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Memorandum

To:	Bret Glendening, Deputy City Manager
From:	Paul Owings, P.E.
Date:	August 25, 2022
Re:	Osawatomie Northland Conceptual Wastewater Collection Planning

Executive Summary:

Residential development exists southwest of the intersection of 339th Street and US 169 without adequate sewer infrastructure. This memorandum analyzes three potential wastewater collection improvement alternatives for this area and the area southeast of the intersection of 339th Street and US 169. A memo was provided on May 14, 2021, titled *Osawatomie Northland Development*. Alternatives 2 and 3 described below propose connections to the improvements suggested by the *Osawatomie Northland Development* memo, so exhibits from said memo have been enclosed to show the common area of study. Refer to enclosed exhibits showing the project planning area, proposed utility improvements, and Engineer's Opinion of Probable Cost (EOPC) for improvements.

Project Planning Area:

Proposed alternatives will improve wastewater collection infrastructure for existing residential developments north of the City of Osawatomie, Kansas. Refer to attached Exhibit 1 showing proposed development areas. The area southwest of intersection of 339th Street and US 169 is designated as Northland Development Area 03 and the area southeast of the intersection of US-169 and 343rd Road is designated as Northland Development Area 02 by the *Osawatomie Northland Development* Memo.

Proposed Wastewater Collection Improvements:

Alternative 1:

Alternative 1 for improving wastewater collection in the Northland Development Area 03 uses gravity sewers connected to the existing lift station owned by the Osawatomie State Hospital on Osawatomie Road. A site visit to the existing lift station was conducting with BG and City staff, but the pumps could not be viewed. State hospital staff provided photos of the east pump confirming the capacity to be 350 GPM. According to water system PER data, the state hospital uses an average of 26 GPM of water. Alternative 1 utilizes the extra capacity at the existing lift station to pump flows from the Northland Development Area 03 as well as the lift station's existing demand. The lift station is currently owned by the Osawatomie State Hospital, and this alternative assumes that the State Hospital would allow the City to utilize or donate the lift station to the City. Alternative 1 would only provide sewer service to the Northland Development Area 03 and only includes the installation of gravity sewer lines, one force main, and one grinder pump. Sewers are sized to service the Northland Development Area 03 with a peak design flow of 21 GPM and an average daily flow of 9,900 GPD. No additional lift stations would be constructed.

However, this alternative would continue to use the force main underneath the Marais Des Cygnes and would increase the flow to the existing lift station on Osawatomie Road.

Alternative 2:

Alternative 2 proposes using sewers connected to an interceptor sewer proposed by the *Osawatomie Northland Development* memo. This alternative includes the installation of gravity sewer lines, a force main, and one grinder pump. However, one interceptor sewer, one lift station, and a force main proposed by the previous memo would need to be constructed as well. The improvements are designed to accommodate the peak and average daily flows from the Northland Development Areas 02 and 03. This alternative would not change the flow through the existing force main under the Marais Des Cygnes.

Alternative 3:

Alternative 3 proposes rerouting the existing lift station on Osawatomie Road and eliminating the existing force main under the Marais Des Cygnes as well as constructing sewers for the Northland Development Areas 02 and 03. There may be no cost associated with acquiring the lift station; however, a new force main and new pumps will be required to repurpose the lift station for its connection to the proposed gravity sewers. Similar to Alternative 2, sewers would be connected to an interceptor sewer, lift station, and force main proposed by the *Osawatomie Northland Development* memo. Improvements would be able to service flows from the Northland Development Areas 02 and 03 as well as the State Hospital.

Project Costs:

An itemized Engineer's Opinion of Probable Cost (EOPC) has been developed for each alternative and is attached. The following summarizes project costs:

- Alternative 1: $1.48M
- Alternative 2: $4.47M
- Alternative 3: $4.79M

Attachments: Exhibit 1 – Project Planning Area
Exhibit 2 – Proposed Utility Plan
EOPCs
Exhibits from *Osawatomie Northland Development*

For questions or comments, please contact:
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Osawatomie Kansas
Northland Conceptual Wastewater Collection Planning
Engineer's Opinion of Probable Cost
22-1307
Wastewater Collection Improvements

Alternative 1

No	Description	Quantity	Units	Unit Price	Total Price
1	Mobilization & Incidentals	1	LS	$ 32,000.00	$ 32,000.00
2	Grinder Pump Station	1	EA	$ 12,000.00	$ 12,000.00
3	1-1/2" Forcemain (PVC)(In Place)	210	LF	$ 20.00	$ 4,200.00
4	8" Sanitary Sewer (PVC)(In Place)	5400	LF	$ 68.00	$ 367,200.00
5	Rock Excavation	1	LS	$ 100,000.00	$ 100,000.00
6	4-5' Precast Manholes	18	EA	$ 6,000.00	$ 108,000.00
7	Seeding and Surface Restoration	1	LS	$ 20,000.00	$ 20,000.00
8	Flowable Fill and Pavement Restoration	1	LS	$ 20,000.00	$ 20,000.00
				Subtotal Construction Cost	**$ 663,400.00**
				Contingency (20%)	**$ 132,680.00**
				Total Construction Cost	**$ 796,080.00**
				Septic Tank Abandonment (33)	$ 247,500.00
				Utility Service Connection (33)	$ 247,500.00
				Engineering Design	$ 66,000.00
				Construction Observation	$ 55,000.00
				Construction Engineering	$ 14,000.00
				Geotechnical Evaluation	$ 8,000.00
				Easement Acquisition	$ 20,000.00
				Legal	$ 8,000.00
				Temp Financing	$ 16,000.00
				TOTAL PROJECT COST	**$ 1,478,080.00**

STATE HOSPITAL

339TH ROAD

GRAVITY SEWER LINE B (8"Ø)
1,363 LNFT

OSAWATOMIE ROAD

GRAVITY SEWER LINE C (8"Ø)
873 LNFT

US-169

EXISTING FORCE MAIN AND LIFT STATION

FORCE MAIN (1.5"Ø)
209 LNFT

GRINDER PUMP

GRAVITY SEWER LINE A (8"Ø)
3,155 LNFT

N

250' 0 250' 500'

LEGEND

GRAVITY SEWER

FORCEMAIN SEWER

LIFT STATION

EXHIBIT 2 - ALTERNATIVE 1

PROJECT NO.
22-1307L

OSAWATOMIE, KANSAS
NORTHLAND MEMO

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