

**APPENDIX G**  
**OPINION OF PROBABLE CONSTRUCTION COST**

---

**Table 1**  
**Gravity Conveyance Costs - North Basin**

Discount Rate = 4.375%

**Net Present Worth Summary**

	5-year	10-year	25-year	50-year	100-Year
Construction Cost	\$ 555,000	\$ 634,000	\$ 634,000	\$ 673,000	\$ 722,000
Contractors GCs (8%)	\$ 44,400	\$ 50,720	\$ 50,720	\$ 53,840	\$ 57,760
Tech. Services/Conting.(35%)	\$ 194,250	\$ 221,900	\$ 221,900	\$ 235,550	\$ 252,700
Total Capital Cost	\$ 793,650	\$ 906,620	\$ 906,620	\$ 962,390	\$ 1,032,460
O&M Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Salvage Cost	\$ 118,000	\$ 135,000	\$ 135,000	\$ 143,000	\$ 153,000
Present Worth	\$ 680,000	\$ 770,000	\$ 770,000	\$ 820,000	\$ 880,000

Note: Salvage cost is 20 year present worth assuming system is worth 1/2 the value in 20 years

**Unit Prices**

Pipe Dia (in)	Minor Street	Major Street with Few Utilities
12	\$ 265	\$ 331
15	\$ 302	\$ 368
18	\$ 329	\$ 395

**Cost Per Recurrence Interval**

5-Year Design Storm	LF	Pipe Size	\$/LF	Cost
P-197	221	12	\$ 265	\$ 59,000
P-196	201.5	12	\$ 265	\$ 53,000
P-195	236	12	\$ 265	\$ 63,000
P-2916	166.4	12	\$ 265	\$ 44,000
P-2915	166.5	12	\$ 265	\$ 44,000
P-2910	146.2	12	\$ 265	\$ 39,000
P-2909	149.4	12	\$ 265	\$ 40,000
P-522	157.4	12	\$ 265	\$ 42,000
P-521	155.7	12	\$ 265	\$ 41,000
P-2979	172.2	12	\$ 265	\$ 46,000
P-2981	153.2	12	\$ 265	\$ 41,000
P-2985	163.5	12	\$ 265	\$ 43,000
<b>Total Cost</b>				<b>\$ 555,000.00</b>
10-Year Design Storm	LF	Pipe Size	\$/LF	Cost
P-197	221	15	\$ 368	\$ 81,000
P-196	201.5	15	\$ 368	\$ 74,000
P-195	236	15	\$ 368	\$ 87,000
P-2916	166.4	15	\$ 302	\$ 50,000
P-2915	166.5	15	\$ 302	\$ 50,000
P-2910	146.2	12	\$ 265	\$ 39,000
P-2909	149.4	12	\$ 265	\$ 40,000
P-522	157.4	12	\$ 265	\$ 42,000
P-521	155.7	12	\$ 265	\$ 41,000
P-2979	172.2	12	\$ 265	\$ 46,000
P-2981	153.2	12	\$ 265	\$ 41,000
P-2985	163.5	12	\$ 265	\$ 43,000
<b>Total Cost</b>				<b>\$ 634,000.00</b>
25-Year Design Storm	LF	Pipe Size	\$/LF	Cost
P-197	221	15	\$ 368	\$ 81,000
P-196	201.5	15	\$ 368	\$ 74,000
P-195	236	15	\$ 368	\$ 87,000
P-2916	166.4	15	\$ 302	\$ 50,000
P-2915	166.5	15	\$ 302	\$ 50,000
P-2910	146.2	12	\$ 265	\$ 39,000
P-2909	149.4	12	\$ 265	\$ 40,000
P-522	157.4	12	\$ 265	\$ 42,000
P-521	155.7	12	\$ 265	\$ 41,000
P-2979	172.2	12	\$ 265	\$ 46,000
P-2981	153.2	12	\$ 265	\$ 41,000
P-2985	163.5	12	\$ 265	\$ 43,000
<b>Total Cost</b>				<b>\$ 634,000.00</b>
50-Year Design Storm	LF	Pipe Size	\$/LF	Cost
P-197	221	15	\$ 368	\$ 81,000
P-196	201.5	15	\$ 368	\$ 74,000
P-195	236	15	\$ 368	\$ 87,000
P-2916	166.4	15	\$ 302	\$ 50,000
P-2915	166.5	15	\$ 302	\$ 50,000
P-2910	146.2	15	\$ 302	\$ 44,000
P-2909	149.4	15	\$ 302	\$ 45,000
P-522	157.4	15	\$ 302	\$ 48,000
P-521	155.7	15	\$ 302	\$ 47,000
P-2979	172.2	15	\$ 302	\$ 52,000
P-2981	153.2	15	\$ 302	\$ 46,000
P-2985	163.5	15	\$ 302	\$ 49,000
<b>Total Cost</b>				<b>\$ 673,000.00</b>
100-Year Design Storm	LF	Pipe Size	\$/LF	Cost
P-17061	20	18	\$ 395	\$ 8,000
P-197	221	15	\$ 368	\$ 81,000
P-196	201.5	15	\$ 368	\$ 74,000
P-195	236	15	\$ 368	\$ 87,000
P-2916	166.4	15	\$ 302	\$ 50,000
P-2915	166.5	15	\$ 302	\$ 50,000
P-2910	146.2	15	\$ 302	\$ 44,000
P-2909	149.4	15	\$ 302	\$ 45,000
P-522	157.4	15	\$ 302	\$ 48,000
P-521	155.7	15	\$ 302	\$ 47,000
P-2979	172.2	15	\$ 302	\$ 52,000
P-2981	153.2	15	\$ 302	\$ 46,000
P-2985	163.5	15	\$ 302	\$ 49,000
P-2983	161.2	15	\$ 302	\$ 49,000
<b>Total Cost</b>				<b>\$ 722,000.00</b>

**Table 2**  
**Gravity Conveyance Costs - South Basin**

Discount Rate = 4.375%

**Net Present Worth Summary**

	5-year	10-year	25-year	50-year	100-Year
Construction Cost	\$ 160,000	\$ 160,000	\$ 160,000	\$ 182,000	\$ 263,000
Contractors GCs (8%)	\$ 12,800	\$ 12,800	\$ 12,800	\$ 14,560	\$ 21,040
Tech. Services/Conting. (35%)	\$ 56,000	\$ 56,000	\$ 56,000	\$ 63,700	\$ 92,050
Total Capital Cost	\$ 228,800	\$ 228,800	\$ 228,800	\$ 260,260	\$ 376,090
O&M Cost	\$ -	\$ -	\$ -	\$ -	\$ -
Salvage Cost	\$ 34,000	\$ 34,000	\$ 34,000	\$ 39,000	\$ 56,000
Present Worth	\$ 190,000	\$ 190,000	\$ 190,000	\$ 220,000	\$ 320,000

Note: Salvage cost is 20 year present worth assuming system is worth 1/2 the value in 20 years

**Unit Prices**

Pipe Dia (in)	Minor Street	Major Street with Few Utilities
12	\$ 265	\$ 331
15	\$ 302	\$ 368

**Cost Per Recurrence Interval**

<b>5-Year Design Storm</b>		LF	Pipe Size	\$/LF	Cost
P-596		141	12	\$ 265	\$ 37,000
P-594		154	12	\$ 265	\$ 41,000
P-592		153	12	\$ 265	\$ 41,000
P-591		153	12	\$ 265	\$ 41,000
Total Cost					\$ 160,000
<b>10-Year Design Storm</b>		LF	Pipe Size	\$/LF	Cost
P-596		141	12	\$ 265	\$ 37,000
P-594		154	12	\$ 265	\$ 41,000
P-592		153	12	\$ 265	\$ 41,000
P-591		153	12	\$ 265	\$ 41,000
Total Cost					\$ 160,000
<b>25-Year Design Storm</b>		LF	Pipe Size	\$/LF	Cost
P-596		141	12	\$ 265	\$ 37,000
P-594		154	12	\$ 265	\$ 41,000
P-592		153	12	\$ 265	\$ 41,000
P-591		153	12	\$ 265	\$ 41,000
Total Cost					\$ 160,000
<b>50-Year Design Storm</b>		LF	Pipe Size	\$/LF	Cost
P-596		141	15	\$ 302	\$ 43,000
P-594		154	15	\$ 302	\$ 47,000
P-592		153	15	\$ 302	\$ 46,000
P-591		153	15	\$ 302	\$ 46,000
Total Cost					\$ 182,000
<b>100-Year Design Storm</b>		LF	Pipe Size	\$/LF	Cost
P-596		141	15	\$ 302	\$ 43,000
P-594		154	15	\$ 302	\$ 47,000
P-592		153	15	\$ 302	\$ 46,000
P-591		153	15	\$ 302	\$ 46,000
P-589		154	12	\$ 265	\$ 41,000
P-587		151	12	\$ 265	\$ 40,000
Total Cost					\$ 263,000

**Table 3****Pump Station Costs - 750 GPM**

City of Kenosha

Pump Station Costs

Determine costs for 750 gpm pumping station located between 47th and 48th Avenue

	Cost	Quantity	Total
750 gpm Pumping Station/valve vault/ No Generator	\$ 323,000	1	\$ 323,000
<b>750 gpm Pumping Station/valve vault/ Portable Generator</b>	<b>\$ 344,000</b>	<b>1</b>	<b>\$ 344,000</b>
750 gpm Pumping Station/valve vault/ New Generator Building	\$ 473,000	1	\$ 473,000
Forcemain Costs per LF installed	\$ 271	900	\$ 243,900
Gravity sewer costs per LF installed	\$ 124	600	\$ 74,400
Gravity sewer costs per LF installed (15-in Pershing Blvd)	\$ 368	659	\$ 242,512
Diversion Structure	\$ 50,000	1	\$ 50,000
	Total (Construction Cost)		\$ 955,000
	Contractors GCs (8%)		\$ 76,000
	Tech. Services/Conting.(35%)		\$ 334,000
	<b>Total Capital Cost</b>		<b>\$ 1,365,000</b>
Total Annual O,M&R			\$ 16,000
<b>O,M&amp;R Present Value</b>			<b>\$ 210,000</b>
20-Year Salvage Value, (1/4 of value of pumping station, 1/2 cost of conveyance)			\$ 423,700
<b>Present Worth Salvage Value</b>			<b>\$ 180,000</b>
	<b>Total Present Value=</b>		<b>\$ 1,395,000</b>

**Table 4**  
**Pump Station Costs - 1200 GPM**

City of Kenosha  
 Pump Station Costs  
 Determine costs for 1,200 gpm pumping station located between 47th and 48th Avenue

	Cost	Quantity	Total
1,200 gpm Pumping Station/valve vault/ No Generator	\$ 438,000	1	\$ 438,000
<b>1,200 gpm Pumping Station/valve vault/ Portable Generator</b>	<b>\$ 467,000</b>	<b>1</b>	<b>\$ 467,000</b>
1,200 gpm Pumping Station/valve vault/ New Generator Building	\$ 642,000	1	\$ 642,000
Forcemain Costs per LF installed	\$ 271	900	\$ 243,900
Gravity sewer costs per LF installed	\$ 124	600	\$ 74,400
Gravity sewer costs per LF installed (15-in Pershing Blvd)	\$ 368	659	\$ 242,512
Diversion Structure	\$ 50,000	1	\$ 50,000
		Total (Construction Cost)	\$ 1,078,000
		Contractors GCs (8%)	\$ 86,000
		Tech. Services/Conting.(35%)	\$ 377,000
		<b>Total Capital Cost</b>	<b>\$ 1,541,000</b>
Total Annual O,M&R			\$ 18,000
<b>O,M&amp;R Present Value</b>			<b>\$ 240,000</b>
20-Year Salvage Value, (1/4 of value of pumping station, 1/2 cost of conveyance)			\$ 465,900
<b>Present Worth Salvage Value</b>			<b>\$ 198,000</b>
		<b>Total Present Value=</b>	<b>\$ 1,583,000</b>

**Table 5**  
**Pump Station Costs - 1500 GPM**

City of Kenosha  
 Pump Station Costs  
 Determine costs for 1,500 gpm pumping station located between 47th and 48th Avenue

	Cost	Quantity	Total
1,500 gpm Pumping Station/valve vault/ No Generator	\$ 506,250	1	\$ 506,250
<b>1,500 gpm Pumping Station/valve vault/ Portable Generator</b>	<b>\$ 540,000</b>	<b>1</b>	<b>\$ 540,000</b>
1,500 gpm Pumping Station/valve vault/ New Generator Building	\$ 742,500	1	\$ 742,500
Forcemain Costs per LF installed	\$ 271	900	\$ 243,900
Gravity sewer costs per LF installed	\$ 124	600	\$ 74,400
Gravity sewer costs per LF installed (15-in Pershing Blvd)	\$ 368	659	\$ 242,512
Diversion Structure	\$ 50,000	1	\$ 50,000
	<b>Total (Construction Cost)</b>		<b>\$ 1,151,000</b>
	Contractors GCs (8%)		\$ 92,000
	Tech. Services/Conting.(35%)		\$ 403,000
	<b>Total Capital Cost</b>		<b>\$ 1,646,000</b>
Total Annual O,M&R			\$ 20,000
<b>O,M&amp;R Present Value</b>			<b>\$ 260,000</b>
20-Year Salvage Value, (1/4 of value of pumping station, 1/2 cost of conveyance)			\$ 491,000
<b>Present Worth Salvage Value</b>			<b>\$ 209,000</b>
	<b>Total Present Value=</b>		<b>\$ 1,697,000</b>



**Table 7****Underground Storage Costs - 130,000 Gallons**

City of Kenosha

Storage Costs

Determine costs for underground storage located between 47th and 48th Avenue

	Cost	Quantity	Total
130,000 Gallon Underground Storage (per gallon)	\$ 2.53	130000	\$ 329,000
Excavation, backfill, dewatering	\$ 140,000	1	\$ 140,000
Misc. Site Work, connections	\$ 10,000	1	\$ 10,000
			\$ -
250 gpm Pumping Station/valve vault/ Portable Generator	\$ 279,012	1	\$ 279,000
			\$ -
			\$ -
Forcemain Costs per LF installed	\$ 271.00	200	\$ 54,000
Gravity sewer costs per LF installed	\$ 182.00	600	\$ 109,000
Gravity sewer costs per LF installed (15-in Pershing Blvd).	\$ 368.00	659	\$ 243,000
			Total Construction Cost \$ 1,164,000
			Contractors GCs (8%) \$ 93,000
			Tech. Services/Conting.(35%) \$ 407,000
			<b>Total Capital Cost \$ 1,664,000</b>
Total Annual O,M&R			\$ 12,000
<b>Operation and Maintenance 20 year Present Worth</b>			<b>\$ 160,000</b>
20-Year Salvage Value, (1/2 of value of storage, 1/4 Pump Station, 1/2 conveyance)			\$ 442,000
<b>Present Worth Salvage Value</b>			<b>\$ 188,000</b>
			<b>Total Present Value= \$ 1,640,000</b>



**APPENDIX H**  
**STORMWATER IMPROVEMENTS—OPINION OF PROBABLE COST**

---



**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.	DESCRIPTION	Quantity	Units	Unit Price	Total
<b>Alternative 2 (2NG1): Underground Detention in Forest Park</b>					
<b>Underground Detention in Forest Park West</b>					
1	8' Underground Detention Material & Freight Cost <b>(Contech)</b>	1	LS	\$466,400.00	\$466,400
2	Underground Detention Installation	1	LS	\$93,300.00	\$93,300
3	Unclassified Excavation (Hauled off)	9,950	CY	\$17.00	\$169,150
4	Unclassified Excavation (Salvaged)	10,150	CY	\$8.00	\$81,200
5	Stone Bedding	522	CY	\$26.00	\$13,572
6	Select Granular Fill	4,220	CY	\$10.00	\$42,200
7	Removing Storm Sewer (48")	165	LF	\$12.50	\$2,063
8	8' DIA MH	2	EA	\$4,000.00	\$8,000
9	48-IN RCP	36	LF	\$96.00	\$3,456
10	27-IN RCP	20	LF	\$55.00	\$1,100
11	Storm Sewer Connection to Underground Detention	2	EA	\$500.00	\$1,000
12	In-Line Stormwater Quality Unit to Protect Underground Det.	1	EA	\$25,000.00	\$25,000
13	6-IN Salvaged Topsoil Placement	4,505	SY	\$3.50	\$15,768
14	Erosion Control Revegetative Mat	4,505	SY	\$2.50	\$11,263
15	Shrubs	10	EA	\$100.00	\$1,000
16	Trees	10	EA	\$300.00	\$3,000
17	Madison Parks Seed Mix	4,505	SY	\$1.75	\$7,884
<b>Underground Detention in Forest Park East</b>					
18	6' Underground Detention Material & Freight Cost <b>(Contech)</b>	1	LS	\$475,100.00	\$475,100
19	Underground Detention Installation	1	LS	\$95,000.00	\$95,000
20	Unclassified Excavation (Hauled off)	11,000	CY	\$17.00	\$187,000
21	Unclassified Excavation (Salvaged)	18,200	CY	\$8.00	\$145,600
22	Stone Bedding (Base Aggregate Dense 3/4-inch)	750	CY	\$26.00	\$19,500
23	Select Granular Fill	5,200	CY	\$10.00	\$52,000
24	Removing Storm Sewer (48")	230	LF	\$12.50	\$2,875
25	8' DIA MH	2	EA	\$4,000.00	\$8,000
26	48-IN RCP	51	LF	\$96.00	\$4,896
27	Storm Sewer Connection to Underground Detention	2	EA	\$500.00	\$1,000
28	In-Line Stormwater Quality Unit to Protect Underground Det.	1	EA	\$25,000.00	\$25,000
29	Fence Removal and Replacement	260	LF	\$25.00	\$6,500
30	6-IN Salvaged Topsoil Placement	6,100	SY	\$3.50	\$21,350
31	Erosion Control Revegetative Mat	6,100	SY	\$2.50	\$15,250
32	Shrubs	10	EA	\$100.00	\$1,000
33	Trees	10	EA	\$300.00	\$3,000
34	Madison Parks Seed Mix	6,100	SY	\$1.75	\$10,675
<b>Forest Park North Pipe and Inlet Upgrades</b>					
35	33-IN RCP	456	LF	\$62.00	\$28,272
36	24-IN RCP	650	LF	\$47.00	\$30,550
37	21-IN RCP	399	LF	\$41.00	\$16,359
38	18-IN RCP	382	LF	\$33.50	\$12,797
39	15-IN RCP	761	LF	\$27.50	\$20,928
40	12-IN RCP	667	LF	\$26.50	\$17,676
41	8' DIA MH	18	EA	\$4,000.00	\$72,000
42	Connect existing pipes into new MH	29	EA	\$500.00	\$14,500
43	Removing Storm Sewer	3,362	LF	\$12.50	\$42,025
44	Additional 2'x3' Inlets	50	EA	\$2,000.00	\$100,000
45	Remove and Replace Existing 2'x3' Inlet	32	EA	\$2,240.00	\$71,680
46	Asphalt Trench Patching	4,458	SY	\$78.00	\$347,707
47	Curb and Gutter Remove and Replace	1,066	LF	\$30.00	\$31,980
	<b>Pipe and Inlet Upgrades</b>				\$806,473
	<b>West Underground</b>				\$945,354
	<b>East Underground</b>				\$1,073,746
	<b>Subtotal Project Costs</b>				<b>\$2,825,573</b>
	<b>Project Contingencies - 15%</b>				<b>\$423,836</b>
	<b>Construction Cost</b>				<b>\$3,249,409</b>
	<b>Design-15%</b>				<b>\$423,836</b>
	<b>Soil Borings</b>				<b>\$7,000</b>
	<b>Total</b>				<b>\$3,680,245</b>

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.	DESCRIPTION	Quantity	Units	Unit Price	Total
<b>Alternative 2A (2NG1): Underground Detention in Forest Park StormTrap</b>					
<b>Underground Detention in Forest Park West</b>					
1	8' Underground Detention Material & Freight Cost ( <b>StormTrap</b> )	1	LS	\$659,906.80	\$659,907
2	Underground Detention Installation	1	LS	\$65,600.00	\$65,600
3	Unclassified Excavation (Hauled off)	10,722	CY	\$17.00	\$182,274
4	Unclassified Excavation (Salvaged)	5,098	CY	\$8.00	\$40,784
5	Stone Bedding	400	CY	\$26.00	\$10,400
6	Select Granular Fill	3,100	CY	\$10.00	\$31,000
7	Removing Storm Sewer (48")	165	LF	\$12.50	\$2,063
8	8' DIA MH	2	EA	\$4,000.00	\$8,000
9	48-IN RCP	36	LF	\$96.00	\$3,456
10	27-IN RCP	20	LF	\$55.00	\$1,100
11	Storm Sewer Connection to Underground Detention	2	EA	\$500.00	\$1,000
12	In-Line Stormwater Quality Unit to Protect Underground Det.	1	EA	\$25,000.00	\$25,000
13	6-IN Salvaged Topsoil Placement	4,505	SY	\$3.50	\$15,768
14	Erosion Control Revegetative Mat	4,505	SY	\$2.50	\$11,263
15	Shrubs	10	EA	\$100.00	\$1,000
16	Trees	10	EA	\$300.00	\$3,000
17	Madison Parks Seed Mix	4,505	SY	\$1.75	\$7,884
<b>Underground Detention in Forest Park East</b>					
18	6' Underground Detention Material & Freight Cost ( <b>StormTrap</b> )	1	LS	\$849,863.80	\$849,864
19	Underground Detention Installation	1	LS	\$93,800.00	\$93,800
20	Unclassified Excavation (Hauled off)	9,215	CY	\$17.00	\$156,655
21	Unclassified Excavation (Salvaged)	13,622	CY	\$8.00	\$108,976
22	Stone Bedding (Base Aggregate Dense 3/4-inch)	514	CY	\$26.00	\$13,364
23	Select Granular Fill	1,650	CY	\$10.00	\$16,500
24	Removing Storm Sewer (48")	230	LF	\$12.50	\$2,875
25	8' DIA MH	2	EA	\$4,000.00	\$8,000
26	48-IN RCP	51	LF	\$96.00	\$4,896
27	Storm Sewer Connection to Underground Detention	2	EA	\$500.00	\$1,000
28	In-Line Stormwater Quality Unit to Protect Underground Det.	1	EA	\$25,000.00	\$25,000
29	Fence Removal and Replacement	260	LF	\$25.00	\$6,500
30	6-IN Salvaged Topsoil Placement	6,100	SY	\$3.50	\$21,350
31	Erosion Control Revegetative Mat	6,100	SY	\$2.50	\$15,250
32	Shrubs	10	EA	\$100.00	\$1,000
33	Trees	10	EA	\$300.00	\$3,000
34	Madison Parks Seed Mix	6,100	SY	\$1.75	\$10,675
<b>Forest Park North Pipe and Inlet Upgrades</b>					
35	33-IN RCP	456	LF	\$ 62.00	\$28,272
36	24-IN RCP	650	LF	\$47.00	\$30,550
37	21-IN RCP	399	LF	\$41.00	\$16,359
38	18-IN RCP	382	LF	\$33.50	\$12,797
39	15-IN RCP	761	LF	\$27.50	\$20,928
40	12-IN RCP	667	LF	\$26.50	\$17,676
41	8' DIA MH	18	EA	\$4,000.00	\$72,000
42	Connect existing pipes into new MH	29	EA	\$500.00	\$14,500
43	Removing Storm Sewer	3,362	LF	\$12.50	\$42,025
44	Additional 2'x3' Inlets	50	EA	\$2,000.00	\$100,000
45	Remove and Replace Existing 2'x3' Inlet	32	EA	\$2,240.00	\$71,680
46	Asphalt Trench Patching	4,458	SY	\$78.00	\$347,707
47	Curb and Gutter Remove and Replace	1,066	LF	\$30.00	\$31,980

Pipe and Inlet Upgrades	\$806,473
West Underground	\$1,069,497
East Underground	\$1,338,705
<b>Subtotal Project Costs</b>	<b>\$3,214,675</b>
Project Contingencies - 15%	\$482,201
<b>Construction Cost</b>	<b>\$3,696,876</b>
Design-15%	\$482,201
Soil Borings	\$7,000
<b>Total</b>	<b>\$4,186,077</b>

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total</u>
<b><u>Alternative 3 (5N): Underground Detention in Church Parking Lot Northwest of Pershing Blvd./61st St.</u></b>					
1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	10' Underground Detention Material/Delivery <b>(Storm Trap)</b>	1	LS	\$927,572.71	\$927,573
4	Underground Detention Installation	1	LS	\$107,191.47	\$107,191
5	Unclassified Excavation (Hauled off)	14800	CY	\$17.00	\$251,600
6	Unclassified Excavation (Salvaged)	4000	CY	\$8.00	\$32,000
7	Stone Bedding (Base Aggregate Dense 3/4-inch)	550	CY	\$26.00	\$14,300
8	Select Granular Fill	2800	CY	\$10.00	\$28,000
9	Tree Protection	1	LS	\$1,000.00	\$1,000
10	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
11	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
12	60-IN RCP	100	LF	\$145.00	\$14,500
13	18-IN RCP	102	LF	\$33.50	\$3,417
14	8' DIA MH	2	EA	\$4,000.00	\$8,000
15	Connect to Existing Manholes	6	EA	\$500.00	\$3,000
16	Connect to Underground Detention	2	EA	\$500.00	\$1,000
17	Parking lot Pavement Restoration	4,620	SY	\$78.00	\$360,360
18	Parking Lot Stripping	2,200	LF	\$0.40	\$880
19	Asphalt Trench Patching	167	SY	\$78.00	\$13,000
20	5' Concrete Sidewalk Placement	100	SF	\$3.00	\$300
21	Sidewalk Removal	11	SY	\$3.75	\$42
22	Curb and Gutter Remove and Replace	20	LF	\$30.00	\$600
23	6-IN Salvaged Topsoil Placement	11	SY	\$3.50	\$39
24	Erosion Control Revegetative Mat	11	SY	\$2.50	\$28
25	Shrubs	10	EA	\$100.00	\$1,000
26	Trees	5	EA	\$300.00	\$1,500
27	Madison Parks Seed Mix	11	SY	\$1.75	\$19
28	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
<b><u>Forest Park North Pipe and Inlet Upgrades</u></b>					
29	33-IN RCP	456	LF	\$ 62.00	\$28,272
30	24-IN RCP	650	LF	\$47.00	\$30,550
31	21-IN RCP	399	LF	\$41.00	\$16,359
32	18-IN RCP	382	LF	\$33.50	\$12,797
33	15-IN RCP	761	LF	\$27.50	\$20,928
34	12-IN RCP	667	LF	\$26.50	\$17,676
35	8' DIA MH	18	EA	\$4,000.00	\$72,000
36	Connect existing pipes into new MH	29	EA	\$500.00	\$14,500
37	Removing Storm Sewer	3,362	LF	\$12.50	\$42,025
38	Additional 2'x3' Inlets	50	EA	\$2,000.00	\$100,000
39	Remove and Replace Existing 2'x3' Inlet	32	EA	\$2,240.00	\$71,680
40	Asphalt Trench Patching	4,458	SY	\$78.00	\$347,707
41	Curb and Gutter Remove and Replace	1,066	LF	\$30.00	\$31,980
<b>Pipe and Inlet Upgrades</b>					<b>\$806,473</b>
<b>Underground Detention</b>					<b>\$1,801,348</b>
<b>Subtotal Project Costs</b>					<b>\$2,607,821</b>
<b>Project Contingencies - 15%</b>					<b>\$391,173</b>
<b>Construction Cost</b>					<b>\$2,998,994</b>
<b>Design-15%</b>					<b>\$391,173</b>
<b>Soil Borings</b>					<b>\$5,000</b>
<b>Permanent Limited Easement (PLE)</b>					<b>\$190,000</b>
<b>Total</b>					<b>\$3,585,167</b>

3/18/2010

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total</u>
<b><u>Alternative 4 (6N): Pumping Station in Forest Park to Detention Basin in Vacant Land Southwest of 60th Ave./60th St.</u></b>					
1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	Unclassified Excavation	10,200	CY	\$17.00	\$173,400
4	Hauled-in Embankment Fill	900	CY	\$17.00	\$15,300
5	2' Clay Liner (Elevation 715-720 Includes Excavation)	7,045	CY	\$40.00	\$281,785
6	Tree Protection	1	LS	\$1,000.00	\$1,000
7	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
8	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
9	48-IN Ductile Iron	4,660	LF	\$600.00	\$2,796,000
10	12-IN RCP	400	LF	\$26.50	\$10,600
11	8' DIA MH	0	EA	\$4,000.00	\$0
12	12-IN RCP Endwall	2	EA	\$470.00	\$940
13	Asphalt Trench Patching	4,433	SY	\$78.00	\$345,800
14	Curb and Gutter Remove and Replace	20	LF	\$30.00	\$600
15	Field Stone Rip Rap (1.0' D50 - Includes Excavation to Bottom of Bed)	25	SY	\$35.00	\$875
16	6-IN Salvaged Topsoil Placement	14,054	SY	\$3.50	\$49,187
17	Permanent Fencing	1,300	LF	\$15.00	\$19,500
18	Temporary Fencing	1,300	LF	\$3.00	\$3,900
19	Erosion Control Revegetative Mat	14,054	SY	\$2.50	\$35,134
20	Turf Reinforcement Mat (5% of ECRM)	703	SY	\$20.00	\$14,054
21	Shrubs	15	EA	\$100.00	\$1,500
22	Trees	10	EA	\$300.00	\$3,000
23	Madison Parks Seed Mix	14054	SY	\$1.75	\$24,594
24	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$100,000.00	\$100,000
25	Pumping Station (Fittings/Pump/Piping)	1	LS	\$5,500,000.00	\$5,500,000
26	Vegetation Maintenance-1 Year	1	LS	\$5,000.00	\$5,000
<b><u>Forest Park North Pipe and Inlet Upgrades</u></b>					
27	33-IN RCP	456	LF	\$ 62.00	\$28,272
28	24-IN RCP	650	LF	\$47.00	\$30,550
29	21-IN RCP	399	LF	\$41.00	\$16,359
30	18-IN RCP	382	LF	\$33.50	\$12,797
31	15-IN RCP	761	LF	\$27.50	\$20,928
32	12-IN RCP	667	LF	\$26.50	\$17,676
33	8' DIA MH	18	EA	\$4,000.00	\$72,000
34	Connect existing pipes into new MH	29	EA	\$500.00	\$14,500
35	Removing Storm Sewer	3,362	LF	\$12.50	\$42,025
36	Additional 2'x3' Inlets	50	EA	\$2,000.00	\$100,000
37	Remove and Replace Existing 2'x3' Inlet	32	EA	\$2,240.00	\$71,680
38	Asphalt Trench Patching	4,458	SY	\$78.00	\$347,707
39	Curb and Gutter Remove and Replace	1,066	LF	\$30.00	\$31,980

<b>Pipe and Inlet Upgrades</b>	\$806,473
<b>Pumping Station</b>	\$9,404,168
<b>Subtotal Project Costs</b>	<b>\$10,210,641</b>
<b>Project Contingencies - 15%</b>	<b>\$1,531,596</b>
<b>Construction Cost</b>	<b>\$11,742,237</b>
<b>Design-15%</b>	<b>\$1,531,596</b>
<b>Soil Borings</b>	<b>\$7,000</b>
<b>Vacant Land Purchase</b>	<b>\$300,000</b>
<b>Total</b>	<b>\$13,580,833</b>

**Forest Park Area Storm and Sanitary Management Plan  
City of Kenosha  
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.                                      DESCRIPTION                                      Quantity      Units      Unit Price      Total

**Alternative 5 (1S): Disconnect Interconnection with Stormsewer on 65th St.**

1	Mobilization	1	LS	\$2,000.00	\$2,000
2	Dewatering	0	LS	\$3,000.00	\$0
3	Remove Orifice on-line to East	1	LS	\$1,000.00	\$1,000
4	Stormsewer Bulkhead	1	EA	\$3,000.00	\$3,000

<b>Subtotal Project Costs</b>	<b>\$6,000</b>
<b>Project Contingencies - 15%</b>	<b>\$900</b>
<b>Construction Cost</b>	<b>\$6,900</b>
<b>Design-15%</b>	<b>\$900</b>
<b>Soil Borings</b>	<b>\$0</b>
<b>Total</b>	<b>\$7,800</b>

3/19/2010

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.                      DESCRIPTION                      Quantity    Units            Unit Price            Total

**Alternative 6 (2S): Conveyance Upgrade to Underground Detention at Forest Park School**

1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	5' ADS Underground Detention Material and Freight Cost	1	LS	\$623,491.89	\$623,492
4	Underground Detention Installation	1	LS	\$124,698.38	\$124,698
5	Unclassified Excavation (Hauled off)	13000	CY	\$17.00	\$221,000
6	Unclassified Excavation (Salvaged)	16600	CY	\$8.00	\$132,800
7	Stone Bedding (Base Aggregate Dense 3/4-inch)	1000	CY	\$26.00	\$26,000
8	Select Granular Fill	6400	CY	\$10.00	\$64,000
9	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
10	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
11	36-IN RCP	130	LF	\$70.00	\$9,100
12	42-IN RCP	73	LF	\$86.00	\$6,278
13	8' DIA MH	2	EA	\$4,000.00	\$8,000
14	Connect Existing Storm Sewer at Manholes	7	EA	\$500.00	\$3,500
15	Connect to Underground Detention	2	EA	\$500.00	\$1,000
16	Asphalt Trench Patching	67	SY	\$78.00	\$5,200
17	5' Concrete Sidewalk Placement	100	SF	\$3.00	\$300
18	Sidewalk Removal	11	SY	\$3.75	\$42
19	Curb and Gutter Remove and Replace	20	LF	\$30.00	\$600
20	In-Line Stormwater Quality Unit to Protect Underground Det.	1	EA	\$25,000.00	\$25,000
21	6-IN Salvaged Topsoil Placement	7,800	SY	\$3.50	\$27,300
22	Erosion Control Revegetative Mat	7,800	SY	\$2.50	\$19,500
23	Shrubs	20	EA	\$100.00	\$2,000
24	Trees	15	EA	\$300.00	\$4,500
25	Madison Parks Seed Mix	7800	SY	\$1.75	\$13,650
26	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
27	Vegetation Maintenance-1 Year	1	LS	\$5,000.00	\$5,000

**Forest Park South Pipe and Inlet Upgrades**

28	42-IN RCP	1,318	LF	\$86.00	\$113,348
29	36-IN RCP	1,440	LF	\$70.00	\$100,800
30	30-IN RCP	183	LF	\$55.00	\$10,065
31	27-IN RCP	1,082	LF	\$50.00	\$54,100
32	24-IN RCP	592	LF	\$47.00	\$27,824
33	18-IN RCP	124	LF	\$33.50	\$4,154
34	15-IN RCP	36	LF	\$27.50	\$990
35	12-IN RCP	71	LF	\$26.50	\$1,882
36	8' DIA MH	18	EA	\$4,000.00	\$72,000
37	Connect Existing Storm Sewer at Manholes	50	EA	\$500.00	\$25,000
38	Removing Storm Sewer	2,156	LF	\$12.50	\$26,950
39	Additional 2'x3' Inlets	29	EA	\$2,000.00	\$58,000
40	Remove and Replace Existing 2'x3' Inlet	21	EA	\$2,240.00	\$47,040
41	Asphalt Trench Patching	2,792	SY	\$78.00	\$217,793
42	Curb and Gutter Remove and Replace	1,650	LF	\$30.00	\$49,500

Underground Detention	\$1,354,960
Pipe and Inlet Upgrade	\$809,446
<b>Subtotal Project Costs</b>	<b>\$2,164,406</b>
Project Contingencies - 15%	\$324,661
<b>Construction Cost</b>	<b>\$2,489,067</b>
Design-15%	\$324,661
Soil Borings	<u>\$5,000</u>
PLE at School Property	<u>\$190,000</u>
<b>Total</b>	<b>\$3,008,727</b>

3/19/2010

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total</u>
<b>Alternative 7 (2NS): Home Purchase, Dry Detention Basins and Underground Detention</b>					
<b>NORTH (46TH AVE DRY BASIN)</b>					
1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
<b>NORTH (46th Ave. Dry Basin)</b>					
3	Property Acquisition	1	LS	\$893,000.00	\$893,000
4	Relocation	1	LS	\$125,000.00	\$125,000
5	Moving Fee	1	LS	\$5,050.00	\$5,050
6	House Demolition, Asbestos and Abatement	5	EA	\$25,000.00	\$125,000
7	Unclassified Excavation	4,300	CY	\$17.00	\$73,100
8	Hauled-in Embankment Fill	4	CY	\$17.00	\$68
9	2' Clay Liner (Elevation 659-664 Includes Excavation)	1,700	CY	\$40.00	\$68,000
10	Tree Protection	1	LS	\$1,000.00	\$1,000
11	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
12	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
13	24-IN RCP	331	LF	\$47.00	\$15,557
14	Connect to Manhole	1	EA	\$500.00	\$500
15	Endwall 24-IN RCP	1	EA	\$600.00	\$600
16	Asphalt Trench Patching	281	SY	\$78.00	\$21,927
17	5' Concrete Sidewalk Placement	100	SF	\$3.00	\$300
18	Sidewalk Removal	12	SY	\$3.75	\$45
19	Curb and Gutter Remove and Replace	20	LF	\$30.00	\$600
20	Field Stone Rip Rap (1.0' D50 - Includes Excavation to Bottom of Bed)	20	SY	\$35.00	\$700
21	6-IN Salvaged Topsoil Placement	3,487	SY	\$3.50	\$12,204
22	Permanent Fencing	775	LF	\$15.00	\$11,625
23	Temporary Fencing	775	LF	\$3.00	\$2,325
24	Erosion Control Revegetative Mat	3,487	SY	\$2.50	\$8,717
25	Turf Reinforcement Mat (5% of ECRM)	174	SY	\$20.00	\$3,487
26	Shrubs	10	EA	\$100.00	\$1,000
27	Trees	5	EA	\$300.00	\$1,500
28	Madison Parks Seed Mix	3487	SY	\$1.75	\$6,102
29	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
30	Vegetation Maintenance-1 Year	1	LS	\$5,000.00	\$5,000
<b>NORTH (Forest Park West Dry Basin)</b>					
31	Unclassified Excavation	3,000	CY	\$17.00	\$51,000
32	Hauled-in Embankment Fill	0	CY	\$17.00	\$0
33	2' Clay Liner (Elevation 673-680 Includes Excavation)	1,325	CY	\$40.00	\$53,000
34	Tree Protection	1	LS	\$1,000.00	\$1,000
35	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
36	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
37	24-IN RCP	151	LF	\$47.00	\$7,097
38	Connect to Manhole	1	EA	\$500.00	\$500
39	Endwall 24-IN RCP	1	EA	\$600.00	\$600
40	Asphalt Trench Patching	90	SY	\$78.00	\$7,020
41	5' Concrete Sidewalk Placement	50	SF	\$3.00	\$150
42	Sidewalk Removal	6	SY	\$3.75	\$23
43	Curb and Gutter Remove and Replace	10	LF	\$30.00	\$300
44	Field Stone Rip Rap (1.0' D50 - Includes Excavation to Bottom of Bed)	10	SY	\$35.00	\$350
45	6-IN Salvaged Topsoil Placement	1,972	SY	\$3.50	\$6,902
46	Permanent Fencing	650	LF	\$15.00	\$9,750
47	Temporary Fencing	650	LF	\$3.00	\$1,950
48	Erosion Control Revegetative Mat	1,972	SY	\$2.50	\$4,930
49	Turf Reinforcement Mat (5% of ECRM)	99	SY	\$20.00	\$1,972
50	Shrubs	10	EA	\$100.00	\$1,000
51	Trees	5	EA	\$300.00	\$1,500
52	Madison Parks Seed Mix	1972	SY	\$1.75	\$3,451
53	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$1,000.00	\$1,000
54	Vegetation Maintenance-1 Year	1	LS	\$5,000.00	\$5,000
<b>SOUTH (50th Ave. Dry Basins)</b>					
55	Property Acquisition	1	LS	\$1,615,500.00	\$1,615,500
56	Relocation	1	LS	\$200,000.00	\$200,000
57	Moving Fee	1	LS	\$8,550.00	\$8,550
58	House Demolition, Asbestos and Abatement	8	EA	\$25,000.00	\$200,000

59	Unclassified Excavation	8,500	CY	\$17.00	\$144,500
60	Hauled-in Embankment Fill	16	CY	\$17.00	\$272
61	2' Clay Liner (Elevation 683-687 Includes Excavation)	3,300	CY	\$40.00	\$132,000
62	Tree Protection	1	LS	\$1,000.00	\$1,000
63	Clearing and Grubbing	1	LS	\$2,000.00	\$2,000
64	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
65	12-IN RCP	73	LF	\$26.50	\$1,935
66	15-IN RCP	42	LF	\$27.50	\$1,155
67	18-IN RCP	125	LF	\$33.50	\$4,188
68	24-IN RCP	433	LF	\$47.00	\$20,351
69	27-IN RCP	844	LF	\$55.00	\$46,420
70	33-IN RCP	308	LF	\$62.00	\$19,096
71	36-IN RCP	696	LF	\$70.00	\$48,720
72	8' Dia. Manhole	10	EA	\$4,000.00	\$40,000
73	Connect Existing pipe to new manhole	26	EA	\$500.00	\$13,000
74	Endwall 24-IN RCP	2	EA	\$600.00	\$1,200
75	Asphalt Trench Patching	2,801	SY	\$78.00	\$218,487
76	5' Concrete Sidewalk Placement	100	SF	\$3.00	\$300
77	Sidewalk Removal	12	SY	\$3.75	\$45
78	Curb and Gutter Remove and Replace	20	LF	\$30.00	\$600
79	Field Stone Rip Rap (1.0' D50 - Includes Excavation to Bottom of Bed)	25	SY	\$35.00	\$875
80	6-IN Salvaged Topsoil Placement	7,048	SY	\$3.50	\$24,667
81	Permanent Fencing	1,500	LF	\$15.00	\$22,500
82	Temporary Fencing	1,500	LF	\$3.00	\$4,500
83	Erosion Control Revegetative Mat	7,048	SY	\$2.50	\$17,619
84	Turf Reinforcement Mat (5% of ECRM)	352	SY	\$20.00	\$7,048
85	Shrubs	20	EA	\$100.00	\$2,000
86	Trees	10	EA	\$300.00	\$3,000
87	Madison Parks Seed Mix	7048	SY	\$1.75	\$12,334
88	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
89	Vegetation Maintenance-1 Year	1	LS	\$5,000.00	\$5,000
<b>Underground Detention (Forest Park)</b>					
90	6' Underground Detention Material and Freight Cost (Contech)	1	LS	\$452,500.00	\$452,500
91	Underground Detention Installation	1	LS	\$90,500.00	\$90,500
92	Unclassified Excavation (Hauled off)	10,500	CY	\$17.00	\$178,500
93	Unclassified Excavation (Salvaged)	17,500	CY	\$8.00	\$140,000
94	Stone Bedding	700	CY	\$26.00	\$18,200
95	Select Granular Fill	4900	CY	\$10.00	\$49,000
96	8' DIA MH	1	EA	\$4,000.00	\$4,000
97	48-IN RCP	26	LF	\$96.00	\$2,496
98	Storm Sewer Connection to Underground Detention	2	EA	\$500.00	\$1,000
99	6-IN Salvaged Topsoil Placement	5800	SY	\$3.50	\$20,300
100	Erosion Control Revegetative Mat	5800	SY	\$2.50	\$14,500
101	Shrubs	10	EA	\$100.00	\$1,000
102	Trees	5	EA	\$300.00	\$1,500
103	Madison Parks Seed Mix	5800	SY	\$1.75	\$10,150
<b>Forest Park North Pipe and Inlet Upgrades</b>					
104	33-IN RCP	456	LF	\$62.00	\$28,272
105	24-IN RCP	650	LF	\$47.00	\$30,550
106	21-IN RCP	399	LF	\$41.00	\$16,359
107	18-IN RCP	382	LF	\$33.50	\$12,797
108	15-IN RCP	761	LF	\$27.50	\$20,928
109	12-IN RCP	667	LF	\$26.50	\$17,676
110	8' DIA MH	18	EA	\$4,000.00	\$72,000
111	Connect existing pipes into new MH	29	EA	\$500.00	\$14,500
112	Removing Storm Sewer	3,362	LF	\$12.50	\$42,025
113	Additional 2'x3' Inlets	50	EA	\$2,000.00	\$100,000
114	Remove and Replace Existing 2'x3' Inlet	32	EA	\$2,240.00	\$71,680
115	Asphalt Trench Patching	4,458	SY	\$78.00	\$347,707
116	Curb and Gutter Remove and Replace	1,066	LF	\$30.00	\$31,980

Pipe and Inlet Upgrades (North)	\$806,473
Pipe and Inlet Upgrades (South)	\$415,496
NORTH (46th Ave Dry Basin)	\$1,406,907
NORTH (Forest Park)	\$165,494
SOUTH (50th Ave. Dry Basins)	\$2,425,865
Underground Detention	\$983,646
Subtotal Project Costs	\$6,203,880
Project Contingencies - 15%	\$930,582
Construction Cost	\$7,134,462
Design-15%	\$930,582
Soil Borings	\$12,000
<b>Total</b>	<b>\$8,077,044</b>

**Forest Park Area Storm and Sanitary Management Plan  
City of Kenosha  
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total</u>
-----------------	--------------------	-----------------	--------------	-------------------	--------------

**Alternative 8 Pipe Upsizing at Specified Bottleneck Areas**

1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
4	Traffic Control	1	LS	\$15,000.00	\$15,000
5	Select Granular Fill	9196.296	CY	\$10.00	\$91,963
6	Stone Bedding	847	CY	\$26.00	\$22,018
7	Asphalt Trench Patching	837	SY	\$78.00	\$65,260
8	Concrete Trench Patching	3,408	SY	\$45.00	\$153,350
9	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
10	72-IN RCP	960	LF	\$ 225.00	\$216,000
11	66-IN RCP	358	LF	\$185.00	\$66,230
12	60-IN RCP	819	LF	\$145.00	\$118,755
13	54-IN RCP	1,683	LF	\$115.00	\$193,545
14	Storm Sewer Structures	6	EA	\$10,000.00	\$60,000
15	Base Tee Manholes	11	EA	\$3,500.00	\$38,500
16	Connect existing pipes into new MH	38	EA	\$500.00	\$19,000
17	Removing Storm Sewer	3,820	LF	\$12.50	\$47,750

<b>Pipe Upgrades</b>	<b>\$759,780</b>
<b>Subtotal Project Costs</b>	<b>\$759,780</b>
<b>Project Contingencies - 15%</b>	<b>\$113,967</b>
<b>Construction Cost</b>	<b>\$873,747</b>
<b>Design-15%</b>	<b>\$113,967</b>
<b>Soil Borings</b>	<b>\$5,000</b>
<b>Total</b>	<b>\$992,714</b>

10/8/2010

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.	DESCRIPTION	Quantity	Units	Unit Price	Total
----------	-------------	----------	-------	------------	-------

**Alternative 9 Pipe Upsizing at Specified Bottleneck Areas and Inlet/Inlet Lead Replacement**

1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$10,000.00	\$10,000
4	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
5	Traffic Control	1	LS	\$15,000.00	\$15,000
<b>Mainline Inside Forest Park</b>					
6	Select Granular Fill	2672	CY	\$10.00	\$26,723
7	Stone Bedding	578	CY	\$26.00	\$15,027
8	Asphalt Trench Patching	543	SY	\$78.00	\$42,380
9	Concrete Trench Patching	2,381	SY	\$45.00	\$107,150
10	Topsoil/Seed/Mulch	492	SY	\$8.00	\$3,933
11	Removing Storm Sewer	2,488	LF	\$12.50	\$31,100
12	36-IN RCP	456	LF	\$70.00	\$31,920
13	30-IN RCP	205	LF	\$65.00	\$13,325
14	27-IN RCP	414	LF	\$55.00	\$22,770
15	24-IN RCP	429	LF	\$47.00	\$20,163
16	18-IN RCP	442	LF	\$33.50	\$14,807
17	15-IN RCP	406	LF	\$27.50	\$11,165
18	12-IN RCP	136	LF	\$26.00	\$3,536
19	MH 4' Diameter	8	EA	\$3,500.00	\$28,000
20	MH 5' Diameter	2	EA	\$3,500.00	\$7,000
21	MH 6' Diameter	2	EA	\$4,500.00	\$9,000
22	MH 8' Diameter	2	EA	\$6,500.00	\$13,000
<b>Mainline Outside of Forest Park</b>					
23	Select Granular Fill	8487	CY	\$10.00	\$84,867
24	Stone Bedding	954	CY	\$26.00	\$24,806
25	Asphalt Trench Patching	862	SY	\$78.00	\$67,253
26	Concrete Trench Patching	4,000	SY	\$45.00	\$180,000
11	Connect existing pipes into new MH	38	EA	\$500.00	\$19,000
12	Removing Storm Sewer	3,819	LF	\$12.50	\$47,738
13	72-IN RCP	960	LF	\$225.00	\$216,000
13	66-IN RCP	2,568	LF	\$185.00	\$475,080
14	60-IN RCP	291	LF	\$145.00	\$42,195
15	Storm Sewer Structures	6	EA	\$10,000.00	\$60,000
16	Base Tee Manholes	11	EA	\$3,500.00	\$38,500
<b>Inlet/Inlet Leads</b>					
17	Select Granular Fill	588	CY	\$10.00	\$5,878
18	Stone Bedding	434	CY	\$26.00	\$11,281
19	Asphalt Trench Patching	476	SY	\$78.00	\$37,115
20	Concrete Trench Patching	987	SY	\$45.00	\$44,400
21	Removing Storm Sewer	1,587	LF	\$12.50	\$19,838
22	18-IN RCP Inlet Lead	43	LF	\$33.50	\$1,441
23	15-IN RCP Inlet Lead	210	LF	\$27.50	\$5,775
24	12-IN RCP Inlet Lead	1,334	LF	\$26.50	\$35,351
25	Additional 2'x3' Inlets	53	EA	\$2,000.00	\$106,000
26	Remove and Replace Existing 2'x3' Inlet	73	EA	\$2,240.00	\$163,520
27	Topsoil/Seed/Mulch	141	SY	\$8.00	\$1,129

<b>Mainline Inside</b>	\$450,999
<b>Mainline Outside</b>	\$1,255,438
<b>Inlet/Inlet Leads</b>	\$431,727
<b>Subtotal Project Costs</b>	<b>\$2,138,165</b>
<b>Project Contingencies - 15%</b>	<b>\$320,725</b>
<b>Construction Cost</b>	<b>\$2,458,889</b>
<b>Design-15%</b>	<b>\$320,725</b>
<b>Soil Borings</b>	<b>\$5,000</b>
<b>Total</b>	<b>\$2,784,614</b>

10/8/2010

**Forest Park Area Storm and Sanitary Management Plan**  
**City of Kenosha**  
**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.                                      DESCRIPTION                                      Quantity      Units                      Unit Price                      Total

**Alternative 10 Pipe Upsizing at Specified Bottleneck Areas**

1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$5,000.00	\$5,000
4	Traffic Control	1	LS	\$15,000.00	\$15,000
5	Select Granular Fill	6314.63	CY	\$10.00	\$63,146
6	Stone Bedding	575	CY	\$26.00	\$14,940
7	Asphalt Trench Patching	533	SY	\$78.00	\$41,600
8	Concrete Trench Patching	2,381	SY	\$45.00	\$107,150
9	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
10	42-IN RCP	411	LF	\$ 86.00	\$35,346
11	36-IN RCP	1,724	LF	\$70.00	\$120,680
12	24-IN RCP	488	LF	\$47.00	\$22,936
13	MH 4' Diameter	1	EA	\$3,000.00	\$3,000
14	MH 5' Diameter	3	EA	\$3,500.00	\$10,500
15	MH 6' Diameter	3	EA	\$4,500.00	\$13,500
16	MH 7' Diameter	2	EA	\$5,500.00	\$11,000
17	MH 8' Diameter	2	EA	\$6,500.00	\$13,000
18	Connect existing pipes into new MH	36	EA	\$500.00	\$18,000
19	Removing Storm Sewer	2,623	LF	\$12.50	\$32,788

<b>Pipe Upgrades</b>	<b>\$280,750</b>
<b>Subtotal Project Costs</b>	<b>\$280,750</b>
<b>Project Contingencies - 15%</b>	<b>\$42,112</b>
<b>Construction Cost</b>	<b>\$322,862</b>
<b>Design-15%</b>	<b>\$42,112</b>
<b>Soil Borings</b>	<b>\$5,000</b>
<b>Total</b>	<b>\$369,974</b>

10/8/2010

**Forest Park Area Storm and Sanitary Management Plan  
City of Kenosha  
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST**

ITEM NO.	DESCRIPTION	Quantity	Units	Unit Price	Total
----------	-------------	----------	-------	------------	-------

**Alternative 11 Pipe Upsizing at Specified Bottleneck Areas and Inlet/Inlet Lead Replacement**

1	Mobilization	1	LS	\$5,000.00	\$5,000
2	Dewatering	1	LS	\$10,000.00	\$10,000
3	Erosion Control and Maintenance Incl/Tracking Pad	1	LS	\$10,000.00	\$10,000
4	Utility Allowance (X LF, Sanitary and Water along XXX)	1	LS	\$10,000.00	\$10,000
5	Traffic Control	1	LS	\$15,000.00	\$15,000
<b>Mainline Inside Forest Park</b>					
6	Select Granular Fill	5650	CY	\$10.00	\$56,499
7	Stone Bedding	858	CY	\$26.00	\$22,302
8	Asphalt Trench Patching	1,296	SY	\$78.00	\$101,053
9	Concrete Trench Patching	2,556	SY	\$45.00	\$115,000
10	Connect existing pipes into new MH	30	EA	\$500.00	\$15,000
11	Removing Storm Sewer	3,467	LF	\$12.50	\$43,338
12	36-IN RCP	1,194	LF	\$70.00	\$83,580
13	30-IN RCP	182	LF	\$65.00	\$11,830
14	27-IN RCP	947	LF	\$55.00	\$52,085
15	24-IN RCP	995	LF	\$47.00	\$46,765
16	21-IN RCP	124	LF	\$41.00	\$5,084
17	18-IN RCP	25	LF	\$33.50	\$838
18	MH 4' Diameter	7	EA	\$3,000.00	\$21,000
19	MH 5' Diameter	2	EA	\$3,500.00	\$7,000
20	MH 6' Diameter	1	EA	\$4,500.00	\$4,500
21	MH 7' Diameter	2	EA	\$5,500.00	\$11,000
<b>Mainline Outside of Forest Park</b>					
22	Select Granular Fill	6210	CY	\$10.00	\$62,103
23	Stone Bedding	667	CY	\$26.00	\$17,343
24	Asphalt Trench Patching	789	SY	\$78.00	\$61,533
25	Concrete Trench Patching	2,424	SY	\$45.00	\$109,100
26	Connect existing pipes into new MH	19	EA	\$500.00	\$9,500
27	Removing Storm Sewer	2,891	LF	\$12.50	\$36,138
28	42-IN RCP	1,466	LF	\$86.00	\$126,076
29	36-IN RCP	1,425	LF	\$70.00	\$99,750
30	MH 5' Diameter	1	EA	\$3,500.00	\$3,500
31	MH 6' Diameter	4	EA	\$4,500.00	\$18,000
32	MH 7' Diameter	5	EA	\$5,500.00	\$27,500
33	MH 8' Diameter	2	EA	\$6,500.00	\$13,000
<b>Inlet/Inlet Leads</b>					
34	Select Granular Fill	355	CY	\$10.00	\$3,548
35	Stone Bedding	262	CY	\$26.00	\$6,808
36	Asphalt Trench Patching	287	SY	\$78.00	\$22,403
37	Concrete Trench Patching	596	SY	\$45.00	\$26,800
38	Removing Storm Sewer	958	LF	\$12.50	\$11,975
39	18-IN RCP Inlet Lead	20	LF	\$33.50	\$670
40	15-IN RCP Inlet Lead	261	LF	\$27.50	\$7,178
41	12-IN RCP Inlet Lead	677	LF	\$26.50	\$17,941
42	Additional 2'x3' Inlets	33	EA	\$2,000.00	\$66,000
43	Remove and Replace Existing 2'x3' Inlet	43	EA	\$2,240.00	\$96,320
44	Topsoil/Seed/Mulch	100	SY	\$8.00	\$800

<b>Mainline Inside</b>	\$646,874
<b>Mainline Outside</b>	\$583,543
<b>Inlet/Inlet Leads</b>	\$260,443
<b>Subtotal Project Costs</b>	<b>\$1,490,859</b>
<b>Project Contingencies - 15%</b>	<b>\$223,629</b>
<b>Construction Cost</b>	<b>\$1,714,488</b>
<b>Design-15%</b>	<b>\$223,629</b>
<b>Soil Borings</b>	<b>\$5,000</b>
<b>Total</b>	<b>\$1,943,117</b>

10/8/2010

**APPENDIX I  
DRAINAGE EVALUATION FORM**

---

# ***City of Kenosha, Wisconsin***

## ***Drainage Evaluation Form***

### **Part A - General** (To be completed by resident)

Today's Date:

Location of Drainage Problem (include building name, parking lot number or feature name):

Building Manager / Contact Name:

Phone Number: \_\_\_\_\_ (Office)  
\_\_\_\_\_ (Mobile/Pager)

### **Part B - Description of Problem** (To be completed by resident)

Provide detailed description or sketch or photo of the problem in the space below:



**Part D – City Engineer’s Inspection**

Name of Inspector:

Date of Field Inspection:

Inspector’s Notes:

List of properties affected:

Photos: Attached or N/A

Is drainage problem:

1. Located on City property? \_\_\_\_Yes\_\_\_\_No
2. Associated with a City-owned or -maintained storm sewer facility or drainage way?  
Yes\_\_\_\_No
3. Caused by damage to the storm sewer or obstruction of the drainage way?\_\_\_\_Yes\_\_\_\_No

**Part E - Evaluation/Responsibility (To be completed by City Engineer)**

Recommended Action:

Comments:

***City of Kenosha, Wisconsin***  
***Drainage Evaluation Form***


ROUTING: (PLACE CHECK MARK BY APPLICABLE REVIEWERS)

City Engineer  
City Building Inspector

(All Submittals)  
(Where Applicable)

REVIEWED BY:

\_\_\_\_\_  
City Engineer

\_\_\_\_\_  
City Building Inspector

**APPENDIX J**  
**PRIVATE PROPERTY INFLOW AND INFILTRATION IDENTIFICATION**  
**AND REMOVAL**

---

**TABLE OF CONTENTS**

	<u>Page No. or Following</u>
<b>SECTION 1–INTRODUCTION</b>	
1.01 Background.....	1-1
1.02 Introduction.....	1-1
1.03 Abbreviations and Acronyms.....	1-2
1.04 References.....	1-2
<b>SECTION 2–INTRODUCTION TO INFILTRATION AND INFLOW</b>	
2.01 Sources of Inflow and Infiltration.....	2-1
2.02 Private vs. Public I/I.....	2-1
2.03 Locations of Cleanouts on Private Laterals.....	2-2
2.04 Locating Private Sewer Laterals.....	2-3
2.05 Quantification of Private I/I.....	2-4
2.06 Inspecting Private Sewer Laterals.....	2-5
<b>SECTION 3–REPAIR IMPLEMENTATION</b>	
3.01 Repair Services.....	3-1
3.02 Repair Methods.....	3-1
<b>SECTION 4–LEGAL ISSUES</b>	
4.01 Legal Perspective.....	4-1
4.02 Legal Concerns.....	4-1
4.03 Legal Conclusions.....	4-5
4.04 Ordinances.....	4-5
<b>SECTION 5–FINANCING PROGRAMS</b>	
5.01 Financing Alternatives.....	5-1
5.02 Municipality-Funded Alternatives.....	5-2
5.03 Homeowner-Funded Alternatives.....	5-4
5.04 Shared-Cost Alternatives.....	5-4
5.05 Insurance/Warranty Alternatives.....	5-5
5.06 Real Cost of Private Property.....	5-5

**ATTACHMENT**

**ATTACHMENT A–PRIVATE I/I RESOURCE MATERIALS**

**TABLE OF CONTENTS Continued**

Page No.  
or following

**TABLES**

2.02-1	Definition of Private Lateral (Adapted from WERF).....	2-1
2.05-1	Measured I/I Reduction.....	2-4
2.06-1	Methods for Inspection of Sewer Laterals (Adapted from WERF Table 3-30).....	2-5
5.01-1	Reported Private Lateral Funding Options (Adapted from WERF Table 6-2).....	5-1
5.06-1	Monetary Difference Between Action and No Action Approaches to Private Property.....	5-7

**FIGURES**

2.01-1	Typical Sources of Private I/I.....	2-2
5.01-1	Summary of Financing Sources from <i>Methods of Cost-Effective Rehabilitation of Private Lateral Sewers</i> .....	5-2

## 1.01 BACKGROUND

The purpose of this report is to provide information to evaluate current and emerging issues and technologies related to identification and removal of inflow and infiltration (I/I) from private property. A variety of sources were used in the development of this report. The sources included periodical articles, publications, conference proceedings and presentations, consultant reports, textbooks, and surveys. Information from these sources is summarized in this report. Readers should reference the primary sources if more information is necessary. Of particular usefulness were the following publications:

- *Control of Infiltration and Inflow in Private Building Sewer Connections*, published by the Water Environment Federation (WEF), is a useful monograph that gives a general overview of the challenges associated with implementing a program to reduce I/I from private property. The information presented in this document is based on the results from a questionnaire that was sent to sewer agencies across the country.
- *Methods for Cost-Effective Rehabilitation of Private Lateral Sewers* published by the Water Environment Research Foundation (WERF) is an extensive work based on a survey of 58 agencies that details the experiences, issues, and results of efforts by these communities. It also gives specific information about location, inspection, and repair methods for sewer laterals.
- An article included in the July 2005 issue of WE&T titled *It Can Be Done—Some legal issues to consider when managing infiltration and inflow from laterals*, provides useful information about the legal issues associated with repairing privately owned sewer laterals. The article is based on Wisconsin law.
- *WEF Private Property Virtual Library*, developed by the WEF Collection System Committee. This on-line resource contains a variety of information related to private property I/I. A number of sample ordinances, fee information, point of sale program information, funding information, lateral information, and other private I/I resource material is included as Attachment A to this document. Also included is a print-out of the WEF PPVL “Additional Resources” page, which contains a complete listing of resources accessible via the PPVL Web site.

## 1.02 INTRODUCTION

Infiltration is groundwater that seeps into the collection system through defects such as cracks and broken joints. Inflow enters the collection system through direct connections such as foundation drains and roof leaders. I/I can occur throughout the entire collection system and, if left uncontrolled, can be a major contributor of flow to the sanitary sewer collection system. Increasing enforcement of environmental regulations relating to sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs) is forcing municipalities to implement programs to reduce and/or eliminate overflows from the collection system. I/I reduction is one method to reduce SSOs and CSOs. Section 2 of this report contains a more in-depth description of private property I/I and the potential sources.

Successful I/I reduction programs incorporate three essential steps:

## SECTION 1 INTRODUCTION

- First, they identify and quantify the sources of I/I within their system. Numerous technologies exist for inspection and analysis of collection systems. The specific inspection program is selected depending on the condition of the existing system, the I/I sources being considered, and the municipality's needs.
- Second, they select an appropriate repair or rehabilitation program. Successful programs use a variety of methods to complete efficient and effective repairs.
- Lastly, and most importantly, the municipality continues to maintain and improve the collection system including sewer laterals.

This report includes a discussion of these steps and the alternative approaches for each of them in Sections 2 and 3.

When municipalities choose to implement an I/I reduction program, both public and private portions of the collection system should be considered for inclusion. Controlling private I/I is inherently difficult because the municipality does not typically own the private portion of the system, which brings up numerous legal considerations including funding, property access, and liability. These and other legal considerations are discussed in Section 4.

The success of private I/I programs across the country has been greatly influenced by the financing alternatives selected for the program. Alternatives range from programs that are completely financed by homeowners to insurance programs to programs that are completely financed by municipalities. Municipalities that have clearly defined programs with specified deadlines and consequences seem to be the most successful. Section 5 discusses financing alternatives.

**1.03 ABBREVIATIONS AND ACRONYMS**

CCTV	Closed Circuit Television
CSO	Combined Sewer Overflow
GPR	Ground Penetrating Radar
I/I	Inflow and Infiltration
PPVL	Private Property Virtual Library
SSO	Sanitary Sewer Overflow
TV	Television
WEF	Water Environment Federation
WERF	Water Environment Research Foundation

**1.04 REFERENCES**

*It Can Be Done—Some legal issues to consider when managing infiltration and inflow from laterals*, Simpson, Michael H., WE&T, July 2005, pp. 26-31.

*Cost Effective Rehabilitation of Private Sewer Laterals*, Simicevic, Jadranka, and Raymond Sterling, Proceedings Collection Systems 2006, Water Environment Federation, Detroit 2006.

Private Lateral Program Questionnaire, Water Environment Federation, 2006.

*Methods for Cost-Effective Rehabilitation of Private Lateral Sewers*, Sterling, Raymond L., et. al., Water Environment Research Foundation, Alexandria, Virginia, 2006.

*Inflow and Infiltration From Private Property Sanitation District No. 1 of Northern Kentucky*, Cincinnati, Strand Associates, Inc., October 2006.

*Milwaukee MSD's Private Property I/I Reduction Program*, Proceedings Indiana Water Environment Association 69th Annual Conference, Gonwa, Willie, Ph.D., P.E., TEI, November 2005.

*Private Property I/I Control.....The Rest of I/I Story*, Proceedings Preconference Workshop at Water Environment Federation Collection Systems 2004: Innovative Approaches to Collection Systems Management, Milwaukee, Wisconsin, August 2004.

*Wastewater Engineering Treatment and Reuse*, Metcalf & Eddy, Inc., Boston, 2003.

*Control of Infiltration and Inflow in Private Building Sewer Connections*, Water Environment Federation, Alexandria, Virginia, 1999.

Water Environment Federation, Private Property Virtual Library (PPVL), <[http://www.wef.org/Utility/ppvl\\_additional\\_resources.asp](http://www.wef.org/Utility/ppvl_additional_resources.asp)> (March 3, 2010).

**2.01 SOURCES OF INFLOW AND INFILTRATION**

I/I originates from many locations on private property including roof drains, driveway or other area drains, sump pumps, foundation drains, and cracks in the sewer lateral. Figure 2.01-1 located on page 2-2 shows the potential sources of private I/I and how they connect to the public system. Inflow sources account for large portions of I/I and can be easier to repair than infiltration sources because they are direct connections to the piping system where infiltration sources are often leaks or cracks in the pipe. Some inflow sources can be eliminated with simple repairs like replacing cleanout caps and disconnecting downspouts. Removing infiltration often requires repairs of entire piping systems or sections of systems.

**2.02 PRIVATE VS. PUBLIC I/I**

When a municipality begins an I/I evaluation, a distinction between public I/I and private I/I needs to be made. This distinction is made using local ordinances and practices. Based on the surveys and questionnaires used as primary sources for this project, municipalities delineate between the private and public system in a few different ways. These definitions are summarized in Table 2.02-1.

The most common definitions for the private lateral contained in the WERF report are from the house to the mainline including the tap (40 percent of agencies) and from the house to the property line (43 percent of agencies). Other definitions included from the house to the mainline excluding the tap (16 percent of agencies) and one system had inconsistent definitions within their system (1 percent of agencies).

Definition of Private Lateral	Number of Municipalities
House to mainline (including tap)	40%
House to property line	43%
House to mainline (excluding tap)	16%

**Table 2.02-1 Definition of Private Lateral (Adapted from WERF)**

**Infiltration**

Water entering a collection system from a variety of entry points including service connections and from the ground through such means as defective pipes, pipe joints, connections, or access port (manhole) walls.

**Steady Inflow**

Water discharged from cellar and foundation drains, cooling water discharges, and drains from springs and swampy areas. This type of inflow is steady and is identified and measured along with infiltration.

**Direct Inflow**

Those types of inflow that have a direct stormwater runoff connection to the sanitary collection system and cause an almost immediate increase in wastewater flow rates. Possible sources are roof leaders, yard and areaway drains, access port covers, cross connections from storm drains and catch basins, and combined systems.

**Delayed Inflow**

Stormwater that may require several days or more to drain through the collection system. Delayed inflow can include the discharge of sump pumps from cellar drainage as well as the slowed entry of surface water through access ports in ponded areas.

Metcalf & Eddy, Inc., p. 163

**SECTION 2  
 INTRODUCTION TO INFILTRATION AND INFLOW**

Results of the *Private Lateral Program Questionnaire* included the following responses. The frequency of each response is listed in parenthesis:

- From the building to the tap on the sewer main line. (5)
- From the building to the right-of-way or easement line. (2)
- From the building or landscaped area to the sewer main line. (1)
- From the building to the property line. (2)
- From the building to the sewer main line including the tap on the main. (1)
- From the building cleanout to the agency cleanout at the property line or to the sewer main line if no cleanout present. (1)

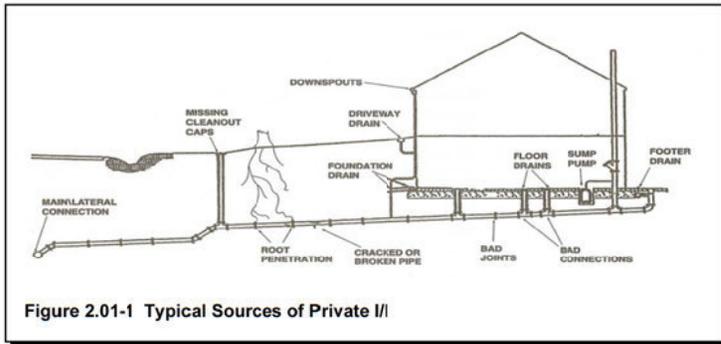


Figure 2.01-1 Typical Sources of Private I/I

From these two sources, the most common definition for the private lateral is the section of pipe extending from the building to the tap on the sewer line. The tap may or may not be included.

Some municipalities have chosen to break the sewer lateral into upper and lower portions so that repair and inspections can be handled differently for each portion of the lateral. The upper lateral is the portion of the lateral between the property line and the home. The lower lateral is the portion of the lateral between the property line and the tap at the mainline.

### 2.03 LOCATION OF CLEANOUTS ON PRIVATE LATERALS

Many municipalities require installation of cleanouts on private laterals. Cleanouts are typically installed in private laterals at periodic intervals, e.g. every 50 feet, or changes in direction and at the property line. They are used to clean pipes or for pipe access. They are also useful locations to insert monitoring devices or plugs into laterals for location, inspection, or repair. Cleanouts have been required by municipalities at the house, at the property line or edge of right-of-way and/or at the tap to the mainline. Cleanouts in one or more of these locations are useful for inspections and for defining boundaries between the private and public domain.

Some municipalities require lateral cleanouts on new construction but do not require older construction to retrofit with cleanouts in the plumbing code. Requiring cleanouts at the property line, house, right-of-way, or mainline should make lateral location, inspection, and repair easier in the future. As well as requiring cleanouts in new connections, cleanouts should be added during repair or inspection projects if laterals are accessed. The location of cleanouts and whether or not they are required is a key issue in the overall private sewer lateral conversation and was a featured question in WEF's *Private Lateral Program Questionnaire*. Cleanouts were required at the building by 70 percent of the utilities. Cleanouts were required at the right-of-way by roughly one-third of the utilities, and cleanouts were required at the easement by 15 percent of the utilities. Just under a quarter of the utilities required multiple cleanouts.

### 2.04 LOCATING PRIVATE SEWER LATERALS

Technologies used to locate sewer lines include technologies like closed circuit television (CCTV) inspections of the mainline or lateral, walk-over sonde detectors, and ground penetrating radar (GPR). All of these technologies have been used to locate private sewer lines with varying degrees of accuracy and repeatability. Smoke and dye testing are two other methods that are commonly used in sewer lines and laterals. Smoke testing is good for testing condition of laterals (under certain circumstances) but is not good for "locating" laterals. Dye testing is good for verifying where laterals enter public sewer but not for locating the actual lateral.

Private sewer laterals can be located through more indirect means as well. These are occasions where the primary goal of the project is not sewer lateral location, but sewer laterals happen to be located in the process. The WERF report, *Control of Infiltration and Inflow in Private Building Sewer Connections*, listed the following indirect means of locating private sewer laterals, which were results of their survey:

- When mainlines are inspected or repaired, the lateral-to-mainline connections are also recorded.
- When mainlines are relocated, all connecting laterals must also be located and rerouted.
- Prior to any excavating, the agency may choose to locate all existing laterals in the area following the utility location request from contractors, in advance of construction.
- Sale of property may require the locating of laterals. It should be noted that that this may be controversial and may not be practical in all communities (WERF, 2-11).

Section 3 of the WERF report has a very detailed explanation of the alternative lateral location processes.

Whether using direct or indirect methods of locating private sewer laterals, it is critical to establish an accurate and accessible means of information storage, such as GIS, so that the information is not lost and can be used by others in the future.

**2.05 QUANTIFICATION OF PRIVATE I/I**

Methods of quantifying the amount of I/I in a collection system varies from municipality to municipality as does the definition of I/I, which makes it difficult to compare I/I quantities and reductions from one municipality to another. The difficulty in quantifying I/I consistently is that methods to specify base flow and I/I differs from one system to the next. Additionally, it is difficult to measure results after improvements have been made because quantification of I/I relies on storm flow, which is an uncontrolled variable. Results vary greatly between programs as was discovered in the research performed by Strand Associates for its report, *Inflow and Infiltration from Private Property*, for Sanitation District No. 1 (SD1) of Northern Kentucky.

The research performed by Strand Associates for the SD1 report indicated that despite the significant amount of time and money spent on implementing private source removal programs, there was limited monitoring data available regarding benefits achieved. Table 2.05-1 is a summary of measured I/I reductions achieved by five different municipalities with private source removal programs that were included in the research.

Community	Percentage of I/I Reduction
Prichard, Alabama	33%
Johnson County, Kansas	41.7% - 71.1%
Oak Creek, Wisconsin-5-year Rainfall Dependent I/I	48%
Duluth, Minnesota- 5-year Rainfall Dependent I/I	49%
Salem, Oregon- 5-year Rainfall Dependent I/I	57%
East Bay, California	86%

**Table 2.05-1 Measured I/I Reduction**

"A study for the EPA, in 1981, noted that many sewer rehabilitation programs eliminated approximately 0 to 30 percent of I/I, despite engineer predictions of 60 to 90 percent I/I removal." As mentioned above, most cities do not have actual monitored data that shows the reduction in I/I after rehabilitation of the system.

Other communities have seen a positive change in their system because of I/I removal programs. As of December 1996, with part of the private program complete, four subbasins in Lower Paxton, Pennsylvania, showed significant flow reductions (1996 had the most recorded rainfall for Pennsylvania in ten years). Lynchburg, Virginia, found that eliminating 75 percent of roof leaders eliminated 20 percent of the system overflows. As of July 2002, 725 homeowners in Duluth, Minnesota, had participated in the voluntary disconnection/redirection of foundation drains, which reduced the number of SSOs at the pump station from an average of 7.4 to 1.2 per year, an 83 percent reduction. In Rockford, Illinois, postrehabilitation flow monitoring was done in 2000. Analysis showed that the public/private sector program reduced wet weather inflow in excess of 65 percent (public inflow sources accounted for 25 percent of total system inflow).

Section 4 of the WERF report contains an in-depth discussion of various methods and examples of quantifying I/I and reduction of I/I because of system improvements in collection systems and specifically in private sewer connections. The reader should refer to this report for case studies of other utilities' methods of quantification. The section begins with a discussion of the various types of I/I and how different municipalities define I/I. The chapter then goes through a discussion of quantifying overall I/I in collection systems, including methods of developing hydrographs, and of quantifying I/I specifically from laterals. The lateral portion contains a number of quantitative and qualitative methods of gathering information from laterals. Lastly, the effectiveness of lateral rehabilitation in I/I reduction is evaluated. From this chapter, it is clear that quantifying I/I and I/I reduction is a challenging task and there is no clear-cut alternative to get reliable results; however, quantification is an essential element of any I/I project.

Quantification of I/I reduction can become important when a municipality needs to evaluate the effectiveness of an I/I program. Being able to defend the purpose of expenditures with real results is an effective method of generating support. The overarching theme when comparing I/I from one location to another is that definition, measurement means, and analysis vary greatly and can lead to misunderstood results.

**2.06 INSPECTING PRIVATE SEWER LATERALS**

There are a variety of methods available for lateral inspections that range from straightforward and simplistic to technically complicated. Table 2.06-1, taken from the WERF report, is a summary and description of the available methods.

Method	Description	Notes
Building inspections	Identifies uncapped cleanouts and various connections to the laterals through visual inspection.	Often coordinated with property transfers.
Smoke testing	Identifies various connections and defective service laterals.	3600 ft per day at \$0.15 to \$0.61 per ft
Dye water flooding	Identifies defective laterals, through exfiltration testing, and various connections to the sewer lateral.	
Mainline CCTV	Identifies "suspect" laterals and may be able to inspect first few feet of the lateral.	Could be used to eliminate laterals that are in good condition from inspection
Lateral CCTV	Identifies location and size of active leaks and some nonflowing leaks (water stains). Also identifies change in pipe material/diameter along the lateral, sags, and bends.	20 to 30 laterals per day at \$200 to \$400 per lateral
Pressure testing	Identifies existence of both actively flowing and nonflowing leaks.	\$75 per lateral
Electro scanning	Identifies existence of both actively flowing and nonflowing leaks in nonconductive pipes.	10 to 15 laterals per day at \$200 per lateral

**Table 2.06-1 Methods for Inspection of Sewer Laterals (Adapted from WERF, Table 3-30)**

CCTV inspection of laterals and electro scanning are some of the newer technologies. There are two types of camera systems used for lateral inspections. The first is a push-type system that is inserted into the system at a cleanout outside of the house or in the basement and manually pushed through the lateral line. The typical push-type system has a cable length between 100 and 200 feet but can be extended up to 500 feet. The other type of camera system is a lateral camera that is "launched" into the lateral from a mainline camera and can usually inspect up to 100 feet of the lateral. Most systems can handle slight elevation changes and pipe bends; however, main line lateral cameras have limits to the extent of a bend. It is recommended that pipes should be cleaned before using a lateral CCTV; keep in mind, this is a cumbersome and time consuming process and may not always be practical. Data from these analyses can be automatically recorded and reported with specialized software. Electro scanning using the Focused Electrode Leak Location (FELL) technique measures the electrical current flow between a probe in the pipe and a surface electrode. The current spikes when the probe passes defects in the lateral because of the increased conductivity at these locations. This technique is only applicable for nonconductive piping systems.

---

### SECTION 3 REPAIR IMPLEMENTATION

Once faulty private laterals are identified and selected for repair, municipalities must organize a plan to hire and pay contractors or coordinate the work internally. There are a few alternative approaches discussed in this section.

### 3.01 REPAIR SERVICES

There are questions that arise when beginning a lateral repair program:

- Who will perform lateral repairs?
- How will they be hired?
- How will they be paid?

Municipalities have used internal staff, preselected contractors, or user-selected contractors to repair laterals. When the workload has a short duration and a high intensity, oftentimes it is more cost-effective for municipalities to hire outside contractors (whether preselected or not). If the municipality desires to create a long-term program that methodically works through the system, the utilization of internal staff may be more cost-effective. When individual users are required to select their own contractor, the municipality is forced into a precarious position. On one hand, the municipality is typically well-qualified and could assist users in selecting qualified contractors. On the other hand, some users want the freedom to use the contractor of their liking, particularly when they are paying for the services. Johnson County Wastewater (Kansas) has achieved a local balance by providing users with a list of contractors that are qualified but does not require users to use these contractors (WEF, Private).

Contractor hiring can be performed by the municipality or by the user. Contractors can prepare their quotations as a price reflecting the specific scope of work, or the municipality can set up a schedule of values that identifies a specific dollar amount for each type of repair. Some municipalities require that contracts be reviewed by them prior to beginning the work. This is common for municipalities that reimburse homeowners for the repair.

Payment methods differ greatly between municipalities who fund a portion of repair costs. They range from municipalities contracting directly with contractors to users paying the contractors directly and being reimbursed by the municipality. The payment methods should be tailored to fit with the program selected by the municipality.

### 3.02 REPAIR METHODS

Repair methods for sewer laterals are similar to those for sewer mains as discussed in the Strand report, *Sanitary Sewer and Manhole Rehabilitation*. Section 4 discusses the following lateral repair methods:

- Replacement
- Lining
- Grouting
- Coating

Removal methods for both inflow and infiltration sources are discussed in this report section. Additionally, Section 5 of the WERF report discusses lateral rehabilitation and repair methods. These two sources provide ample information about technologies, applications, and vendors.

---

## SECTION 4 LEGAL ISSUES

Municipalities must consider the legal implications of implementing a private property I/I control program. While an engineering report cannot provide legal opinions, a review of the literature reveals some of the issues that other municipalities have encountered.<sup>1</sup>

#### 4.01 LEGAL PERSPECTIVE

The process of inspecting and repairing private property sewer laterals brings up many legal issues concerning financing, access, and liability. Homeowners often do not understand the delineation between the publicly owned and privately owned portions of the sewer system. Additionally, it is difficult for homeowners to understand the potential impacts of defective laterals on the public sewer system.

In an effort to avoid disputes with private property owners over ownership and financial responsibility for the private sewer lateral, ordinances should be carefully written. These documents should include a clear delineation between the public and private systems including a description of the homeowner's responsibilities as they relate to the private lateral line. Municipalities must take care to create a solid legal foundation through well-written ordinances and clear correspondence with customers for a program to be successful.

Two recent publications provide valuable information on Wisconsin legislation and case law and how it pertains to managing I/I from sewer laterals. (Michael H. Simpson of Reinhart Boerner Van Dueren S.C. made a presentation titled *Legal Issues Involved in Implementing a Private Property Infiltration and Inflow Control Program* at a Preconference Workshop for the Water Environment Federation's Collection Systems 2004 and published *It Can Be Done* in the July 2005 edition of *Water Environment & Technology*.) Much of the information contained in these documents is summarized in this section along with information from other sources.

#### 4.02 LEGAL CONCERNS

##### 1. Financing

Many states outlaw spending public monies for private gain through their public purpose doctrines. While spending public monies on private sewer laterals may be interpreted as private gain, precedents outside the utilities sector suggest that courts could uphold this practice as legal because improvements to private sewer laterals contribute to the overall public good by reducing SSOs or CSOs and improving public health. For example, the Wisconsin Supreme Court allowed public monies to be given to the Marquette School of Medicine to avoid a doctor shortage in the state because the funding was intended for the public good in their ruling in *State ex rel. Warren v. Reuter*. Considering this decision combined with the fact that the court stated that "it is beyond question that sewerage services promote the public health and well being" in their ruling in *Brookfield v. Milwaukee Metropolitan Sewerage District*, it appears that the Wisconsin courts may support spending public monies on private sewerage systems. However, the Wisconsin courts

<sup>1</sup> Before implementing any I/I control program, municipalities are advised to consult their attorneys regarding specific legal advice on the issues discussed in this section.

have not had a ruling to date specifically addressing funding for private property I/I reduction programs.

Despite this absence of case law, some cities in Wisconsin use public monies for private property I/I reduction programs. For example, Mequon, Wisconsin, has a lateral replacement program that covers the first \$1,000 of the costs associated with lateral replacement. Costs over \$1,000 or relating to nonlateral replacement items including landscaping are covered by the homeowner. At this time, examples of this in Wisconsin are limited because of the small number of communities addressing private property I/I. Cities throughout the United States have used a variety of financing strategies, which are discussed in detail in Section 5.

##### 2. Inspection

Gaining access to private property for inspection is another hurdle that must be crossed. Often, owners are willing to grant municipal employees access if the need for the inspection is explained. However, some homeowners may refuse access. In Washington County, Oregon, gaining access to private property was a primary hindrance in developing their comprehensive service connection rehabilitation program. When the authority changed from a 50 percent cost-sharing program to a 100 percent funded program, the participation rate jumped to 95 percent (WEF, 14).

The Fourth Amendment of the United States Constitution is the primary legislation that protects private property owners' search and seizure rights. Inspections must be conducted within the limitations set forth in the Fourth Amendment.

*Camara v. Municipal Court* is the leading case that defines a municipality's rights to inspect private property. In this case, the court upheld the requirement for a warrant prior to a property search, but it allows searches based on passage of time, nature of building, or the condition of the entire area; that is, evidence of specific code violation is not required. Examples of appropriate reasons for a search under each provision are included below.

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.  
—Fourth Amendment, United States Constitution

- Passage of Time—Properties can be searched at a set frequency. For example, a municipality can require that properties be inspected every five years.
- Nature of Building—Municipalities can require inspections of all structures with certain features, i.e., sewer laterals in the back of the house or homes of a specified age.
- Condition of the Entire Area—Municipalities can require inspections of areas with higher I/I than surrounding areas, i.e., all homes contributing to a specified sewer main.

Specific laws governing access to private property vary greatly from state to state. In Wisconsin, access can be granted by warrant if initial inspection is refused based on Wisconsin Statute 66, which reads:

A peace officer may obtain a special inspection warrant for inspection of private properties only upon showing that consent to entry for inspection purposes was refused.

—Wisconsin Statute §66.0119(2)

Although obtaining warrants for access is not the preferred entry method, the ability to enter with a warrant ensures that all properties can be included in private property I/I reduction programs in Wisconsin.

### 3. Liability

The added responsibility of inspecting, repairing, and maintaining private sewer laterals is seen as burdensome by some municipalities. Because sewer laterals may represent as much as 50 percent (by lineal feet) of a city's entire collection system, there is a significant increase in workload when private laterals are added to the municipality's responsibilities. However, some municipalities see worthwhile benefits through reduced plant flow, reduced basement backups, and improvements to public health when private laterals are maintained by the municipality. Some municipalities take on sewer laterals in a stewardship role because they recognize the problem needs to be addressed and they are best suited to facilitate a program. These are a few of the reasons there is such a broad range of programs.

If a municipality decides to take on the responsibility of inspecting, modifying, or maintaining private sewer laterals using its staff or contractors, the municipality may be increasing its liability. A few examples contributing to increased liability follow:

- Presence of municipal staff on private property when normally they would not be there.
- The possibility of workmanship-related problems in the future.
- The potential for the municipality's equipment to cause damages to the property.
- The possibility that lack of continued maintenance on modified laterals will lead to future problems, meaning that once the municipality begins lateral maintenance, they may be responsible for it going into the future.

Municipalities need to carefully consider the potential increase in liability when planning a private sewer lateral program and may want to evaluate the need to adjust applicable insurance policies.

Municipalities may be liable for negligent acts by their employees on private property. Examples of negligence include improperly completing a repair or omitting a critical work element. In Wisconsin, municipalities are liable for negligent acts if the act is ministerial. If the act is discretionary, the municipality is not liable for negligence. Acts are categorized as ministerial

...when [the act or duty] is absolute, certain, and imperative, involving merely the performance of a specific task when the law imposes, prescribes, and defines the time, mode, and occasion for its performance with such certainty that nothing remains for judgment or discretion...

—*Lister v. Board of Regents*

In its 2000 ruling in *Willow Creek Ranch LLC v. Town of Shelby*, the court conceded that it is difficult to eliminate every ounce of judgment or discretion from an act and the distinction between discretionary and ministerial is artificial. However, case law supports the distinction that plans and designs for collection systems are discretionary acts (*Allstate Ins. Co. v. Metropolitan Sewerage Commission*) and operations and maintenance of sewer systems are ministerial acts (*Mennick v. City of Menasha*).

*Griffin v. Poetzi* is a case that specifically relates to a municipality's liability when a negligent code-compliance inspection by an independent contractor results in damages. In this case, the Wisconsin Court of Appeals ruled that a municipality was not liable for related damages when an independent contractor was hired to perform code-compliance inspections. If the contractor was truly independent, the contractor was liable for damages. However, contractors who are provided with precise specifications, review the specifications, and warn the municipalities of any shortcomings of the specifications that they are aware of are entitled to the same immunity as the municipality.

Some recommendations from Simpson's article *It Can Be Done* for municipalities to minimize their liability when hiring independent contractors to perform inspections and investigations include:

- Requiring contractors to carry insurance to cover potential related claims.
- Writing contracts to protect the municipality from damages caused by contractors.
- Obtaining insurance to cover potential damages in case a court rules the inspectors did not qualify as independent contractors.
- Making sure property owners agree to waive claims against the municipality and instead pursue the contractor for compensation from negligence-related damages.

### 4. Summary

Legal issues may arise when it comes to the point where municipalities must enforce the I/I reduction program. No matter how successful a program is, there is always the possibility that homeowners will refuse to comply. In this case, municipalities need to have legal means to enforce the requirements of the program whether they are financial or legal, i.e., fines or jail time. If the need should arise, following through on the enforcement of penalties is important. For example, McMinnville, Oregon, has chosen to charge customers who do not complete their prescribed repairs within the 90-day grace period a penalty of \$50 per month until the repairs are completed, and as an added incentive, customers get a 10 percent rebate if they complete repairs within the 90-day grace period.

#### 4.03 LEGAL CONCLUSIONS

Municipalities that have well-thought-out plans developed with their legal counsel and insurance agent, an effective public awareness program, and an organized execution of the plans are more likely to have successful programs. I/I reduction program plans should consider how to finance a program, how to present the program to the public, how inspectors and contractors will gain access to private property, how much liability the municipality is willing to accept, and who performs the rehabilitation. Prior to implementing a program, municipalities should consult their attorney to make sure that they are within legal boundaries and that they are not taking on more liability than intended. Contracts and financial arrangements with customers should also be developed with the assistance of an attorney.

Public acceptance of the program is critical for program success. Homeowners have been more amenable to programs where line failures are clearly presented through CCTV tapes or other investigative evidence and the need for the repair is explained well. Also, the simpler it is for a homeowner to comply, such as using preselected contractors, the more likely they are to participate in the program.

There are many legal aspects that should be considered during the planning phase of any I/I reduction program. Taking the time to do this early in a project will protect both the municipality and the customers and will lead to a more successful project.

#### 4.04 ORDINANCES

Sewer ordinances originated as a result of Clean Water Act grants that required recipients to implement an EPA-approvable sewer use ordinance. These ordinances include required elimination of illegal inflow connections. As part of this process, many municipalities adopted one of the regional or national plumbing codes, such as the Uniform Plumbing Code (UPC), as a basis for the sewer use ordinance; but these codes do not include provisions for the enforcement, assessment of fines and penalties, and administrative processes associated with compliance. Municipalities should incorporate these elements into their sewer ordinances (WEF, *Control*, 50). Michael Simpson lists eight components of a model ordinance in his WE&T article *It Can Be Done*. These components are shown in the text box on this page and are clearly described in Simpson's article.

**Components of a Model Ordinance  
(WE&T, *It Can Be Done*)**

- Rationale/justification for the program.
- Legislative authority and severability.
- Scope and application of the ordinance.
- Prohibited acts and connections.
- Responsibility for compliance.
- Rights of the municipality.
- Available financial assistance and procedures for obtaining financing.
- Appeal rights.

How a municipality elects to finance the private I/I reduction program can have major impacts on the final outcome. The physical, political, and economic features of the area should be given careful consideration when choosing a financing plan. However, there is no formula to dictate what works and what does not.

**5.01 FINANCING ALTERNATIVES**

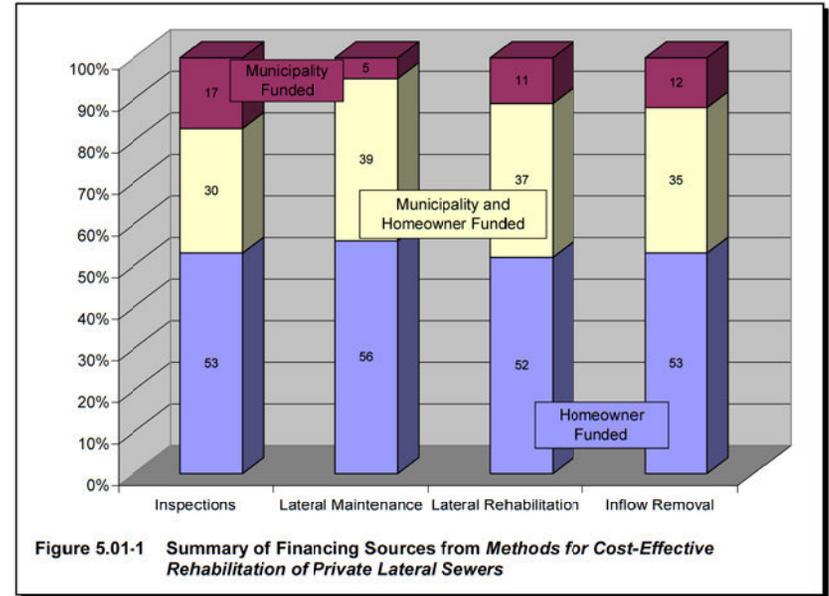
Funding of private source I/I reduction programs can be grouped into four main categories:

- Fully Funded by Municipality
- Fully Funded by Homeowners
- Shared Funding
- Insurance/Warranty Programs (typically only used to address rehabilitation of private laterals).

Table 5.01-1 and Figure 5.01-1 summarize the financing methods used by the 58 public works agencies surveyed in WERF’s publication *Methods for Cost-Effective Rehabilitation of Private Lateral Sewers*. The majority of agencies (52 to 56 percent) represented in this report require the homeowners to assume the financial responsibility for inspections, lateral maintenance, lateral rehabilitation, and inflow removal. In approximately one-third (30 to 39 percent) of the programs surveyed, the agencies share in these costs, while only a small percentage of agencies (5 to 17 percent) fully fund these activities.

Additionally, Strand Associates reviewed the private property I/I reduction programs of 68 communities as part of an August 2006 report titled *Inflow and Infiltration from Private Property*. Of these communities, 59 provided information on program funding for I/I reduction programs. Interestingly, the results differed from those found in the WERF study. The costs were shared between municipality and homeowner in 17 percent of the cases. The municipality paid for 100 percent of the costs in 41 percent of the cases, and the homeowner paid for 100 percent of the costs in 27 percent of the cases. In 15 percent of the cases, the municipality used an insurance program to pay for costs. Please note that these are not direct comparisons, as the interpretation of “homeowner funded” varied between the studies. For example, the WERF report considered insurance programs as homeowner-funded programs where the Strand Associates survey identified them separately.

Municipalities using each of the financing schemes have I/I reduction program success stories. Johnson County, Kansas, which reimbursed homeowners for 100 percent of the removal costs for all identified sources of I/I, has received significant national attention as a very successful private source removal program. On the other hand, communities such as Miami Dade, Florida; Lansing, Michigan; and Winchester, Kentucky, require homeowners to assume all costs associated with rehabilitation/removal of I/I sources and still claim successful programs with high participation rates.



Other communities such as Lower Paxton Township, Pennsylvania; Normal, Illinois; and Washington County, Oregon, met with limited success until they removed all financial responsibility from the homeowner and used public dollars to pay for the rehabilitation. Once the public agency assumed 100 percent of the costs, the program participation rates in these three communities increased dramatically.

Cost share programs have proven successful in a number of communities including Florence, Kentucky, which pays the first \$1,000 for removal of I/I sources, excluding laterals and foundation drains, and assumes 50 percent of additional costs up to \$2,000 (the City’s contribution is capped at \$2,000). Pittsburgh, Kansas, also has implemented a cost share program that splits the rehabilitation costs with the homeowner up to \$3,000 (the City’s contribution is capped at \$1,500). The program addresses all sources, but the City focuses on sump pumps and downspouts.

**5.02 MUNICIPALITY-FUNDED ALTERNATIVES**

When a utility is going to pay for 100 percent of the costs relating to an I/I reduction program, they must identify a funding source. I/I reduction programs are funded by municipalities through a number of revenue sources, including:

- General Obligation Bonds—General obligation bonds allow municipalities to borrow funds up to 5 percent of the value of taxable property located in the municipality.
- Property Taxes—Large sewer districts in Wisconsin can increase funding through increased property taxes. Small sewerage districts may raise property taxes up to one mil for each dollar of equalized value of property in the district.
- Special Assessments—Special assessments may be used to generate funding for projects “in a limited and determinable area.” For example, a special assessment could be used for activities on one street. The special assessment may not exceed the value of the benefits accruing to the property.
- Service Charges—Sewer districts may increase service charges to recover costs for capitol or operating expenses. These could be a flat fee or penalty-type charge.
- User Charges—User fees may be charged to pay for operating costs. Fees must be proportional to other users based on factors like volume, flow rate, or strength of discharge.
- Insurance or Warranty Programs—These programs collect and manage funds from users to pay for private I/I reduction programs. (WEF, *Private Property*)

Forty-two percent of the agencies in the WERF study used public funds. Of these, 49 percent were from user fees, 18 percent were local funds, 8 percent were state funds, 3 percent were revenue from penalties, and 22 percent were from other funding sources (WERF, 6-8).

Johnson County, Kansas, Wastewater Districts (Kansas City, Kansas, area) has one of the most longstanding successful I/I reduction programs in the country. Private improvements accounted for 40 percent of the total I/I reduction achieved in the program, which reduced the overall I/I peak rate during a 10-year storm by approximately 280 mgd. The program focused on removing illegal connections: foundation drains, storm sump pumps or pits, area drains, downspouts, and defective service line cleanouts. Homeowners were reimbursed for direct costs associated with these disconnections/repairs according to payment schedules published by the District. Additionally, the District renegotiated prices with local contractors and provided standard specifications. Homeowners were given the option of soliciting a minimum of two bids from a list of preapproved contractors or let the District arrange repairs. This allowed homeowners to have control of the repairs if they so desired and allowed the District to increase efficiency by having contractors work in clusters. By the second year of the program, the District had a disconnection rate of 4,000 per year. The overall I/I reduction program cost \$47 million with \$30 million dedicated to collection system improvements. The private property program was \$11.2 million, and engineering and administrative expenses totaled \$19.7 million.

In conclusion, some municipalities find that using public dollars is the most effective way to address I/I sources located on private property. The disadvantage of this type of program is that the municipality’s scope of work is much broader. In addition to the added management efforts, the collection system size is greatly expanded. The length of the private laterals can be equal to the

length of the public sewer main in some communities. Municipalities should choose whether this is the best alternative for them only after careful consideration.

### 5.03 HOMEOWNER-FUNDED ALTERNATIVES

Homeowner-funded alternatives include financing programs that put the burden of cost on the homeowner. These programs can be mandatory or voluntary. Homeowners may be responsible for arranging inspections and repairs or they may be assisted by the municipality in some of the arrangements, i.e. preselected contractors or arranged inspections. Some of the more creative homeowner-funded alternatives are warranty or insurance programs. These programs are discussed in Section 5.05.

Some municipalities that have chosen to put the financial obligation completely on the homeowner have seen reasonable success of their programs. Others have had to modify their programs to share costs before seeing any success. Programs that place the financial burden completely on the homeowner seem to rely on monetary and civil consequences for motivation. As previously described, McMinnville, Oregon, requires homeowners to repair laterals if the lateral is identified as a problem. If the lateral is repaired within a 90-day grace period, the homeowner is reimbursed 10 percent of the repair cost up to \$250. If they do not comply within this time period a \$50 per month penalty is charged until the work is completed. If the work is completed within 10 months, the penalty is waived.

### 5.04 SHARED-COST ALTERNATIVES

Costs can be shared between homeowners and municipalities through a number of methods. Municipalities have chosen to:

- Pay for costs up to a certain amount.
  - The Vallejo Sanitation and Flood District (Vallejo, California) reimburses homeowners according to a fixed-cost schedule for the first lateral repair. Subsequent repairs are the homeowner’s responsibility. Cost of the program is recovered from a user fee distributed equally among all users.
  - The City of San Luis Obispo, California, uses their Voluntary Service Lateral Rehabilitation Program to reimburse homeowners for half of the repair costs up to \$1,000. The reimbursement applies to video inspection costs as well.
- Pay for costs above a certain amount.
  - The City of Montgomery, Alabama, offers a financial assistance program that will pay for lower lateral repairs exceeding \$1,200 and, if necessary, repair of the wye connection at the mainline (regardless of other costs). The homeowner is responsible for upper lateral repairs and lower lateral repairs (other than the wye) below this limit.

- Pay for costs associated with a portion of the lateral (lower lateral or laterals under roads or sidewalks).
  - The City of Phoenix, Arizona, pays for repairs from the property line to the main sewer. The homeowner is responsible for costs from the house to the property line. The City has allocated approximately \$200,000 per year since 1996 for this program.
  - The City of Albany, California, requires homeowners to repair the upper portion of their laterals. If lower lateral repairs are necessary, the City will pay for them.
- Split costs with homeowner.
  - Mobile, Alabama, shares costs for lateral replacement with the homeowners. The City will pay for one cleanout, one pre-construction video, and one post-construction video.

There are many alternatives for municipalities to choose from and there is no one-size-fits-all approach that can be recommended. Each of these alternatives has been met with varying degrees of success.

**5.05 INSURANCE/WARRANTY ALTERNATIVES**

Warranty and insurance programs collect and save bill payer’s funds over time and use the saved funds to pay for inspections and repairs as necessary. These programs collect their funds from initial deposits or one-time fees on an individual bill or monthly fees on regular sewer bills. These programs can be voluntary or mandatory. Once these funds are collected from bill payers, they are earmarked for the municipality’s private lateral improvement program.

In these programs, homeowners pay into the warranty or insurance fund, and the funds are used to pay for all or a portion of the repairs. These programs are widely used in the St. Louis, Missouri, area. Seventy of 92 communities in the St. Louis Metropolitan area have Lateral Insurance Programs. Of these 70 programs, 37 assume 100 percent of the repair cost while 33 employ a cost share approach between the insurance fund and the affected resident. Mishawaka, Indiana, added a \$0.50 fee to the sewer utility bill to fund 100 percent of the repair costs over \$250 for all users. Riverton, Wyoming added a \$2.95 fee per month to the sanitary sewer bill to help fund a Sewer Lateral Protection Plan. This lateral program is a voluntary program for all users of the wastewater utility.

By collecting money from users upfront or periodically, utilities with insurance or warranty programs avoid the challenges associated with asking users to pay large sums of money to repair their laterals. These programs also have the potential to earn interest on the insurance or warranty funds.

**5.06 REAL COST OF PRIVATE PROPERTY I/I**

No matter what the implementation plan, private property I/I affects municipalities whether or not they take action. Should a municipality embark on a mission to identify and reduce private property I/I, the municipality or their homeowners will incur additional costs. These costs will be through increased billing, debt on the municipality’s side, or costs directly paid by the homeowners for inspections or

repairs. Should they decide to do nothing, the municipality will incur the increased costs of conveyance, treatment of the I/I flow, and potential fines for sewer overflows. Additionally, the I/I flow could be so significant that it would require a plant expansion earlier than would otherwise be necessary. Table 5.06-1 is a summary of the monetary differences between action and no action plans. The section on Economic Issues in WEF’s *Control of Infiltration and Inflow in Private Building Sewer Connections* contains a thorough discussion of the real cost of private property.

Action	
Expenditures	Savings
Inspections	Reduced Cost of Treating I/I
Lateral Repairs	Potential to Delay Capitol Expenditures
Coordination Costs	Moratorium Relief
Increased Paperwork	Reduced Cleanup Costs for Basement Backups and Flooded Pump Stations
Processing Payments	
No Action	
Expenditures	Savings
Cost of Treating I/I	No Inspections
Potential Capital Improvements	No Repairs
Reduced Plant Capacity Availability	No Increased Paperwork or Funding Management
Cleanup Costs for Basement Backups and Flooded Pump Stations	

**Table 5.06-1 Monetary Differences Between Action and No Action Approaches to Private Property I/I**

TABLE 5.01-1

REPORTED PRIVATE LATERAL FUNDING OPTIONS (Adapted from WERF’s Table 6-2)

No.	Option	Description
1	No funding	Homeowner responsible for maintenance and repair of entire lateral.
2	Lower lateral funding only	Financial assistance provided for lower lateral repairs downstream of the property line and wye connections. Homeowner responsible for upper lateral and part of lower lateral repair up to a maximum cost.
3	Funding for testing only	Agency provides funding for testing of lateral and homeowner is responsible for lateral repair.
4	Voluntary test and repair	Homeowners of a single-family home can volunteer to have their lateral tested and receive a specified funding level for any repair costs and inspection costs.
5	Mandatory test and repair upon sale of home	Prior to sale of home, mandatory testing and any needed repairs are all paid for by the homeowner. A Certificate of Compliance can be issued after repairs that is effective for a specific length of time.
6	First time funding only	City funds the first time that a lateral is repaired with the homeowner responsible thereafter.
7	Deductible funding	Agency provides funding for repairs beyond a set maximum cost and, in some cases, all street, curb, and sidewalk repairs.
8	Insurance funding	Agency makes available insurance to homeowners that covers all or part of the construction cost for lateral repair. These programs can be voluntary or mandatory.
9	Zero interest loan with deferred payback funding	Agency funds lateral repairs through a zero interest loan, which is paid back at the time of house sale.
10	Funding limit by defect	Agency provides full or partial funding for removal or repair of private section, I/I sources, and defects based on type of defect.
11	Full funding	All O&M responsibility is held by the Agency.
12	Warranty	Homeowner purchases an annual warranty and thereby transfers responsibility for all O&M to the Agency. These programs can be voluntary or mandatory.
13	Split funding	Dual responsibility where Agency conducts all O&M activities and shares the costs equally between the Agency and the homeowner.
14	No funding/Agency acts as agent	Homeowner pays but the Agency acts as the agent for the homeowner in coordination of services and hiring of contractors. Responsibility for O&M and all costs are held by the homeowner.
15	Hardship cases	Hardship cases where the Agency provides support on a case-by-case basis only. O&M responsibility is held by the homeowner.
16	Agency inspection/Mandated repair	Agency assesses lateral condition through inspection or I/I study and identifies lateral defects. Agency instructs the

No.	Option	Description
		homeowner to make appropriate changes with consideration for penalties. O&M responsibility held by the homeowner.
17	Agency inspection/Incentive rebate	Agency inspects laterals as part of sewer reconstruction contracts. Homeowner is advised of defects and fined a set fine per month if the repairs are not completed within a specified time. Homeowners that comply within specified time can participate in an incentive rebate program. O&M responsibility is held by the homeowner.
18	Homeowner required to inspect and provide annual report	Homeowner is advised of O&M responsibility and mandated to provide a periodic inspection report. Agency has the right to conduct inspections on the homeowner’s behalf and charge costs back to the homeowner. O&M responsibility is held by the homeowner.
19	Joint inspection/Homeowner mandated to repair	Homeowner and the Agency inspect assets and the Agency provides the landowner with a report identifying any necessary repairs. The Agency provides a list of authorized contractors and grants the homeowner a set period (e.g., 30 days) to complete the repairs. Noncompliance results in the Agency completing the work and charging the homeowner. O&M responsibility is held by the homeowner.



## BROWSE

[PPVL Home](#)  
[About the PPVL Utility Database](#)  
[Additional Resources](#)  
[Discussion Board](#)  
[Acknowledgments](#)  
[Feedback](#)

## Additional Resources

## Private Sewer System Ordinances, Policies, and Other Related Information

- [Austin, Texas Private Sewer Lateral Ordinance](#)
- [Stege Sanitary District, California Ordinance No. 1871-1005 Private Sewer Lateral](#)
- [Columbus, Ohio City Code Chapter 1141 Private Sewer Rules](#) – includes requirements for conformity to city design standards and inspection procedures, identifies maintenance responsibilities, indemnification clause for any and all damages or claims for damages that may arise or grow out of the construction of a private sewer system, and provisions for dedication
- [Largo, Florida Ordinance No. 2005-01 Article IV, Privately-Owned Collection and Transmission Systems](#) – includes requirements for design, performance, permitting, reporting, operation, maintenance, repair and rehabilitative procedures required by all privately-owned collection and transmission systems discharging to the City of Largo's sanitary sewer system
- [Pueblo, Colorado Sanitary Sewer Design Criteria and Policies](#) - includes design criteria and O&M responsibilities for private sewers and private pump stations
- [Rock River Water Reclamation District, Illinois Title 4 Ordinance](#) – includes requirements for private sewer systems
- [Truckee Sanitary District, California Code Ordinance 1-2002](#) – includes requirements for private sanitary sewer facilities maintenance and testing
- [Sample Private Collection System Due Diligence Checklist](#) – Technical Aspects
- [Sample Private Collection System Due Diligence Checklist](#) – Financial Issues
- [Salem, Oregon Chapter 73](#)
- [Downer's Grove, Illinois Ordinance Regulating the Use of Sanitary Sewers](#)

## Rates, Fees, Charges

- [Rock River Water Reclamation District, IL](#) – Includes fees for internal television inspection and private building lift station inspection charges.
- [Cobb County Water System, Georgia](#) - Rates, Charges and Fees

## Point of Sale Programs

- [Rock River Water Reclamation District, Illinois Service Rules](#) – Section 3 requires a certification of compliance with discharge standards prior to property sale, transfer or ownership conveyance.
- [West County Wastewater District, California - Point of Sale Ordinance](#)
- [Wickliffe, Ohio Point of Sale Ordinance](#)

## Funding and Financial Ordinances, Policies, and Other Related Information

- [Canton, Ohio Ordinance 947.21 Revolving Loan Fund for Residential Water Run-Off Loan Program](#) – funding program to assist property owners in redirecting inflow sources to reduce volume of flow to WWTP and eliminate SSOs.
- [Morton, Illinois Municipal Code excerpt](#) – Section 8-10 describes sump pump disconnection grant program.
- [Vallejo Sanitation and Flood Control District, CA Ordinance No. 2006-64A](#) – established wastewater/sewer service charges for the District's Upper Lateral Program
- [Idaho Financial Capacity Review Form](#) – sample form that can be used to assess the financial capacity of a private sewer system prior to acquisition

## Lateral Inspection, Repair/Replacement Ordinances, Policies, and Other Related Information

- [Downer's Grove, Illinois Building Sanitary Service Repair Assistance Program](#)
- [McMinnville, Oregon Municipal Code - Building Sewer Maintenance and Repair](#)
- [North Tahoe Public Utility District, California Ordinance No. 100 Section 2, General Regulations](#) – includes existing lateral cleaning and testing procedures required during remodeling, property usage change, lateral repair or replacement, prior to the sale of house, building or property served, or as determined by District
- [Hillborough, California Municipal Code Chapters 13.32 and 13.36](#) – assigns responsibility for lateral maintenance and repair to property owners and requires inspection at time of property transfer
- [Santa Barbara, California Municipal Code Chapter 14.46](#) – administrative guidelines for the Private Sewer Lateral Inspection Program

## Basement Backup-Related Programs

ATTACHMENT A

- [Downer's Grove, Illinois Reimbursement Program for Sanitary Sewer Backups](#)
- [Downer's Grove, Illinois Cost Reimbursement Program for the Installation of Overhead Sewers and Backflow Prevention Devices](#)
- [Stege, California Ordinance No. 1863-0605 Backflow Prevention](#)
- [Wichita, Kansas Backwater Valve Installation Program](#)
- [Pueblo, Colorado Sanitary Sewer Design Criteria and Policies](#) - includes provisions for sanitary sewer backup responsibilities and compensation program

#### II Remediation Programs

- [Canton, Ohio Ordinance 947.23 Downspout Disconnection Program](#)
- [Downer's Grove, Illinois Private Property Infiltration and Inflow Removal Program](#)
- [Johnson County, Kansas Resolution No. WD 85-96 Reduction of the Number of Private Sector Infiltration and Inflow Sources](#)
- [Johnson County, Kansas Resolution No. WD 92-22 Code of Regulations for Private Infiltration & Inflow](#)
- [Johnson County Code Regulations for Private Infiltration and Inflow - 1992 Edition](#)
- [Johnson County, Kansas Resolution No. WD 93-41 Code of Regulations for Private Infiltration and Inflow](#)

#### State Laws

- [Kentucky KSR 220 - Spending public funds on private property](#)
- [Missouri Revised Statutes Chapter 249 - Sewer Districts in Certain Counties; lateral sewer service line repair fees and sewer line repair fee addition to tax bills](#)
- [Tennessee: Amendment to Senate Bill regarding Private Property Sewer Line Replacement Regulations](#)
- [California Statewide General Waste Discharge Requirements for Sanitary Sewer Systems](#) - includes requirements for reporting private lateral sewer discharges (PLSD)
- [Tennessee: Attorney General Opinion No. 08-142](#) - questions and opinions regarding the authority of a governmental entity to replace/repair sewer lines on private property

#### Private Property-Related Reports

- [Sanitation District No. 1, Northern Kentucky](#)
- [City of Fond du Lac, Wisconsin](#)
- [Municipal Authority of the Township of South Fayette, Pennsylvania](#)

#### Easement Issues

- [Pressure Sewer System Easement \(Buckeye Lake Sewer Easement - pressure system\)](#)
- [Stege, California Ordinance No. 1793-0602 Encroachments](#)

#### Other Useful Information

- [Sewer Safe Trees](#)
- [Rock River Water Reclamation District, Illinois Sewer Service Lateral Line Specification](#)
- [Prichard, Alabama Sanitary Sewer Lateral Rehabilitation/Replacement Right-of-Entry Permit](#)
- [The Homeowner's Guide to Flood Prevention, How to Identify Problems & Maintain Your Home's Drainage Systems](#)
- [Edmonton, Alberta Sump Pump Maintenance and Replacement Guide](#)
- [Sample Standard Operating Procedures for Reporting SSOs in California](#)

#### WEF Collection Systems Committee Efforts

##### Collection Systems Specialty Conferences

May 13, 2007 Workshop:  
Dealing with Private Property Programs – What Has Worked So Far

- [2007 Workshop Notes](#)
- [2007 Workshop Collaborative exercise summary](#)
- [2007 Workshop Central Contra Costa, California presentation](#)
- [2007 Workshop Auburn Hills, Michigan presentation](#)
- [2007 Workshop Montgomery, Alabama presentation](#)
- [2007 Workshop Lansing and Port Huron, Michigan presentation](#)

August 8, 2004 Workshop:  
Private Property I/I Control... the Rest of the I/I Story

- [Workshop Notes](#)

##### Webcasts

August 24, 2005 Webcast:

##### Dealing with Private Property Programs – What Really Happens

- [Webcast transcript](#)
- [Webcast presentation](#)

December 12, 2007 Webcast:  
Another Look at Private Property Issues – Sharing Information Across the Country

- [Webcast presentation](#)
- [Webcast recording available for purchase through WEF](#)

##### Public Education Pieces

- [Fat-Free Sewers: How to Prevent Fats, Oils, and Greases from Damaging Your Home and the Environment](#)
- [Smoke, Dye, & TV: Ways & Reasons to Fix Sewer Defects Private Property](#)
- [Stop Sewer Backups: How to Safeguard Your Home and the Environment by Disconnecting Downspouts](#)

##### Other Publications

- [Control of Infiltration and Inflow in Private Building Sewer Connections, 1999](#)
- [Building Sewer Installation and Inspection, 1999 \(video and guidebook\)](#)

[About WEF](#) [Privacy](#) [Help](#) [Advertise with WEF](#) [Customer Support](#) [Copyright](#) [Site Map](#) [Facebook](#) [Pressroom](#) [Job Bank](#) [Shop WEF](#) [WEFTEC](#)

**ORDINANCE NO. 20070125-007**

**AN ORDINANCE AMENDING TITLE 15 OF THE CITY CODE TO ADD CHAPTER 15-11 RELATING TO PRIVATE SEWER LATERAL LINES; CREATING AN OFFENSE; AND REPEALING ARTICLE 10 OF CHAPTER 15-10 OF THE CITY CODE RELATING TO WASTEWATER LEAKS.**

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:**

**PART 1. FINDINGS.**

(A) The Council finds that:

- (1) defective private lateral sewer lines have resulted in the discharge of sewage onto public and private property creating a public health and safety hazard;
- (2) defective private lateral sewer lines result in significant water inflow and infiltration into the City's sanitary sewer system contributing to sewage overflows and cause the City to incur substantial cost each year for additional wastewater treatment; and
- (3) the United States Environmental Protection Agency issued an administrative order requiring the City to take measures to prevent sewage overflows from the City's sanitary sewer system.

(B) The Council finds that it is in the public health, welfare and interest to:

- (1) test and inspect private lateral sewer lines;
- (2) require repair of defective private lateral sewer lines; and
- (3) require maintenance of private lateral sewer lines.

**PART 2.** Title 15 of the City Code is amended to add a new Chapter 15-11 to read:

**CHAPTER 15-11. PRIVATE LATERAL SEWER LINES.**

**§ 15-11-1 APPLICABILITY.**

This division applies to property that receives water or wastewater service from the Austin Water Utility.

**§ 15-11-2 DEFINITIONS.**

In this division:

- (1) **DIRECTOR** means the director of the Austin Water Utility.
- (2) **PRIVATE LATERAL** means the segment of the sanitary sewer system located on private property that connects a residence or business to the City's sanitary sewer system.

**§ 15-11-3 OWNER MAINTENANCE REQUIRED.**

The owner of property containing a private lateral shall maintain the private lateral. Maintenance under this section includes:

- (1) clearing obstructions from the private lateral;
- (2) repairing a defect in the private lateral that allows the introduction of extraneous flow or debris into the sanitary sewer system;
- (3) repairing a defect in the private lateral that allows the discharge of sewage on the property; and
- (4) keeping a manhole cover in place or a clean out cap tight and in place.

**§ 15-11-4 TESTING AND NOTICE OF DEFECTIVE PRIVATE LATERAL.**

- (A) The city manager may periodically perform special tests to confirm the integrity of the sanitary sewer system, including smoke testing, dyed water testing, air testing, hydraulic testing, closed circuit television inspection, and other testing and inspection techniques approved by the city manager.
- (B) The city manager may enter private property to inspect or test a private lateral.
- (C) The city manager shall give the property owner not less than 24 hours written notice before city personnel enter private property to conduct an inspection or test, unless:
  - (1) city personnel are conducting an investigation of a complaint or responding to a customer request to test or inspect a private lateral; or
  - (2) sewage is exposed on the property in a manner that creates a potential public health hazard.
- (D) The city manager may identify defects in a private lateral that allow extraneous flow or debris to enter the private lateral or the discharge of sewage on the

property, or a condition that may interfere with the proper operation of the private lateral.

- (E) A defect under this section may include:
- (1) evidence of pipe or joint deterioration;
  - (2) root intrusion into a pipe that separates a pipe joint or enlarges an existing crack;
  - (3) a misaligned pipe segment, sag, or lack of positive gradient;
  - (4) a lack of a necessary cleanout cap or manhole cover;
  - (5) a downspout, drain, or other connection that allows storm water or other extraneous water to enter the sanitary sewer system; or
  - (6) a flaw that allows the discharge of sewage on the property or the introduction of extraneous water into the sanitary sewer system.

(F) Except as provided in Section 15-11-5(B) (*Repair or Replacement Required; Standards*), if the city manager identifies a defective private lateral or a condition that interferes with the proper operation of the private lateral, the city manager shall send the property owner written notice of the defect or condition, including a statement that the private lateral must be replaced or repaired, or the condition corrected, not later than the 120th day after the date of the notice.

**§ 15-11-5 REPAIR OR REPLACEMENT REQUIRED; STANDARDS.**

- (A) A property owner shall repair or replace a defective private lateral from the property line to the building. The property owner shall pay the appropriate fee and obtain a permit from the City before performing the repair or replacement of a defective private lateral.
- (B) If sewage is exposed on the property in a manner that makes it a potential public health hazard, a property owner must:
- (1) stop the discharge of sewage immediately;
  - (2) remediate the site not later than 24 hours after the owner has notice of the exposed sewage; and
  - (3) complete all necessary repairs or replacement of a private lateral immediately, but not later than the 30th day after the owner has notice of the exposed sewage.

- (C) A person who repairs an existing private lateral or installs a new or rehabilitated private lateral shall perform the repair or installation as prescribed by the Water Utility's wastewater service connection standards and the Plumbing Code.

**§ 15-11-6 POST-REPAIR AND POST-REPLACEMENT INSPECTION AND TESTING REQUIREMENTS.**

- (A) After a property owner has repaired or replaced a defective private lateral, the city manager shall:
- (1) inspect the private lateral to determine that it complies with the Water Utility's wastewater service connection standards and the Plumbing Code; and
  - (2) test the private lateral in a manner approved by the director.
- (B) If a private lateral fails the post-repair or post-replacement inspection or test, the property owner shall perform additional repairs as required by the city manager to correct the defect.

**§ 15-11-7 FINANCING PROGRAM; APPLICATION.**

- (A) The City may establish a private lateral finance program to assist a property owner in financing the repair or replacement of a defective private lateral.
- (B) A property owner may apply for assistance from the program by filing an application with the director on the form prescribed by the director.
- (C) If a property owner complies with the application requirements, the director may authorize the owner to obtain financing under the program.

**§ 15-11-8 OFFENSE.**

- (A) A property owner commits an offense if the owner fails to repair or replace a defective private lateral in compliance with the Plumbing Code or to correct a condition interfering with the proper operation of a private lateral on or before the date specified by the director in the director's written notice of the defect or as required by Section 15-11-5 (B) (*Repair or Replacement Required; Standards*).
- (B) A property owner commits an offense if the owner fails to stop the discharge of sewage and to remediate the site not later than 24 hours after the owner receives notice from the City of exposed sewage on their property.

(C) Each day or part of a day during which non-compliance occurs constitutes a separate offense.

**§ 15-11-9 CRIMINAL PENALTY.**

A person who violates this chapter commits an offense, punishable under Section 1-1-99 (*Offenses; General Penalty*) by a fine not to exceed \$500.

**§ 15-11-10 CIVIL PENALTY.**

(A) If a person violates this chapter or fails to take action to comply with this chapter, or federal, state, or local regulations, the city attorney may initiate a suit for:

- (1) civil penalties authorized under Texas Local Government Code Section 54.017 (*Civil Penalty*);
- (2) injunctive relief;
- (3) recovery of expenses, loss, or damage to City property or equipment; and
- (4) other available relief.

**§ 15-11-11 CUMULATIVE REMEDIES.**

The remedies authorized under this chapter are cumulative unless specifically prohibited by state or federal regulation.

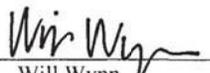
**PART 3.** Chapter 15-10, Article 10 (*Wastewater Leaks*) of the Code is repealed.

**PART 4.** This ordinance takes effect on February 5, 2007.

**PASSED AND APPROVED**

January 25, 2007

§  
§  
§



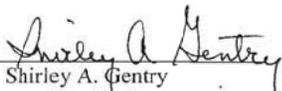
Will Wynn  
Mayor

APPROVED:



David Allan Smith  
City Attorney

ATTEST:



Shirley A. Gentry  
City Clerk

## ORDINANCE NO. 1871-1005

ORDINANCE AMENDING SECTION 4.6 OF THE STEGE SANITARY DISTRICT  
ORDINANCE CODE IN ORDER TO CLARIFY THE RIGHTS AND RESPONSIBILITIES OF  
PROPERTY OWNERS WITH RESPECT TO THE TESTING, CLEANING, REPAIR,  
MAINTENANCE, RENOVATION AND TIMELY REPLACEMENT OF EXISTING  
PRIVATE SEWER LATERALS

The Board of Directors of Stege Sanitary District has determined as follows:

- A. The testing, repair, maintenance, renovation and timely replacement of private lateral sewers connected to District-owned main sewers protects the public health, safety and welfare; and
- B. Pursuant to the Stege Sanitary District Ordinance Code, the testing, repair, maintenance, renovation and timely replacement of such private lateral sewers is the responsibility if the owners of the house, building or property which such lateral sewers serve; and
- C. The District wishes to further clarify the rights and responsibilities of persons conveying and acquiring real property with respect to the testing, cleaning, repair, maintenance, renovation and timely replacement of laterals sewers within District boundaries.

IT IS ORDAINED by the Board of Directors of Stege Sanitary District as follows:

1. Section 4.6 of the Stege Sanitary District Ordinance Code is hereby amended as set forth below, with existing text shown in regular font, new text shown in underlined format and deleted text shown in strike through format:

**4.6.2 Conditions Requiring Cleaning and Testing.** All Laterals, including those serving residential, multiple residential and commercial properties, connected to a District Main Sewer shall be cleaned and tested, at the property owner's expense, when any of the following conditions occur or at the following times:

4.6.2.5 In a non-probate transaction, Prior to the close of escrow upon a sale or other transfer of the house, building or property ~~sewed~~ connected to the District's Wastewater System. A transfer of ownership between family members does not require testing, if there is no reassessment of property value by the County.

4.6.2.6 In a probate proceeding, within 180 days after the sale or conveyance of a house, building or property connected to the District's Wastewater System.

**4.6.6 Repair or Replacement of Lateral upon Sale or Transfer of Property.** The repairs or replacement of Laterals described in Section 4.6.4 that result from the testing required as a result of the sale or transfer of property in a non-probate transaction shall be completed prior to the close of escrow. For properties sold or transferred in a probate

proceeding, any repair or replacement of Laterals resulting from the required testing shall be completed within 180 days after the probate sale or transfer.

**4.6.7 Hardship Deferrals for Lateral Repair or Replacement.** In the event that the repair or replacement of a Sewer Lateral before the close of escrow in a non-probate sale, pursuant to Section 4.6.6 above, would result in undue hardship inconsistent with the purpose or intent of this chapter, a request for hardship status may be submitted to the District General Manager. The District General Manager shall make a hardship finding only if the requesting property owner presents facts that clearly demonstrate, in the District General Manager's sole determination, that the property owner's payment for and completion of a Sewer Lateral repair or replacement at the required time would result in an undue hardship. If hardship status is granted, the property owner who is selling the property (or the property owner who is purchasing the property) shall have up to 180 days after the close of escrow to repair or replace the Sewer Lateral.

4.6.7.1 For purposes of this section, undue hardship shall be defined as (1) the severe illness or incapacitation of the property owner; (2) the immediate transfer or removal of the property owner from the state, thereby making the hiring of a contractor to repair or replace the Sewer Lateral impractical or overly burdensome; or (3) any physical or financial situation that would render compliance with the time limits for the repair or replacement of Sewer Laterals extraordinarily difficult or impractical. The property owner shall bear the burden of submitting documentation and proving the existence of such a bona fide hardship to the satisfaction of the District General Manager.

4.6.7.2 Any property owner to whom a hardship finding is granted shall be given written notice of the finding. Said notice shall inform the property owner that the Sewer Lateral repair or replacement requirement is only deferred up to 180 days after the close of escrow—not waived entirely. A copy of the notice shall be sent to both the property owner who is selling the property and to the purchaser of the property.

4.6.7.3 In the event of a failure to comply with the Sewer Lateral Ordinance within the allotted time, the District may bring an enforcement action and exercise any other remedy provided by the District Ordinance Code and applicable law against the property owner and any other responsible party.

2. Except as amended hereby, all other provisions of Section 4.6 of the Stege Sanitary District Ordinance Code shall remain unchanged and continue in full force and effect.
3. If any portion of this Ordinance is for any reason held invalid by a court of competent jurisdiction, the remainder of the Ordinance, including the application of such part or provision to other persons or circumstances, shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this Ordinance are severable.
4. The Board of the Stege Sanitary District hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause, or phrase hereof irrespective of the

fact that any one or more sections, subdivision, paragraph, sentence, clause, or phrases are held unconstitutional, invalid or unenforceable.

5. This Ordinance is effective upon the expiration of one week from the date of publication of a summary of the Ordinance, as prescribed by California Health and Safety Code Section 6490.

\*\*\*\*\*

STATE OF CALIFORNIA)  
COUNTY OF CONTRA COSTA)

I HEREBY CERTIFY that the foregoing Ordinance was duly and regularly adopted by the Board of Directors of the Stege Sanitary District, at a regular meeting thereof, held on the 20<sup>th</sup> day of October 2005 by the following vote:

AYES:	BOARD MEMBERS:	James, Miller, O'Keefe, Merrill
NOES:	BOARD MEMBERS:	None
ABSENT:	BOARD MEMBERS:	Bruce
ABSTAIN:	BOARD MEMBERS:	None

---

Dwight Merrill, President  
Stege Sanitary District  
Contra Costa County, California

ATTEST:

---

DOUGLAS HUMPHREY, Secretary  
Stege Sanitary District

"NOTICE OF AMENDING SECTION 4.6 OF THE STEGE SANITARY DISTRICT ORDINANCE CODE IN ORDER TO CLARIFY THE RIGHTS AND RESPONSIBILITIES OF PROPERTY OWNERS WITH RESPECT TO THE TESTING, CLEANING, REPAIR, MAINTENANCE, RENOVATION AND TIMELY REPLACEMENT OF EXISTING PRIVATE SEWER LATERALS SANITARY DISTRICT CODE OF ORDINANCES"

Notice is hereby given that on October 20, 2005, the Board of Directors of the Stege Sanitary District voted to adopt an ordinance amending Section 4.6 of the District's Code of Ordinances in order to clarify the rights and responsibilities of property owners with respect to the resting, cleaning, repair, maintenance, renovation and timely replacement of existing private sewer laterals. The ordinance will become effective upon the expiration of one week from the date of this publication. The vote was: AYES: James, Miller, O'Keefe, Merrill; NOES: None; ABSTAIN: None.

## TITLE 4

### SERVICE TO OUTLYING TERRITORIES, PERMITS DISCHARGE STANDARDS, SERVICE CONNECTIONS AND SEWER EXTENSIONS

Repealed and replaced in its entirety on 8/28/2000 by Ordinance 00/01-O-04 effective 8/28/2000; Amended Article III on 3/25/2002 by Ordinance 01/02-O-06 effective 10/1/2002; Amended Articles IV and V on 7/22/2004 by Ordinance 04/05-O-01 effective 8/1/2004; Added Article VII on 12/16/2004 by Ordinance 04/05-O-03 effective 1/1/2005; Amended Articles V and VI on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005; Amended Article IV on 4/11/2005 by Ordinance 04/05-O-06 effective 5/1/2005; Amended Articles IV, V and VI on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended Articles IV and VI on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007; Amended Article VII on 12/20/2007 by Ordinance 07/08-O-01 effective 1/1/2008

#### ARTICLE I. Definitions.

The following definitions shall have the designated meanings within this Title 4:

SECTION 1. "Building Drain" shall mean that part of the sewer service connecting the system of drains within the perimeter of a building as defined in the State Plumbing Code to the private property sewer service.

SECTION 2. "District Sewer", "District Sewers" or "Public Sewer" shall mean any sanitary sewer in the District's Facility Planning Area (FPA) within Winnebago County owned and maintained by the District and includes all manholes, intercepting chambers, pump stations and forcemains, and appurtenances thereof. Sewers under construction by the District shall be considered District sewer upon acceptance of the project by the District Board of Trustees. Sewers under construction by private parties or other governmental agencies shall be considered District sewer upon satisfactory completion and acceptance by the District Engineering Manager in accordance with the provisions of the Dedication Agreement. "Public Sewer" shall also refer to sanitary sewer within the District FPA, but outside Winnebago County, that ultimately discharges into a District sewer and is owned and maintained by a local government agency other than the District.

SECTION 3. "Easement" shall mean a grant by a property owner of a right to the District for access by District personnel or authorized agents to a District sewer in Grantor's property for purposes of construction, maintenance, repair, restoration, replacement or other purposes specified in the easement grant, or access to special service features.

SECTION 4. "Private Property Sewer Service" or "Building Service" shall mean that part of the sewer service which begins at the building drain and ends at the property line, or in the case of sewers in easements, at the public sewer easement line.

SECTION 5. "Served" shall mean that public sewer is available to the subject parcel and has been extended to the upstream boundary of said parcel; should the parcel be located at the crest of a basin, public sewer may not be required to the furthest boundary of the property at the discretion of the District Engineering Manager.

SECTION 6. "Service Connection Point" shall refer to the location where a private property sewer service and a public sewer service come together. This location is usually at the property or public sewer easement line. In the case of new subdivision improvements this point is typically three (3) feet beyond the property or public sewer easement line. The point of connection may be modified with the approval of the District Engineering Manager.

SECTION 7. "Sewage" shall mean the combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such infiltrated ground, surface, and storm waters as may be present.

SECTION 8. "Sewer Cut-In" shall mean a sewer service installation into an existing public sewer at a point where there is no existing service fitting.

SECTION 9. "Special Service Feature" shall mean a service manhole, sampling manhole, monitoring manhole, grease trap, oil separator or sand trap/filter/catchbasin. Special service features are installed on the private property sewer service or may be part of the building drain. Some special service features require access easements.

SECTION 10. "Street Connection" or "Public Sewer Service Extension" shall mean a sewer service installation within a public right-of-way or public easement that extends the service from a fitting or existing service to the property or easement line.

SECTION 11. "Street Sewer Service" or "Public Sewer Service" shall mean that part of the sewer service which begins at the public sewer and ends at the property line or easement line.

#### ARTICLE II. Service to Outlying Territories.

##### SECTION 1. Contracts for Service.

District may, by written contract, allow a user owning property wholly or partially outside the District corporate limit to hook up to and use the District collection system and treatment works. In the event a contract is made pursuant to this Article, the user shall be subject to all terms and provisions of District ordinances and be required to pay all costs, charges, payments in lieu of real estate taxes (PILOT), and expenses paid by users situated within the corporate limits of the District. In cases in which Intergovernmental Agreements are executed between the District and any municipal government to provide services to and acquire an existing sewerage system, with or without the inclusion of the municipality's treatment works, such Intergovernmental Agreement shall constitute the contract specified in this section and the remaining sections of this Article.

##### SECTION 2. Annexation.

If the property sought to be served is contiguous to the District, and within its Facilities Planning Area (FPA) and the County of Winnebago, the property shall be annexed to the District after service is extended to it. If the property sought to be served is contiguous but outside District's

FPA and within the County of Winnebago, the property owner must petition for inclusion in the District's FPA before the property may be annexed or service provided.

**SECTION 3. Requirements for Service.**

If any property of a person desiring to become a user is situated outside the corporate limits of the District and not contiguous thereto so that it may not properly be annexed to the District, District, in its sole discretion, may permit such connection, provided that a contract shall be entered into between District and user which shall provide essentially as follows:

A. User may connect buildings situated only on the fully-described tract set forth in the Agreement, and in accordance with all applicable laws, ordinances and regulations of the District, local, State and Federal governments.

B. The wastes and material discharged shall meet all present and future standards for content and volume, and the user shall further agree to pay all future connection, user, capital and treatment or service charges which are applicable to all property and users uniformly.

C. The user, his successors, and assigns, shall, in addition to costs noted in this Article, annually pay an amount equivalent to District taxes (PILOT) computed as follows:

1. The equalized assessed value of the user's taxable property or any subdivided part or separate tract thereof, as determined by the proper authority of Winnebago or Boone County, Illinois, whichever is appropriate, shall be multiplied by the District's rate of tax upon real estate and personal property situated within its corporate area for said year, when the same is determined.

2. Said amount, when computed by the District, shall be charged to the user, its successors or assigns, and said statement shall be paid within thirty (30) days thereafter. Any amount remaining unpaid after due date shall draw interest at the rate of eighteen per cent (18%) per annum until paid.

3. Such amount, for partial years, shall be prorated from the date of the contract.

D. Each user, in consideration of services provided by the District, shall grant District an irrevocable easement on and upon its property for the purpose of disconnection of any sewer if the user, his successors, or assigns, fail to so disconnect when such is required under the provisions of Section 4 herein.

E. The owner of the property served shall agree to annex to the District when the property becomes contiguous to the District and when such annexation is approved by the Board. The owner shall agree that the contract will constitute a petition for annexation upon the property becoming contiguous to the District, subject only to the Board's discretion in annexing the property.

F. Such agreement shall be recorded in the Office of the Recorder of Deeds of Winnebago County, Illinois, or Boone County, Illinois, whichever is applicable. The recording shall constitute notice to any successors or assigns of the owner of its terms and provisions, and to which any subsequent conveyance or assignment of the owner shall be subject.

**SECTION 4. Disconnection for Non-payment.**

If the user, his successors, or assigns, fails to pay amounts specified in Section 3 above when due, each and every sewer on his property or any subdivided tract thereof, for which payment is not made, shall be disconnected at the owner's expense from any other sewer which ultimately discharges to the District POTW. The user shall construct its sewer system within its property in order to allow disconnection of separate tracts.

**SECTION 5. Remedies.**

A. In addition to the right of disconnection, District shall have a lien upon said property or subdivided portion in the amount of any unpaid charges due therefrom. Upon the filing of notice thereof, said lien shall be deemed perfected, and the same may be charged and redeemed, or foreclosed and the property sold to satisfy the same in accordance with statutes made and provided.

B. District shall have the additional right to file a civil suit to recover:

1. the amount of said lien,
2. the full cost incurred in disconnection,
3. all its reasonable legal expenses and attorney's fees incurred as a result of such suit.

C. District shall not, without its prior written consent and acceptance, have dedicated to it, or own any sewer system installed within the property, and the producer, its successors and assigns, shall maintain the same at its sole cost; provided, however, that this provision shall not be construed to prohibit the dedication of part or all of said sewer system to another unit of government.

**ARTICLE III. Discharge Standards.**

**SECTION 1. Conditions for Discharge to the District System.**

A. Public wastewater collection facilities are required to be used for deposit of human waste, garbage or wastes that do not meet IEPA NPDES standards.

B. Except as provided in Articles II and IV of this Title, no person shall connect or cause to be connected any building or facility on property or any part thereof to any sewer unless the entire property shall first be situated within the corporate limits of the District.

C. It shall be unlawful for any person to deposit or discharge, or to cause to be deposited or discharged, to any wastewater collection facilities, any solid, liquid or gaseous waste unless through a connection approved by the District.

D. Such person as described in Sections 1.B. and 1.C. above shall not avoid connection to such sewer by reason of actual distance from a building or structure to the connection point of such sewer.

E. Property served by District sewer shall at all times have a valid user account as a condition precedent to discharging from such premises to District sewer. Property in violation of this Paragraph shall be subject to sewer disconnection in accordance with show cause procedures as outlined in Title 2, Article II of this Code. Any person or entity discharging to District sewer in violation of this Paragraph shall be subject to the penalties set forth in Title 8 of this Code.

Paragraph E added on 3/25/2002 by Ordinance 01/02-O-06 effective 10/1/2002

#### SECTION 2. Private Sewage Treatment and Disposal.

District shall not operate or maintain a private sewer or disposal system or facility. No provision of this Title shall be construed to provide lesser requirements for such private sewers and disposal systems as are presently or may hereafter be imposed and required by any other local government body, the State and Federal government.

#### SECTION 3. Certification of Compliance with Discharge Standards

Section added on 3/25/2002 by Ordinance 01/02-O-06 effective 10/1/2002

A. Except as otherwise provided in this Section, no person or entity shall sell, transfer or convey ownership of a building serviced by District sewer until such time as a current certification of compliance with Title 2, Article III, Section 1 of this Code has been obtained by the property owner and deposited with the District. Transferring ownership in violation of this Paragraph shall constitute a violation of this Code and shall be subject to the penalties set forth in Title 8 of this Code.

B. Any sale, transfer or conveyance of a building serviced by District sewer which will not result in any new account establishment or transfer shall be exempt from the requirements of this Section.

C. Certification of compliance with Title 2, Article III, Section 1 of this Code shall be evidenced on a form provided by the District. A certification form shall be completed and certified by an Illinois-licensed plumber and shall require at least the following information: (1) the use of the building, (2) the discharge location of any roof or foundation drain or sump

pump, and (3) confirmation of compliance or noncompliance with Title 2, Article III, Section 1 of this Code. No certification of compliance with Title 2, Article III, Section 1 of this Code shall be considered current after one year from the date of certification.

D. In the event a certification of compliance form deposited with the District indicates noncompliance with Title 2, Article III, Section 1 of this Code, the District shall notify the property owner of the noncompliance and shall order the property owner to bring the building into compliance.

1. Orders applicable to buildings where a roof or foundation drain, sump pump, or diverter valve installation is illegal shall have a 30-day compliance period.
2. Orders applicable to buildings where clear water is illegally entering the sanitary sewer system via an under-the-basement floor connection shall have a 60-day compliance period.

The owner of a building found in violation of Title 2, Article III, Section 1 of this Code shall be required, prior to any sale, transfer or conveyance and within the applicable compliance period, to provide the District with a certification of compliance form certifying that any building found in violation of this Code has been brought into compliance. Failure by any person or entity required to comply with this Section shall constitute a violation of this Code and shall be subject to sewer disconnection in accordance with show cause procedures as outlined in Title 7, Article II and to penalties as set forth in Title 8 of this Code.

E. Any present or proposed owner of a building feeling aggrieved by the issuance of a notice of noncompliance may appeal by following the procedure outlined in Title 7, Article II, Section 2 of this Code.

F. In the event a certification of compliance with Title 2, Article III, Section 1 of this Code is required to be deposited on account of any sale, transfer or conveyance of a building serviced by District sewer within one year from a prior property owner filing a certification of compliance with Title 2, Article III, Section 1 of this Code, and the current owner verifies no change or alteration to the premises has occurred since the time of sale, transfer or conveyance which renders the premises out of compliance with Title 2, Article III, Section 1 of this Code, said verification shall satisfy any certification of compliance requirement imposed by this Section or as a condition to an account transfer.

G. In order not to delay or prevent a pending sale of a property affected by this Section, a buyer or other transferee may deposit with the District evidence of a contract or accepted bid for work which, when completed, will bring the property into compliance with the provisions of Title 2, Article III, Section 1 of this Code within any applicable compliance period, along with evidence that adequate funds have been paid or escrowed to complete said work, and a stipulation agreeing to bring the property into compliance with the provisions of Title 2, Article III, Section 1 of this Code within the applicable compliance period. Said evidence and stipulation may only be filed after depositing a certification of compliance form that indicates noncompliance with Title 2, Article III, Section 1 of this Code. No seller

or transferor otherwise subject to the penalties set forth in Title 8 of this Code shall be subject to the same upon compliance with this Paragraph. Failure by the buyer or transferee to bring the property into compliance within the applicable compliance period shall constitute a violation of this Code and shall be subject to sewer disconnection in accordance with show cause procedures as outlined in Title 7, Article II and to the penalties set forth in Title 8 of this Code.

H. A certification of compliance indicates so far as can be reasonably determined by an Illinois-licensed plumber during a limited visual inspection of the premises, only that the premises meets the requirements of Title 2, Article III, Section 1 of this Code. The District assumes no liability in any property inspection or certification of compliance required under this Code. Any person or entity required to provide a certification of compliance with Title 2, Article III, Section 1 of this Code shall bear the full cost and responsibility of selecting an Illinois-licensed plumber to inspect their building and to determine compliance with this Article.

#### ARTICLE IV. Service Extensions and Connections.

Article repealed and replaced in its entirety on 7/22/2004 by Ordinance 04/05-O-01 effective 8/1/2004; Amended Section 4 Paragraph A and Section 5 Paragraph B on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended Section 4 Paragraph A on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

##### SECTION 1. Construction of Sewer Services and Sewer Connections.

No person other than an authorized employee, contractor or agent of the District shall make any connection with, uncover, alter or disturb a District sewer, public sewer service, or sewers maintained by the District, or open any manhole, septic chamber or any appurtenance thereof, or make any connection to or opening into any sewer having flow which directly or indirectly discharges into any District sewer unless in compliance with this Title and other applicable ordinances.

Registration and bonding as a Private Property Plumbing Contractor allows the contractor to perform permitted sewer service connections and service extension work, including special service features such as grease traps, sand filters/catchbasins, oil separators, sampling, monitoring and private service manholes, private pump and lift stations with their associated service forcemains. Private Property Plumbing Contractors may also perform permitted service disconnections associated with building demolition. All work must be on private property and not within public right-of-way or public sanitary sewer easements. A State of Illinois licensed plumber shall be in responsible charge and on the site while the work is being performed.

Registration and bonding as a Public Property Plumbing Contractor allows the contractor to perform permitted street connections and service extension work, including special service features such as private service manholes, and to perform public manhole core-ins and public sewer main service cut-ins. Public Property Plumbing Contractors may also perform permitted service disconnections associated with building demolition. All work must be within public right-of-way and public sanitary sewer easements. A State of Illinois licensed plumber shall be in responsible charge and on the site while the work is being performed.

Registration and bonding as a Sewer Contractor allows the contractor to perform permitted street connections and service extension work, public manhole core-ins and public sewer main cut-ins and install public manholes. Sewer Contractors may also perform permitted service disconnections associated with building demolition. All work must be within public right-of-way and public sanitary sewer easements.

##### SECTION 2. Registration

Any person or firm desiring to perform sanitary sewer service construction or connection to, or disconnection from, public sewer, whether the discharge is direct or indirect, except District employees, or authorized governmental personnel, must be licensed by the State of Illinois as a plumbing contractor with the work performed by a State of Illinois licensed plumber, must register at the District and pay a registration fee, except that Sewer Contractors are not required to be licensed plumbers or plumbing contractors. Registration may be as a Private Property Plumbing Contractor, Public Property Plumbing Contractor or Sewer Contractor or any combination of the three classifications. Each classification requires a separate registration. Registration shall be made upon proper application and payment of fees set by the Board by separate ordinance and shall expire at midnight the following May 31. Registration shall not be valid for a period in excess of one year, and the fee shall not be prorated for periods of less than a year. Application for registration and payment of the applicable fees shall be made with the District on forms provided by the District. Registration with the District shall not authorize construction of sewer service or cut-ins or disconnection, but is a precondition to obtaining permits to do so.

##### SECTION 3. Bonds

Prior to applying for a permit as set forth in Section 4 herein, each applicant must furnish a bond to the District Engineering Manager in an amount established by the Board by separate ordinance on a form provided by the District. Each bond shall be signed by an acceptable bonding company. Such bond shall be conditioned on the performance of said work in conformity with all ordinances and regulations of the District then in force and in such manner as to leave all sewers, appurtenances, landscaping, streets, alleys, sidewalks and pavement undisturbed, in as good state and condition as prior to the doings of said work, and to indemnify and save harmless the District from all loss, damage and expense on account of doing such work and any accidents and damages caused by reason thereof. District may establish different forms and require additional information for different types or location of work. Each classification requires a separate bond. Each bond shall expire at midnight on May 31 of the then current registration period.

##### SECTION 4. Permits and Inspections.

###### A. Permits.

Paragraph A repealed and replaced in its entirety on 4/11/2005 by Ordinance 04/05-O-06 effective 5/1/2005; Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

Prior to performing any sanitary sewer service construction, including but not limited to service connections, laying services and sewer cut-ins or service disconnections, the person or firm desiring to perform the sanitary sewer service construction or disconnection shall, in addition to the requirements of Sections 2 and 3 of this Article:

1. Obtain the necessary permit or permits from District in accordance with District procedures.
2. Pay all applicable service connection permit fees.
3. Pay or obtain payment of all applicable connection fees as established under Title 5.
4. Obtain and present permits from appropriate governmental agencies having jurisdiction of the area in which the work is being performed or which have other requirements for connection, disconnection or construction.
5. Provide an appropriate Industrial/Commercial Questionnaire (I/C) if the construction work involves an industrial user, a commercial user, or a residential user of five (5) or more units within a structure.
6. Obtain the appropriate District or Illinois Environmental Protection Agency Construction and Operating Permit if the expected wastewater flow equals or exceeds 1500 gallons per day average flow.
7. If the construction work involves private sewer and service construction in mobile home parks, or similar facilities, prior approval for construction from the State of Illinois Department of Public Health must be obtained, including obtaining an Illinois Environmental Protection Agency Operating Permit.

Permits shall only be issued for individual lots or parcels of record. Issuance of a single permit for multiple lots of record requires that the lots be legally combined by re-plat into a single lot, with said re-plat meeting the document provisions of the Plat Act. A single tax code identification number is not considered a legal combination of the underlying lots or parcels of record.

Amended on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

**EXCEPTION:** If the existing permanent primary building structure extends across all interior lot or parcel lines of the lots or parcels involved, this requirement shall be waived provided proof of such encumbrance is provided by means of a survey prepared by a licensed surveyor. The existing primary structure must be all or part of the proposed structure that will be connected, reconnected or the subject of a change of use for sanitary sewer service permit purposes, without an expansion of the proposed primary structure encroaching on other lots or parcels not presently encumbered by the existing primary structure. The re-plat shall be required if an expansion of the primary structure encumbers previously unencumbered lots or parcels.

Added on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

Permits shall only be issued to enclosed structures. Structures with open basements or uncovered slabs-on-grade shall not be issued permits.

Permits shall not be issued to any Public or Private Property Plumbing Contractor or Sewer Contractor who has an outstanding balance of any service connection permit charges or who is not properly registered and bonded with the District or whose payment by check is returned for insufficient funds. A Plumbing or Sewer Contractor must pay all current due fees prior to the issuance of any new permits. Receipt of payment of all current due fees made by cash, certified check, cashiers check, money order or credit card will allow for the issuance of new permits without a waiting period. Receipt of payment by check shall have a ten (10) day waiting period for new permit issuance.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

Any registered and bonded Public Property or Private Property Plumbing Contractor or registered and bonded Sewer Contractor who shall neglect, refuse or fail to make good any defect or faults in any of his work done under any permit from the District shall not be permitted to do any further or additional work upon any sewer or appurtenances connecting with or designed to connect with, or directly or indirectly discharge into any District sewer, until such defects or faults have been made good in a manner satisfactory to the District Engineering Manager. Other valid, open permits issued in favor of such Plumbing or Sewer Contractor may be closed out.

Permits issued to a Public or Private Property Plumbing Contractor or Sewer Contractor whose bond or registration expires shall be closed out and no further work shall be allowed until the Plumbing or Sewer Contractor comes into compliance with this Title.

A permit shall be valid for a period of thirty (30) days after issuance, except for permits involving special service features provided the service connection work has commenced and is ongoing. After 30 days of inactivity the permit shall expire and be closed out. All service connection permit fees paid on a closed permit are forfeited.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

## B. Inspections.

Notice must be given to the Engineering Department office prior to beginning work on sanitary sewer service construction or disconnection, and no material shall be used or work covered until inspection and approval has been obtained from the District. District will inspect all construction of public sewer service extensions, special service features and disconnections.

The inspection request, except for a same day request, must be received in the office of the District Engineering Manager prior to 4:15 p.m. on the day prior to the requested inspection. Requests received outside of normal District business hours and on District holidays are considered received at 8:00 a.m. of the next business day. District business hours are 8:00 a.m. to 4:30 p.m., Monday through Friday. Inspections must be scheduled through the District Engineering Department office. A minimum of two (2) hours notice is required for a same day inspection request. Same day inspection requests shall be charged an additional fee as established by the Board of Trustees by separate ordinance.

If by reason of noncompliance with this Title, through the use of defective materials or methods, or if the work is not ready for inspection at the scheduled time, a subsequent inspection becomes necessary, an additional fee shall be charged. The person doing the construction must notify the District Engineering Department office to cancel or reschedule an inspection at least two (2) hours before the originally scheduled inspection to avoid an additional inspection charge. For second and subsequent inspections, a fee shall be paid to the District in an amount to be established by the Board of Trustees by separate ordinance.

Any service connection or disconnection work done prior to the issuance of a service connection permit or after the expiration of a permit shall be considered as a same day inspection when the inspection is performed. The Plumbing or Sewer Contractor must apply for and be issued a valid permit prior to said inspection.

## C. Authority of Inspectors.

The District Engineering Manager and other duly authorized employees of the District bearing proper credentials and identifications shall, within a reasonable time after notice of intent has been given, be permitted to enter upon all properties serviced by the District or which contain District property, for the purposes of inspection, observation, measurement, sampling and testing in accordance with the provisions of this Title.

## SECTION 5. Fees.

### A. Establishment of Fees.

The Board shall establish, by separate ordinance, the various fees to be paid by applicants as set forth herein. At a minimum, the Board shall establish fees for obtaining permits, registering with the District, obtaining same day, initial and subsequent and special service feature inspections, penalties, overtime and holiday inspection rates and establishing the amount of performance bonds to be provided to District.

## B. Payment of Fees.

Paragraph B repealed and replaced in its entirety on 4/11/2005 by Ordinance 04/05-O-06 effective 5/1/2005; Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

Service connection permit fees shall be paid prior to the issuance of a service connection permit. Supplemental service connection permit fees not paid under the original permit shall be billed to the permit holder. Supplemental bills shall be paid within 30 days of issuance or before issuance of a new service connection permit, whichever occurs first. Failure to pay within the 30-day period may result in revocation of registration and other remedies as provided within this Code.

## C. Revocation of Registration.

Any registered and bonded Public Property or Private Property Plumbing Contractor or registered and bonded Sewer Contractor who shall neglect, refuse or fail to make good any defect or faults in any of his work done under any permit from the District may have his registration revoked by the District Director. Except for correction work, the Plumbing or Sewer Contractor shall not be permitted to do any further or additional work upon any sewer or appurtenances connecting with or designed to connect with, or directly or indirectly discharge into any District sewer, until such defects or faults have been made good in a manner satisfactory to the District Engineering Manager. Any and all valid, open permits issued in favor of such Plumbing or Sewer Contractor may be closed out and his bond may be enforced as to past defaults and then canceled. Registration shall be reinstated for the remainder of that current registration period upon satisfactory correction of defects.

Any registered and bonded Plumbing or Sewer Contractor who performs work without a valid permit shall have his registration revoked by the District Director. If the registration is revoked, any other valid, open permits issued to said Plumbing or Sewer Contractor shall be closed out. The Plumbing or Sewer Contractor shall make immediate correction of such illegal connection satisfactory to the District Engineering Manager.

Any unregistered or unbonded person or firm making a connection to the public sewer shall cause to be made immediate correction satisfactory to the District Engineering Manager. The District may also seek any other remedies provided for under law.

Registration for a registered and bonded Plumbing or Sewer Contractor performing an illegal connection shall be revoked for a period not less than fourteen (14) days or exceeding thirty (30) days for the first infraction. A second infraction within a twelve (12) month period shall result in a revocation not less than thirty (30) days or exceeding sixty (60) days. A third infraction within a twelve (12) month period shall result in permanent revocation of registration. Revocation shall begin after satisfactory correction, including inspection, of the illegal connection. The District may also seek any other remedies provided for under law.

## ARTICLE V. Sewer Extensions.

### SECTION 1. Construction of Public or Private Sewer.

No person, other than an authorized employee, contractor or agent of the District, shall make any sewer extension from, alter the cover over or disturb a District sewer, appurtenance, or open any manhole, chamber, or any appurtenance thereof of any sewer or appurtenance that discharges directly or indirectly into the District collection system and treatment works, unless in compliance with the provisions of this Code and all other applicable ordinances.

Registration and bonding as a Sewer Contractor allows the contractor to install public manholes, install new public sewer mains and associated services, install public pump and lift stations with associated forcemains and perform reconstruction work on public sewers. All work must be within public right-of-way and public sewer easements. In the case of new public sewer system construction, the right-of-way or easements must be dedicated to the public as a condition of and upon completion of the permitted work.

Sewer Contractors may also install private sewer manholes, private sewer mains and associated services, private sewer main pump and lift stations with associated private sewer forcemains and private sewer reconstructions that are designed in accordance with all applicable IEPA regulations and District policies, permitted for construction and operation by IEPA as a private sanitary sewer and constructed as if the sewer were to be public. In the case of mobile home or modular home parks the permission for construction shall be from the State of Illinois Department of Public Health in addition to receiving an Illinois Environmental Protection Agency Operating Permit.

### SECTION 2. Registration.

Any person or firm desiring to perform any sewer extension from, alter the cover over or disturb a District sewer, appurtenance, or open any manhole, chamber, or any appurtenance thereof of any sewer or appurtenance that discharges directly or indirectly into the District collection system and treatment works, whether the sewer extension or reconstruction is intended to be public or private, except District employees, or authorized governmental personnel, must register at the District and pay a registration fee. Registration shall be made upon proper application and payment of fees set by the Board by separate ordinance and shall expire at midnight the following May 31. Registration shall not be valid for a period in excess of one year, and the fee shall not be prorated for periods of less than a year. Application for registration and payment of the applicable fees shall be made with the District on forms provided by the District. Registration with the District shall not authorize the construction of sewer extensions or reconstruction of the District or private sewer system, but is a precondition for obtaining permission to do so.

### SECTION 3. Bonding.

Any person or firm desiring to perform public or private sanitary sewer construction or reconstruction, except District employees and authorized governmental personnel, must furnish a bond to the District Engineering Manager in an amount established by the Board by separate ordinance on a form provided by the District. Each bond must be signed by an acceptable bonding company. Such bonds shall be conditioned on the performance of said work in conformity with all ordinances and regulations of the District, IEPA and other governmental bodies then in force, and in such manner as to leave all sewers, appurtenances, landscaping, streets, alleys, sidewalks, pavement and storm drainage facilities undisturbed, in as good state and condition as prior to the performance of said work. District may establish different forms and require additional information for different types or location of work. The bond shall expire at midnight on May 31 of the then current registration period.

### SECTION 4. Revocation of Registration.

Any registered and bonded Sewer Contractor who shall neglect, refuse or fail to make good any defect or faults in any of his work done on a public or private sewer system that discharges directly or indirectly to District sewer may have his registration revoked by the District Engineering Manager. Except for correction work, the Sewer Contractor shall not be permitted to do any further or additional work upon any sewer or appurtenances connecting with or designed to connect with, or directly or indirectly discharge into any District sewer, until such defects or faults have been made good in a manner satisfactory to the District Engineering Manager. Registration shall be reinstated for the remainder of that current registration period upon satisfactory correction of defects.

Any registered and bonded Sewer Contractor who performs sewer extension or reconstruction work without a valid permit or permission from the District shall have his registration revoked by the District Engineering Manager. The Sewer Contractor shall not be permitted to do any further or additional work upon any sewer or appurtenances connecting with or designed to connect with, or directly or indirectly discharge into any District sewer, until a valid permit has been provided to or permission has been obtained from the District Engineering Manager. Registration shall be reinstated for the remainder of that current registration period upon satisfactory receipt of a valid permit or grant of permission made.

Registration for a registered and bonded Sewer Contractor performing any illegal work shall be revoked for a period not less than fourteen (14) days or exceeding thirty (30) days for the first infraction. A second infraction within a twelve (12) month period shall result in a revocation not less than thirty (30) days or exceeding sixty (60) days. A third infraction within a twelve (12) month period shall result in permanent revocation of registration. The District may also seek any other remedies provided for under law.

Any unregistered or unbonded person or firm who performs sewer extension or reconstruction work, whether public or private, that discharges directly or indirectly to the District sewer system shall cease all work and cause to be made immediate correction satisfactory to the District Engineering Manager. The District may also seek any other remedies provided for under law.

## SECTION 5. Permit and Plan Approval.

Amended Paragraphs A and B on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005; Amended Paragraph B on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

### A. Plan and Permit Review.

Paragraph A repealed and replaced in its entirety on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005

Detailed plans and all necessary District and IEPA permit applications shall be submitted to the District Engineering Manager for review and approval. Fees shall be paid to the District for these reviews in an amount to be established by the Board by separate ordinance.

A Design Engineering Firm that is determined by the District not to be responsive or responsible in regard to the submittal and conformance of detailed plans to Articles V and VI of Title 4 of this Code shall be suspended from further detailed plan review until all previous detailed plans submitted for review have been brought into compliance with Articles V and VI of this Title or the permit application has been withdrawn by the Applicant in writing. A Firm shall be deemed not to be responsive or responsible in the event of the Firm's failure to comply with the requirements of Articles V and VI of this Title or the Firm's failure to comply with the requirements of one or more permit application Notice of Incompleteness within forty-five (45) days of issuance of said Notice by the Firm's specific action or inaction.

### B. Plan and Permit Approval.

Paragraph B repealed and replaced in its entirety on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005; Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

Prior to performing any sanitary sewer construction, the applicant, the Permittee to Construct, or the Sewer Contractor, shall:

1. Obtain District plan and District or IEPA permit application approval as necessary.
2. Obtain the necessary District or IEPA permit(s) as applicable. In the case of mobile home or modular home parks a letter authorizing construction must be received from the State of Illinois Department of Public Health.
3. Obtain and present all permits from the appropriate governmental agencies having jurisdictions of the area in which the work is being performed including but not limited to permits related to right-of-way access, street-cuts, dewatering, and blasting.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

4. Make payment of all applicable connection fees due from the specified properties.
5. Obtain and present all executed easement documents where applicable for the required sanitary sewer easements.

6. Where applicable, obtain and present the IEPA Notification of Intent for a General Storm Water Permit or provide documentation that said General Storm Water Permit application has been logged into the IEPA database for a period of at least thirty (30) days.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

7. Obtain and present the necessary Illinois Historical Preservation Agency approval.
8. Obtain and present the necessary Illinois Department of Natural Resources approval.
9. Obtain and present the necessary United States Army Corps of Engineers permit(s) where applicable.
10. Make payment of all applicable plan and permit application and review fees.

### C. Inspections.

Unless waived by the District Engineering Manager, notice shall be given two (2) District business days prior to starting work on a sanitary sewer. The District must inspect all construction of public and private sewers. Inspection fees shall be paid to the District in an amount to be established by the District Board of Trustees by separate ordinance.

## ARTICLE VI. Sewer and Service Design and Construction Requirements.

Re-titled on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005; Amended Section 1 on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended Section 1 Paragraph B Subparagraphs 5 and 6 on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

### SECTION 1. Standards and Specifications.

Repealed and replaced in its entirety on 4/11/2005 by Ordinance 04/05-O-06 effective 4/12/2005; Amended Paragraphs B and D on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended Paragraph B Subparagraphs 5 and 6 on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

#### A. General Standards and Specifications.

All sanitary sewer and sewer service construction shall be in accordance with the most current version of:

1. District "General Provisions and Technical Specifications for Sanitary Sewer Construction."
2. Illinois Administrative Code, Title 35, Part 370 "Illinois Recommended Standards for Sewage Works."

3. Illinois Administrative Code, Title 35, Part 374 "Design Criteria for Pressure Sewer Systems."

4. "Standard Specifications for Water and Sewer Main Construction in Illinois."

5. Illinois Department of Public Health "Plumbing Code."

6. District Standard Detail Sheet.

7. District Sampling/Monitoring Manhole Details.

8. Requirements of other governmental bodies.

The "General Provisions and Technical Specifications for Sanitary Sewer Construction," District Standard Detail Sheet and District Sampling/Monitoring Manhole Details are on file with the District Engineering Manager. The District Engineering Manager may, from time to time, amend these standards and specifications. The District Engineering Manager shall provide notice to the Board of amendments to the "General Provisions and Technical Specifications."

#### B. Design Standards.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended Subparagraphs 5 and 6 on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

In addition to the requirements of the State of Illinois Rules and Regulations (Administrative Code), Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency, Part 370 "Illinois Recommended Standards for Sewage Works" and Part 374 "Design Criteria for Pressure Sewer Systems", the following requirements shall be met:

1. Public sewer must be extended to the upstream property line or lines of each parcel or lot of record and each new subdivision development.
2. All public sewer shall be a minimum of eight inches (8") in nominal inside pipe diameter.
3. All public sewer and sewer services shall have no less than 5 feet of cover at any point, except as approved for public sewer under stream or river crossings. In no case shall a public sewer have less than 3 feet of cover under a stream or river crossing. Public sewer with less than 5 feet of cover under a stream or river crossing shall be ductile iron pipe. Public sewers having less than 5 feet of cover will require buoyancy calculations that demonstrate the sewer will not float.
4. All public sewer, manholes and sewer services shall have at least 10 feet of clear horizontal separation (outside to outside) from any storm drainage structure, any parallel storm sewer pipe, any parallel water system pipe, any water system appurtenance, any parallel utility line, any utility appurtenance, or any building.

5. All public lateral sewer to be constructed in side or rear yard areas, except as noted in Subparagraph 3 above, shall be polyvinyl chloride plastic pipe having a minimum Standard Dimension Ratio of 26.

Amended on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

6. All public sewer and sewer services shall be below the water or storm sewer system and have at least 18 inches of clear vertical separation between the crown of the public sewer or sewer service pipe and the invert any water system or storm drainage pipe. Where it is not physically possible to provide the minimum 18 inches of clear vertical separation, the public sewer or sewer service shall be an approved water-main quality pipe. In cases where it is not physically possible to have 12 inches of clear vertical separation the sewer main or service shall have an approved steel or ductile iron pipe casing that shall extend a minimum of five (5) feet beyond the outside face of the water system or storm sewer system feature. No joint will be allowed in the casing pipe. For sewers and services of eight (8) inches or greater in diameter, the casing shall be filled with pea gravel and the ends grouted. For services of four (4) or six (6) inches in diameter the casing does not need to be filled with pea gravel unless there is a carrier pipe joint within the casing and the ends of the casing shall be capped using an approved eccentric rubber connector between the casing and carrier pipe. This does not preclude the requirement of a casing being required to meet other considerations.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005; Amended on 2/20/2007 by Ordinance 06/07-O-01 effective 4/1/2007

7. Where it is not physically possible for the public sewer system to be below an existing water or storm sewer system there must be at least 18 inches of clear vertical separation between the crown of the water or storm sewer system pipe and the invert of the public sewer or sewer service.

8. All public sewer shall be terminated with a manhole.

9. No public sewer manhole shall be less than 5 feet in depth.

10. Public sewer shall be designed with sufficient depth to provide for gravity service to the lowest level of all structures directly served.

11. Public sewer shall be designed with sufficient depth to provide for gravity service to the lowest level of all structures in the ultimate service area. This shall be based upon information available to the design engineer, to include topographic maps of the ultimate service area.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

12. Public sewer shall be designed to convey the peak flow from the Ultimate Service Area. The calculations shall be based on the most current zoning and land use approvals and plans.

13. Public lateral sewer manholes more than 4 feet from a roadway require a paved access having a minimum width of 12 feet and minimum cross section of 2 inches of bituminous surface and 6 inches of aggregate base.

EXCEPTION: The paved access is not required within the Village of Cherry Valley corporate limits or Cherry Valley Township roadways for lateral sewer manholes located in the public right-of-way that are more than 4 feet from a roadway surface.

14. The length of the public sewer shall be the distance from the center of the downstream manhole to the center of the upstream manhole. The slope of the public sewer and inverts of the sewer at the manholes shall be based on the distance between the outside faces of the manholes.

15. Private sewer shall be designed and constructed to public sewer standards, except all-weather manhole access and public easements or right-of-way are not required.

16. All public sewer services shall have a slope of not less than one percent (1.0%) regardless of diameter.

17. Each parcel or lot of record and each proposed lot or separate ownership unit in a multiple unit structure shall have a separate sewer service.

18. No public sewer service may exceed one hundred (100) feet in length.

19. No public sewer service shall be connected directly to a District manhole.

20. No public sewer service shall connect directly to a public sewer having a diameter of 18 inches or larger, except where the sewer service has a sewer service riser at the public sewer.

21. The wye or riser fitting at the public sewer for any public sewer service shall be a minimum of 7 feet from the outside face of a sewer manhole.

22. All public sewer services shall have a sewer service riser at the public sewer when the public sewer will be 13 feet or deeper at the sewer service fitting at the public sewer.

23. Public sewer service risers serving more than one lot shall be six inch (6") nominal inside pipe diameter. No more than two lots shall be allowed per riser.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

24. All public sewer services shall be installed with a sewer service clean-out riser at the right-of-way or sewer easement line as applicable.

25. Public sewer services for individual residential users shall be a minimum of 4 inches in nominal inside pipe diameter.

26. Public sewer services for a commercial or industrial user shall be a minimum of six inches (6") in nominal inside pipe diameter.

27. Public sewer services serving multiple buildings or units on a single lot shall be a minimum of six inches (6") in nominal inside pipe diameter.

28. Private sewer service extensions to be installed with new private sewers shall initially be extended no more than 10 feet beyond the private sewer. This point will be considered the Point of Connection. Sewer service clean-out risers will not be required on private sewer services.

29. Public pump stations shall be wet well/dry well, flooded suction pump stations. Public pump stations shall be equipped with stand-by generation.

30. Public force mains shall be ductile iron pipe.

31. The detailed plans shall be submitted with a certification statement by the responsible licensed engineer that, in his professional opinion based upon available information, the public sewer was designed with sufficient depth to provide for gravity service to the lowest level of all structures directly served and designed with sufficient depth to provide for gravity service to the lowest level of all structures in the ultimate service area. The certification statement should be accompanied by the professional assumptions made in arriving at said opinion.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

32. Any deviations, exceptions or variances to the above requires the submittal of a design report by the responsible licensed engineer. The report must include, at a minimum, the specific reason(s) why the standard cannot be physically met and the technical basis to support the deviation, exception or variance.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

#### C. Easements.

Public sewer shall be installed in exclusive sanitary sewer easements when the sewer is outside an existing public right-of-way and when a proposed development will be constructed without full public improvements. Full public improvements include, but are not limited to, a public water system, storm sewer facilities, curb and gutter and paved public roadways. The executed sanitary sewer easements shall be provided as part of the plan and permit approval.

In general, sanitary sewer easements shall have a minimum width of 20 feet, centered on the public sewer when the sewer is 12 feet or shallower in depth at any point between sewer manholes. For each foot of additional depth, or part thereof, the easement width shall be increased 1 foot to each side, up to a maximum sanitary sewer easement width of 40 feet.

#### D. Plan Standards.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

In addition to the requirements of the State of Illinois Rules and Regulations (Administrative Code), Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency, Part 370 "Illinois Recommended Standards for Sewage Works" and Part 374 "Design Criteria for Pressure Sewer Systems", the following requirements shall be met:

1. Plans shall be prepared using the WinGIS (Winnebago County Geographic Information System) control network system. The WinGIS control network is established horizontally on the Illinois State Plane Coordinate System, North American Datum (NAD) 1983, West Zone and vertically on North American Vertical Datum (NAVD) 1988. Each plan/profile sheet shall carry a statement certifying that the WinGIS control network was used to establish the vertical project benchmark system and indicate the specific monument(s) used and the published vertical value(s).

The vertical project benchmark system shall provide a network of benchmarks that are no more than 500 feet apart and provide for a benchmark no more than 300 feet from any point of the proposed sanitary sewer system. The project benchmarks shall be established such that they will not be disturbed by the proposed construction. The nearest project benchmark(s) shall be noted on the individual plan and plan/profile sheets. Lot pins and manhole rims will not be acceptable as benchmarks.

2. Sewer extension and connection plans shall be submitted on standard plan/profile sheets. The plan/profile sheets, pump station plan sheets and special detail plan sheets shall be either a standard 24-inch by 36-inch sheet or 22-inch by 34-inch sheet. The profile shall have horizontal and vertical gridding.

The plan/profile sheets for proposed developments and sewer extensions or connections in developed areas shall have a horizontal scale of 20 feet to the inch. An alternate scale of 40 feet to the inch may be submitted in cases where the existing and proposed topographic and site features are limited and where all features depicted in the plans can be readily distinguished. The District Engineering Manager shall make this determination.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

The profile shall have a vertical scale of 5 feet to the inch. In cases of vertical relief exceeding 40 feet a vertical scale of 10 feet to the inch may be submitted.

3. The detailed plans shall show and identify all physical features that could impact construction activities. At a minimum all existing and proposed sanitary sewer system facilities, storm drainage facilities, water system facilities, wells, septic systems, underground and overhead utilities, roadways, driveways, parking lots, fencing, landscaping features, individual trees 4 inches or greater in diameter, boundaries of trees and shrubs in dense areas, buildings, right-of-way lines, property lines, easements lines,

property identification numbers, addresses, first floor or lowest level elevations of all existing structures.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

4. Each line of sanitary sewer from manhole to manhole shall be shown in its entirety on at least one plan/profile sheet. The length, diameter, slope and pipe material of each sanitary sewer segment shall be labeled on or near the sanitary sewer in both the plan and profile view. A separate table or chart may be provided on the sheet but the record plans must comply with the previous sentence as an added supplement. The length, diameter, slope and pipe material of the upstream and downstream sewer lines shall be identified in the plan view.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

5. Proposed sanitary sewer manholes shall be numbered consecutively from downstream to upstream. The manhole number and diameter shall be labeled in both the plan and profile views. The proposed rim elevation and inverts shall be labeled on or near the manhole in the profile view. The inverts shall indicate the elevation, direction of flow (in or out), and compass ordinate direction (N, NE, E, etc.). Both the upper and lower inverts of outside drops shall be shown and labeled.

6. Existing sanitary sewer manholes shall be identified by the District manhole identification number. The manhole number and diameter shall be labeled in both the plan and profile views. The existing and proposed rim elevations and inverts shall be labeled on or near the manhole in the profile view. The inverts shall indicate the elevation, direction of flow (in or out), and compass ordinate direction (N, NE, E, etc.). Both the upper and lower inverts of outside drops shall be shown and labeled. The method of connection to the manhole shall be noted. Any modification required to the manhole bench shall be noted.

7. The invert elevation of each service having a conventional design service riser shall be labeled at the point where the sewer service is extended horizontally from the service riser. The horizontal component of the conventional design service riser shall be constructed at one percent slope. With the alternate riser design the invert at the property line must be noted.

Amended on 9/26/2005 by Ordinance 05/06-O-03 effective 11/1/2005

8. A District assigned record drawing number shall be shown in the lower right-hand corner of each plan or plan/profile sheet. The record drawing number shall be in a single line with the lettering a minimum of 1/2 inch in height.

9. Each sheet of the detailed plans shall identify the subdivision or project name.

E. Record Drawings.

Record drawings are required for all public and private sewer extensions and all public pump stations and forcemains. The record drawing shall show the actual installed location of each sewer manhole including inverts, sewer, and sewer services and accurately depict the lot or parcel lines, lot numbers, right-of-way, easements, and site improvements. The sewer service information shall be shown in tabular form on the specific lot or parcel it is related to. The format shall be as follows:

Lot or Parcel Number  
Wye Location  
Riser Data (when applicable)  
End of Service Location  
Length, Diameter and Material  
Depth at End of Service

Each sheet assigned a record drawing number shall be labeled as follows:

Record Drawing  
Constructed by (name of contractor)  
Month (by name), Year (YYYY)

The month and year listed shall be when the work was completed.

#### SECTION 2. Multiple Buildings or Units on a Single Lot of Record.

In cases of multiple buildings or units on a single lot of record:

- A. Each building or unit with a separate water meter shall have a separate sewer service.
- B. If the buildings are on a single water meter, the buildings may share a common sewer service, but shall have a manhole on the private sewer service that will permit the disconnection of any individual building by District personnel. Access easements shall be provided to the District to allow access to said manhole.
- C. Every townhouse or condominium unit must have a separate sewer service or an agreement, in a form acceptable to the District, entered into before issuance of a connection permit whereby the owners of all other units agree to pay delinquent user bills for all other units, unless that property is served by a public water system that has a contract with the District for water shut off in the case of non-payment of user charge bills.

#### SECTION 3. Exception to Section 2 in Certain Cases.

In certain cases, District may waive the requirement for an access manhole. Those conditions are:

- A. That the property is served by a public water system that has a contract with the District for water shut off in the case of non-payment of user charge bills.

B. The use of the property must be for residential use only.

C. All buildings on the lot must have a common owner and one water meter per lot.

#### SECTION 4. Multiple Lots of Record on a Single Public Sewer Service.

In cases where more than one lot of record of current users shares a common public sewer service, the District shall, upon receipt of a request from an affected lot owner, provide a new public sewer service within the frontage of said lot. Public sewer must directly serve said lot for the District to extend such new public sewer service. The lot owner shall be responsible for proper disconnection from the existing common sewer service and connection to the new public sewer service in accordance with this Title. The District shall not provide a new public sewer service in cases where a previous owner requested and received District approval for a common public sewer service.

#### Article VII. Special Assessment and Special Service Area Projects.

Article added on 12/16/2004 by Ordinance 04/05-O-03 effective 1/1/2005; Amended by adding Section 4 on 12/20/2007 by Ordinance 0708-O-01 effective 1/1/2008

##### Section 1. Criteria for Determination of Project.

- A. Any portion of the proposed project area may be within 1,000 feet of the then current District corporate boundary. If not already annexed, the project area must be able to be annexed.
- B. The maximum estimated total cost to receive consideration for a sewer extension project shall be \$18,000.00 per lot or parcel for the estimated on-site costs, plus \$2,000.00 per lot or parcel for the estimated off-site portion of the sewers, with the estimated off-site costs being spread over the entire ultimate service basin area that would be benefited by the off-site sewer. This may extend beyond the limits of the project area, both upstream and downstream.

Section 2. Determination of Type of Project.

A. If the proposed project meets the criteria in Section 1 above, the estimated District contribution must not exceed sixty-five (65%) percent of the total estimated gross on-site project costs for the project to proceed as a Special Assessment project. An appraisal of each property in the proposed project area will be obtained by the District to calculate the estimated property benefit for determination of the sixty-five (65%) percent maximum District contribution. If the estimated District contribution does not exceed sixty-five (65%) percent of the total estimated gross on-site project costs, the project qualifies as a Special Assessment project.

B. If the proposed project meets the criteria in Section 1 above, but the estimated District contribution exceeds sixty-five (65%) percent of the total estimated gross on-site project costs, the project qualifies as a Special Service Area project. In a Special Service Area project, the property owners shall pay sixty (60%) percent of the total estimated on-site costs. The District will pay the balance of the total on-site costs and one hundred (100%) percent of the total off-site costs.

C. Regardless of a proposed project meeting the above criteria, the final decision on proceeding with a project as either a Special Assessment or Special Service Area requires approval by the District's Board of Trustees and the availability of District funds.

Section 3. Associated Connection Fees.

A. The District may recover all or part of the total off-site costs through a fair and reasonable Payback Connection Fee imposed on properties not on the Special Assessment Roll or Special Tax Roll that may connect or discharge to the off-site sewer constructed in a Special Assessment or Special Service Area project.

B. Under either a Special Assessment or Special Service Area project, the property owner shall be responsible for all connection fees as established under Section 3(A) above and Title 5 of the Code of Ordinances.

Section 4. Withdrawing Lots of Record from the Confirmation or Special Tax Roll.

Section added on 12/20/2007 by Ordinance 07/08-O-01 effective 1/1/2008

A. In cases where a property owner of a single lot of record, whether occupied or vacant, requests the District Board of Trustees to withdraw the lot from the Confirmation or Special Tax Roll the Board shall exercise their sole discretion in determining whether the lot will remain on the Roll or be withdrawn from the Roll, absent a ruling by the Circuit Court to the contrary.

B. In cases where a property owner owning multiple contiguous lots of record, whether all vacant or vacant and contiguous to the occupied lot, requests the Board of Trustees to withdraw one or more of the lots from the Confirmation or Special Tax Roll that owner shall

be required to legally combine the lots into one or more lots by Plat with said Plat meeting the document provisions of the Plat Act as a condition of the Board withdrawing the Special Assessment or Special Tax associated with each lot. The number of Special Assessments or Special Taxes imposed shall match the number of lots in the Plat. A single tax code identification number is not considered a legal combination of the underlying lots or parcels of record.

EXCEPTION: If the existing permanent primary building structure extends across one or more interior lot lines of the multiple contiguous lots involved, this requirement shall be waived for the lots so encumbered provided proof of such encumbrance is provided by means of a written certification prepared by a licensed surveyor. A Plat would be required in the event the existing primary structure does not encumber all contiguous lots and the property owner desires a single assessment. The existing primary structure is considered the structure at the time of the project establishment that will be connected for sanitary sewer service permit purposes, without an expansion of the primary structure that may encroach on other lots not then presently encumbered.