

December 1, 2009

Mr. Charles Soules, P.E.  
Director of Public Works – City of Lawrence  
PO Box 708  
Lawrence, KS 66044

RE: Engineering Report  
Lawrence Municipal Airport – Gravity Sewer  
Lawrence, Kansas

Dear Charles:

This engineering report summarizes the findings of the gravity sewer portion of the Lawrence Municipal Airport Sanitary Sewer study.

### **Background**

The City of Lawrence contracted with BG Consultants to provide an engineering study which evaluated the sanitary sewer collection and treatment options for the Lawrence Municipal Airport. A separate study accompanies this letter report which details the wastewater treatment facility options. This report will present the collection system options.

### **Findings**

BG Consultants met with City Staff to determine the goals of the project. After that meeting, a concept design was developed that would serve the airport with gravity collection sewer. The gravity sewer would convey flow to a point where treatment or transfer of the sewage would take place. Figure 1 shows the concept design along with approximate flowlines and top of manhole elevations. A phasing plan was also developed based upon City Staff input. Figure 1 shows Phase 1, 2 and 3. Phase 1 serves the terminal area and the proposed development near the terminal. Phase 2 serves the buildings west of the runway 1/19 and Phase 3 serves a small area east of Airport Road.

Opinions of Project Costs were developed for each phase and have been attached to this report. The Phase 1 opinion of probable project cost is \$420,953. The Phase 2 opinion of probable project cost is \$442,095. The Phase 3 opinion of probable project cost is \$192,930.



Also

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Thank you again for the opportunity to work with you on this project. Please feel free to contact me with any questions.

Sincerely,

BG CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read 'D. J. Hamby', written in a cursive style.

David J. Hamby, P.E.  
Principal

attachments





■ - SEPTIC TANK

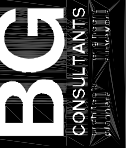


Scale: 1"= 300'

# LAWRENCE MUNICIPAL AIRPORT

LAWRENCE, KANSAS

COLLECTION SEWER



Project No. 09-1154L  
Date: Nov. 30, 2009

FIGURE

1



Lawrence Airport Sanitary Sewer  
Phase 1 - Engineer's Opinion of Probable Cost  
City of Lawrence, Kansas  
09-1154L

<u>Item #</u>	<u>Description</u>	<u>Total</u>		<u>Unit Price</u>	<u>Total Price</u>
		<u>Quantity</u>	<u>Unit</u>		
1.	Mobilization	1	L.S.	\$ 25,000.00	\$ 25,000.00
2.	8" Sanitary Sewer (PVC)(SDR 26)(In Place)	1,874	L.F.	\$ 110.00	\$ 206,140.00
3.	Std. Manhole (0'-6")(4' Dia.)	7	Each	\$ 2,500.00	\$ 17,500.00
4.	Extra Vertical Depth to Std. Manhole (4' Dia.)	63.3	V.F.	\$ 150.00	\$ 9,495.00
5.	Road Crossing	30	L.F.	\$ 250.00	\$ 7,500.00
6.	Erosion and Sediment Control	1	L.S.	\$ 2,500.00	\$ 2,500.00
7.	Traffic Control	1	L.S.	\$ 1,500.00	\$ 1,500.00
8.	Construction Staking	1	L.S.	\$ 3,000.00	\$ 3,000.00
9.	Seeding, Fertilizing, Mulching	1	L.S.	\$ 8,000.00	\$ 8,000.00
Construction Subtotal =					\$ 280,635.00
+20% Construction Contingency =					\$ 56,127.00
Construction Total =					\$ 336,762.00
+25% Engineering, Inspection =					\$ 84,191.00
Project Total =					\$ 420,953.00

Notes:

- Easement acquisition has not been included in this estimate.

Lawrence Airport Sanitary Sewer  
Phase 2 - Engineer's Opinion of Probable Cost  
City of Lawrence, Kansas  
09-1154L

<u>Item #</u>	<u>Description</u>	<u>Total</u>		<u>Unit Price</u>	<u>Total Price</u>
		<u>Quantity</u>	<u>Unit</u>		
1.	Mobilization	1	L.S.	\$ 25,000.00	\$ 25,000.00
2.	8" Sanitary Sewer (PVC)(SDR 26)(In Place)	2,095	L.F.	\$ 110.00	\$ 230,450.00
3.	Std. Manhole (0'-6')(4' Dia.)	7	Each	\$ 2,500.00	\$ 17,500.00
4.	Extra Vertical Depth to Std. Manhole (4' Dia.)	55.2	V.F.	\$ 150.00	\$ 8,280.00
5.	Erosion and Sediment Control	1	L.S.	\$ 2,500.00	\$ 2,500.00
6.	Construction Staking	1	L.S.	\$ 3,000.00	\$ 3,000.00
7.	Seeding, Fertilizing, Mulching	1	L.S.	\$ 8,000.00	\$ 8,000.00
Construction Subtotal =					\$ 294,730.00
+20% Construction Contingency =					\$ 58,946.00
Construction Total =					\$ 353,676.00
+25% Engineering, Inspection =					\$ 88,419.00
Project Total =					\$ 442,095.00

Notes:

- Easement acquisition has not been included in this estimate.

Lawrence Airport Sanitary Sewer  
Phase 3 - Engineer's Opinion of Probable Cost  
City of Lawrence, Kansas  
09-1154L

<u>Item #</u>	<u>Description</u>	<u>Total</u>		<u>Unit Price</u>	<u>Total Price</u>
		<u>Quantity</u>	<u>Unit</u>		
1.	Mobilization	1	L.S.	\$ 12,000.00	\$ 12,000.00
2.	8" Sanitary Sewer (PVC)(SDR 26)(In Place)	1,075	L.F.	\$ 90.00	\$ 96,750.00
3.	Std. Manhole (0'-6')(4' Dia.)	4	Each	\$ 2,500.00	\$ 10,000.00
4.	Extra Vertical Depth to Std. Manhole (4' Dia.)	10.8	V.F.	\$ 150.00	\$ 1,620.00
5.	Erosion and Sediment Control	1	L.S.	\$ 1,500.00	\$ 1,500.00
6.	Construction Staking	1	L.S.	\$ 1,750.00	\$ 1,750.00
7.	Seeding, Fertilizing, Mulching	1	L.S.	\$ 5,000.00	\$ 5,000.00
Construction Subtotal =					\$ 128,620.00
+20% Construction Contingency =					\$ 25,724.00
Construction Total =					\$ 154,344.00
+25% Engineering, Inspection =					\$ 38,586.00
Project Total =					\$ 192,930.00

Notes:

- Easement acquisition has not been included in this estimate.