts / Responsible Staff / Certified Operators

Name	Present	Title	Certification Level	Email Address	Telephone No.	
Mike Page	Yes	Operator	1	sapage@enbarqmail.com	Office: 913-898-4722 Cell: 913-285-0490	
Dan Donham	Yes	City Employee	N/A	codes1@cityoflinnvalley.com	913-548-7176	
Jason Solomon	Yes	KRWA	N/A	jason@krwa.net		
Lewis Donelson	Yes	City Council	N/A			
			Yes	No	N/A	Comments
Does the level of staff certification comply with K.A.R. 28-16-36?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Level Required: <u>1</u>

## III. Facility Information

Yes No

Comments

### a. Briefly describe the operation and condition of the facility.

The wastewater lagoon system consists of a three-cell discharging system that receives influent from a single lift station located within the Linn Valley Lakes Property Owners Association. On the day of inspection, the system was operating as: Cell #1 receives influent via an inlet pipe in the west corner of the berm. A crossover pipe located approximately midway along the berm separating Cells #1 and #2 discharges wastewater to Cell #2. Wastewater is then discharged through a pipe in the east corner of Cell #2 to a lift station located near the South end of Cells #2. Cell #3 receives wastewater from the lift station along the east bank of the cell and effluent is discharged through the outfall located along the south berm of the cell. The system is designed so that Cells #1 and #2 can be operated individually or in series. This is accomplished by an influent pipe located in the west corner of Cell #2, and a discharge pipe located in the west corner of Cell #1 (discharging to the lift station). Please refer to the attached diagram for a detailed description of the system. On the day of inspection, the system appeared to be operating as designed.

b. Is the facility description in the permit accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Describe any significant changes, additions or improvements to the facility since the last inspection.			None
d. Is facility proposing any modifications?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e. Have there been any citizen complaints since the last inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

IV. <u>Influent/ Effluent</u>	Yes	No	Comments
a. Any significant changes in the influent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Any high strength or problem influents to the treatment system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Does this facility accept other types of hauled in wastewater? Describe.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sewage is hauled by truck from individual home holding tanks within Linn Valley Lakes POA.
d. Has the facility had any upsets or surge loading in recent past (1-2 years)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e. Is treated effluent used for irrigation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, % of flow:
f. Is the Irrigation water disinfected prior to use?	<input type="checkbox"/>	<input type="checkbox"/>	Disinfection Method:
Where is Irrigation used:			
Method of irrigation used:			
g. Is treated effluent used other than for irrigation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, % of flow:
Indicate user and location(s) of reuse:			
Is the treated wastewater disinfected prior to re-use?	<input type="checkbox"/>	<input type="checkbox"/>	Disinfection Method:
h. If effluent flows to a stream, describe any negative effects on the receiving stream.	No negative effects were observed on the day of inspection.		

V. <u>Sampling</u>	Yes	No	Comments
If non-discharging, mark NA <input type="checkbox"/> for this section.			
a. Are samples collected in appropriate location(s) using the proper sampling procedures to meet permit requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Influent samples are collected from the influent pipe located near the northwest corner of Cell #1. Effluent samples are collected from the outfall located on the south berm of Cell #3. Prior to this inspection the Effluent outfall/sample location had been incorrectly identified.
b. Is the laboratory used, KDHE-certified for the permit required parameters?	<input type="checkbox"/>	<input type="checkbox"/>	Who collects Samples: Pace Analytical Lab: Pace Analytical

VI. <u>Reporting and Recordkeeping</u>	Yes	No	N/A	Comments
a. Is a copy of the KWPC Permit available onsite or at a nearby office?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Location: City Hall
b. Have all Discharge Monitoring Reports been submitted to KDHE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is facility using eDMR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If No, do they have walver? <input type="checkbox"/> Y <input type="checkbox"/> N
c. Are Discharge Monitoring Reports available on site for three (3) years? or at a nearby office?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location of DMRs: City Hall
d. Are analytical results and appropriate records maintained by permittee for three (3) years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location: City Hall
e. Has the facility exceeded permit discharge limits since the previous inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

f. Are there other permit violations since the previous inspection? If so, what type?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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**503 Sludge Program**  
 KDHE, using provisions previously agreed upon with EPA, has produced a reduced 503 sludge reporting form for 503 sludge removal from lagoons.

VII. Incident Reporting History				Yes	No	N/A	Comments
Are incidents reported according to permit requirements?				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2018-07-19, 2017-06-19, 2016-09-29 (City Collection Line), 2016-05-27 (Private Sewer System), 2016-03-03 (Lift/Pump Station).
Since the last inspection how many incidents (bypasses) have been reported at the following locations:							
Treatment Facilities:	0	Lift Stations:	1	Collection System:	3	Private Service Lines:	1

VIII. Backup Power and Emergency Procedures				Yes	No	N/A	Comments
a. Are backup power sources available for the treatment facility?				<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lift Stations Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Portable Generator
b. Describe the frequency of exercise and maintenance of backup power sources.				Exercise and maintenance are performed as needed.			
c. Are maintenance records for backup power supplies available?				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Are there emergency procedures in the event of a power failure, equipment break down, etc...?				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SOP are in place.

IX. Lagoon Operation and Maintenance									
Total number of cells available			3		In use			3	
Cell I.D.	Order / Use (First, Second, Final etc...)	Discharge To Outfall		# of Aeration Units	Sludge Measurement			Last Year Desludged	
		Yes	No		Year	Excessive			
		Yes	No			Yes	No		
Cell #1	First	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None	2019	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Unknown	
Cell #2	Second	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None	2019	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Unknown	
Cell #3	Final	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None		<input type="checkbox"/>	<input type="checkbox"/>		
				Yes	No	Comments			
a. Describe the watercolor and wave action.				On the day of inspection Cell #1 had a muddy light brown color with slight wave action. Cell #2 had a light grey/clear color with slight wave action. Cell #3 had a dull green color with good wave action.					
b. Are there multiple draw off points?				<input type="checkbox"/>	<input checked="" type="checkbox"/>				
c. Are the fence, gate(s) and warning signs sufficient and maintained?				<input type="checkbox"/>	<input checked="" type="checkbox"/>	The fence needs repair. Signs were not located on all four sides of the fence. Trees are located in and/or near the fence line of all three cells.			
d. Is erosion of dike(s) controlled?				<input type="checkbox"/>	<input checked="" type="checkbox"/>	Erosion was noted on the berms.			
e. Is animal burrowing on dike(s) controlled?				<input type="checkbox"/>	<input checked="" type="checkbox"/>	Burrows were noted on the berms.			
f. Is there sufficient grass cover on dikes?				<input checked="" type="checkbox"/>	<input type="checkbox"/>				
g. Is grass mowed?				<input type="checkbox"/>	<input checked="" type="checkbox"/>	Grass needs mowed.			



h. Is plant / tree growth controlled within the fence of the facility?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Trees need to be removed from the inner berms of all three cells.
i. Is seepage through the lagoon dikes controlled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
j. Are aquatic weeds / buildup of scum controlled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
k. Is the Insect population minimal and controlled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
l. Are depth gauges maintained?	<input type="checkbox"/>	<input type="checkbox"/>	N/A
m. Is there a minimum of three (3) feet of water depth?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
n. Is the influent structure properly distributing influent?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
o. Is there a minimum of three (3) feet of freeboard in the lagoon(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
p. Is the effluent structure properly maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
q. Is there evidence of short-circuiting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
r. Are there nuisance odor conditions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<b>X. Lift Stations Operation and Maintenance</b>				
<b>Total number of lift stations</b>	2	<b>Stations inspected</b>	2	
		<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Comments</b>
a. Describe lift station inspection and maintenance schedule(s).				Rate and Hour log books are located at the lift stations. Maintenance is conducted as needed.
b. Describe alarm and monitoring systems.				The Main lift station has a light and audible alarm system. The Lagoon lift station has a light.
c. Are all pumps operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Are maintenance and pumping volume records maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Is forced-air ventilation needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Where:
f. Is there excessive leakage from pumps or piping?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
g. Is there excessive grease build-up in the wet well?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
h. What methods are used to control grease buildup in the wet well?	N/A			
i. Do any lift stations have a history of incidents or other mechanical problems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
j. Does the facility have appropriate security measures in place?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>XI. Collection System</b>	<b>Yes</b>	<b>No</b>	<b>Comments</b>
<b>Describe the operation and condition of the collection system. Include the sewer maintenance and repair activities since the last inspection, i.e. including the use of outside contractors.</b>			
A low-pressure sewer system with individual grinder pumps serves approximately 300 homes. Effluent from the low-pressure sewer system is discharged directly into Cell #1. Approximately 250 homes continue to utilize holding tanks that require periodic transport via Vac trucks to the Main lift station. Also, an emergency dump site for Vac trucks is located on the northeast side of Cell #1. Maintenance is conducted as needed.			
<b>Is there a significant inflow or infiltration problem? If yes, describe what steps are being taken to control / correct the problem?</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	According to operator system does not have any significant inflow and Infiltration problems (I&I).

XII. Compliance and Recommendations		Yes	No	Comments
a. Is the facility in full compliance? If not, what compliance violations must be addressed? Include any comments on permit Schedule of Compliance or Enforcement here.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Are there Operation & Maintenance (O&M) issues that must be addressed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Are there recommended actions to mitigate future operational or compliance issues?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Comments				

Report Prepared and Submitted By: Morgan S. Pearman Date: September 4, 2019

Signature: *Morgan S. Pearman*

Title: Environmental Compliance Regulatory Specialist

Approved By: Jason Schultz

Date: September 4, 2019

Signature: *Jason Schultz*

Title: Environmental Program Administrator

Attachment- Site Map/Diagram (identify primary reference points) Include multiple points if applicable.



**KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT – DIVISION OF ENVIRONMENT**  
**Bureau of Field Services – Water/Wastewater Programs**  
**Southeast District Office**

The digital photographs contained in this report were recorded directly to an archival file or electronic media prior to viewing on a computer system. KDHE certifies that such digital photographs are thus identical to the digital photographs taken during the inspection/investigation.

<b>Site Name:</b>	<u>Linn Valley Wastewater Treatment Facility</u>	<b>Permit/Complaint No.:</b>	<u>M-MC67-0001</u>
<b>Address/Legal:</b>	<u>22412 E. 2400 Rd., Linn Valley, KS 66040</u>	<b>City:</b>	<u>Linn Valley</u>
<b>County:</b>	<u>Linn</u>	<b>Camera:</b>	<u>Canon SX620 HS</u>
<b>Weather:</b>	<u>NOAA: Wind-East 6mph, Overcast, 75°F</u>	<b>Taken By:</b>	<u>Morgan Pearman</u>



<b>Photo Number:</b>	<u>1</u>
<b>Date:</b>	<u>August 23, 2019</u>
<b>Time:</b>	<u>11:03 am</u>
<b>Location:</b>	<u>Main Lift Station</u>
<b>Direction Faced:</b>	<u>Northeast</u>

Comments: Overall condition and operation of the main lift station.



<b>Photo Number:</b>	<u>2</u>
<b>Date:</b>	<u>August 23, 2019</u>
<b>Time:</b>	<u>11:37 am</u>
<b>Location:</b>	<u>Cell #1</u>
<b>Direction Faced:</b>	<u>Southwest</u>

Comments: Photo is of Cell #1 showing overall condition and operation of the cell. Note concrete in lower portion of photo, which is part of an access road for discharging sewage directly into the cell.



**Site Name:** Linn Valley Wastewater Treatment Facility

**Permit/Comp #**

**M-MC67-0001**



**Photo Number:** 3  
**Date:** August 23, 2019  
**Time:** 11:52 am  
**Location:** Cell #2  
**Direction Faced:** Southwest

**Comments:** Photo is of Cell #2 showing overall condition and operation of the cell. Note pipe in lower left-hand side of photo, which is the inlet pipe for the lift station that moves effluent from Cell #2 to Cell #3.



**Photo Number:** 4  
**Date:** August 23, 2019  
**Time:** 12:03 pm  
**Location:** Cell #2  
**Direction Faced:** North

**Comments:** Some erosion noted on the southwest berm of Cell #2.



**Site Name:** Linn Valley Wastewater Treatment Facility

**Permit/Comp #**

M-MC67-0001



**Photo Number:** 5

**Date:** August 23, 2019

**Time:** 12:17 pm

**Location:** Cell #3 South Berm Discharge Pipe

**Direction Faced:** North

**Comments:** Discharge pipe located on the south berm of Cell #3. Note that the system was discharging on the day of inspection.



**Photo Number:** 6

**Date:** August 23, 2019

**Time:** 12:17 pm

**Location:** Cell #3 South Berm Discharge Pipe

**Direction Faced:** South

**Comments:** Directly downstream of the discharge pipe located on the south berm of Cell #3. Note that effluent was flowing on the day of inspection.

**Site Name:** Linn Valley Wastewater Treatment Facility

**Permit/Comp #**

M-MC67-0001



**Photo Number:** 7  
**Date:** August 23, 2019  
**Time:** 12:20 pm  
**Location:** Cell #3 Southwest Berm  
**Direction Faced:** North

**Comments:** Photo along the south/southwest berm looking north across Cell #3. Note smaller saplings/trees along the inner berm of the cell.



**Photo Number:** 8  
**Date:** August 23, 2019  
**Time:** 12:34 pm  
**Location:** Cell #3 East Bank  
**Direction Faced:** West

**Comments:** Inlet pipe from Cell #2 (lift station). Note in lower right-hand side of photo the pipe is visible. Also note that the pipe is discharging and influent is visible near the edge of the vegetation and in the cell.



P.O. Box 226 • Seneca, KS 66538 • 785/336-3760  
FAX 785/336-2751 • <http://www.krwa.net>

August 20, 2019

Dan Donham  
Buildings and Codes  
Enforcement Officer  
City of Linn Valley  
22412 E. 2400 Rd.  
Linn Valley, KS 66040

RE: Sludge Profile and Wastewater Treatment Facility Assessment

Dear Mr. Donham,

As requested, I assisted you and Lew Donelson in conducting a sludge profile of your system's wastewater treatment facility and provided technical assistance about the general operations of the facility on July 17, 2019. This letter and enclosed report summarize my findings.

We took 34 sludge measurements in the primary cell No.1, the east cell. The average sludge depth including heavy sludge is 25.9 inches. This cell was being operated at a depth of 6.5 feet. The loss of capacity due to sludge accumulation at this operating level is 33.2 percent.

We took 36 measurements in the secondary cell No. 2, the west cell. The average sludge depth in this cell was 21.8 inches. This cell was being operated at a depth of 7 feet. The loss of capacity in this cell is 26.0 percent.

In November of 2010 Kansas Rural Water Association also did a sludge profile and found the sludge accumulation of cell 1 and 2 to be 24.7 and 20.8 percent respectively and sludge removal was recommended at that time. It should be noted that the optimal operating depth of primary and secondary cells is usually 5 feet. The loss of capacity at the 5 feet operating level would be 43.0 and 36.3 percent respectively for cells 1 and 2.

During the July 17, 2019 site visit no measurements were taken in the third and final cell. This cell is abnormal in shape and design for most wastewater treatment (lagoon) systems in Kansas. This was also described in the 2010 sludge profile letter by Charlie Schwindamann of KRWA:



*As I understand, the final cell is an old farm pond. This cell had several places that storm water could enter by way of terraces and possibly from the highway. This cell had an uneven bottom. This cell would need to have several places corrected to bring it to the standards set by KDHE. There are many trees that will need removed from this cell.*

I am in agreement with Charlie Schwindamann's assessment of the final cell that it appears the cell was constructed for an alternate use prior to being utilized as the final cell of a wastewater treatment system. To date no engineering or operating plans could be provided for review for the wastewater treatment facility. These plans would be beneficial for the city to locate and review to determine the engineers optimal operating levels for the lagoon system and the design and piping locations for the third cell.

In review of the system Discharge Monitoring Reports no discharge of wastewater was reported since the first quarter of 2017. The permit Outfall or effluent discharge location, latitude and longitude coordinates place the location at the northwest corner of the third and final cell. The January 6, 2016 Kansas Department of Health and Environment (KDHE) wastewater inspection report also identifies the same location in the northwest corner as the system Outfall or effluent discharge location. In review of the described location no discharge would have occurred from this location.

During further assessment of the final cell a pipe was discovered that was discharging and determined to be the effluent discharging location of the third and final cell. The pipe was discharging on the day of the site visit. The pipe is located at the far southeast corner of the lagoon cell. An effluent sample was collected on July 19, 2019 and analyzed by Pace Analytical Laboratory for permit compliance. Sample results were reviewed and were in compliance with the permit effluent limits.

After assessing the location of the pipe that was discharging it appears the influent pipe is located directly across the cell from the effluent pipe. This would be considered a short circuit of the wastewater treatment cell. Please see the attached aerial map showing the location of the effluent discharging pipe, the permit Outfall location, and the location of the influent pipe in relation to the discovered effluent pipe.

The permit design flow for the system is .030 MGD. Flow to the wastewater facility is not measured. Estimates from water use or lift station pumping volumes may not be accurate because not all customers who utilize the wastewater system are part of the public water supply. Additionally, many customers in the Linn Valley Lakes Property Owner's Association (POA) are not tied into the wastewater collection system and have their septage hauled. Hauled septage is generally dumped into the main lift station and pumped into the wastewater treatment facility. However, there are times when the hauled septage is dumped directly into the primary cell. Records for hauled septage was reviewed. A determination of the septage that was dumped into the lift station or dumped directly into the primary cell could not be accurately determined.

I would like to commend the City of Linn Valley for initiating a review and assessment of its wastewater treatment facility. The following are recommendations and assessments for the city and the wastewater facility:

Sludge removal from wastewater facilities is generally recommended when 25 percent or greater of the cell's capacity is lost due to sludge accumulation and the system fails to meet permit effluent limits. The one

recent sample in the past two years was in compliance with the permit effluent limits. This could be attributed to the wastewater treatment facility operating correctly or a diluted sample from rainfall during the recent heavy precipitation events. Future quarterly effluent samples may answer this question. However, my recommendation, as was Charlie's in 2010, is the city should prepare financially to have the sludge removed from cells 1 and 2.

For sake of conversation, a budget estimate price of \$0.05 per gallon was provided to KRWA by a contractor that removes sludge. Using this budget cost estimate and two feet of sludge accumulation, the cost would be approximately \$32,500 for sludge removal per acre for sludge removal.

It is recommended the city work to develop a system that more accurately represents the amount of hauled septage to its facility. In reviewing the load receipts there was discussion that the total number of loads reported seemed lower than what was observed. Once the hauled septage is more accurately represented it may be possible to get a more accurate flow of wastewater using the pumping hours for the main lift station.

The city should try and locate the facility engineering plans and operations manuals to operate the facility as designed. Also, it appears that the third and final cell could short circuit, reducing the detention time of the final cell due to the location of the influent pipe in relation to the effluent pipe.

Once the plans are located it appears the piping for the influent to the third cell could be relocated to the northwest corner of the third cell to reduce the potential for short circuiting.

During the facility assessment some general maintenance items that are required by KDHE and the permit were noted. These include but are not limited to; the grass within the facility boundaries being maintained at 8 inches or less, trees need to be cut and removed from inside the cell berms, trees should be removed from the facility fencing, and appropriate signage should be visible indicating the use of the facility.

Funding for this assistance was provided by USDA Rural Development and through a contractual agreement between the National Rural Water Association and KRWA to provide assistance to public water supply and wastewater systems in Kansas. Please contact me at 620-203-9302 or call the KRWA office at 785.336.3760 if anyone can be of any help. For news, information, training schedules and more about KRWA programs visit the KRWA website at [www.krwa.net](http://www.krwa.net).

Sincerely,



Jason Solomon  
Wastewater Technician

Enclosures

C: Lew Donelson, City Council  
Cindy Smith, Mayor  
Jason Schultz, KDHE, Chanute  
Rod Geisler, KDHE, Topeka  
Nick Reams, KDHE, Topeka  
Dan Fisher, USDA Rural Development, Topeka  
Randy Stone, USDA Rural Development, Topeka  
Charlie Schwindamann, KRWA

Linn Valley Sludge Profile  
 July 17, 2017

24	28	24	28	30	30	24	26	24
26	22	26	24	24	24	26	30	26
22	24	22	22	22	22		22	24
24	24		36	30	36	24	30	30

Cell 1, Primary cell

Average sludge depth 25.9"  
 Operating Level 6.5'

Linn Valley Sludge Profile

July 17, 2017

24	24	22	22	22	22	22	22	20
22	22	22	24	22	22	22	22	20
20	24	20	22	20	22	22	24	22
20	22	22	22	20	22	22	20	20

Cell 2, Secondary cell

Average sludge depth 21.8"  
 Operating Level 7.0'





**KANSAS**  
**DEPARTMENT OF HEALTH & ENVIRONMENT**  
BILL GRAVES, GOVERNOR  
Gary R. Mitchell, Secretary

---

December 23, 1997

Linn Valley Lakes  
c/o Larry Dwyer, General Manager  
R.R. 1, Box L-54  
LaCygne, Kansas 66040

Re: Wastewater Treatment Facility

Dear Mr. Dwyer:

On Monday, December 15, 1997, I conducted an inspection to confirm observations made at that time.

At the present time this facility is permitted as a nonoverflowing wastewater treatment facility. A new Pollution Control Permit was applied for to change the facility status to be authorized to discharge. On October 16, 1997, a thirty-day public notice was issued. The main reason for the change was the future addition of a third cell to accommodate the growth at Linn Valley Lakes. The addition of a discharging third cell would direct effluent discharge to Middle Creek via Linn Valley Lakes via unnamed tributary.

Under current conditions the existing facility appeared to be achieving satisfactory treatment of the wastewater. At this time there was no noticeable odor and there was good surface wave action. The access gate was open since waste was being hauled from individual property septic vaults. Fence remains in good repair and identification signs posted.

During this inspection I found a siphon hose over the bank of the second cell. At this time the facility is a nondischarging system and can only be dewatered by irrigation and is a controlled runoff. The siphon hose is to be removed from the berm area so no possible discharge can occur. Since the water level is so high in the second cell and you do not have a two-foot freeboard, I would suggest you closely monitor the level. Hopefully your expansion will be started to alleviate the present situation.

Linn Valley Lakes  
December 23, 1997  
Page 2

Should you have any questions regarding this report, please feel free to contact our Southeast District Office in Chanute, phone 316/431-2390.

Respectfully submitted,

*Charles F. Getchell*

Charles F. Getchell  
Environmental Technician  
Bureau of Environmental Field Services

CFG:jm

Att.

pc: SEK Multi-County Health Dept.  
BOW, Topeka  
SED, Chanute

WASTE STABILIZATION POND  
INSPECTION FORM

FACILITY NAME Linn Valley Lakes POA

FACILITY ADDRESS R.R. 1, Box L-54, LaCygne, Kansas 66040

NW/4 NW/4 SE/4 Sec 29, T19S, R25E, Linn County TELEPHONE NO. 785/757-4591

PERMIT NO. C-MC18-N001 DATE December 15, 1997

INSPECTED BY Charles F. Getchell

OFFICIAL CONTACTED Larry Dwyer, General Manager

RECEIVING STREAM Nonoverflowing DESIGN CAPACITY \_\_\_\_\_

I. Personnel:

Give a listing of operating personnel.

Name	Responsibilities & Qualifications
<u>Mike Mishler</u>	<u>Operator, Class I</u>
_____	_____
_____	_____

II. Plant Operation and Maintenance:

a. Is flow measurement equipment available and operable? No, can be estimated for volume based upon the loads hauled to site.

b. Describe and comment on operation and condition of facility. Waste material is hauled from property owners' individual septic vaults by vacuum truck. Material is then taken to the two-cell facility. Truck is unloaded into the primary cell where it then passes through to cell No. 2, the final cell. Facility is fenced and identification signs posted. Gate is left open during operating hours to accommodate the many loads hauled by the vacuum truck to dump sewage.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. Industrial contributors (significant) - Describe large or problem contributors.  
None; residential and recreational lots.

d. Have there been or are there any anticipated significant changes in influent quantity and/or quality? Third cell is scheduled to be built to increase capacity.

III. Records and Permit Review:

a. Do the plant personnel perform their own tests? If not, who does? No, none required at this time.

b. Are appropriate records and data available? NA

c. Do laboratory data indicate that the permittee is in compliance with the permit effluent limitations? NA

d. Is permittee in compliance with the implementation schedule stipulated in the permit? Yes, as listed in permit.

IV. Overall Considerations:

a. Are there adequate emergency procedures in event of power failures, equipment breakdown, etc.? None required; all sewage is hauled.

b. Was a sample collected for analysis at the State Lab? Yes \_\_\_\_\_ No X

c. Describe the effect of this discharge on the receiving stream: At the present time this is a nonoverflowing facility.

d. Is there a follow-up inspection needed? No Reason? \_\_\_\_\_



# Bartlett & West Engineers, Inc.

23 February, 1998

Mr. Rod Geisler, P.E.  
Kansas Department of Health and Environment  
Municipal Programs Section  
Forbes Field, Bldg 283  
Topeka, KS 66620

**SUBJECT: Linn Valley Lakes, P.O.A.  
W.O. 4991.001**

Dear Mr. Geisler:

Enclosed for your review and approval are one set of Drawings (5 pages) and two extra cover sheets for the project to transfer lagoon effluent from the existing 2-cell lagoon system to the lake area on the Association's property. Also within the drawings are a pumping station and force main to deliver waste from the Gate Area to the lagoons. Utilization of this pumping arrangement will allow the Association staff to dump the truck loads here instead of having to haul to the lagoons on County roads. These drawings are consistent with our most recent conversations and also consistent with the recently issued NPDES discharge permit.

The pumping stations are both single pumping assemblies, again consistent with our discussions. The backup for the Gate Area station is the system of hauling already in place. The backup at the lagoons will be the available freeboard storage space once the system is in operation.

The Association has negotiated a contract with a pipeline contractor to install the force mains and will either construct on their own or negotiate with a contractor to install the wetwells. The power company will furnish power as already agreed with the Association. The pumping stations are being purchased by the Association directly from Smith & Loveless. We anticipate a 90 to 120 day delivery after all the paperwork clears.

I've attached Section 02222, Excavating; Section 02223, Backfilling; Section 02225, Trenching; Section 02275, Rip-Rap; Section 02607, Manholes and Covers; Section 02831, Fences and Gates; and Section 15060, Wastewater Pipe and Pipe Fittings. These Specification Sections will govern the installation of the Work.

As you may be aware, the Association is currently experiencing hydraulic overloading conditions at their existing 2-cell lagoon system. This project has seemingly taken a long time to develop in order to help resolve that issue. The financing is in place and the Association is

5835 S.W. 29th Street  
Topeka, KS 66614  
(785) 272-2252  
FAX (785) 272-7349

Bismarck, ND  
Irving, TX  
Jefferson City, MO  
Lenexa, KS  
St. Joseph, MO



Mr. Rod Geisler, P.E.  
Page 2

now able to proceed as quickly as equipment purchases and delivery will allow. They ask for your favorable consideration. If you have any questions concerning the submittals or the progress of the project please contact me. Please return the two extra cover sheets to me bearing your Agency's approval stamp.

Sincerely,

**BARTLETT & WEST ENGINEERS, INC.**



LaVene R. Brenden, P.E.

cc: Larry Dwyer, Linn Valley Lakes, POA. ✓

Enclosure



1/24/06

# K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND ENVIRONMENT

January 23, 2006

Roger O. Taylor  
City Councilman  
4380 Linn Valley Blvd.  
Linn Valley, KS 66040

Re: Linn Valley Lakes wastewater system

Dear Mr. Taylor:

I am in receipt of your letter that asks when Linn Valley Lakes can no longer install holding tank systems. You also asked about alternatives. I commend you for looking at your long-term wastewater situation.

A short answer is that the homeowners can continue to use holding tanks and that the Linn Valley Lakes Property Owner's Association (POA) can continue to pump holding tank effluent into the lagoon until it reaches the lagoon permit's maximum limit of 30,000 gallons per day.

At your suggestion, I called Pam McCoy, general manager for the POA about the matter. Ms. McCoy provided the following information:

1. From January 1 to December 31 2005, the POA pumped an average of 20,436 gallons per day from holding tanks into the lagoon system.
2. All homes have holding tanks. There are 289 holding tank customers. Eighty to 100 are year-round residences; the rest are seasonal. She estimates 200 fulltime residents.
3. They rely on homeowners to let them know when holding tanks need pumped.
4. The POA does not have the authority to inspect homeowner's holding tanks. We discussed the possibility of the City of Linn Valley adopting an ordinance to regulate and inspect holding tanks.
5. The POA owns and maintains a drinking water treatment plant below the dam that provides drinking water to 70 homes. About 100 homes are served by Linn County RWD#1, while the rest haul in drinking water.

Even though the lagoon system has reserve capacity at this time, KDHE recommends that the POA and/or the City of Linn Valley retain a consulting engineer to provide recommendations on a long-term wastewater solution. Our reasons for this recommendation:

1. You indicated that the city is experiencing an 8% growth rate, and that this rate is expected to increase because of the widening of U.S. Hwy. 69. You should also consider that the high number of existing seasonal homes could become permanent residences in a short time. This situation creates the potential for a sudden increase in wastewater generation.
2. The lagoon system is in a tributary that drains into a lake used for recreational and drinking water purposes. Discharge of treated wastewater into the lake will accelerate eutrophication. This could result in taste and odor problems in drinking water, mats of algae, which interfere with boating, swimming, and other recreation activities and depleted oxygen, which can cause fish kills.
3. Holding tanks are not considered a long-term alternative and could eventually pose an environmental threat, especially when the POA does not have the authority to inspect the tanks. The preferred material for holding tanks is concrete, provided such tanks are properly constructed and installed. Steel tanks, though, will eventually rust out and fail.

KDHE also recommends that the POA consider transferring ownership of the water and wastewater system to the City of Linn Valley. Cities have more regulatory authority and more funding sources than property owner's associations.

Please call me at 785-296-1683 or Rance Walker at 785-296-5537 if you have any additional questions.

Sincerely,



David E. Gurs

Watershed Management Section, Bureau of Water

pc: Rod Geisler  
Rance Walker  
Don Snethen  
Ed Dillingham  
Greg Taylor, KDHE SEDO  
Beth Rowlands, KDHE NEDO  
Pam McCoy, Linn Valley Lakes POA  
Michael Mishler  
Larry Walrod

Kansas Permit No.: M-MC67-0001

Federal Permit No.: KS0085511

KANSAS WATER POLLUTION CONTROL PERMIT AND  
AUTHORIZATION TO DISCHARGE UNDER  
THE NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM

Pursuant to the Provisions of Kansas Statutes Annotated 65-164 and 65-165, the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251 et seq.; the "Act"),

Owner: Linn Valley, City of

Owner's Address: 22412 E. 2400 Road  
Linn Valley, Kansas 66040

Facility Name: Linn Valley Wastewater Treatment Facility

Facility Location: 24235 Ullery Rd., Linn Valley, KS  
NEM, SWM, SWM, Section 19, Township 19S, Range 25E  
Linn County, Kansas  
Latitude: 38.37700 Longitude: -94.69354

Outfall: Latitude: 38.37582 Longitude: -94.68886

Receiving Stream: Middle Creek via Linn Valley Lake via Unnamed Tributary  
& Basin: Marais des Cygnes River Basin

is authorized to discharge from the wastewater treatment facility described herein, in accordance with effluent limits and monitoring requirements as set forth herein.

This permit is effective October 1, 2019, supersedes the previously issued water pollution control permit C-MC67-0001, and expires September 30, 2024.

FACILITY DESCRIPTION:

1. Pump Station
2. Three Cell Wastewater Stabilization Lagoon System
3. Total Surface Area = 6.52 acres
  - Cell 1 = 1.61 acres
  - Cell 2 = 1.51 acres
  - Cell 3 = 3.40 acres
4. Design Flow = 0.03 MGD with greater than 300 days detention. (Potential rated design capacity increase to be evaluated when flows reach 0.03 MGD)



Secretary, Kansas Department of Health and Environment

September 19, 2019  
Date

A. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in this permit. The effluent limits shall become effective on the dates specified herein. Such discharges shall be controlled, limited, and monitored by the permittee as specified. There shall be no discharge of floating solids or visible foam in other than trace amounts.

The initial reporting period shall begin October 1, 2019 and end December 31, 2019. Each consecutive three-month period thereafter shall constitute a reporting period. Monitoring reports shall be submitted on or before the 28th day of January, April, July, and October. In the event no discharge occurs, written notification is still required.

<u>Parameter</u>	<u>Final Limits</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
<u>Monitoring Location 001AG (EDMR code: INF001AG) - Influent to Treatment Plant</u>			
Biochemical Oxygen Demand (5-Day) - mg/l	Monitor	Once Quarterly	grab
Total Suspended Solids - mg/l	Monitor	Once Quarterly	grab
<u>Outfall 001A1 (EDMR Code EFF001A1) - Effluent at Discharge Structure</u>			
Biochemical Oxygen Demand (5-Day)*		Once Quarterly	grab
Weekly Average-mg/l	45		
Monthly Average-mg/l	30		
Total Suspended Solids		Once Quarterly	grab
Weekly Average-mg/l	120		
Monthly Average-mg/l	80		
pH - Standard Units	See Supplemental Condition 2	Once Quarterly	grab
Ammonia (as N) - mg/l		Once Quarterly	grab
Jan, Feb, Mar. Monthly Average	10.7		
Apr, May, Jun. Monthly Average	6.0		
Jul, Aug, Sept. Monthly Average	3.2		
Oct, Nov, Dec. Monthly Average	10.0		
E. coli - colonies/100 ml	Monitor	Once Quarterly	grab

\* Minimum removal of 85% required for Biochemical Oxygen Demand (5-Day).



B. STANDARD CONDITIONS

In addition to the specified conditions stated herein, the permittee shall comply with the attached Standard Conditions dated March 1, 2018.

C. SCHEDULE OF COMPLIANCE

None

D. SUPPLEMENTAL CONDITIONS

1. This facility is subject to the EPA 40 CFR Part 503 regulations in effect when sludge is removed from the facility.
2. Permittee shall obtain a sample of the treated wastewater from outfall 001A1 at the same time as other effluent sampling is conducted to determine general operational status of the facility. The pH test must be done by a KDHE-certified laboratory but need not meet the 40 CFR Part 136 requirements for the sampling-to-test time limit of 15 minutes. Test results shall be submitted on the standard quarterly discharge monitoring report.

E. ADDITIONAL INFORMATION

EPA has promulgated a final rule requiring regulated entities to report DMR data electronically. Also, KAR 28-16-63 requires permittees to report NPDES data in a form required by KDHE. KDHE has developed electronic reporting tools to assist permittees in complying with the EPA electronic reporting rule and KAR 28-16-63. Unless a waiver has been approved by KDHE, permittees are required to submit reports electronically.

STANDARD CONDITIONS FOR  
KANSAS WATER POLLUTION CONTROL AND  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS

1. Representative Sampling and Discharge Monitoring Report Submittals:

- A. Samples and measurements taken as required herein shall be representative of the quality and quantity of the monitored discharge. Test results shall be recorded for the day the samples were taken. If sampling for a parameter was conducted across more than one calendar day, the test results may be recorded for the day sampling was started or ended. All samples shall be taken at the locations designated in this permit, and unless specified, at the outfall/monitoring location(s) before the wastewater joins or is diluted by any other water or substance.
- B. Monitoring results shall be recorded and reported on forms acceptable to the Division and submitted no later than the 28th day of the month following the completed reporting period. Signed and certified copies of other reports, required herein, prepared in accordance with KAR 28-16-59, may be faxed to 785.559.4257, e-mailed as scanned attachments to [kdhe.dmr4kdhe@ks.gov](mailto:kdhe.dmr4kdhe@ks.gov), or sent by U.S. mail to:

Kansas Department of Health & Environment  
Bureau of Water-Technical Services Section  
1000 SW Jackson Street, Suite 420  
Topeka, KS 66612-1367

2. Definitions:

- A. Unless otherwise specifically defined in this permit, the following definitions apply:
1. The "Daily Maximum" is the total discharge by weight or average concentration, measurement taken, or value calculated during a 24-hour period. The parameter, pH, is limited as a range between and including the values shown.
  2. The "Weekly Average" is the arithmetic mean of the value of test results from samples collected, measurements taken, or values calculated during four monitoring periods in each month consisting of calendar days 1-7, 8-14, 15-21 and 22 through the end of the month.
  3. The "Monthly Average", other than for E. coli bacteria, is the arithmetic mean of the value of test results from samples collected, measurements taken, or values calculated during a calendar month. The monthly average is determined by the summation of all calculated values or measured test results divided by the number of calculated values or test results reported for that parameter during the calendar month. The monthly average for E. coli bacteria is the geometric average of the value of the test results from samples collected in a calendar month. The geometric average can be calculated by using a scientific calculator to multiply all the E. coli test results together and then taking the nth root of the product where n is the number of test results. Non-detect values shall be reported using the less than symbol (<) and the minimum detection or reportable value. To calculate average values, non-detects shall be defaulted to zero (or one for geometric averages). Greater than values shall be reported using the greater than symbol (>) and the reported value. To calculate average values, the greater than reported value shall be used in the averaging calculation.
- B. A "grab sample" is an individual sample collected in less than 15 minutes. A "composite sample" is a combination of individual samples in which the volume of each individual sample is proportional to the flow, or the sample frequency is proportioned to the flow rate over the sample period, or the sample frequency is proportional to time.
- C. The terms "Director", "Division", and "Department" refer to the Director, Division of Environment, Kansas Department of Health, and Environment, respectively.
- D. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an in-plant diversion. Severe property damage does not mean economic loss caused by delays in production.
- E. "Bypass" means the intentional diversion of waste streams from any portion of the treatment facility.

3. **Schedule of Compliance:** No later than 14 calendar days following each date identified in the "Schedule of Compliance," the permittee shall submit via mail, e-mail or fax per paragraph 1.B above, either a report of progress or, in the case of specific action being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or, if there are no more scheduled requirements, when such noncompliance will be corrected.
4. **Test Procedures:** All analyses required by this permit shall conform to the requirements of 40 CFR Part 136, unless otherwise specified, and shall be conducted in a laboratory accredited by the Department. For each measurement or sample, the permittee shall record the exact place, date, and time of measuring/sampling; the date and time of the analyses, the analytical techniques or methods used, minimum detection or reportable level, and the individual(s) who performed the measuring/sampling and analysis and, the results. If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved procedures, the results shall be included in the Discharge Monitoring Report form required in 1.B. above. Such increased frequencies shall also be indicated.
5. **Change in Discharge:** All discharges authorized herein shall be consistent with the permit requirements. The discharge of any pollutant not authorized by this permit or of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of this permit. Any anticipated facility expansions, production or flow increases, or production or wastewater treatment system modifications which result in a new, different, or increased discharge of pollutants shall be reported to the Division at least one hundred eighty (180) days before such change.
6. **Facilities Operation:** The permittee shall always properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the requirements of this permit and Kansas and Federal law. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the requirements of this permit. The permittee shall take all necessary steps to minimize or prevent any adverse impact to human health or the environment resulting from noncompliance with any effluent limits specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge. When necessary to maintain compliance with the permit requirements, the permittee shall halt or reduce those activities under its control which generate wastewater routed to this facility.
7. **Incidents:**

"Collection System Diversion" means the diversion of wastewater from any portion of the collection system.

"In-Plant Diversion" means routing the wastewater around any treatment unit in the treatment facility through which it would normally flow.

"In-Plant Flow Through" means an incident in which the wastewater continues to be routed through the equipment even though full treatment is not being accomplished because of equipment failure for any reason.

"Spill" means any discharge of wastewater, sludge or other materials from the treatment facility other than effluent or as more specifically described by other "Incidents" terms.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance or anticipated noncompliance with permit effluent limits because of factors beyond the reasonable control of the permittee, as described by 40 C.F.R. 122.41(n).
8. **Diversions not Exceeding Limits:** The permittee may allow any diversion to occur which does not cause effluent limits to be exceeded, but only if it also is for essential maintenance to assure efficient operation. Such diversions are not subject to the Incident Reporting requirements shown below.
9. **Prohibition of an In-Plant Diversion:** Any in-plant diversion from facilities necessary to maintain compliance with this permit is prohibited, except: (a) where the in-plant diversion was unavoidable to prevent loss of life, personal injury, or severe property damage; (b) where there were no feasible alternatives to the in-plant diversion, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime and (c) the permittee submitted a notice as required in the Incident Reporting paragraph below. The Director may approve an anticipated in-plant diversion, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above.

10. **Incident Reporting:** The permittee shall report any unanticipated collection system diversion, in-plant diversion, in-plant flow through occurrences, spill, upset, or any violation of a permitted daily maximum limit within 24 hours from the time the permittee became aware of the incident. A written submission shall be provided within 5 days of the time the permittee became aware of the incident. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. An Incident Report form is available at [www.kdheks.gov/water/tech.html](http://www.kdheks.gov/water/tech.html).

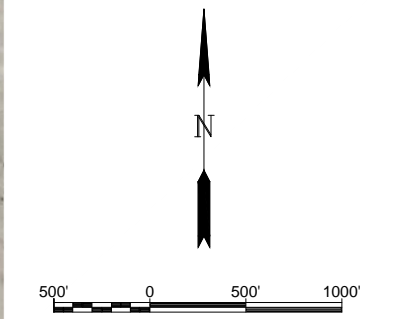
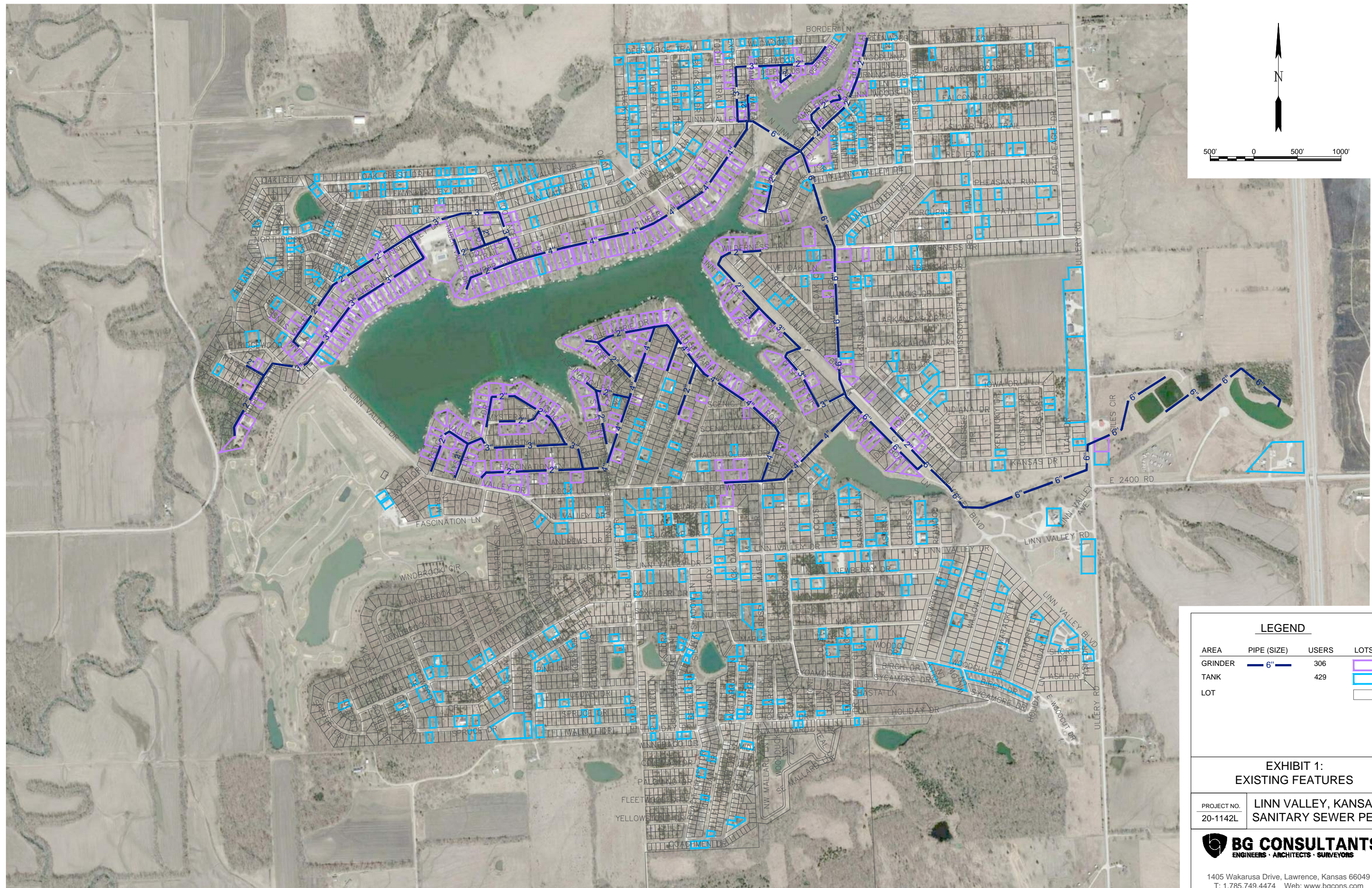
For an anticipated incident or any planned changes or activities in the permitted facility that may result in noncompliance with the permit requirements, the permittee shall submit written notice, if possible, at least ten days before the date of the event.

For other noncompliance, the above information shall be provided with the next Discharge Monitoring Report.

11. **Removed Substances:** Solids, sludges, filter backwash, or other pollutants removed in the course of treatment of water shall be utilized or disposed of in a manner acceptable to the Division.
12. **Power Failures:** The permittee shall provide an alternative power source sufficient to operate the wastewater control facilities or otherwise control pollution and all discharges upon the loss of the primary source of power to the wastewater control facilities.
13. **Right of Entry:** The permittee shall allow authorized representatives of the Division of Environment or the Environmental Protection Agency upon the presentation of credentials, to enter upon the permittee's premises where an effluent source is located, or in which are located any records required by this permit, and at reasonable times, to have access to and copy any records required by this permit, to inspect any facilities, monitoring equipment or monitoring method required in this permit, and to sample any influents to, discharges from or materials in the wastewater facilities.
14. **Transfer of Ownership:** The permittee shall notify the succeeding owner or controlling person of the existence of this permit by certified letter, a copy of which shall be forwarded to the Division. The succeeding owner shall secure a new permit. This permit is not transferable to any person except after notice and approval by the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.
15. **Records Retention:** Unless otherwise specified, all records and information resulting from the monitoring activities required by this permit, including all records of analyses and calibration and maintenance of instruments and recordings from continuous monitoring instruments, shall be retained for a minimum of 3 years, or longer if requested by the Division. Biosolids/sludge records and information are required to be kept for a minimum of 5 years, or longer if requested by the Division. Groundwater monitoring data, including background samples results, shall be kept for the life of the facility regardless of ownership.
16. **Availability of Records:** Except for data determined to be confidential under 33 USC Section 1318, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential. Knowingly making any false statement on any such report or tampering with equipment to falsify data may result in the imposition of criminal penalties as provided for in 33 USC Section 1319 and KSA 65-170c.
17. **Permit Modifications and Terminations:** As provided by KAR 28-16-62, after notice and opportunity for a hearing, this permit may be modified, suspended or revoked or terminated in whole or in part during its term for cause as provided, but not limited to those set forth in KAR 28-16-62 and KAR 28-16-28b through g. The permittee shall furnish to the Director, within a reasonable amount of time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request, copies of all records required to be kept by this permit. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

18. **Toxic Pollutants:** Notwithstanding paragraph 17 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified at such effluent standards) is established under 33 USC Section 1317(a) for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition. Nothing in this permit relieves the permittee from complying with federal toxic effluent standards as promulgated pursuant to 33 USC Section 1317.
19. **Administrative, Civil and Criminal Liability:** The permittee shall comply with all requirements of this permit. Except as authorized in paragraph 9 above, nothing in this permit shall be construed to relieve the permittee from administrative, civil or criminal penalties for noncompliance as provided for in KSA 65-161 et seq., and 33 USC Section 1319.
20. **Oil and Hazardous Substance Liability:** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under 33 USC Section 1321 or KSA 65-164 et seq. A municipal permittee shall promptly notify the Division by telephone upon discovering crude oil or any petroleum derivative in its sewer system or wastewater treatment facilities.
21. **Industrial Users:** A municipal permittee shall require any industrial user of the treatment works to comply with 33 USC Section 1317, 1318 and any industrial user of storm sewers to comply with 33 USC Section 1308.
22. **Property Rights:** The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights nor any infringements of or violation of federal, state, or local laws or regulations.
23. **Operator Certification:** The permittee shall, if required, ensure the wastewater facilities are under the supervision of an operator certified by the Department. If the permittee does not have a certified operator or loses its certified operator, appropriate steps shall be taken to obtain a certified operator as required by KAR 28-16-30 et seq.
24. **Severability:** The provisions of this permit are severable. If any provision of this permit or any circumstance is held invalid, the application of such provision to other circumstances and the remainder of the permit shall not be affected thereby.
25. **Removal from Service:** The permittee shall inform the Division at least three months before a pumping station, treatment unit, or any other part of the treatment facility permitted by this permit is to be removed from service and shall make arrangements acceptable to the Division to decommission the facility or part of the facility being removed from service such that the public health and waters of the state are protected.
26. **Duty to Reapply:** A permit holder wishing to continue any activity regulated by this permit after the expiration date, must apply for a new permit at least 180 days prior to expiration of the permit.
27. **Publicly owned treatment works (POTWs):** All POTWs shall provide adequate notice to the Director of the following per 40 CFR 122.42(b):
  - A. Any new introduction of pollutants into the POTW from a non-domestic source which would be subject to section 301 or 306 of the CWA ; and
  - B. Any substantial change in the volume or character of pollutants being introduced into a POTW by a non-domestic source.
  - C. For purposes of this paragraph, adequate notice shall mean within 30 days of the POTW being aware of the introduction of pollutants and shall include information on the quality and quantity of influent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
28. **POTW regulated pretreatment program requirements:** For POTWs with an approved pretreatment program, the POTW shall:
  - A. Identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging into the POTW subject to Pretreatment Standards under section 307(b) of CWA and 40 CFR part 403.
  - B. Provide to KDHE and EPA a written technical evaluation of the need to develop new local limits or revise existing local limits under 40 CFR 403.5(c)(1).
29. This permit may be reopened and modified if KDHE and/or EPA determines the permittee shall develop and approved pretreatment program that complies with 40 CFR, Part 403.





LEGEND			
AREA	PIPE (SIZE)	USERS	LOTS
GRINDER	6"	306	
TANK		429	
LOT			

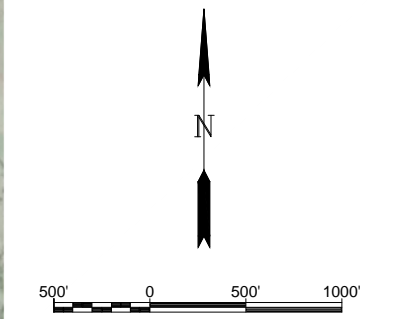
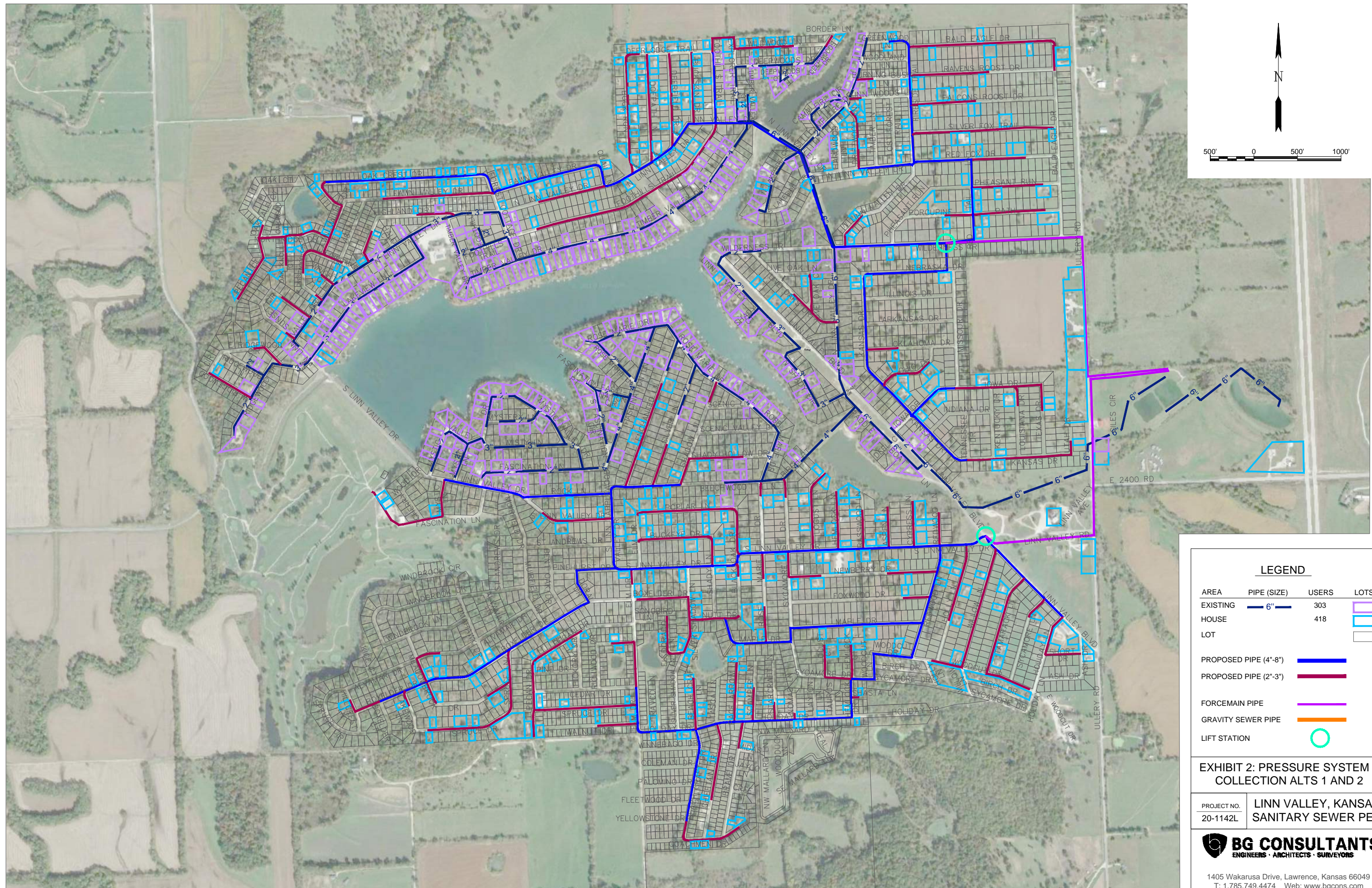
**EXHIBIT 1:  
EXISTING FEATURES**

PROJECT NO. 20-1142L	LINN VALLEY, KANSAS SANITARY SEWER PER
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1405 Wakarusa Drive, Lawrence, Kansas 66049  
 T: 1.785.749.4474 Web: www.bgcons.com  
 Manhattan Lawrence Emporia





**LEGEND**

AREA	PIPE (SIZE)	USERS	LOTS
EXISTING	6"	303	
HOUSE		418	
LOT			
PROPOSED PIPE (4"-8")			
PROPOSED PIPE (2"-3")			
FORCEMAIN PIPE			
GRAVITY SEWER PIPE			
LIFT STATION			

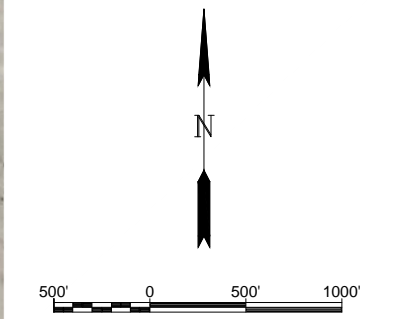
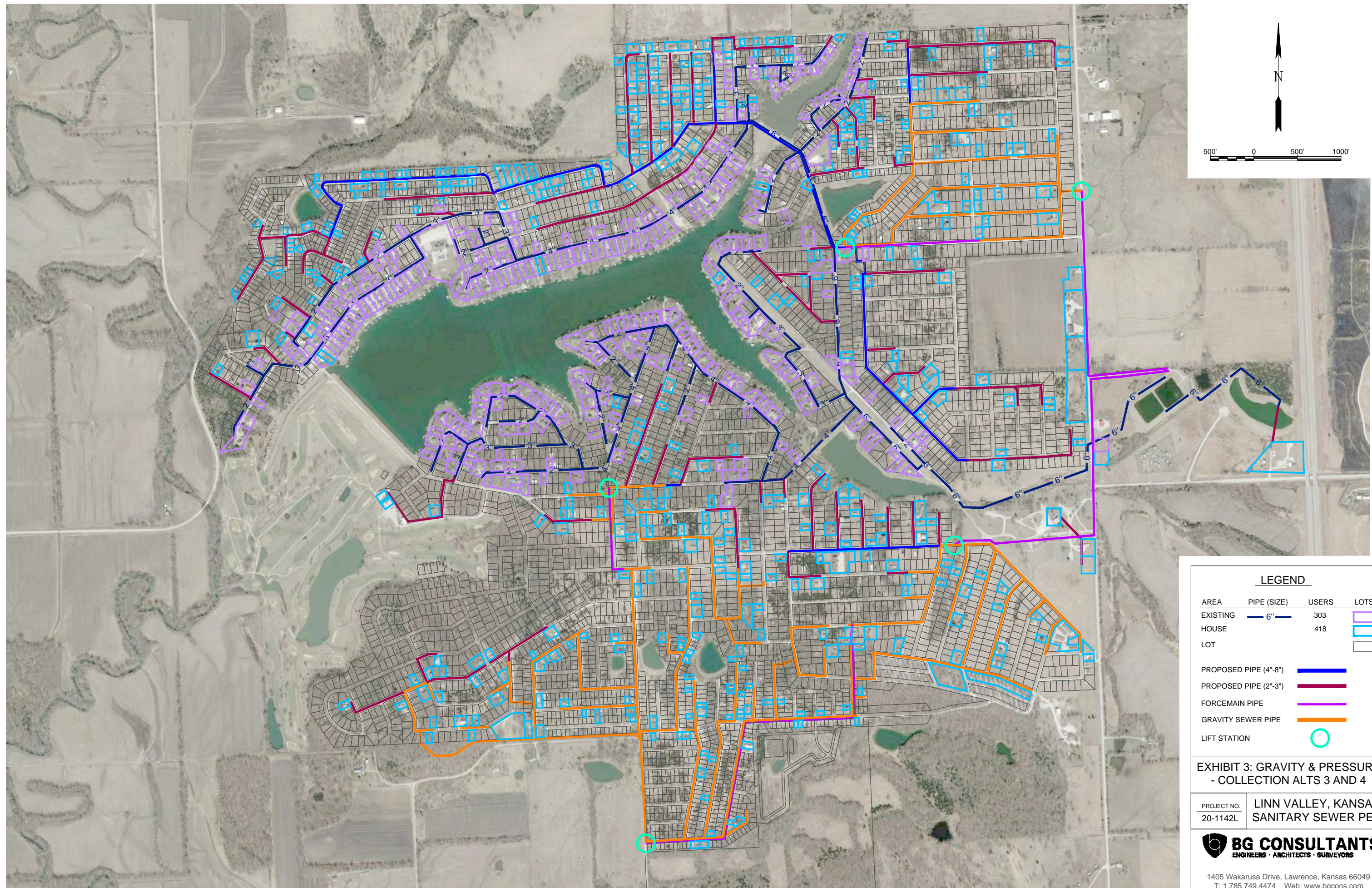
**EXHIBIT 2: PRESSURE SYSTEM - COLLECTION ALTS 1 AND 2**

PROJECT NO.	LINN VALLEY, KANSAS
20-1142L	SANITARY SEWER PER



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 Manhattan Lawrence Emporia





**LEGEND**

AREA	PIPE (SIZE)	USERS	LOTS
EXISTING	6"	303	
HOUSE		418	
LOT			
PROPOSED PIPE (4"-8")			
PROPOSED PIPE (2"-3")			
FORCEMAIN PIPE			
GRAVITY SEWER PIPE			
LIFT STATION			

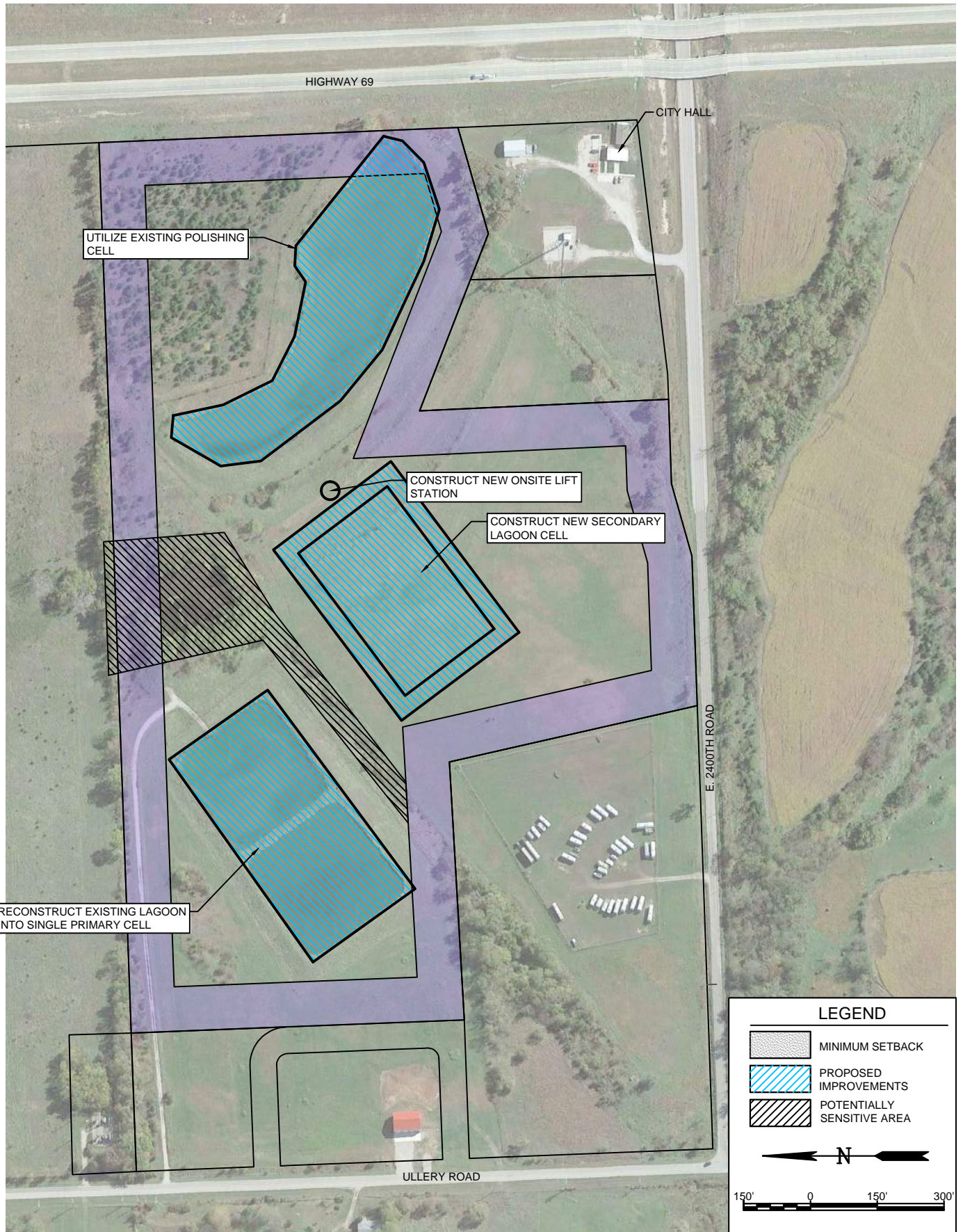
**EXHIBIT 3: GRAVITY & PRESSURE  
- COLLECTION ALTS 3 AND 4**

PROJECT NO. 20-1142L LINN VALLEY, KANSAS  
SANITARY SEWER PER



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Engineer: PCO  
 Drafter: PCO  
 Date: 4-15-2020

CITY OF LINN VALLEY, KANSAS

EXHIBIT 4: TREATMENT  
 ALTERNATIVE 1 - EXPAND  
 EXISTING LAGOONS

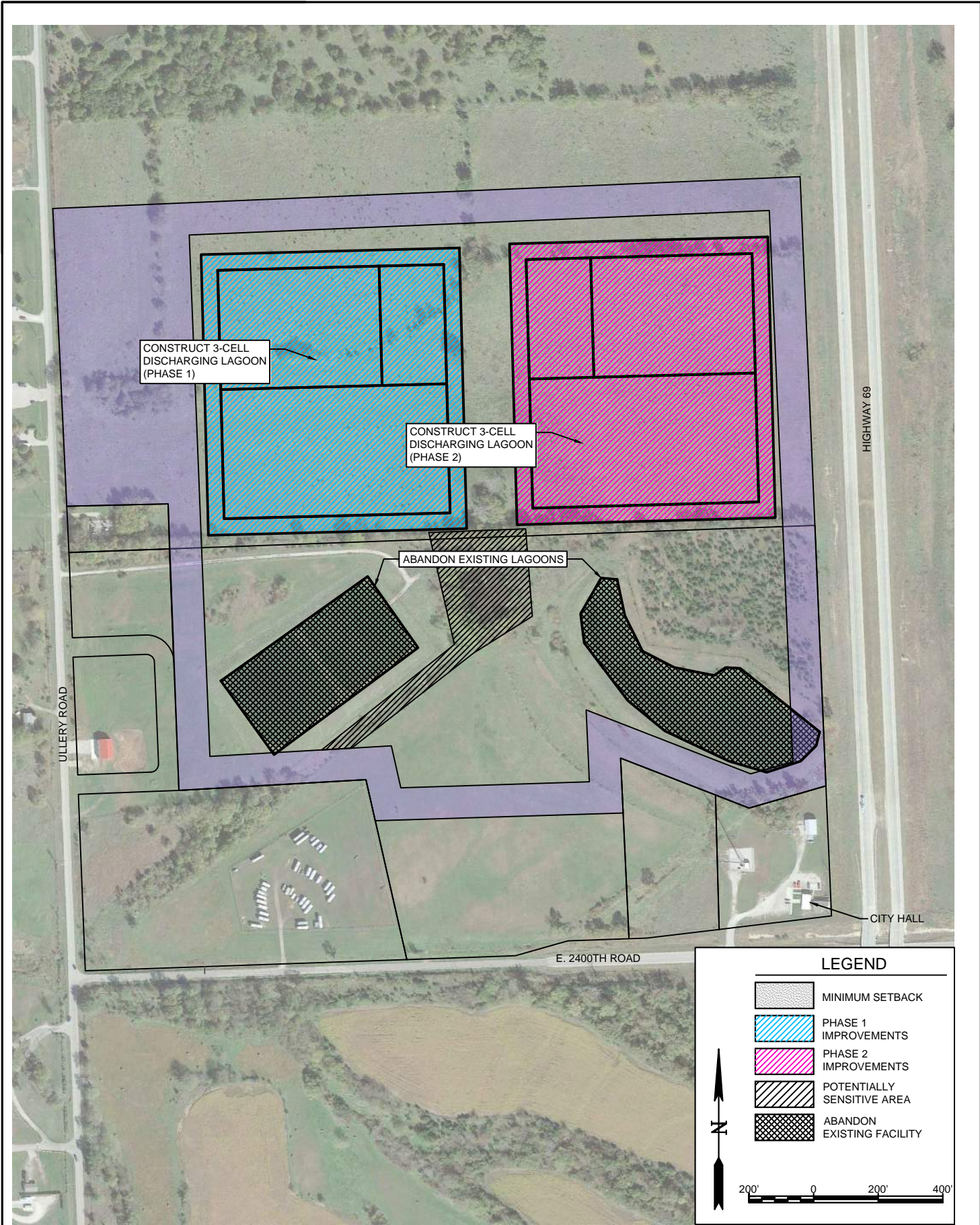


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 Manhattan Lawrence Emporia

PROJECT NO.  
 20-1142L

LINN VALLEY SS PER





Engineer:	PCO
Drafter:	PCO
Date:	4-15-2020
PROJECT NO.	20-1142L

CITY OF LINN VALLEY, KANSAS

LINN VALLEY SS PER

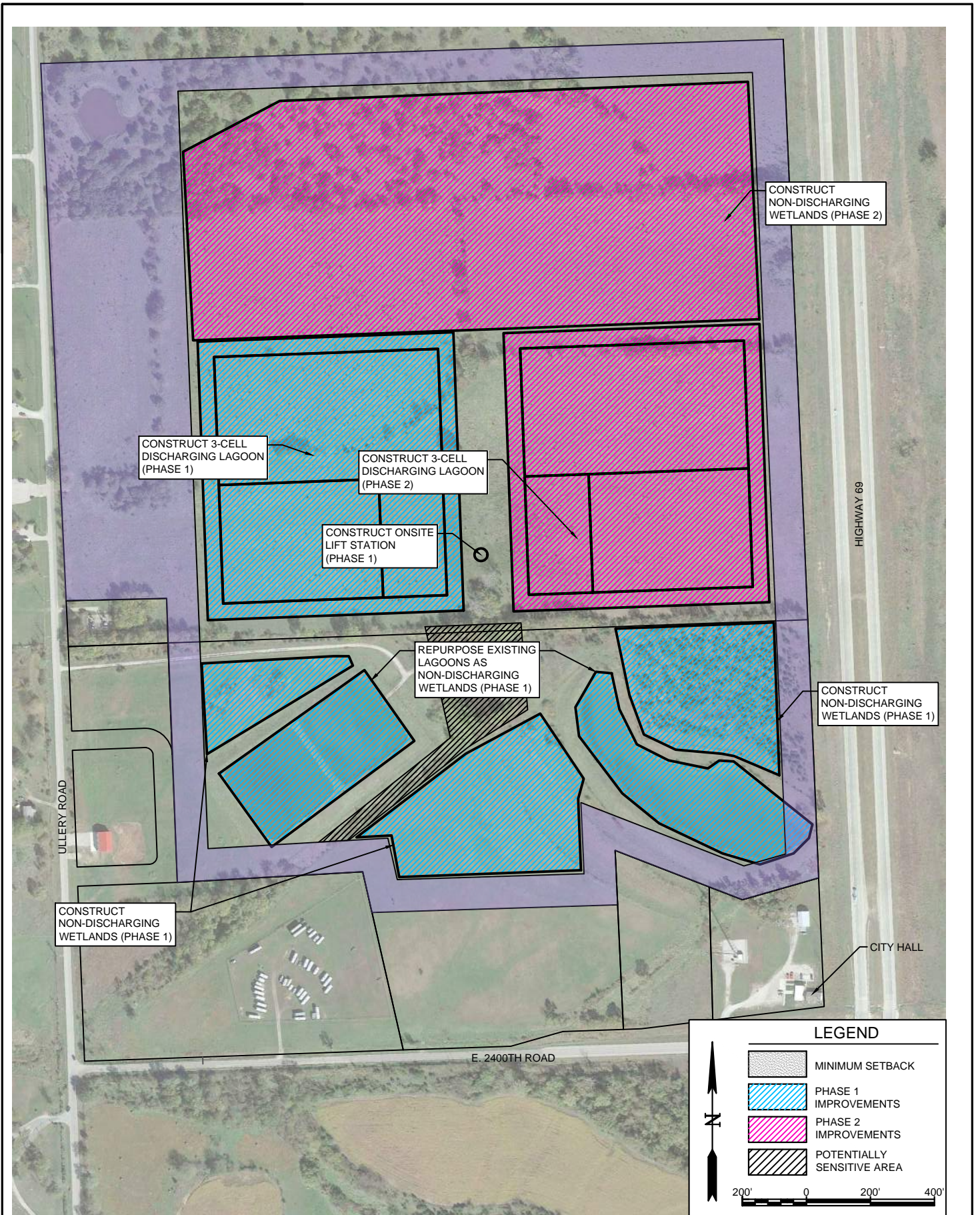
EXHIBIT 5: TREATMENT ALTERNATIVE 2 - PHASED LAGOON TREATMENT



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**LEGEND**

- MINIMUM SETBACK
- PHASE 1 IMPROVEMENTS
- PHASE 2 IMPROVEMENTS
- POTENTIALLY SENSITIVE AREA

Scale: 0, 200', 400'

North Arrow: N

Engineer:	PCO
Drafter:	PCO
Date:	4-15-2020
PROJECT NO.	20-1142L

CITY OF LINN VALLEY, KANSAS

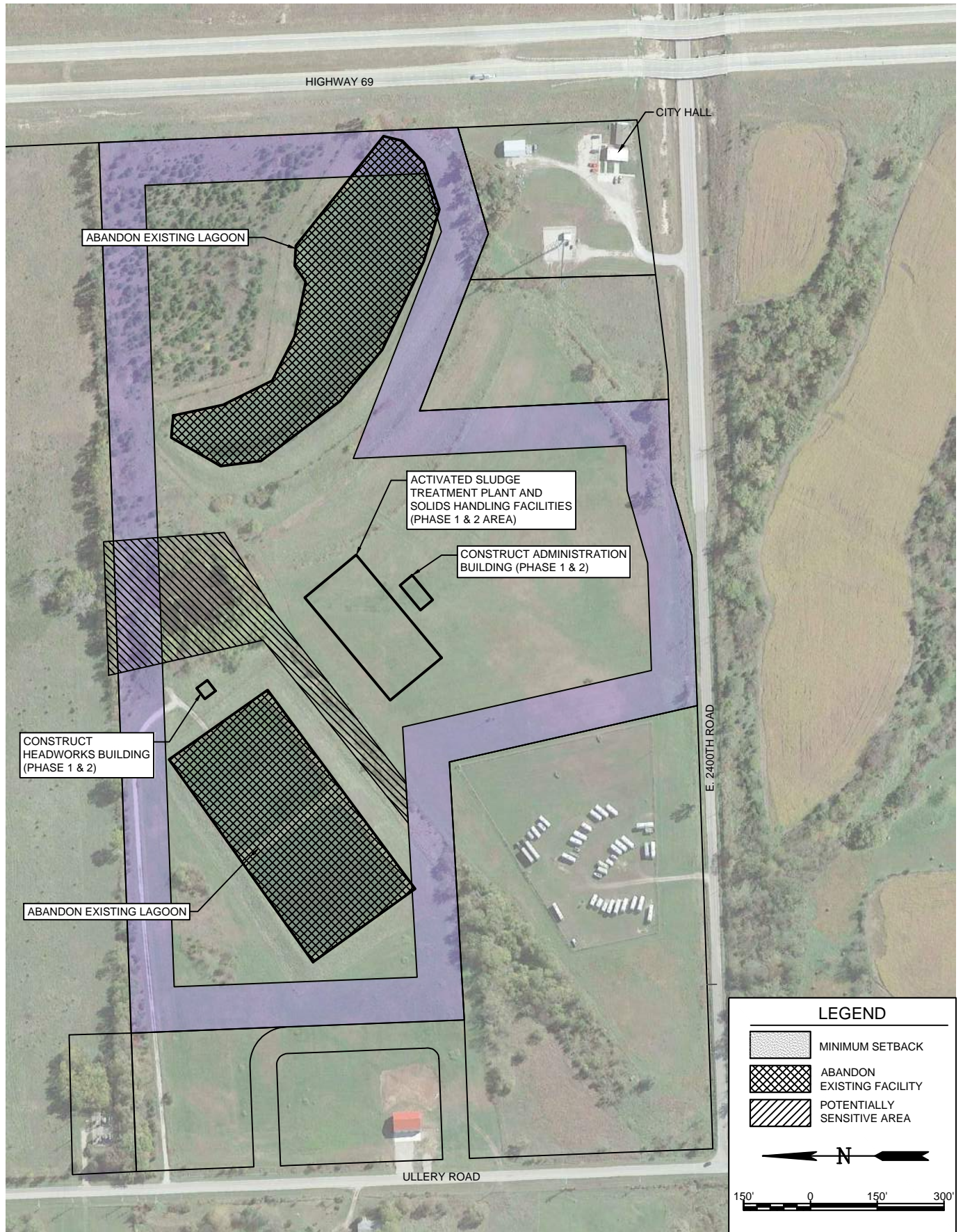
LINN VALLEY SS PER

EXHIBIT 6: TREATMENT ALTERNATIVE 3 - PHASED LAGOON TREATMENT WITH WETLAND DISPOSAL (INTERMITTENT DISCHARGE)

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Engineer: PCO  
 Drafter: PCO  
 Date: 4-15-2020

CITY OF LINN VALLEY, KANSAS

EXHIBIT 7: TREATMENT  
 ALTERNATIVE 4 -  
 MECHANICAL TREATMENT  
 PLANT



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PROJECT NO.  
 20-1142L

LINN VALLEY SS PER

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**  
 Collection Alternative 1 - Grinder System

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization & Incidentals	1	LS	\$ 507,000.00	\$ 507,000.00
2	Simplex Grinder Pump Station	418	EA	\$ 6,000.00	\$ 2,508,000.00
3	Sanitary Sewer Lateral Assemblies	418	EA	\$ 500.00	\$ 209,000.00
4	Pressurized SS Mains (4"-8") (In Place)	38404	LF	\$ 30.00	\$ 1,152,120.00
5	Pressurized SS Mains (2"-3") (In Place)	65121	LF	\$ 24.00	\$ 1,562,904.00
6	Pressurized SS Mains (4"-8") (Directional Drill)	2022	LF	\$ 110.00	\$ 222,420.00
7	Pressurized SS Mains (2"-3") (Directional Drill)	1329	LF	\$ 100.00	\$ 132,900.00
8	Forcemain Sanitary Sewer Mains	8060	LF	\$ 45.00	\$ 362,700.00
9	1-1/4" Sewer Lateral (In Place)	41382	LF	\$ 20.00	\$ 827,640.00
10	1-1/4" Sewer Lateral (Directional Drill)	4598	LF	\$ 55.00	\$ 252,890.00
11	Connect to Existing Pipe	15	EA	\$ 2,000.00	\$ 30,000.00
12	Gate Valve w/ Box	54	EA	\$ 1,600.00	\$ 86,400.00
13	Sanitary Sewer Cleanouts	118	EA	\$ 1,200.00	\$ 141,600.00
14	Combination Air/Vacuum Release Valves	53	EA	\$ 6,000.00	\$ 320,628.00
15	Seeding and Surface Restoration	1	LS	\$ 80,000.00	\$ 80,000.00
16	Flowable Fill and Pavement Restoration	1	LS	\$ 320,625.00	\$ 320,625.00
17	Holding Tank Decommission	418	EA	\$ 2,000.00	\$ 836,000.00
18	Electrical Service to Alarm Panel	418	EA	\$ 1,500.00	\$ 627,000.00
19	Sanitary Lift Station (Large)	2	EA	\$ 200,000.00	\$ 400,000.00
<b>Subtotal Construction Cost</b>					<b>\$ 10,579,827.00</b>
<b>Contingency (10%)</b>					<b>\$ 1,057,983.00</b>
<b>Total Construction Cost</b>					<b>\$ 11,637,810.00</b>
Engineering Design					\$ 1,048,000.00
Construction Observation					\$ 892,000.00
Construction Engineering					\$ 140,000.00
Easement Acquisition Support					\$ 75,000.00
Grant Administration					\$ 10,000.00
Legal					\$ 20,000.00
Temp Financing					\$ 573,000.00
<b>TOTAL PROJECT COST</b>					<b>\$ 14,395,810.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**  
 Collection Alternative 2 - Step System

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization & Incidentals	1	LS	\$ 460,000.00	\$ 460,000.00
2	Simplex STEP Pump Station	418	EA	\$ 3,000.00	\$ 1,254,000.00
3	Sanitary Sewer Lateral Assemblies	418	EA	\$ 500.00	\$ 209,000.00
4	Pressurized SS Mains (4"-8") (In Place)	38404	LF	\$ 30.00	\$ 1,152,114.00
5	Pressurized SS Mains (2"-3") (In Place)	65121	LF	\$ 24.00	\$ 1,562,904.00
6	Pressurized SS Mains (4"-8") (Directional Drill)	2021	LF	\$ 110.00	\$ 222,343.00
7	Pressurized SS Mains (2"-3") (Directional Drill)	1329	LF	\$ 100.00	\$ 132,900.00
8	Forcemain Sanitary Sewer Mains	8060	LF	\$ 45.00	\$ 362,700.00
9	1-1/4" Sewer Lateral (In Place)	41382	LF	\$ 20.00	\$ 827,640.00
10	1-1/4" Sewer Lateral (Directional Drill)	4598	LF	\$ 55.00	\$ 252,890.00
11	Connect to Existing Pipe	15	EA	\$ 2,000.00	\$ 30,000.00
12	Gate Valve w/ Box	54	EA	\$ 1,600.00	\$ 85,600.00
13	Sanitary Sewer Cleanouts	118	EA	\$ 1,200.00	\$ 141,120.00
14	Combination Air/Vacuum Release Valves	54	EA	\$ 6,000.00	\$ 321,000.00
15	Seeding and Surface Restoration	1	LS	\$ 80,000.00	\$ 80,000.00
16	Flowable Fill and Pavement Restoration	1	LS	\$ 320,625.00	\$ 320,625.00
17	Holding Tank Retrofit	209	EA	\$ 1,000.00	\$ 209,000.00
18	Holding Tank Replacement	209	EA	\$ 2,000.00	\$ 418,000.00
19	Holding Tank Decommission	209	EA	\$ 2,000.00	\$ 418,000.00
20	Electrical Service to Alarm Panel	418	EA	\$ 1,500.00	\$ 627,000.00
21	Sanitary Lift Station (Large)	2	EA	\$ 200,000.00	\$ 400,000.00
<b>Subtotal Construction Cost</b>					<b>\$ 9,486,836.00</b>
<b>Contingency (10%)</b>					<b>\$ 948,684.00</b>
<b>Total Construction Cost</b>					<b>\$ 10,435,520.00</b>
Engineering Design					\$ 940,000.00
Construction Observation					\$ 834,000.00
Construction Engineering					\$ 140,000.00
Easement Acquisition Support					\$ 75,000.00
Grant Administration					\$ 10,000.00
Legal					\$ 20,000.00
Temp Financing					\$ 518,200.00
<b>TOTAL PROJECT COST</b>					<b>\$ 12,972,720.00</b>



**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**  
 Collection Alternative 3 - Gravity w/ Grinders

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization & Incidentals	1	LS	\$ 652,000.00	\$ 652,000.00
2	Simplex Grinder Pump Station	269	EA	\$ 6,000.00	\$ 1,614,000.00
3	Sanitary Sewer Lateral Assemblies	269	EA	\$ 500.00	\$ 134,500.00
4	Pressurized SS Mains (4"-8") (In Place)	14677	LF	\$ 30.00	\$ 440,310.00
5	Pressurized SS Mains (2"-3") (In Place)	43110	LF	\$ 24.00	\$ 1,034,640.00
6	Pressurized SS Mains (4"-8") (Directional Drill)	773	LF	\$ 110.00	\$ 85,030.00
7	Pressurized SS Mains (2"-3") (Directional Drill)	880	LF	\$ 100.00	\$ 87,978.00
8	1-1/4" Sewer Lateral (In Place)	26631	LF	\$ 20.00	\$ 532,620.00
9	1-1/4" Sewer Lateral (Directional Drill)	2959	LF	\$ 55.00	\$ 162,745.00
10	Connect to Existing Pipe	20	EA	\$ 2,000.00	\$ 40,000.00
11	Gate Valve w/ Box	30	EA	\$ 1,600.00	\$ 48,000.00
12	Sanitary Sewer Cleanouts	66	EA	\$ 1,200.00	\$ 79,200.00
13	Combination Air/Vacuum Release Valves	30	EA	\$ 6,000.00	\$ 180,000.00
14	Holding Tank Decommission	269	EA	\$ 2,000.00	\$ 538,000.00
15	Electrical Service to Alarm Panel	269	EA	\$ 1,500.00	\$ 403,500.00
16	Gravity Sanitary Sewer Mains	57898	LF	\$ 75.00	\$ 4,342,350.00
17	Forcemain Sanitary Sewer Mains	14576	LF	\$ 45.00	\$ 655,920.00
18	Standard/Drop Manholes	232	EA	\$ 5,500.00	\$ 1,276,000.00
19	Sanitary Sewer Services	149	EA	\$ 1,000.00	\$ 149,000.00
20	Sanitary Sewer Lift Stations (Small)	3	EA	\$ 125,000.00	\$ 375,000.00
21	Sanitary Lift Station (Large)	2	EA	\$ 200,000.00	\$ 400,000.00
22	Seeding and Surface Restoration	1	LS	\$ 98,000.00	\$ 98,000.00
23	Flowable Fill and Pavement Restoration	1	LS	\$ 390,000.00	\$ 390,000.00
<b>Subtotal Construction Cost</b>					<b>\$ 13,718,793.00</b>
<b>Contingency (10%)</b>					<b>\$ 1,371,880.00</b>
<b>Total Construction Cost</b>					<b>\$ 15,090,673.00</b>
Engineering Design					\$ 1,359,000.00
Construction Observation					\$ 1,100,000.00
Construction Engineering					\$ 220,000.00
Easement Acquisition Support					\$ 75,000.00
Grant Administration					\$ 10,000.00
Legal					\$ 40,000.00
Temp Financing					\$ 735,800.00
<b>TOTAL PROJECT COST</b>					<b>\$ 18,630,473.00</b>



**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**  
 Collection Alternative 4 - Gravity w/ Step

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization & Incidentals	1	LS	\$ 605,000.00	\$ 605,000.00
2	Simplex STEP Pump Station	269	EA	\$ 2,000.00	\$ 538,000.00
3	Sanitary Sewer Lateral Assemblies	269	EA	\$ 500.00	\$ 134,500.00
4	Pressurized SS Mains (4"-8") (In Place)	14677	LF	\$ 30.00	\$ 440,310.00
5	Pressurized SS Mains (2"-3") (In Place)	43110	LF	\$ 24.00	\$ 1,034,640.00
6	Pressurized SS Mains (4"-8") (Directional Drill)	773	LF	\$ 110.00	\$ 85,030.00
7	Pressurized SS Mains (2"-3") (Directional Drill)	880	LF	\$ 100.00	\$ 87,978.00
8	1-1/4" Sewer Lateral (In Place)	26631	LF	\$ 20.00	\$ 532,620.00
9	1-1/4" Sewer Lateral (Directional Drill)	2959	LF	\$ 55.00	\$ 162,745.00
10	Connect to Existing Pipe	20	EA	\$ 2,000.00	\$ 40,000.00
11	Gate Valve w/ Box	30	EA	\$ 1,600.00	\$ 48,000.00
12	Sanitary Sewer Cleanouts	66	EA	\$ 1,200.00	\$ 79,200.00
13	Combination Air/Vacuum Release Valves	30	EA	\$ 6,000.00	\$ 180,000.00
14	Holding Tank Retrofit	135	EA	\$ 1,000.00	\$ 134,500.00
15	Septic Tank Replacement	135	EA	\$ 2,000.00	\$ 269,000.00
16	Electrical Service to Alarm Panel	269	EA	\$ 1,500.00	\$ 403,500.00
17	Gravity Sanitary Sewer Mains	57898	LF	\$ 75.00	\$ 4,342,350.00
18	Forcemain Sanitary Sewer Mains	14576	LF	\$ 55.00	\$ 801,680.00
19	Standard/Drop Manholes	232	EA	\$ 5,500.00	\$ 1,276,000.00
20	Sanitary Sewer Services	149	EA	\$ 1,000.00	\$ 149,000.00
21	Sanitary Sewer Lift Stations (Small)	3	EA	\$ 125,000.00	\$ 375,000.00
22	Sanitary Lift Station (Large)	2	EA	\$ 200,000.00	\$ 400,000.00
23	Seeding and Surface Restoration	1	LS	\$ 98,000.00	\$ 98,000.00
24	Flowable Fill and Pavement Restoration	1	LS	\$ 390,000.00	\$ 390,000.00
Subtotal Construction Cost					<b>\$ 12,607,053.00</b>
Contingency (10%)					<b>\$ 1,260,706.00</b>
<b>Total Construction Cost</b>					<b>\$ 13,867,759.00</b>
Engineering Design					\$ 1,249,000.00
Construction Observation					\$ 1,100,000.00
Construction Engineering					\$ 200,000.00
Easement Acquisition Support					\$ 75,000.00
Grant Administration					\$ 10,000.00
Legal					\$ 40,000.00
Temp Financing					\$ 681,700.00
<b>TOTAL PROJECT COST</b>					<b>\$ 17,223,459.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 1 - Rehabilitate and Expand Existing Lagoons

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization		Lump Sum	\$140,000.00	\$140,000.00
2	Clearing & Grubbing		Lump Sum	\$10,000.00	\$10,000.00
3	Seeding, Fertilizing, and Mulching		Lump Sum	\$25,000.00	\$25,000.00
4	Erosion Control		Lump Sum	\$25,000.00	\$25,000.00
5	Contractor Construction Staking		Lump Sum	\$25,000.00	\$25,000.00
6	Bentonite Liner		Lump Sum	\$130,000.00	\$130,000.00
7	Concrete Sump		Lump Sum	\$20,000.00	\$20,000.00
8	Sludge Removal		Lump Sum	\$150,000.00	\$150,000.00
9	Electrical		Lump Sum	\$100,000.00	\$100,000.00
10	Existing Lagoon Restoration		Lump Sum	\$130,000.00	\$130,000.00
11	Onsite Lift Station	1	Each	\$150,000.00	\$150,000.00
12	Lagoon Earthwork	48000	Cu. Yds.	\$12.00	\$576,000.00
13	Rip Rap	890	Cu. Yds.	\$80.00	\$71,200.00
14	6" Forcemain	600	Lin. Ft	\$50.00	\$30,000.00
15	8" Gravity Sewer	800	Lin. Ft	\$70.00	\$56,000.00
16	6" Plug Valve	1	Each	\$4,000.00	\$4,000.00
17	48" Precast Manhole	5	Each	\$6,000.00	\$30,000.00
18	Lagoon Control Structures	3	Each	\$25,000.00	\$75,000.00
19	48" Woven Wire Fence	2000	Lin. Ft.	\$18.00	\$36,000.00
20	16' Wide Double Leaf Swing Gate	1	Each	\$2,000.00	\$2,000.00
21	Access Drive (16')	1000	Sq. Yds.	\$30.00	\$30,000.00
22	Flow Meters	2	Each	\$25,000.00	\$50,000.00
23	Collection Lift Station Rehabilitation		Lump Sum	\$80,000.00	\$80,000.00
				<b>Subtotal Construction Cost</b>	<b>\$1,945,200.00</b>
				<b>Contingency (10%)</b>	<b>\$194,520.00</b>
				<b>Total Construction Cost</b>	<b>\$2,139,720.00</b>
				Design Engineering	\$ 205,000.00
				Construction Engineering	\$ 32,000.00
				RPR Service	\$ 225,000.00
				Geotechnical Evaluation	\$ 12,000.00
				Grant Administration	\$ 40,000.00
				Legal Administration	\$ 15,000.00
				Temporary Financing	\$ 40,000.00
				Bond Council	\$ 10,000.00
				<b>Total Opinion of Cost</b>	<b>\$2,718,720.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 2A - Construct New Discharging Lagoon - Phase 1

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization		Lump Sum	\$160,000.00	\$160,000.00
2	Clearing & Grubbing		Lump Sum	\$30,000.00	\$30,000.00
3	Seeding, Fertilizing, and Mulching		Lump Sum	\$30,000.00	\$30,000.00
4	Erosion Control		Lump Sum	\$30,000.00	\$30,000.00
5	Contractor Construction Staking		Lump Sum	\$30,000.00	\$30,000.00
6	Bentonite Liner		Lump Sum	\$170,000.00	\$170,000.00
7	Concrete Sump		Lump Sum	\$20,000.00	\$20,000.00
8	Sludge Removal		Lump Sum	\$150,000.00	\$150,000.00
9	Electrical		Lump Sum	\$30,000.00	\$30,000.00
10	Existing Lagoon Abandonment		Lump Sum	\$60,000.00	\$60,000.00
11	Lagoon Earthwork	64000	Cu. Yds.	\$12.00	\$768,000.00
12	Rip Rap	1430	Cu. Yds.	\$80.00	\$114,400.00
13	6" Forcemain	300	Lin. Ft	\$50.00	\$15,000.00
14	8" Gravity Sewer	2800	Lin. Ft	\$70.00	\$196,000.00
15	6" Plug Valve	1	Each	\$4,000.00	\$4,000.00
16	48" Precast Manhole	2	Each	\$6,000.00	\$12,000.00
17	Lagoon Control Structures	3	Each	\$25,000.00	\$75,000.00
18	48" Woven Wire Fence	5500	Lin. Ft.	\$18.00	\$99,000.00
19	16' Wide Double Leaf Swing Gate	2	Each	\$2,000.00	\$4,000.00
20	Access Drive (16')	1000	Sq. Yds.	\$30.00	\$30,000.00
21	Flow Meters	2	Each	\$25,000.00	\$50,000.00
22	Collection Lift Station Rehabilitation		Lump Sum	\$80,000.00	\$80,000.00
				<b>Subtotal Construction Cost</b>	<b>\$2,157,400.00</b>
				<b>Contingency (10%)</b>	<b>\$215,740.00</b>
				<b>Total Construction Cost</b>	<b>\$2,373,140.00</b>
				Design Engineering	\$ 225,000.00
				Construction Engineering	\$ 40,000.00
				RPR Service	\$ 280,000.00
				Land Acquisition	\$ 600,000.00
				Geotechnical Evaluation	\$ 12,000.00
				Grant Administration	\$ 40,000.00
				Legal Administration	\$ 15,000.00
				Temporary Financing	\$ 72,000.00
				Bond Council	\$ 10,000.00
				<b>Total Opinion of Cost</b>	<b>\$3,667,140.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 2B - Construct New Discharging Lagoon - Phase 2

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization		Lump Sum	\$155,000.00	\$155,000.00
2	Clearing & Grubbing		Lump Sum	\$30,000.00	\$30,000.00
3	Seeding, Fertilizing, and Mulching		Lump Sum	\$30,000.00	\$30,000.00
4	Erosion Control		Lump Sum	\$30,000.00	\$30,000.00
5	Contractor Construction Staking		Lump Sum	\$30,000.00	\$30,000.00
6	Bentonite Liner		Lump Sum	\$170,000.00	\$170,000.00
7	Concrete Sump		Lump Sum	\$20,000.00	\$20,000.00
8	Electrical		Lump Sum	\$100,000.00	\$100,000.00
9	Onsite Lift Station	1	Each	\$150,000.00	\$150,000.00
10	Lagoon Earthwork	64000	Cu. Yds.	\$12.00	\$768,000.00
11	Rip Rap	1430	Cu. Yds.	\$80.00	\$114,400.00
12	6" Forcemain	300	Lin. Ft	\$50.00	\$15,000.00
13	8" Gravity Sewer	2800	Lin. Ft	\$70.00	\$196,000.00
14	6" Plug Valve	1	Each	\$4,000.00	\$4,000.00
15	48" Precast Manhole	2	Each	\$6,000.00	\$12,000.00
16	Lagoon Control Structures	3	Each	\$25,000.00	\$75,000.00
				<b>Subtotal Construction Cost</b>	<b>\$1,899,400.00</b>
				<b>Contingency (15%)</b>	<b>\$189,940.00</b>
				<b>Total Construction Cost</b>	<b>\$2,089,340.00</b>
				Design Engineering	\$ 200,000.00
				Construction Engineering	\$ 32,000.00
				RPR Service	\$ 250,000.00
				Geotechnical Evaluation	\$ 12,000.00
				Grant Administration	\$ 40,000.00
				Legal Administration	\$ 15,000.00
				Temporary Financing	\$ 50,000.00
				Bond Council	\$ 10,000.00
				<b>Total Opinion of Cost</b>	<b>\$2,698,340.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 3A - Construct New Lagoon-Wetland System - Phase 1

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization		Lump Sum	\$190,000.00	\$190,000.00
2	Clearing & Grubbing		Lump Sum	\$35,000.00	\$35,000.00
3	Seeding, Fertilizing, and Mulching		Lump Sum	\$35,000.00	\$35,000.00
4	Erosion Control		Lump Sum	\$35,000.00	\$35,000.00
5	Contractor Construction Staking		Lump Sum	\$35,000.00	\$35,000.00
6	Bentonite Liner		Lump Sum	\$170,000.00	\$170,000.00
7	Concrete Sump		Lump Sum	\$20,000.00	\$20,000.00
8	Sludge Removal		Lump Sum	\$150,000.00	\$150,000.00
9	Electrical		Lump Sum	\$100,000.00	\$100,000.00
10	Existing Lagoon Restoration		Lump Sum	\$100,000.00	\$100,000.00
11	Onsite Lift Station	2	Each	\$150,000.00	\$300,000.00
12	Lagoon Earthwork	64000	Cu. Yds.	\$12.00	\$768,000.00
13	Wetland Earthwork	74000	Cu. Yds.	\$12.00	\$888,000.00
14	Rip Rap	1430	Cu. Yds.	\$80.00	\$114,400.00
15	6" Forcemain	4800	Lin. Ft	\$50.00	\$240,000.00
16	8" Gravity Sewer	2800	Lin. Ft	\$70.00	\$196,000.00
17	6" Plug Valve	6	Each	\$4,000.00	\$24,000.00
18	48" Precast Manhole	6	Each	\$6,000.00	\$36,000.00
19	Lagoon Control Structures	3	Each	\$25,000.00	\$75,000.00
20	48" Woven Wire Fence	9000	Lin. Ft.	\$18.00	\$162,000.00
21	Access Drive (16')	1000	Sq. Yds.	\$30.00	\$30,000.00
22	16' Wide Double Leaf Swing Gate	2	Each	\$2,000.00	\$4,000.00
23	Flow Meters	2	Each	\$25,000.00	\$50,000.00
24	Collection Lift Station Rehabilitation		Lump Sum	\$80,000.00	\$80,000.00
<b>Subtotal Construction Cost</b>					<b>\$3,837,400.00</b>
<b>Contingency (10%)</b>					<b>\$383,740.00</b>
<b>Total Construction Cost</b>					<b>\$4,221,140.00</b>
Design Engineering					\$ 385,000.00
Construction Engineering					\$ 76,000.00
RPR Service					\$ 330,000.00
Land Acquisition					\$ 960,000.00
Geotechnical Evaluation					\$ 12,000.00
Grant Administration					\$ 40,000.00
Legal Administration					\$ 15,000.00
Temporary Financing					\$ 120,000.00
Bond Council					\$ 10,000.00
<b>Total Opinion of Cost</b>					<b>\$6,169,140.00</b>



**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 3B - Construct New Lagoon-Wetland System - Phase 2

<u>No</u>	<u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1	Mobilization		Lump Sum	\$165,000.00	\$165,000.00
2	Clearing & Grubbing		Lump Sum	\$35,000.00	\$35,000.00
3	Seeding, Fertilizing, and Mulching		Lump Sum	\$35,000.00	\$35,000.00
4	Erosion Control		Lump Sum	\$35,000.00	\$35,000.00
5	Contractor Construction Staking		Lump Sum	\$35,000.00	\$35,000.00
6	Bentonite Liner		Lump Sum	\$170,000.00	\$170,000.00
7	Concrete Sump		Lump Sum	\$20,000.00	\$20,000.00
8	Electrical		Lump Sum	\$60,000.00	\$60,000.00
9	Onsite Lift Station	2	Each	\$150,000.00	\$300,000.00
10	Lagoon Earthwork	64000	Cu. Yds.	\$12.00	\$768,000.00
11	Wetland Earthwork	74000	Cu. Yds.	\$12.00	\$888,000.00
12	Rip Rap	1430	Cu. Yds.	\$80.00	\$114,400.00
13	6" Forcemain	3000	Lin. Ft	\$50.00	\$150,000.00
14	8" Gravity Sewer	2800	Lin. Ft	\$70.00	\$196,000.00
15	6" Plug Valve	6	Each	\$4,000.00	\$24,000.00
16	48" Precast Manhole	2	Each	\$6,000.00	\$12,000.00
17	Lagoon Control Structures	3	Each	\$25,000.00	\$75,000.00
				<b>Subtotal Construction Cost</b>	<b>\$3,082,400.00</b>
				<b>Contingency (10%)</b>	<b>\$308,240.00</b>
				<b>Total Construction Cost</b>	<b>\$3,390,640.00</b>
				Design Engineering	\$ 320,000.00
				Construction Engineering	\$ 60,000.00
				RPR Service	\$ 300,000.00
				Geotechnical Evaluation	\$ 12,000.00
				Grant Administration	\$ 40,000.00
				Legal Administration	\$ 15,000.00
				Temporary Financing	\$ 82,000.00
				Bond Council	\$ 10,000.00
				<b>Total Opinion of Cost</b>	<b>\$4,229,640.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 4A - Construct Mechanical Wastewater Treatment Plant - Phase 1

<u>No</u> <u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1 Sludge Removal		Lump Sum	\$150,000.00	\$150,000.00
2 Existing Lagoon Abandonment		Lump Sum	\$60,000.00	\$60,000.00
3 Mechanical WWTP		Lump Sum	\$4,400,000.00	\$4,400,000.00
4 Flow Meters	2	Each	\$25,000.00	\$50,000.00
5 Collection Lift Station Rehabilitation		Lump Sum	\$80,000.00	\$80,000.00
			<b>Subtotal Construction Cost</b>	<b>\$4,740,000.00</b>
			<b>Contingency (10%)</b>	<b>\$474,000.00</b>
			<b>Total Construction Cost</b>	<b>\$5,214,000.00</b>
			Design Engineering	\$ 485,000.00
			Construction Engineering	\$ 120,000.00
			RPR Service	\$ 330,000.00
			Geotechnical Evaluation	\$ 8,000.00
			Grant Administration	\$ 40,000.00
			Legal Administration	\$ 15,000.00
			Temporary Financing	\$ 133,000.00
			Bond Council	\$ 10,000.00
			<b>Total Opinion of Cost</b>	<b>\$6,355,000.00</b>

**Linn Valley, KS**  
**Sanitary Sewer Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

Treatment Alternative 4B - Construct Mechanical Wastewater Treatment Plant - Phase 2

<u>No</u> <u>Description</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1 Mechanical WWTP Expansion		Lump Sum	\$2,700,000.00	\$2,700,000.00
			<b>Subtotal Construction Cost</b>	<b>\$2,700,000.00</b>
			<b>Contingency (10%)</b>	<b>\$270,000.00</b>
			<b>Total Construction Cost</b>	<b>\$2,970,000.00</b>
			Design Engineering	\$ 287,000.00
			Construction Engineering	\$ 100,000.00
			RPR Service	\$ 300,000.00
			Geotechnical Evaluation	\$ 8,000.00
			Grant Administration	\$ 40,000.00
			Legal Administration	\$ 15,000.00
			Temporary Financing	\$ 75,000.00
			Bond Council	\$ 10,000.00
			<b>Total Opinion of Cost</b>	<b>\$3,805,000.00</b>

**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of O&M Cost  
**20-1142L**  
**O&M - Collection**

**Alternative 1: Grinder Pump Stations**

Item	Annual Equivalent Cost
Electricity	\$ 16,000.00
Personnel	\$ 60,000.00
Grinder Station Maintenance	\$ 28,400.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 12,600.00
<b>Total</b>	<b>\$ 122,000.00</b>

**Alternative 2: STEP System**

Item	Annual Equivalent Cost
Electricity	\$ 16,000.00
Personnel	\$ 60,000.00
Grinder/STEP Pump Maintenance	\$ 28,400.00
Septic Tank Maintenance	\$ 10,450.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 12,600.00
<b>Total</b>	<b>\$ 132,450.00</b>

**Alternative 3: Gravity with Grinder Pump Station**

Item	Annual Equivalent Cost
Electricity	\$ 40,000.00
Personnel	\$ 60,000.00
Grinder/STEP Pump Maintenance	\$ 22,880.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 25,200.00
<b>Total</b>	<b>\$ 153,080.00</b>

**Alternative 4: Gravity with Grinder Pump Station and STEP**

Item	Annual Equivalent Cost
Electricity	\$ 40,000.00
Personnel	\$ 60,000.00
Grinder/STEP Pump Maintenance	\$ 22,880.00
Septic Tank Maintenance	\$ 6,725.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 25,200.00
<b>Total</b>	<b>\$ 159,805.00</b>

**Alternative 5: Utilize Existing Collection**

Item	Annual Equivalent Cost
Electricity	\$ 16,000.00
Personnel	\$ 60,000.00
Existing Grinder Pump Maintenance	\$ 12,120.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 8,400.00
<b>Total</b>	<b>\$ 101,520.00</b>



**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of O&M Cost  
**20-1142L**  
**O&M - Treatment**

**Alternative 1: Expand Existing Lagoons**

Item	Annual Equivalent Cost
Electricity	\$ -
Personnel	\$ 10,000.00
Contractual Services	\$ 20,000.00
Administration	\$ 5,000.00
Commodities	\$ 5,000.00
<b>Total</b>	<b>\$ 40,000.00</b>

**Alternative 2: Construct New Lagoons in Phases**

Item	Annual Equivalent Cost
Electricity	\$ -
Personnel	\$ 10,000.00
Contractual Services	\$ 20,000.00
Administration	\$ 5,000.00
Commodities	\$ 5,000.00
<b>Total</b>	<b>\$ 40,000.00</b>

**Alternative 3: Construct New Lagoons w/ Wetlands in Phases**

Item	Annual Equivalent Cost
Electricity	\$ 2,000.00
Personnel	\$ 10,000.00
Contractual Services	\$ 20,000.00
Administration	\$ 5,000.00
Commodities	\$ 5,000.00
<b>Total</b>	<b>\$ 42,000.00</b>

**Alternative 4: Construct Mechanical Wastewater Treatment Plant**

Item	Annual Equivalent Cost
Electricity	\$ 40,000.00
Personnel	\$ 50,000.00
Contractual Services	\$ 40,000.00
Administration	\$ 10,000.00
Commodities	\$ 10,000.00
<b>Total</b>	<b>\$ 150,000.00</b>

**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of O&M Cost  
**20-1142L**  
**Short Lived Assets - Collection**

**Alternative 1: Grinder Pump Stations**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Grinder Rebuild	721	Each	\$ 800.00	10	\$ 57,680.00
Grinder Replacement	721	Each	\$ 2,400.00	10	\$ 173,040.00
Submersible Pumps	6	Each	\$ 20,000.00	15	\$ 8,000.00
Control Panels/Instruments	3	Each	\$ 24,000.00	15	\$ 4,800.00
Generators	3	Each	\$ 45,000.00	15	\$ 9,000.00

Engineer's Opinion of Annual Reserve Deposit \$ 252,520.00

**Alternative 2: STEP System**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Grinder Rebuild	303	Each	\$ 800.00	10	\$ 24,240.00
Grinder Replacement	303	Each	\$ 2,400.00	10	\$ 72,720.00
Step Pump Replacement	418	Each	\$ 1,000.00	10	\$ 41,800.00
Submersible Pumps	6	Each	\$ 20,000.00	15	\$ 8,000.00
Control Panels/Instruments	3	Each	\$ 24,000.00	15	\$ 4,800.00
Generators	3	Each	\$ 45,000.00	15	\$ 9,000.00
Septic Tank	418	Each	\$ 2,000.00	25	\$ 33,440.00

Engineer's Opinion of Annual Reserve Deposit \$ 194,000.00

**Alternative 3: Gravity with Grinder Pump Station**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Grinder Rebuild	534	Each	\$ 800.00	10	\$ 42,720.00
Grinder Replacement	534	Each	\$ 2,400.00	10	\$ 128,160.00
Submersible Pumps	12	Each	\$ 20,000.00	15	\$ 16,000.00
Control Panels/Instruments	6	Each	\$ 24,000.00	15	\$ 9,600.00
Generators	6	Each	\$ 45,000.00	15	\$ 18,000.00

Engineer's Opinion of Annual Reserve Deposit \$ 214,480.00

**Alternative 4: Gravity with STEP System**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Grinder Rebuild	303	Each	\$ 800.00	10	\$ 24,240.00
Grinder Replacement	303	Each	\$ 2,400.00	10	\$ 72,720.00
Step Pump Replacement	231	Each	\$ 1,000.00	10	\$ 23,100.00
Submersible Pumps	12	Each	\$ 20,000.00	15	\$ 16,000.00
Control Panels/Instruments	6	Each	\$ 24,000.00	15	\$ 9,600.00
Generators	6	Each	\$ 45,000.00	15	\$ 18,000.00

Engineer's Opinion of Annual Reserve Deposit \$ 163,660.00

**Alternative 5: Existing Collection**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Grinder Rebuild	303	Each	\$ 800.00	10	\$ 24,240.00
Grinder Replacement	303	Each	\$ 2,400.00	10	\$ 72,720.00
Submersible Pumps	6	Each	\$ 20,000.00	15	\$ 8,000.00
Control Panels/Instruments	3	Each	\$ 24,000.00	15	\$ 4,800.00
Generators	3	Each	\$ 45,000.00	15	\$ 9,000.00

Engineer's Opinion of Annual Reserve Deposit \$ 118,760.00

**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of O&M Cost  
**20-1142L**  
**Short Lived Assets - Treatment**

**Alternative 1: Expand Existing Lagoon**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Desludge Lagoon	1	Each	\$ 75,000.00	10	\$ 7,500.00
Engineer's Opinion of Annual Reserve Deposit					\$ 7,500.00

**Alternative 2: Construct New Lagoons in Phases**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Desludge Lagoon	1	Each	\$ 75,000.00	10	\$ 7,500.00
Engineer's Opinion of Annual Reserve Deposit					\$ 7,500.00

**Alternative 3: Construct New Lagoons w/ Wetlands in Phases**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Desludge Lagoon	1	Each	\$ 75,000.00	10	\$ 7,500.00
Onsite Pump Replacement	4	Each	\$ 12,000.00	10	\$ 4,800.00
Control Panels/Instruments	2	Each	\$ 24,000.00	15	\$ 3,200.00
Engineer's Opinion of Annual Reserve Deposit					\$ 15,500.00

**Alternative 4: Mechanical Treatment Plant**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Onsite Pump Replacement	2	Each	\$ 15,000.00	10	\$ 3,000.00
Screening Equipment	1	Each	\$ 100,000.00	20	\$ 5,000.00
Grit Equipment	1	Each	\$ 75,000.00	20	\$ 3,750.00
Blowers	2	Each	\$ 25,000.00	15	\$ 3,333.33
Diffusers	1	Lump Sum	\$ 8,000.00	5	\$ 1,600.00
UV Equipment	2	Each	\$ 80,000.00	15	\$ 10,666.67
Control Panels/Instruments	6	Each	\$ 24,000.00	15	\$ 9,600.00
Generators	6	Each	\$ 45,000.00	15	\$ 18,000.00
Engineer's Opinion of Annual Reserve Deposit					\$ 54,950.00

**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of Cost  
**20-1142L**  
**O&M Budget**

**O&M Costs**

Item	Annual Equivalent Cost
Treatment	
Electricity	\$ 2,000.00
Personnel	\$ 10,000.00
Contractual Services	\$ 20,000.00
Administration	\$ 5,000.00
Commodities	\$ 5,000.00
Collection	
Electricity	\$ 16,000.00
Personnel	\$ 60,000.00
Existing Grinder Pump Maintenance	\$ 12,120.00
Pipe Maintenance	\$ 5,000.00
Lift Station Maintenance	\$ 8,400.00
<b>Total</b>	<b>\$ 143,520.00</b>

**Short Live Asset Costs**

Item	Quantity	Unit	Replacement Cost	Anticipated Life (Years)	Annual Equivalent Cost
Desludge Lagoon	1	Each	\$ 75,000.00	10	\$ 7,500.00
Onsite Pump Replacement	4	Each	\$ 12,000.00	10	\$ 4,800.00
Control Panels/Instruments	2	Each	\$ 24,000.00	15	\$ 3,200.00
Grinder Rebuild	303	Each	\$ 800.00	10	\$ 24,240.00
Grinder Replacement	303	Each	\$ 2,400.00	10	\$ 72,720.00
Submersible Pumps	6	Each	\$ 20,000.00	15	\$ 8,000.00
Control Panels/Instruments	3	Each	\$ 24,000.00	15	\$ 4,800.00
Generators	3	Each	\$ 45,000.00	15	\$ 9,000.00

**Engineer's Opinion of Annual Reserve Deposit \$ 134,260.00**



**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of Probable Cost  
 17-1451L

**Life Cycle Cost Analysis - Collection Alternatives**

**Present Worth Summary:**

Collection Alternatives

	Grinders	STEP	Gravity-Grinder	Gravity-STEP
Total Capital Costs	\$ 14,395,810	\$ 12,972,720	\$ 18,630,473	\$ 17,223,459
Annual O&M*	\$ 122,000	\$ 132,450	\$ 153,080	\$ 159,805
Annual Short Lived Assets Fund	\$ 252,520	\$ 194,000	\$ 214,480	\$ 163,660
20 Year Present Worth (O&M + Reserve)	\$ 7,111,168	\$ 6,198,443	\$ 6,979,016	\$ 6,141,766
Salvage Value	\$ 7,197,905	\$ 6,486,360	\$ 9,315,237	\$ 8,611,730
20 Year Present Worth (Salvage Value)	\$ 6,514,557	\$ 5,870,564	\$ 8,430,875	\$ 7,794,157
Life Cycle Cost	\$ 14,992,421	\$ 13,300,599	\$ 17,178,614	\$ 15,571,068

*Life Cycle based upon 20 years and a discount rate of 0.5%*

\*O&M includes the cost to purchase water. Other O&M Cost are equivalent for either option

**Present Worth of O&M and Short Lived Assets:**

$$P = \frac{A[(1+i)^N - 1]}{i(1+i)^N}$$

	Alternative #1	Alternative #2	Alternative #3	Alternative #4
A= Annual O&M + Short Lived Assets Fund	\$ 374,520	\$ 326,450	\$ 367,560	\$ 323,465
N= Number of Years	20	20	20	20
I = Discount Rate	0.50%	0.50%	0.50%	0.50%
Present Worth (O&M)	\$ 7,111,168	\$ 6,198,443	\$ 6,979,016	\$ 6,141,766

**Salvage Value Calculation:**

$$P = S(1+i)^{-N}$$

	Alternative #1	Alternative #2	Alternative #3	Alternative #4
Capital Cost	\$ 14,395,810	\$ 12,972,720	\$ 18,630,473	\$ 17,223,459
Useful Life	40	40	40	40
N = Number of Years	20	20	20	20
Remaining Useful Life	50%	50%	50%	50%
S = Salvage Value	\$ 7,197,905	\$ 6,486,360	\$ 9,315,237	\$ 8,611,730
i = discount rate	0.50%	0.50%	0.50%	0.50%
P = Present Worth (Salvage Value)	\$ 6,514,557	\$ 5,870,564	\$ 8,430,875	\$ 7,794,157

**City of Linn Valley, Kansas**  
**Water System Improvements**  
 Engineer's Opinion of Probable Cost  
**20-1142L**

**Life Cycle Cost Analysis - Treatment Alternatives**

**Present Worth Summary:**

	Alternative #3	Alternative #4
Total Capital Costs (Phase 1 & 2)	\$ 10,398,780	\$ 10,160,000
Annual O&M*	\$ 42,000	\$ 150,000
Annual Short Lived Assets Fund	\$ 15,500	\$ 54,950
20 Year Present Worth (O&M + Reserve)	\$ 1,091,777	\$ 3,891,472
Salvage Value	\$ 5,199,390	\$ 5,080,000
20 Year Present Worth (Salvage Value)	\$ 4,705,775	\$ 4,597,720
Life Cycle Cost	\$ 6,784,782	\$ 9,453,752

*Life Cycle based upon 20 years and a discount rate of 0.5%*

\*O&M includes the cost to purchase water. Other O&M Cost are equivalent for eith

**Present Worth of O&M and Short Lived Assets:**

$$P = \frac{A[(1+i)^N - 1]}{[i(1+i)^N]}$$

	Alternative #3	Alternative #4
A= Annual O&M + Short Lived Assets Fund	\$ 57,500	\$ 204,950
N= Number of Years	20	20
I = Discount Rate	0.50%	0.50%
Present Worth (O&M)	\$ 1,091,777	\$ 3,891,472

**Salvage Value Calculation:**

$$P = S(1+i)^{-N}$$

	Alternative #3	Alternative #4
Capital Cost	\$ 10,398,780	\$ 10,160,000
Useful Life	40	40
N = Number of Years	20	20
Remaining Useful Life	50%	50%
S = Salvage Value	\$ 5,199,390	\$ 5,080,000
i = discount rate	0.50%	0.50%
P = Present Worth (Salvage Value)	\$ 4,705,775	\$ 4,597,720