

KANSAS GEOLOGICAL SURVEY

1930 Constant Ave., Campus West
The University of Kansas
Lawrence, Kansas 66047-3726
phone 785-864-3965
fax 785-864-5317

Project for Application to Kansas Department of Commerce

Applicant: City of Circleville
Contact Person: Donna J. Crawford, Project Coordinator
Address: Government Assistant Services
905 Joseph Dr.
Lawrence, KS 66049

RE: Circleville Water System Improvements Project

Sent to the Kansas Geological Survey for environmental review.

Agency Review Comments:

The long-term benefits of the improvements to the city's water-supply system should offset any short-term adverse impacts during construction of the project. The letter requesting review included a reference to floodplain issues. The copy of part of the BG Consultants report included a statement that there are no valves in town to shut off waterlines and isolate breaks as they occur. Shut-off valves in town would be valuable for that area of town within the floodplain because, if part of the town did flood, valves could be shut to prevent any contaminated surface water entering any openings in old lines to spread farther in the water-supply system. In addition, the report recommended constructing additional lines to create a loop in the piping. This would make it easier to flush any contamination that might enter the lines in the lowest part of the city in the event of a flood.

Recommended Action:

- ☒ Clearance of project should be granted
- ☐ Clearance of project should not be granted
- ☐ Clearance of project should be delayed until the issues or questions have been clarified
- ☐ Clearance of project should not be delayed, but the applicant (in the application) should address or clarify the questions or concerns indicated above
- ☐ Request the opportunity to review final application prior to submission to the federal funding agency.

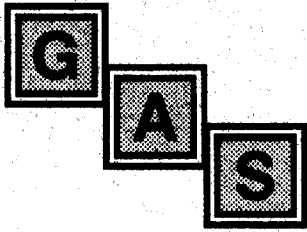
Donald Whittemore
Reviewer's Name

Geohydrology Section, Kansas Geological Survey
Division/Agency

6/5/06
Date

Donald Whittemore
Reviewer's Signature

The above discussion represents our best assessment based on the information that the Kansas Geological Survey has about this locality and/or proposed project at the time of this writing. Other geologic conditions, not discussed herein, or for which the Kansas Geological Survey has no knowledge, may affect the viability or safe operation of this facility or property. The information provided in this letter is from regional or county-wide studies and should not be used as a substitute for detailed site characterization by a licensed geologist or engineer. It is the responsibility of the applicant to provide any required site characterizations.



Governmental Assistance Services

905 Joseph Drive

Lawrence, Kansas 66049

785-832-2141 • Fax 785-832-1111

Toll Free 888-832-3335

e-mail: gasdonnaa@aol.com

May 4, 2006

Dr. William Harrison
Kansas Geological Survey
University of Kansas
1930 Constant Ave.- Campus West
Lawrence, KS 66047

RE: Environmental Review – Circleville, KS – Water System Improvements Project

Dear Dr. Harrison:

The City of Circleville, Kansas is preparing to submit a grant application to the Kansas Dept. of Commerce to upgrade the city's water storage and distribution system located in Township 6S, Range 14E, Section 21 – the SE ½ of the SE quarter and the SE corner of the SW quarter.

The total project estimation is \$740,669 with the grant request for approximately \$370,000. Please state any environmental concerns you may have as well as comments on floodplain areas. I am attaching narrative, map & line improvement information.

Please submit all comments to Governmental Assistance Services, 905 Joseph Dr., Lawrence, KS 66049.

If you have questions regarding the project please call me at 888-832-3335.

Sincerely,

Donna J. Crawford
Project Coordinator

Enc/ Engineer's Write-up
Estimate of Costs
Map

October 5, 2005

City of Circleville
P.O. Box 3
Circleville, Kansas 66416

Re: Water System Study
04-062M

Dear Mayor:

BG Consultants has reviewed the Engineering Report for your Water System as originally completed by Olsson Associates, dated January 2002. We concur with the recommendations by Olsson Associates with modifications to the cost of the improvements, user charges and the overall need for the waterline replacement. The Olsson report statements regarding the water pressure and line sizes are correct.

The unit prices listed in the Olsson Engineering Report, in general, are low and some items are missing from the cost breakdown provided. BG Consultants has attached a new opinion of probable cost for the improvements and a map showing the improvements. Funding for this project should follow the updated cost of improvements. The opinion of probable cost for the project has not changed from the 2004 CDBG submittal. A USGS map is attached showing the town site.

The waterlines in Circleville are, for the most, part cast iron and poly pipe and the existing lines sizes are shown in the Olsson report. The cast iron pipe has a history of breaking in other communities so Circleville is not alone. This pipe was installed in the late 1950's and early 1960's. Some of the pipe that was used was second-hand pipe from another City. The poly pipe used for some of the town is the rolled type that is brittle and has a very small diameter. The joints of the poly pipe are brittle and often break with any movement in the soil. As can be seen below, the pipe has build-up in the line. The build-up causes problems by making a small diameter pipe even smaller, reducing water pressure.



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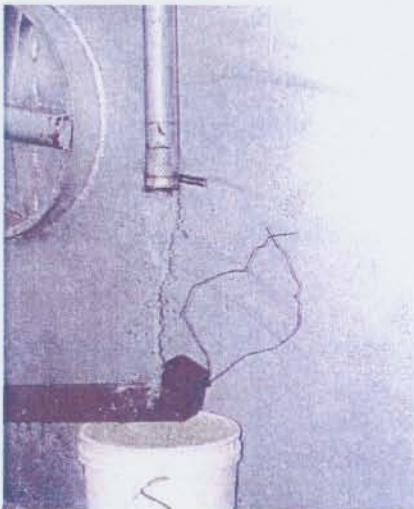
The City is also concerned about the fact that there are no valves in town to shut off waterlines and isolate breaks as they occur. Only a few valves exist on the main distribution line along with one valve on the line straight out of the tower. When the tower valve is closed the entire town is out of service. This is not acceptable, causing health and safety issues such as no fire fighting capabilities and waterlines that may allow contaminants into the line from the breaks.

Currently, the water tower services the City of Circleville from one main line along Grant Street. The City does not have a loop in its distribution system. The proposed project will construct a new waterline from the tower to Seminary Street and McKinley Avenue. This will create a loop system for the City. A few dead end lines will remain but they only serve one or two homes on the single line.

A permanent easement will be required for the new loop on Seminary Street and for construction of the new water tower. Options for those easements will be required.

Another issue that plagues the City is the inability to maintain the proper water elevation in the tower. Allen Fernkopf is the person in charge of climbing the tower to check the water elevation. He decides whether to fill the water tower or not. Mrs. Fernkopf also determines if the water tower needs filled when she washes clothes or even turns on the facet. The tower does not have automated filling capabilities. Trying to manually maintain the water pressure that is only 15 psi in parts of town is very difficult for Mr. Fernkopf. When the water demand is high the water pressure drops because the City cannot maintain the proper water elevation. Keeping the tower full in the summer months is very difficult. Numerous times the water tower overflows because it is difficult to determine how long to let the pump run to fill the tower. Some days Mr. Fernkopf climbs the tower three times per day.

The City has three major problems with the existing tower: (1) the tower is not tall enough to maintain sufficient water pressure (2) the tower does not have automated filling capabilities (3) the ladder that must be climbed every day of the year is not OSHA compliant. The last item is a major concern for the City regarding the ladder on the tower. Prices were obtained to make the tower OSHA compliant but the cost seemed prohibitive when a new tower was needed to meet water pressure for its residents. Below are pictures of Mr. Fernkopf performing his daily duties with the water tower.



Overflow from water tower being to full.



Starting to climb up the tower.

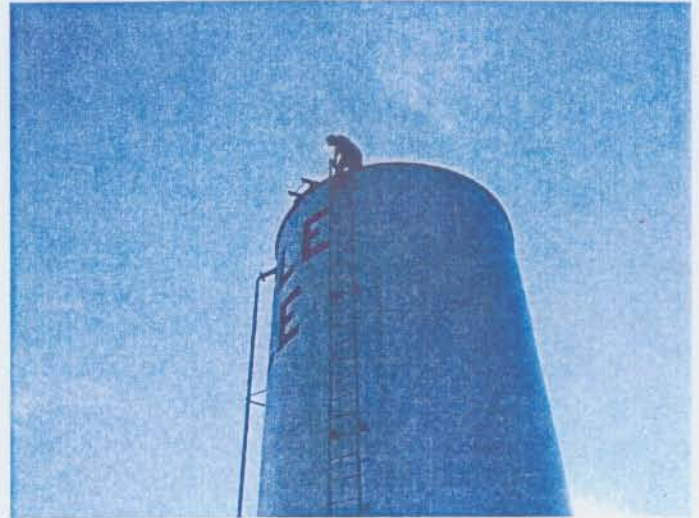


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Climbing the tower, mid-way up.



At the top of the tower with no safety equipment.

The Olsson report stated that a 10' x 110' standpipe was needed. The standpipe recommendation created some concerns with the City most involving water quality. To solve the City's low water pressure problem a high water tower is needed. The proposed standpipe will solve the water pressure issue but stores more water than the City will use. The standpipe will store approximately 64,000 gallons, of which the upper portion of the tower will only be used for creating adequate water pressure. The water may require additional disinfection. We propose a 50,000 gallon elevated storage tank to provide adequate water pressure and meet the City's water needs without being over-designed.

With the combination of a new elevated water tower and new waterlines, the City will be able to meet the water pressure demands. Most of the existing lines are two and four inch diameter waterlines with some 1-1/2" diameter lines on McKinley Street. These improvements are greatly needed.

The water expenditures for the City of Circleville have been relatively constant through the years. Following is a breakdown of those annual expenditures.

Salaries	\$ 2,770/ year
Repairs and Maintenance	\$ 890
Insurance	\$ 53
KDHE	\$ 192
Department of Revenue	\$ 476
RWD water purchase	\$17,064
Miscellaneous Expenses	\$ 757
Total	\$22,202/ year



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The current user charge has a base rate of \$12.50 for the first 1000 gallons of water and \$6.00 per 1,000 gallons used thereafter. Table 1 shows the number of users and the amount of revenue that is being collected for the water system. The City collects approximately \$28,200 per year leaving a surplus of over \$5,000. Currently, the City has 80 water customers with half of the users in the category of 2000 to 4000 gallon users. A 3,500 gallon user is currently being billed \$27.50 for water consumed.

The overall project cost is \$740,669 with \$370,000 coming from a proposed CDBG grant. The remainder will be a general obligation bond repayable over 20 years at an assumed interest rate of 5%. The debt payment on \$370,669 will be approximately \$30,000 per year. The City has elected to use \$5,000 of its existing revenue for the debt payment. Therefore, the amount needed to meet debt and OM&R cost is \$58,200 ($28,200 + 30,000 - 5,000$). Table 2 shows a breakdown of the amount of revenue that should be collected. The user rates should be raised to \$22.00 for the base rate and for the first 1,000 gallons and \$12.00 per 1,000 gallons used thereafter. This represents an average rate increase of 90%. A 3,500 gallon user will pay \$52.00 per month for the use of the water system.

Also included with this update to the Olsson report are letters from some of the residents in Circleville. They each state why the new water system improvements will help the community.

Sincerely,



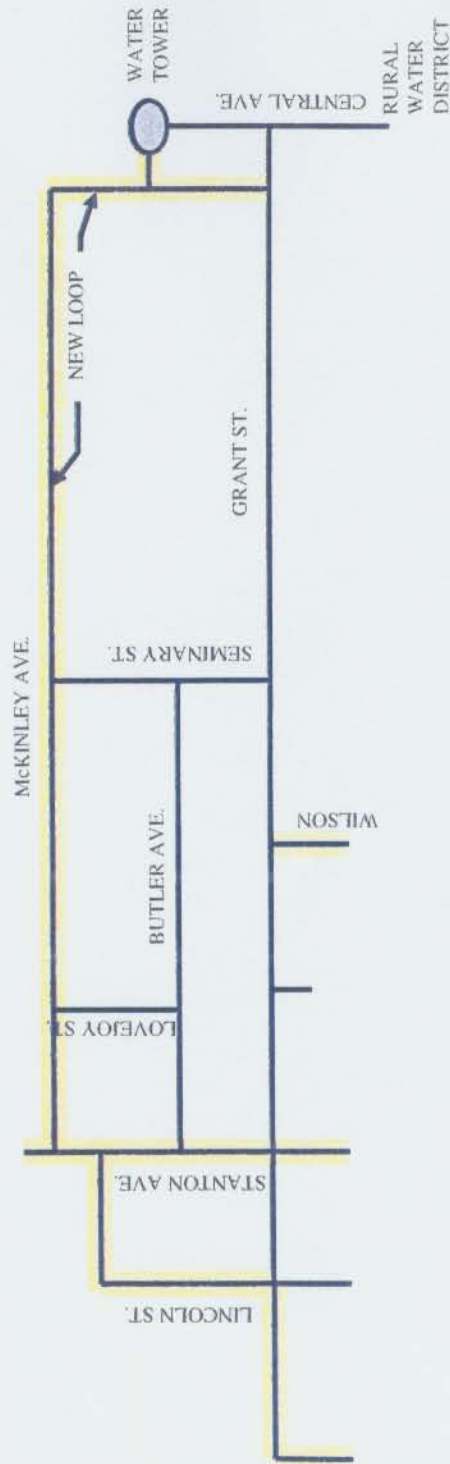
Mark A. Bachamp P.E.

MAB:mab



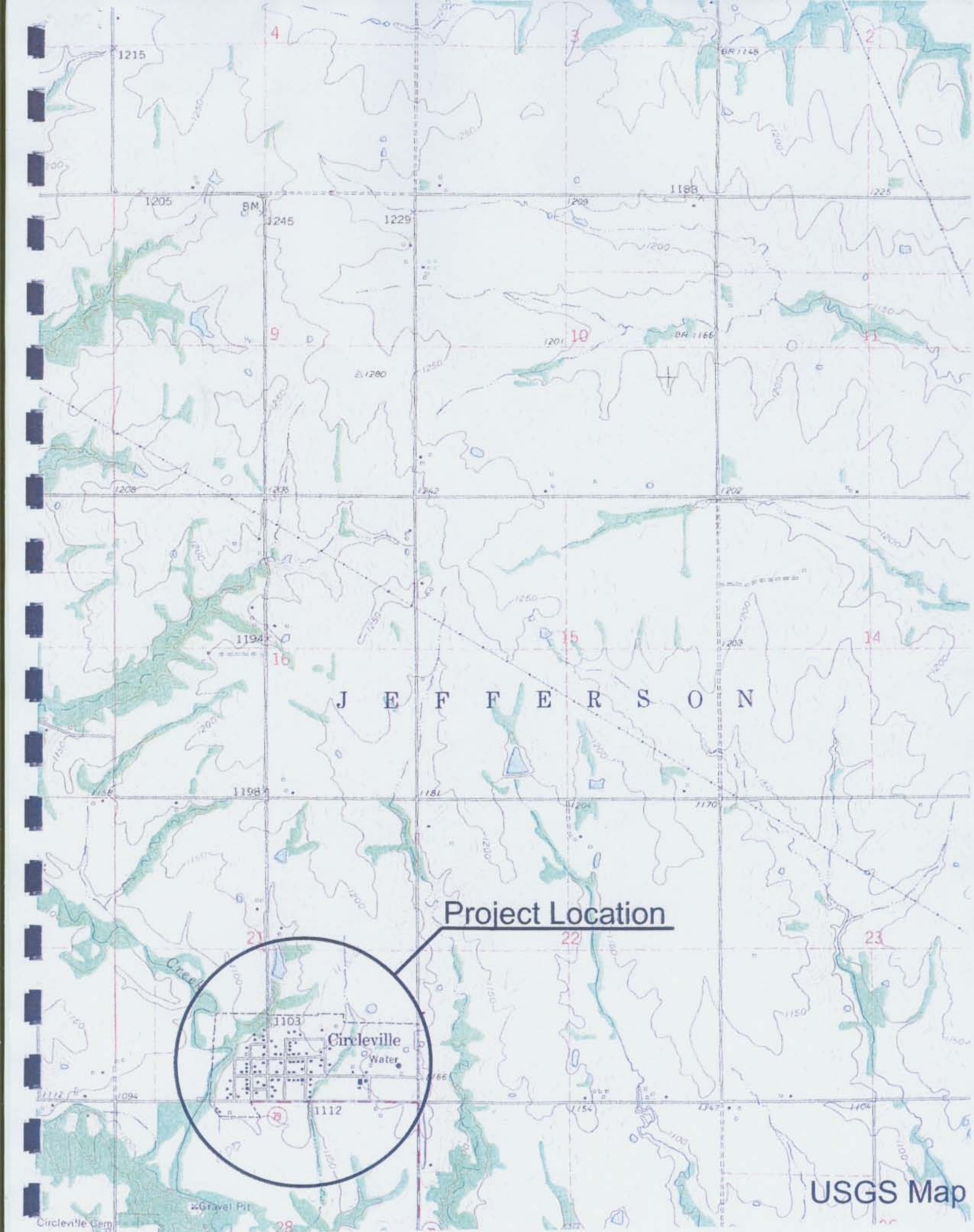
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NEW OR REPLACED
WATERLINES

Proposed Cost of Project \$740,669
 \$370,000 Grant, \$370,669 Loan
 Total amount of money to collect \$53,200
 Base Rate \$22.00 First 1000 gal.
 Usage \$12.00/1000 gal.
 Average Increase 90%
 3,500 gallon per month user would pay \$52.00, now \$27.50



**Opinion of Probable Cost
City of Circleville, Kansas
October 3, 2005**

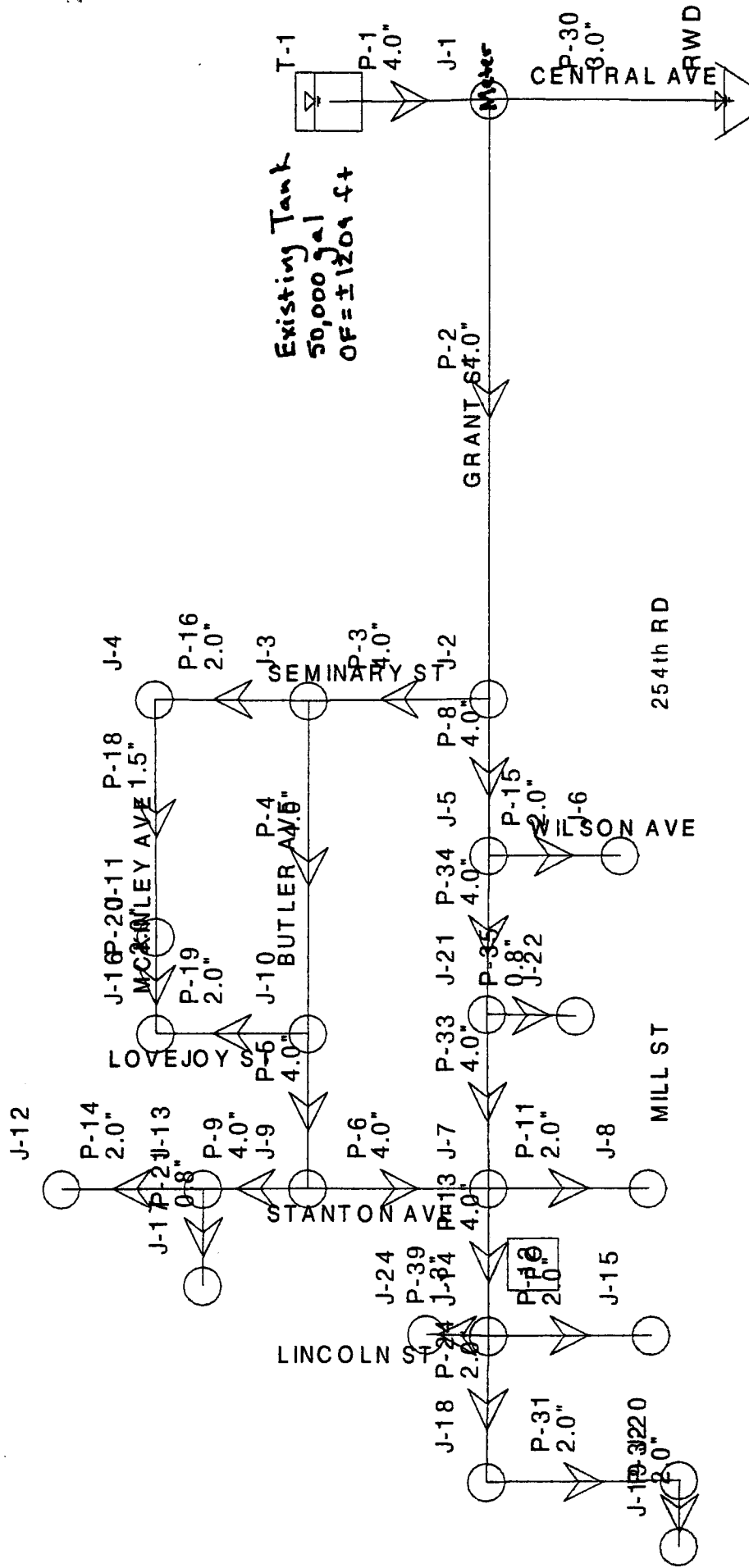
WATER TOWER

ITEM	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1 Mobilization	Lump Sum	\$3,000.00	\$3,000.00
2 Clearing and Grubbing	Lump Sum	1,000.00	1,000.00
3 Land Acquisition	Lump Sum	2,000.00	2,000.00
4 New 50,000 gal. Elevated Storage Tank	Lump Sum	220,000.00	220,000.00
5 Meter Vault, meter and Control Valve	Lump Sum	20,000.00	20,000.00
6 6' Chain Link Fence	Lump Sum	3,000.00	3,000.00
7 Access Road	Lump Sum	1,000.00	1,000.00
8 Remove Existing Tank	Lump Sum	6,000.00	6,000.00
9 Seeding	Lump Sum	1,000.00	1,000.00
Subtotal for Water Tower			<u>\$257,000.00</u>

WATER DISTRIBUTION

1 Mobilization	Lump Sum	\$7,500.00	\$7,500.00
2 Clearing and Grubbing	Lump Sum	7,000.00	7,000.00
3 6" PVC Waterline	7600 Lin. Ft.	25.00	190,000.00
4 6" Gate Valves	23 Each	700.00	16,100.00
5 Fire Hydrant Setting w/ Gate Valve	14 Each	2,800.00	39,200.00
6 Connection to Existing Waterlines	5 Each	1,000.00	5,000.00
7 Surfacing Replacement (In Kind)	Lump Sum	28,000.00	28,000.00
8 Road Crossings	8 Each	750.00	6,000.00
9 Seeding	Lump Sum	6,399.10	6,399.10
Subtotal for Water Distribution			<u>\$305,199.10</u>
Subtotal for Water Tower			<u>\$257,000.00</u>
Subtotal Construction			<u>\$562,199.10</u>
10% Construction Contingency			<u>\$56,219.91</u>
Total Construction Cost			<u>\$618,419.01</u>
Contingency, Design, Const. Adm., Legal Financing, etc.			<u>\$122,250.00</u>
Opinion of Probable Cost			<u>\$740,669.01</u>

Scenario: 2000 MD Existing (0.15 gpm/cust)



Scenario: 2000 MD Existing (0.15 gpm/cust)

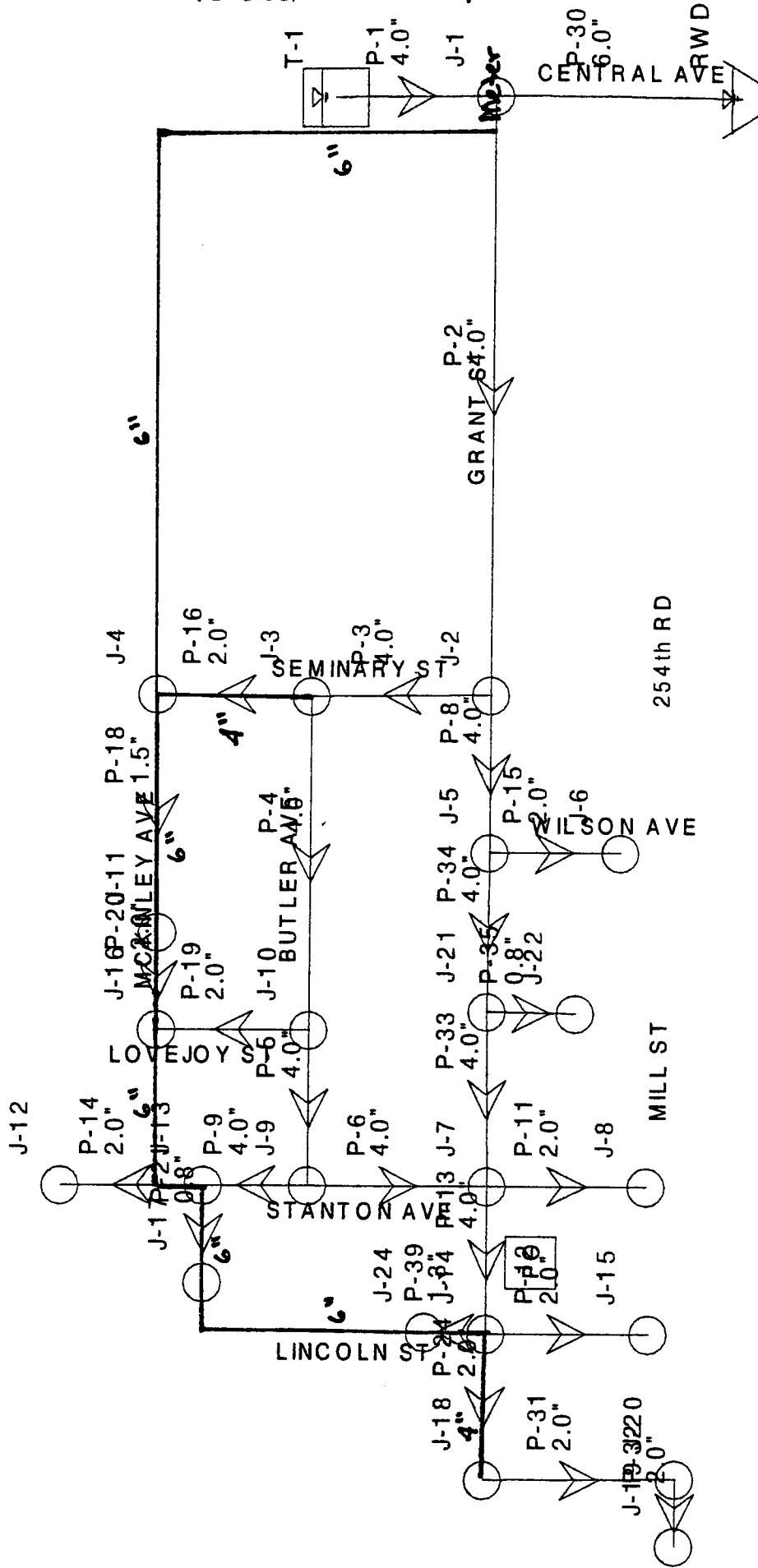


Figure 2
Recommended Main Improvements