



Town of Abita Springs
Town Engineer Project Update (Town Sewerage System/Abita Meadows)
January 29, 2025

Agenda

- Recap of Town Sewerage System Capacity Analysis (March 2023)
 - Gravity Sewer System
 - Pearl Street Lift Station
 - Wastewater Treatment Plant
- Overview of Capital Investment and Improvements
- Required Capital Improvements Remaining
- Questions

Gravity Sewer System Capacity Analysis



Gravity Sewerage System Analysis

- Collection System not Previously Analyzed
- Overview of Existing and Projected WW Flow

Condition	Customers ¹	Minimum Daily Flow (GPD) ²	Average Daily Flow (GPD) ²	Maximum Daily Flow (GPD) ²	Peak Hourly Flow (GPM) ²
Existing	1086 (Residential) 78 (Commercial)	103,421	210,714	653,776	454

Notes:

1. Existing customer count based upon billing data/records received from Town.
2. Minimum, maximum, and average Daily Flow (ADF) based wastewater treatment plant flow data from January 2022 through February 2023.

Condition	Customers ¹	Average Daily Flow (GPD) ²	Peak Daily Flow (GPD) ³	Peak Hourly Flowrate (GPM) ³
Abita Meadows	390 (Residential)	156,000	574,080	399

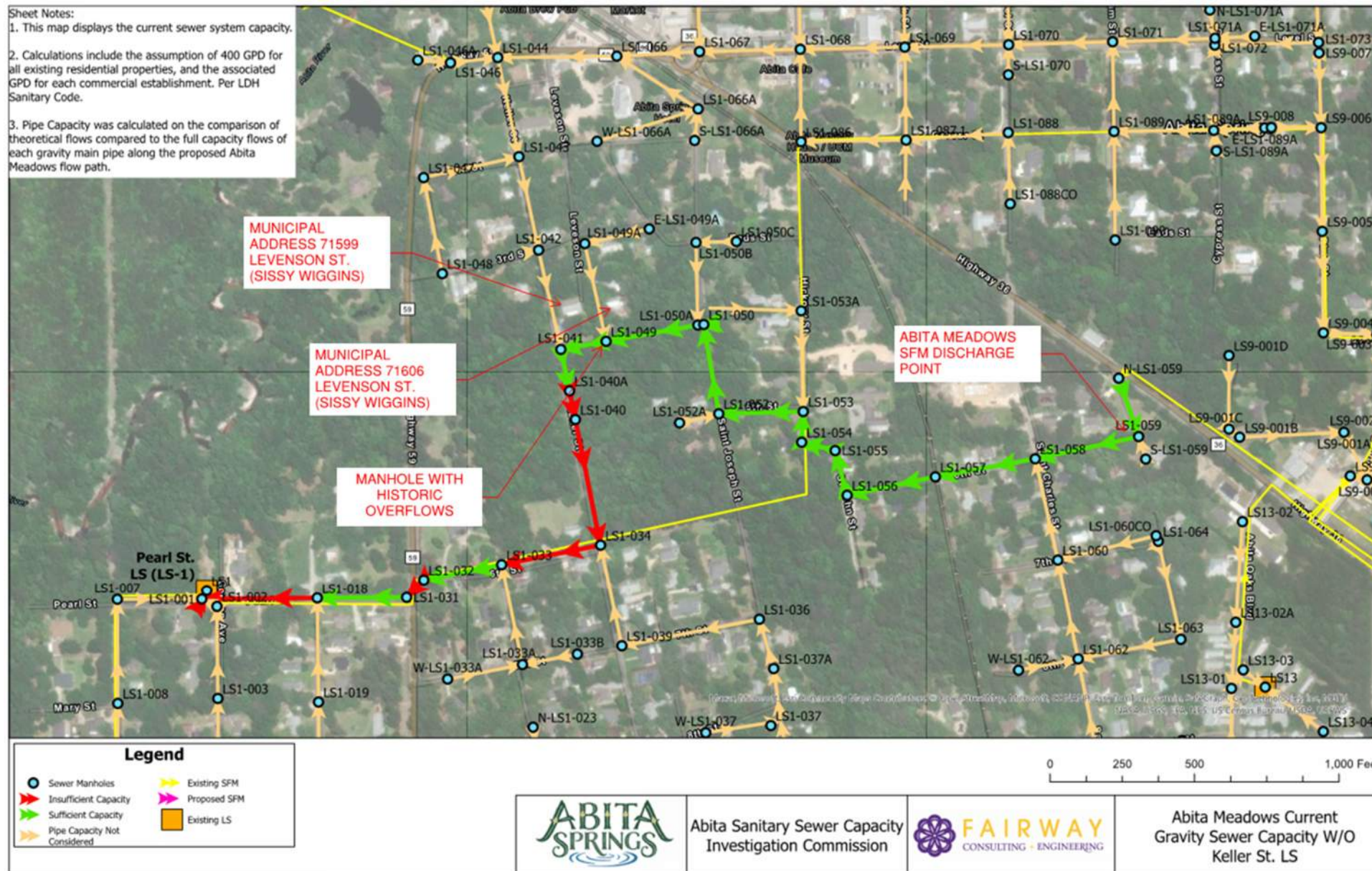
Notes:

1. Abita Meadows Customer Count based upon Preliminary Plat dated January 2018.
2. Abita Meadows ADF assumes all 3-bedroom houses that generate 400 gallons per day (GPD). Flow generation factor obtained from State of Louisiana Sanitary Code (Title 51, Part XIII Chapter 15 (Sewage Loading criteria)).
3. Abita Meadows Peak Hourly Flow (PHF) based upon peaking factor obtained from Figure 1 of the Recommended Standards for Wastewater Facilities, 2012 Edition.

Gravity Sewerage System Analysis

- Existing System Deficiencies
 - Capital Cost to Replace Pipes Under Capacity: \$2,026,600

Overflow at Manhole Near 71599/71606 Levenson St



Gravity Sewerage System Analysis

- Existing System Deficiencies with Abita Meadows
 - Capital Cost to Replace Pipes Under Capacity: \$3,918,350



Gravity Sewerage System Analysis

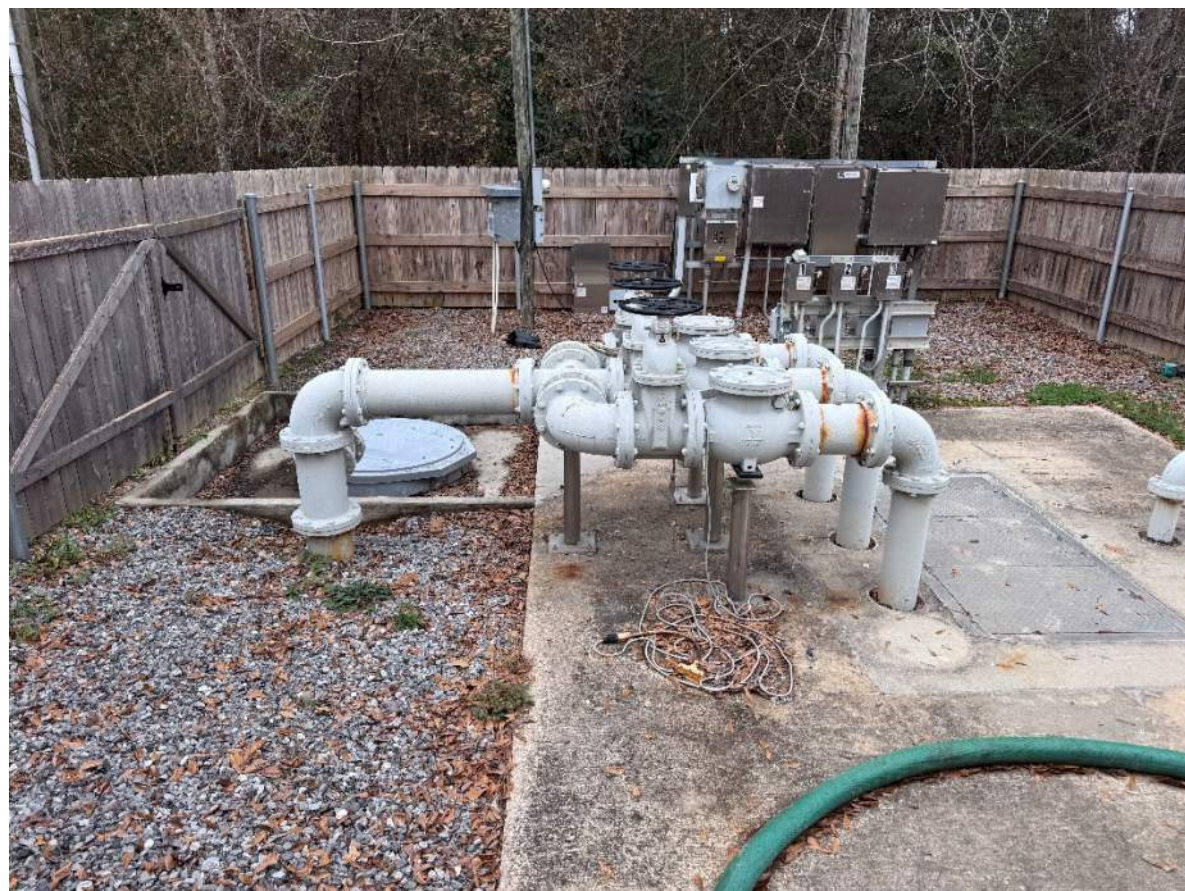
- **Summary**

- Several Pipes Lack Capacity for Existing Flows
- Recurring Overflows
- Addition of Abita Meadows will Further Negatively Impact System and Result in Future System Overflows
 - Detrimental to Public Health and Safety
 - Violation of Town LDEQ Permit (Town Currently Under LDEQ Administrative Order)
 - Potential Fines from LDEQ or EPA

Pearl St. Lift Station Capacity Analysis

Pearl Street Lift Station Analysis

- Overview of Pump Capacity Required



Facility Component	Pump Discharge Rate (GPM)	Required Discharge Rate with Abita Meadows ³
Pumps (Tri-Plex) with Existing 8" SFM	650 ¹	850
Pumps (Tri-Plex) with Existing Nominal Diameter 10" SFM	1,275 ²	850

Notes:

1. Assumes two (2) duty pumps operating in parallel with one (1) pump on stand-by. Assumes C-Factor 100 for cast iron pipe due to age and unknown material type. C-Factor based on recommendation from Recommended Standards for Water Works, 2012 Edition, Section 49.1.
2. Assumes two (2) duty pumps running in parallel with one (1) pump on stand-by. Assumes C-Factor 120 for new PVC/HDPE pipe. C-Factor based on recommendation from Recommended Standards for Water Works, 2012 Edition, Section 49.1.
3. Needed capacity for existing customers determined by summing peak hourly flow data from the WWTP and Abita Meadows.

Pearl St. Lift Station Analysis

- Summary
 - Lift Station has Sufficient Capacity for Existing Flow
 - Town Upgraded Pumps to Accommodate Existing Flow and Abita Meadows in July 2021
 - Developers have not Upgraded Pearl Street Sewer Force Main as Required by Development Agreement
 - Once Upgrade is performed, Pump Station Would have Capacity, but further Evaluation of Pump Operating Condition should be performed in order to prevent damage to pumps.

Wastewater Treatment Plant Capacity Analysis



Wastewater Treatment Plant Analysis

- Condition Assessment
- Plant in State of Disrepair and has Surpassed Useful Service Life



Date	NPDES Discharge Permit Parameter	Permit Limit	Reported Value
3/31/2017	Nitrogen, ammonia total (as N) Monthly Average	5.0 mg/L	9.1 mg/L
6/30/2017	Coliform, fecal general Monthly Average Geometric	200 #/100mL	<502.5 #/100mL
6/30/2017	Coliform, Fecal general Weekly Geometric	400 #/100mL	1000 #/100mL
10/31/2017	BOD, carbonaceous (5 day, 20 C) Monthly Average	10 mg/L	<= 14 mg/L
11/30/2018	Nitrogen, ammonia total (as N) Monthly Average	5.0 mg/L	11.2 mg/L
11/30/2018	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	11.2 mg/L
1/31/2019	Coliform, fecal general Monthly Average Geometric	200 #/100mL	<505 #/100mL
1/31/2019	Coliform, Fecal general Weekly Geometric	400 #/100mL	<505 #/100mL
2/28/2019	Coliform, fecal general Monthly Average Geometric	200 #/100mL	520 #/100mL
2/28/2019	Coliform, Fecal general Weekly Geometric	400 #/100mL	520 #/100mL
4/30/2019	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	11.5 mg/L
4/30/2019	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	11.5 mg/L
10/30/2019	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	12.2 mg/L
10/30/2019	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	17 mg/L
11/30/2019	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	5.4 mg/L
11/30/2019	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	10.7 mg/L
1/30/2020	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	5.35 mg/L
1/30/2020	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	10.5 mg/L
1/30/2020	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	13.2 mg/L
1/30/2020	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	15.7 mg/L
10/31/2021	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	6.3 mg/L
2/28/2021	Nitrogen, ammonia total (as N) Monthly Average	5 mg/L	9.6 mg/L
2/28/2021	Nitrogen, ammonia total (as N) Weekly Average	10 mg/L	11.2 mg/L
10/31/2022	Total Suspended Solids (TSS) Monthly Average	15 mg/L	20.5 mg/L
11/30/2022	Total Suspended Solids (TSS) Monthly Average	15 mg/L	16 mg/L

Wastewater Treatment Plant Analysis

- Plant Capacity

Process Unit	Capacity (GPD)	Required Capacity with Abita Meadows (GPD)
Extended Aeration	331,681 (Detention Time) 398,505 (BOD Loading)	366,714
	304,106 (Overflow Rate)	
Clarification	250,036 (Solids Loading) ¹	
	267,035 (Weir Loading)	
Chlorine Contact	397,226 (Contact Time)	
Aerobic Digestion	308,151 (Volume)	
Dewatering	251,799 (Area)	

Notes:

1. Lowest process unit capacity (i.e., clarifier solids loading) controls plant process capacity.
2. Design criteria used for all process units except clarification are based upon the Recommended Standards for Water Works, 2012 Edition. Clarification process unit design criteria are based on Table 8-34 of Wastewater Engineering and Resource Recovery, 5th Edition by Metcalf and Eddy.

Wastewater Treatment Plant Analysis

- Summary

- Plant in State of Disrepair and Surpassed Useful Service Life
- Recurring Permit Exceedances with Existing Flow (Violation of LDEQ Permit and Compliance Order)
- Recommended to Not Accept Additional Flow Due to Current Plant Condition and Inability to Meet Permit Limits Consistently
- Current Plant did not have Sufficient Capacity to Accommodate both Existing Customers and Abita Meadows
- Capital Improvements with Influent Pump Station/Arrowwood Interconnection Resolved Issues

Completed Capital Investment/ Improvement Overview



Capital Investments/Improvements Overview

- Rehabilitated Majority of Gravity Sewer System
- Rehabilitated Town Pump Stations
- Secured \$5,000,000 Grant through Water Sector Program (January 2023)
- Influent Pump Station/Arrowwood Interconnection, WWTP Replacement and Gravity Sewer Rehabilitation
 - Funding Through Water Sector Program (\$5,000,000 Grant)
 - Design Complete November 2023
 - Bids Opened January 2024
 - One Bid Received and Overbudget (Rejected Bids)
- Value Engineering Performed
 - Bid Project in Phases (Phase 1 – Influent Pump Station/Arrowwood Interconnection; Phase 2 - WWTP Replacement and Gravity Sewer Rehabilitation)
 - Remove some Elements of the Phase 2 Scope

Capital Investments/Improvements Overview

- Phase 1 - Influent Pump Station/Arrowwood Interconnection
 - Allow Town to Take Existing WWTP Offline and Divert Flow to Arrowwood WWTP
 - Redesign Complete February 2024
 - Bids Opened April 2024 (\$737,149.00)
 - Awarded to Local Contractor
 - Between \$160,000 and \$200,000 Cost Savings
 - Project Substantially Complete December 2024



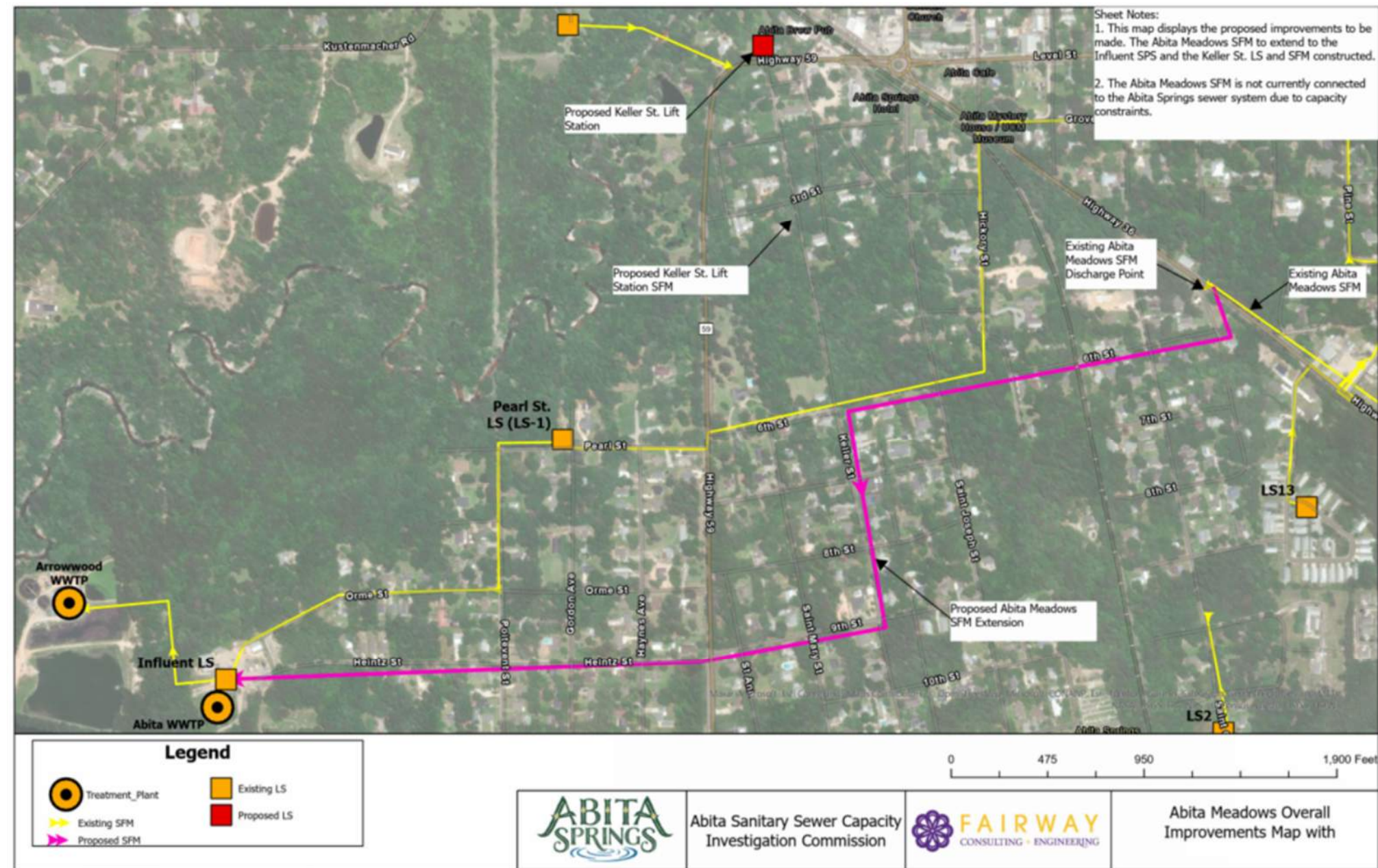
Capital Investments/Improvements Overview

- Phase 2 – WWTP Replacement and Gravity Sewer Rehabilitation
 - Replacement of Existing WWTP
 - Redesign Complete April 2024
 - Bids Opened July 2024 (\$5,789,000) Overbudget
 - August 2024 Secured \$685,240 in Additional Grant Funding from Water Sector Commission (Total \$5,685,240)
 - Notice to Proceed Issued to Contractor November 2024
 - Substantial Completion May 2026; Final Completion June 2026
 - Demolition Started
- Developed Concepts and Opinions of Probable Construction Cost for Potential Solutions to Provide Service

Required Capital Improvements

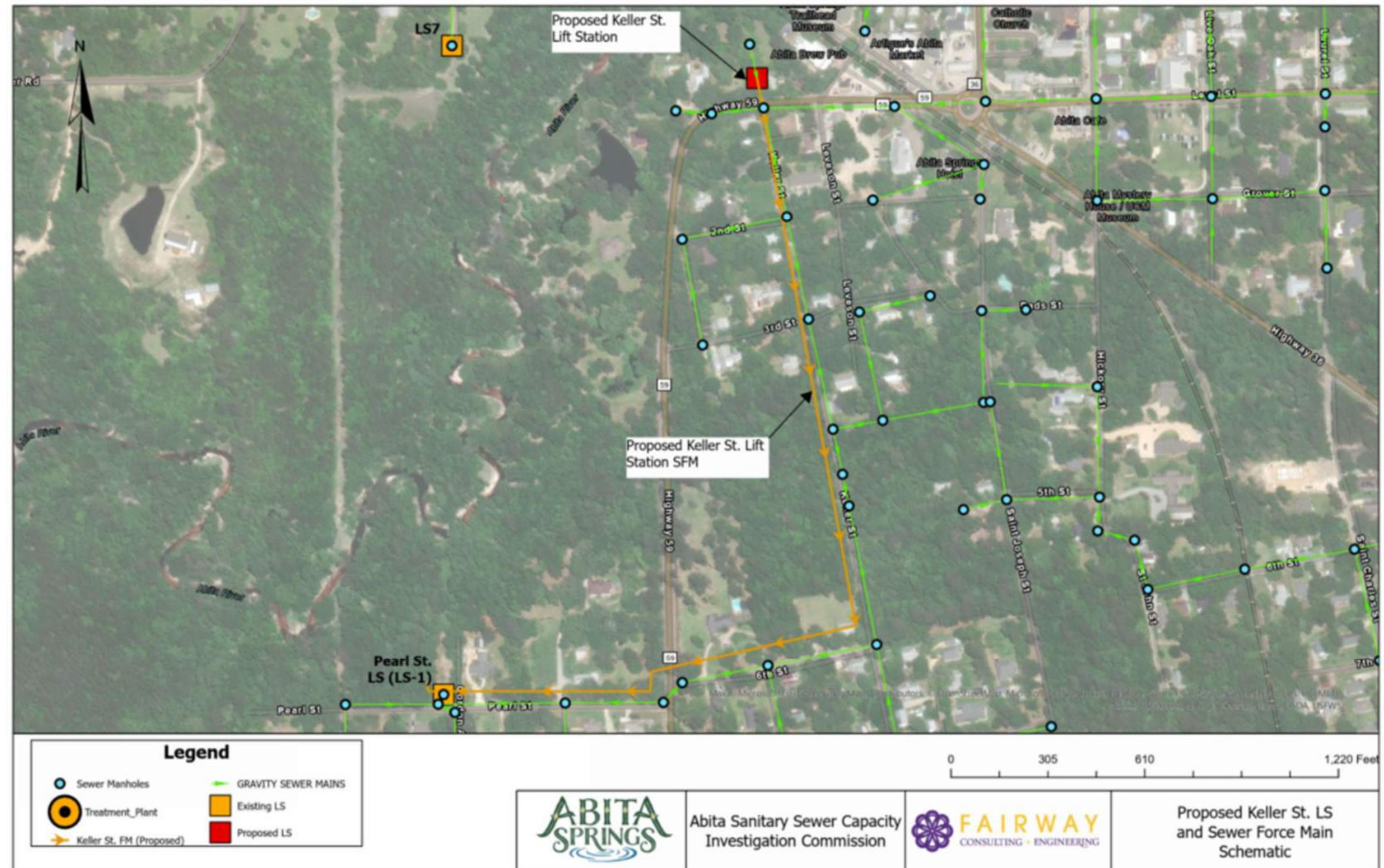
Required Capital Improvements (Improvement No. 1)

- Extension of Abita Meadows Sewer Force Main
- Resolves Gravity Sewer System Deficiencies
- Rejected by Developers
- Would Eliminate Need to Upgrade Pearl Street Sewer Force Main (\$885,500 Cost Savings to Developer)
- Capital Cost: (\$2,031,610)
- Schedule
 - 10 to 15 Months



Required Capital Improvements (Improvement No. 2)

- Keller Street Pump Station and Sewer Force Main
- Alleviate Stress on Current Gravity Sewer System
- Capital Cost: (\$1,550,000)
- Schedule
 - 10 to 15 Months



Questions

