



July 12, 2023

Ms. Yvonne Griffin
City Administrator
City of La Vernia
P. O. Box 225
102 E. Chihuahua
La Vernia, Texas 78121-0225

RE: Impact Fee Study - Sewer
SWE Project No. 0200-034-23

Dear Yvonne,

During our review of the sewer capacity, we focused on the area west of FM 1345, as this was the area to be served by a new Wastewater Treatment Plant in the proposed impact fee study. This area is currently served by the HEB Lift Station, various sewer mains and the existing City Wastewater Treatment Plant. Based on this study, we evaluated your current capacity and the bottleneck for future growth. We believe the limiting factor in the capacity will be the 4" force main leaving the HEB Lift Station at a capacity of approximately 400 total LUEs.

- Treatment – Current Wastewater Treatment Plant
- Transmission – Pipelines from HEB Lift Station to Wastewater Treatment Plant
- Pumping – Current HEB Lift Station capacity

Treatment

The current Wastewater Treatment Plant can serve approximately 1,800 connections and is at 50% capacity.

Transmission

The existing transmission lines from the HEB Lift Station to the Wastewater Treatment Plant include two force mains and 5 gravity mains. Capacity approximations were based on ground elevations and known sewer main sizes.

Transmission Line	Approximate Capacity	LUEs
4" Force Main (HEB Lift Station to HWY 87)	200 gpm	400
8" Gravity Main (Hwy 87- End of Hillcrest Dr)	900 gpm	1,800
12" Gravity Main (Hillcrest Dr to Lift Station)	1,400 gpm	2,800
6" Force Main (Lift Station to Dry Hollow)	450 gpm	900
10" Gravity Main (Dry Hollow to Newton/River Rd)	1,030 gpm	2,060
10" Gravity Main (Newton/River Rd to WWTP)	850 gpm	1,700

Pumping

Based on conversations with Josh, the current Lift Station runs less than 1.5 hours daily. The Lift Station has capacity to handle additional flows. There will be a need to construct additional wet wells at the Lift Station and increase pump capacity with growth. The proposed citywide wastewater impact fee should also be adequate to make those minor improvements.

Any large development will require a new Wastewater Treatment Plant that would be paid for by the Developer and enlarged by future developers.

Respectfully submitted,



Clarence L. Littlefield, P.E.

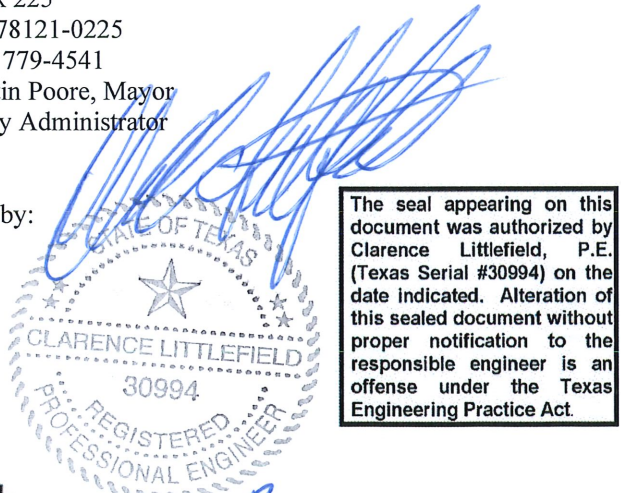
City of La Vernia

WATER & WASTEWATER IMPACT FEE STUDY

July 2023
SWE Project No. 0200-034-23

City of La Vernia
PWS #2470004
P. O. Box 225
La Vernia, TX 78121-0225
Phone: (830) 779-4541
The Honorable Martin Poore, Mayor
Yvonne Griffin, City Administrator

Prepared by:



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Introduction

The City of La Vernia continues to expand and aims to maintain adequate infrastructure and means to provide water and wastewater services.

The City of La Vernia has authorized Southwest Engineers, Inc. to amend the previously approved Impact Fee Study, which identifies system improvements and facility expansion that are necessary for the next ten (10) years. The previous *Impact Fee Study* was completed and adopted by the City in 2015, for the water and wastewater systems. With pending growth and costs for the required infrastructure, the Impact Fees have been reevaluated and proposed.

Methodology

Impact fees are charged based on capital improvements deemed necessary due to the projected increase in the number of connections over a developmental period not to exceed ten (10) years. The term “capital improvements” refers to the improvements made to water and wastewater system (including facility expansions) with a life expectancy of three or more years, whether or not located within the service area.

Existing Infrastructure

The existing infrastructure remains unchanged from the previously impact fees study except for the completion of the following projects from the previous impact fee study. Below is the status of the improvements from the previous study:

Water

- Improvement 1: New Supervisory Control and Data Acquisitions – Complete
- Improvement 2: Woodcreek Subdivision – Complete
- Improvement 3: Miscellaneous Undersized Water Main Replacement – Complete
- Improvement 4: FM 1346, 8-inch Main Expansion – Complete
- Improvement 5: Dry Hollow, 6-inch Water Main Replacement – Complete
- Improvement 6: McCoy Street, 6-inch Water Main Replacement – Not Completed
- Improvement 7: San Antonio & D.L. Vest St., 8-inch Water Main – Complete
- Improvement 8: New Water Well and 12-inch Transmission Line – Complete
- Improvement 9: US Highway 87, 12-inch Interconnect Water Main – Not Completed
- Improvement 10: US Highway 87, 8-inch Water Main Extension West – Not Completed
- Improvement 11: US Highway 87, 8-inch Water Main Extension East – Not Completed

Wastewater

- Improvement 1: 15-inch Pipe from Wastewater Treatment Plant to Chihuahua Street – Not Completed
- Improvement 2: Clay Sewer Pipe Replacement Program – Not Completed
- Improvement 3: US Highway 87, 8-inch Sewer Line Extension West – Not Completed
- Improvement 4: Clay Sewer Pipe Replacement Program 2 – Not Completed
- Improvement 5: US Highway 87, 12-inch Chamber of Commerce Sewer Main – Not Completed
- Improvement 6: FM 775 8-inch Sewer Service Extension West – Completed
- Improvement 7: Woodcreek Subdivision Sewer Service – Completed

Land Use Assumptions and Projected Growth

The water service area for the City of La Vernia is bounded by their current CCN, which encompasses approximately 4,750 acres (of which approximately 2,000 acres are located within the FEMA 100-year floodplain). It is projected that the majority of the growth will occur due to development in the form of residential subdivisions, with some retail/commercial developments and schools to serve the growing population. Growth within the next ten (10) years is expected in areas outside of the city limits, where large tracts are being purchased by potential developers. *Exhibit A* shows the areas of potential development, including areas with active service requests. All existing infrastructure has sufficient capacity for current service requests, however additional infrastructure will be necessary to connect these proposed developments to the existing infrastructure. A 3% growth rate is expected for the area inside the City Limits as this has been seen in the past and in neighboring water districts. The City of La Vernia will also need to complete system improvements to serve several of the proposed development areas.

Although the wastewater service area is not bounded by a CCN and rather the City Limits, it is understood that the City plans to provide wastewater to all water customers and the wastewater impact fees are developed anticipating the same growth as explained above.

Capital Improvements

Water

The City of La Vernia needed to make several improvements to their water system to be able to serve the projected growth of their service area over the next ten (10) years. While the existing infrastructure has sufficient capacity for current customers, elevated tower, water mains, wells, and filter plant improvements and expansions will be necessary to serve areas of growth within the City's service area. A 10-year Capital Improvements Plan was developed to identify the projects that will need to be completed to accommodate the proposed growth. The subsequent paragraphs provide the details of each of these projects, followed by a summary of this list and the associated costs in Table 2, a full breakdown of costs in *Exhibit B* and a location map of these improvements can be found in *Exhibit C*.

The first project was a 500,000-gallon Elevated Tower located in the Woodcreek Subdivision off Woodcreek Drive. The Elevated Tank provides adequate water pressure to the entire City of La Vernia including flows required for fire flow.

The next project was a 12-inch water main supply line from the Filter Plant to the Old Elevated Tank. The existing 6-inch main is limited to about 300 gpm and is a bottleneck in the City of La Vernia's water supply. This main increased the water supply to the City by allowing more water to be pumped from the Filter Plant to handle the additional supply from Wells #6 and #7 and Well #8 when drilled.

The next major capital improvement is a 16-inch water main from the Booster Station directly to the Elevated Tank. This supply line will be approximately 6,400 L.F and will allow for increased flows to the Elevated Tank to meet the Elevated Tank capacity. The line will also reduce the pumping pressure and result in a power cost savings.

The next major project is the installation of Well #8. This will include the acquisition of land and water rights, and installation of a 700 gpm well. It is proposed for the water well be placed on Tanneberger land, south of current Well #7. The water well will provide water for an additional 1,200 customer connections.

The next project is a 12-inch water line from the proposed Well #8 to the existing Well #7 to allow the water to be treated at the current City of La Vernia Filter Plant. With the proposed well location, this is approximately 10,700 L.F of water line that will be required.

The final major capital improvement is the expansion of the current Filter Plant. The current operation is limited to about 875 gpm with two (2) 7-foot diameter and two (2) 8-foot diameter filters. Two (2) additional 8-foot diameter filters at 250 gpm per filter for 500 gpm of additional treatment capacity to treat the water from Well #6, #7 and #8 will be required.

Table 1: Water Capital Improvement Summary

Location	Cost	Number of LUEs	Per LUE
Elevated Tank	\$ 1,419,420.00	2,500	\$ 570.00
12-Inch Main to Old Elevated Tank	\$ 371,478.00	2,500	\$ 150.00
16-Inch Main to Elevated Tank	\$ 1,254,000.00	2,500	\$ 500.00
Well #8 (700 gpm)	\$ 820,000.00	1,200	\$ 690.00
12-Inch Pipeline from #8 to #7	\$ 945,000.00	1,200	\$ 790.00
Filter Plant	\$ 1,305,000.00	900	\$ 1,620.00
	\$ 6,114,898.00		\$ 4,320.00

Based on the expected growth, the anticipated expenditures for associated capital improvements, and the number of LUEs each capital improvement will serve (Table 2). The City of La Vernia would need to collect approximately \$4,320/LUE from all new developments.

Wastewater

The City of La Vernia will also need to make several major improvements to their wastewater system to be able to serve the projected growth of their current water service area over the next ten (10) years especially with service in two (2) areas that would require a major lift station and force mains. While the existing infrastructure has sufficient capacity for current customers in the plant gravity flow plain, a new wastewater treatment plant, and additional gravity mains would be necessary to serve areas of growth within the service area. A 10-year Capital Improvements Plan was developed to identify the projects that will need to be completed to accommodate the proposed growth.

The first project will include 3,000 L.F of 12-inch gravity main in easement from US Highway 87 to the Wastewater Treatment Plant. This sewer line will divert flow from the current 10-inch gravity main down River Street that is approaching capacity. This existing 10-inch gravity main is the only main to the plant.

The next major capital improvements are the installation of the US Highway 87, 12-inch gravity main. This main is to include approximately 2,000 L.F of 12-inch sewer to service the existing residences and businesses along US Highway 87 towards the Chamber of Commerce as well as provide sewer service for the new developments in this area. This main will tie into the new gravity main to the plant described above. Both proposed lines are in the east gravity plain.

The next major capital improvement is upgrades to the west gravity plain, including all areas west of FM 1346. The improvements will include upgrades to the current HEB lift station and a proposed new sewer main west of the lift station. Any large developments on the west side of town may be required to install a new wastewater treatment plant due to existing lift station, force main and gravity line capacity limitations.

Table 2: Wastewater Capital Improvement Summary

Location	Cost	Number of LUEs	Per LUE
12-Inch Gravity Main to WWTP	\$ 575,000.00	1,000	\$ 575.00
12-Inch Gravity Main US Highway 87	\$ 377,000.00	1,000	\$ 380.00
West Side Improvements	\$ 100,000.00	500	\$ 200.00
	\$ 1,002,000.00		\$ 1,155.00

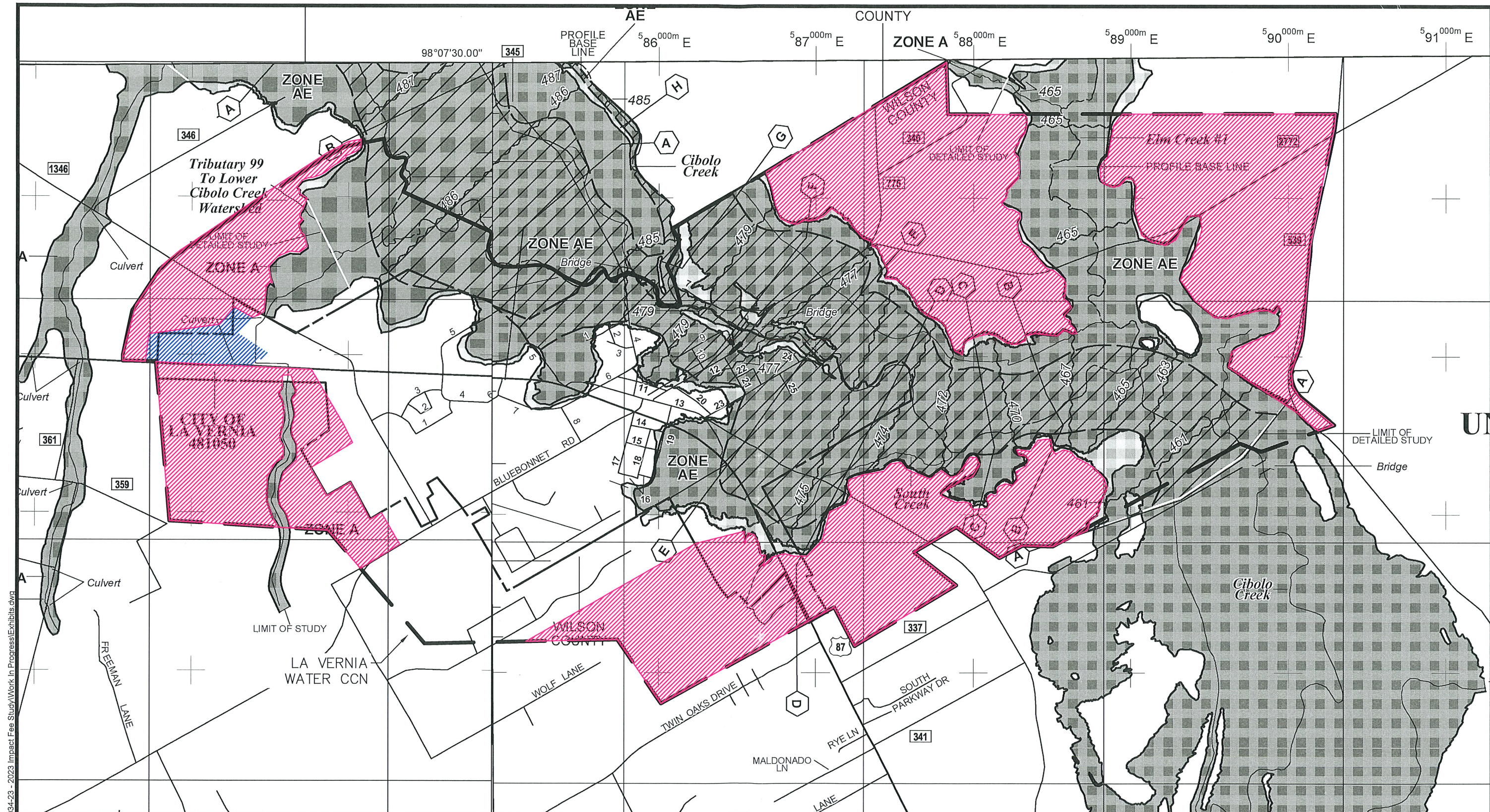
Based on the expected growth, the anticipated expenditures for associated capital improvements, and the number of LUEs each capital improvement will serve (Table 2). The City of La Vernia would need to collect approximately \$1,155/LUE from all new developments.

Updating Capital Improvement Plan and Impact Fee Study

This impact fee shall be updated at least every five years, beginning from the day the study is adopted. We recommend updating the study sooner if additional development occurs in the service area.

We have identified a potential location in the western sector that would provide the best area for treatment of that area's wastewater.

The 600 Acres of land north of Cibolo Creek that lies within the City Limits is unserved by water or wastewater collection service. Some of this area's wastewater could be treated in the existing Wastewater Treatment Plant. The existing planned water system could serve up to 5,000 connections, but would require a large transmission line crossing Cibolo Creek and additional wells. A utility study for this area has not been included in this fee study, but included in future impact fee updates.



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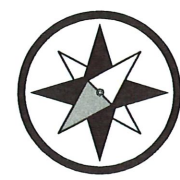
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LEGEND

- CURRENT DEVELOPMENT SERVICE REQUEST
- AREA FOR FUTURE DEVELOPMENT
- FEMA 100 YR FLOODPLAIN

CITY OF LA VERNIA LAND USE

JULY 2023



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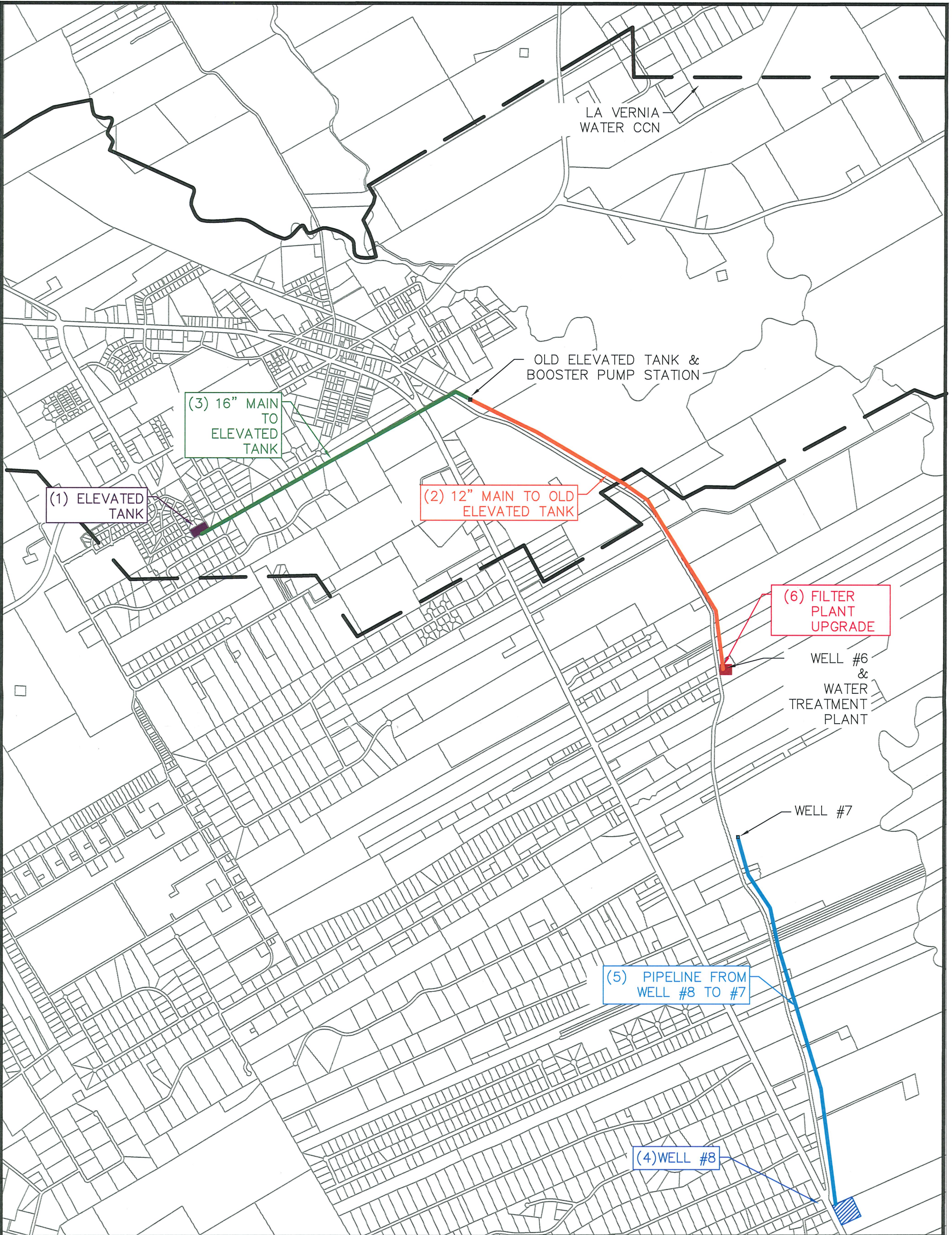
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HEADQUARTERS

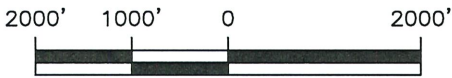
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CITY OF LA VERNIA
WATER CAPITAL IMPROVEMENTS
JULY 2023



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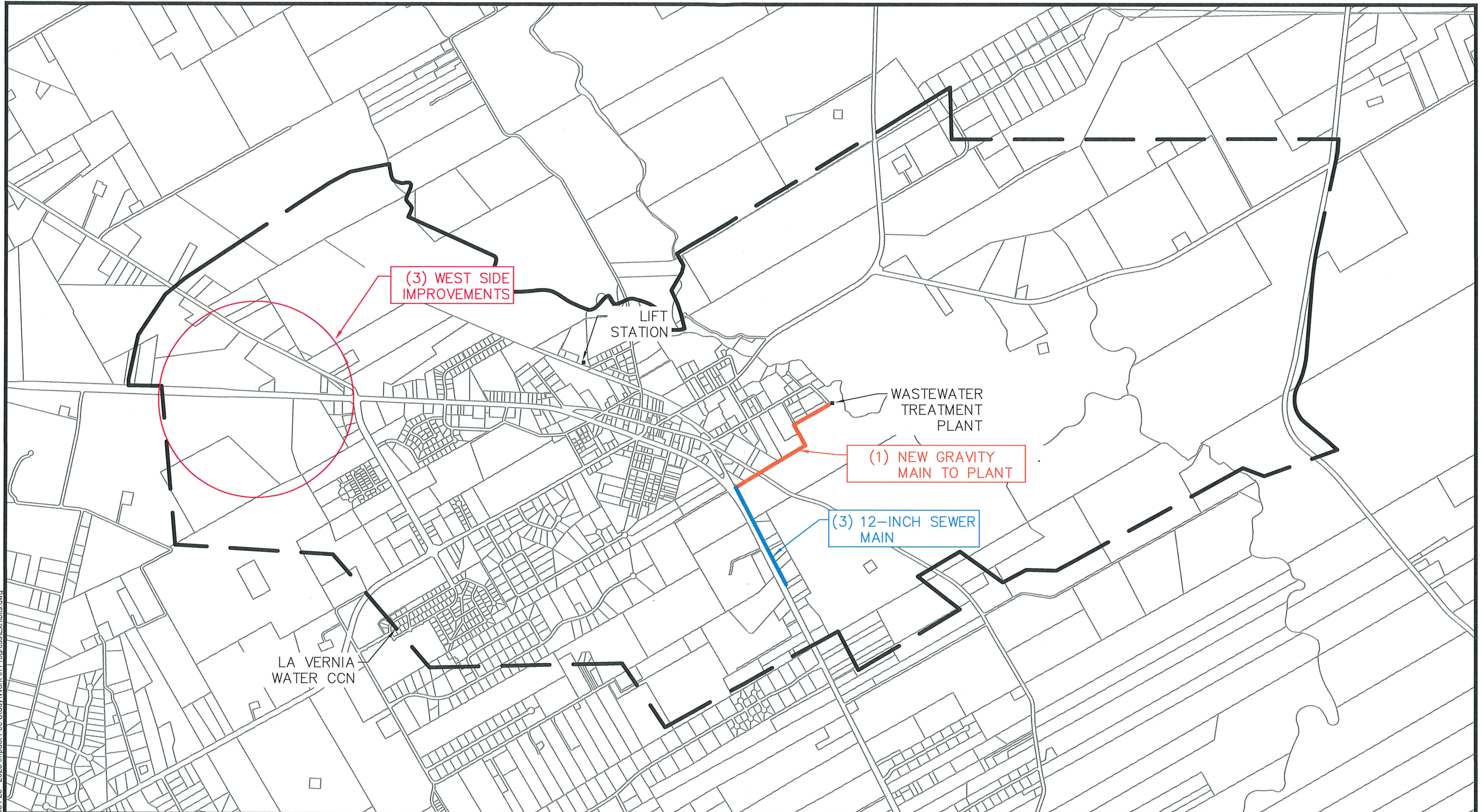
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CITY OF LA VERNIA WASTEWATER CAPITAL IMPROVEMENTS

JULY 2023



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