APPENDIX F

TABLE F-1: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
GRAVITY SEWER
AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	SALVAGE TOPSOIL	CY	8,800	$ 2.00	$ 17,600
3	PLACING TOPSOIL	CY	8,800	$ 4.00	$ 35,200
4	LOCATING UTILITIES	EA	10	$ 500.00	$ 5,000
	SITE WORK SUBTOTAL				**$ 67,800**
	EROSION CONTROL				
5	TEMPORARY SILT FENCE	LF	15,800	$ 5.00	$ 79,000
6	PERMANENT SEEDING	LB	1,925	$ 12.00	$ 23,100
7	FERTILIZING	LB	7,255	$ 1.00	$ 7,300
8	MULCHING	TON	75	$ 150.00	$ 11,300
	EROSION CONTROL SUBTOTAL				**$ 120,700**
	SURFACING				
9	GRAVEL SURFACING	TON	30	$ 20.00	$ 600
	SURFACING SUBTOTAL				**$ 600**
	TRAFFIC CONTROL				
10	TRAFFIC CONTROL, IN PLACE, COMPLETE	LS	1.0	$ 5,000.00	$ 5,000
	TRAFFIC CONTROL SUBTOTAL				**$ 5,000**
	SANITARY SEWER				
11	TRENCH DEWATERING	LS	1	$ 200,000.00	$ 200,000
12	TRENCH STABILIZATION MATERIAL	TON	1,460	$ 21.00	$ 30,660
13	GRANULAR INITIAL BACKFILL FOR SANITARY SEWER	TON	5,500	$ 11.00	$ 60,500
14	MH FRAME AND COVER	EA	33	$ 350.00	$ 11,550
15	MH CONSTRUCTION PLATE MARKER	EA	33	$ 200.00	$ 6,600
16	MH EXTERNAL FRAME SEAL	EA	33	$ 400.00	$ 13,200
17	48"ø HDPE LINED MH, IN PLACE, COMPLETE	EA	4	$ 4,500.00	$ 18,000
18	72"ø HDPE LINED MH, IN PLACE, COMPLETE	EA	10	$ 13,000.00	$ 130,000
19	84"ø HDPE LINED MH, IN PLACE, COMPLETE	EA	4	$ 17,500.00	$ 70,000
20	96"ø HDPE LINED MH, IN PLACE, COMPLETE	EA	15	$ 22,000.00	$ 330,000
21	12" SAN SWR PVC PIPE SDR 35	LF	1,300	$ 50.00	$ 65,000
22	27" SAN SWR PVC PIPE SDR 35	LF	3,900	$ 245.00	$ 955,500
23	42" SAN SWR HOBAS PIPE	LF	1,500	$ 340.00	$ 510,000
24	48" SAN SWR HOBAS PIPE	LF	5,900	$ 415.00	$ 2,448,500
25	MH EXFILTRATION\VACUUM TEST	EA	33	$ 300.00	$ 9,900
26	SAN SWR EXFILTRATION TESTING	LF	12,600	$ 1.25	$ 15,750
27	SWR PIPE DEFLECTION TEST	LF	12,600	$ 1.00	$ 12,600
	SANITARY SEWER SUBTOTAL				**$ 4,890,000**
	SUBTOTAL CONSTRUCTION COSTS				$ 5,084,100
	CONTINGENCY (20%)				$ 1,017,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 6,101,100**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 1,220,220
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 7,321,000**

TABLE F-2: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
FORCE MAIN TO NEW WWTP
AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	SALVAGE TOPSOIL	CY	8,046	$ 2.00	$ 16,100
3	PLACING TOPSOIL	CY	8,046	$ 4.00	$ 32,200
4	LOCATING UTILITIES	EA	10	$ 500.00	$ 5,000
	SITEWORK SUBTOTAL				**$ 63,300**
	EROSION CONTROL				
5	TEMPORARY SILT FENCE	LF	28,965	$ 5.00	$ 144,900
6	PERMANENT SEEDING	LB	1,765	$ 12.00	$ 21,200
7	FERTILIZING	LB	6,650	$ 1.00	$ 6,700
8	MULCHING	TON	100	$ 150.00	$ 15,000
	EROSION CONTROL SUBTOTAL				**$ 187,800**
	SURFACING				
9	GRAVEL SURFACING	TON	37	$ 20.00	$ 800
	SURFACING SUBTOTAL				**$ 800**
	TRAFFIC CONTROL				
10	TRAFFIC CONTROL, IN PLACE, COMPLETE	LS	1.0	$ 5,000.00	$ 5,000
	TRAFFIC CONTROL SUBTOTAL				**$ 5,000**
	SANITARY SEWER				
11	TRENCH STABILIZATION MATERIAL	TON	652	$ 12.50	$ 8,200
12	FORCE MAIN BEDDING MATERIAL	TON	13,034	$ 6.50	$ 84,800
13	TRENCH DEWATERING	LS	1.0	$ 100,000.00	$ 100,000
14	CONNECT TO EXISTING SEWER	EA	1.0	$ 5,000.00	$ 5,000
15	16" CL. 235 PVC AWWA C905 FORCE MAIN, F&I	LF	28,965	$ 55.00	$ 1,593,100
16	FORCE MAIN FITTINGS, F&I (@ 15% OF FORCE MAIN COST)	LS	1.0	$ 239,000.00	$ 239,000
17	26" STEEL CASING PIPE, FURNISH & INSTALL	LF	150	$ 175.00	$ 26,300
18	BORE & JACK 26" STEEL CASING PIPE	LF	150	$ 275.00	$ 41,300
19	16" CL. 235 PVC AWWA C905 CARRIER PIPE	LF	150	$ 100.00	$ 15,000
	SANITARY SEWER SUBTOTAL				**$ 2,112,700**
	SUBTOTAL CONSTRUCTION COSTS				$ 2,369,600
	CONTINGENCY (20%)				$ 474,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 2,843,600**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 569,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 3,413,000**

TRENCH STABILZATION MATERIAL WAS CALCULATED FOR 1/5 PIPE LENGTH, 6" DEEP
FORCE MAIN PIPE COST WAS DOUBLED BASED ON WHAT HD SUPPLY PROVIDED
FORCE MAIN BEDDING WAS ASSUMED TO BE SAME BEDDING REQUIREMENTS AS SIOUX FALLS WATERMAIN

TABLE F-3: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
FORCE MAIN TO L.S. NO. 240
AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	SALVAGE TOPSOIL	CY	14,355	$ 2.00	$ 28,800
3	PLACING TOPSOIL	CY	14,355	$ 4.00	$ 57,500
4	LOCATING UTILITIES	EA	10	$ 500.00	$ 5,000
	SITEWORK SUBTOTAL				**$ 101,300**
	EROSION CONTROL				
5	TEMPORARY SILT FENCE	LF	51,678	$ 5.00	$ 258,400
6	PERMANENT SEEDING	LB	3,145	$ 12.00	$ 37,800
7	FERTILIZING	LB	11,865	$ 1.00	$ 11,900
8	MULCHING	TON	178	$ 150.00	$ 26,700
	EROSION CONTROL SUBTOTAL				**$ 334,800**
	SURFACING				
9	GRAVEL SURFACING	TON	49	$ 20.00	$ 1,000
	SURFACING SUBTOTAL				**$ 1,000**
	TRAFFIC CONTROL				
10	TRAFFIC CONTROL, IN PLACE, COMPLETE	LS	1.0	$ 5,000.00	$ 5,000
	TRAFFIC CONTROL SUBTOTAL				**$ 5,000**
	SANITARY SEWER				
11	TRENCH STABILIZATION MATERIAL	TON	1,163	$ 12.50	$ 14,600
12	FORCE MAIN BEDDING MATERIAL	TON	23,255	$ 6.50	$ 151,200
13	TRENCH DEWATERING	LS	1.0	$ 175,000.00	$ 175,000
14	CONNECT TO EXISTING SEWER	EA	1.0	$ 5,000.00	$ 5,000
15	16" CL. 235 PVC AWWA C905 FORCE MAIN, F&I	LF	51,678	$ 55.00	$ 2,842,300
16	FORCE MAIN FITTINGS, F&I (@ 15% OF FORCE MAIN COST)	LS	1.0	$ 427,000.00	$ 427,000
17	26" STEEL CASING PIPE, FURNISH & INSTALL	LF	225	$ 175.00	$ 39,400
18	BORE & JACK 26" STEEL CASING PIPE	LF	225	$ 275.00	$ 61,900
19	16" CL. 235 PVC AWWA C905 CARRIER PIPE	LF	225	$ 100.00	$ 22,500
	SANITARY SEWER SUBTOTAL				**$ 3,738,900**
	SUBTOTAL CONSTRUCTION COSTS				$ 4,181,000
	CONTINGENCY (20%)				$ 837,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 5,018,000**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 1,004,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 6,022,000**

TRENCH STABILZATION MATERIAL WAS CALCULATED FOR 1/5 PIPE LENGTH, 6" DEEP
FORCE MAIN PIPE COST WAS DOUBLED BASED ON WHAT HD SUPPLY PROVIDED
FORCE MAIN BEDDING WAS ASSUMED TO BE SAME BEDDING REQUIREMENTS AS SIOUX FALLS WATERMAIN

TABLE F-4: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
FORCE MAIN FROM L.S. NO. 240 TO FUTURE SF WWTP
SEPTEMBER 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	SALVAGE TOPSOIL	CY	556	$ 2.00	$ 1,200
3	PLACING TOPSOIL	CY	556	$ 4.00	$ 2,300
4	ROCK EXCAVATION	CY	290	$ 180.00	$ 52,200
	SITEWORK SUBTOTAL				**$ 65,700**
	EROSION CONTROL				
5	TEMPORARY SILT FENCE	LF	4,000	$ 5.00	$ 20,000
6	PERMANENT SEEDING	LB	125	$ 12.00	$ 1,500
7	FERTILIZING	LB	475	$ 1.00	$ 500
8	MULCHING	TON	7	$ 150.00	$ 1,100
	EROSION CONTROL SUBTOTAL				**$ 23,100**
	SANITARY SEWER				
9	COFFER DAM, FLOW BYPASS, IMPERVIOUS MATERIAL	LS	1	$80,000.00	$ 80,000
10	TRENCH STABILIZATION MATERIAL	TON	75	$ 12.50	$ 1,000
11	FORCE MAIN BEDDING MATERIAL	TON	240	$ 6.50	$ 1,600
12	TRENCH DEWATERING	LS	1.0	$ 175,000.00	$ 175,000
13	CONNECT TO EXISTING SEWER	EA	2.0	$ 1,000.00	$ 2,000
14	16" CL. 235 PVC AWWA C905 FORCE MAIN, F&I	LF	2,000	$ 55.00	$ 110,000
15	FORCE MAIN FITTINGS, F&I (@ 15% OF FORCE MAIN COST)	LS	1.0	$ 17,000.00	$ 17,000
16	26" STEEL CASING PIPE, FURNISH & INSTALL	LF	225	$ 175.00	$ 39,400
17	16" CL. 235 PVC AWWA C905 CARRIER PIPE	LF	225	$ 100.00	$ 22,500
	SANITARY SEWER SUBTOTAL				**$ 448,500**
	SUBTOTAL CONSTRUCTION COSTS				$ 537,300
	CONTINGENCY (20%)				$ 108,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 645,300**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 130,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 775,000**

TABLE F-5: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
SMALL EQUALIZATION BASIN
SEPTEMBER 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	EARTHWORK				
1	EXCAVATION	CY	13,993	$ 5.00	$ 70,000
2	FILL AND COMPACT	CY	4,789	$ 5.00	$ 24,000
	EARTHWORK SUBTOTAL				**$ 94,000**
	CONCRETE				
3	CONCRETE SCOUR PAD	SY	1276	$ 28.00	$ 36,000
	CONCRETE SUBTOTAL				**$ 36,000**
	SITEWORK				
4	SITE PIPING	LS	1	$ 25,000.00	$ 25,000
5	MISCELLANEOUS SITEWORK	LS	1	$ 10,000.00	$ 10,000
6	FENCE (CHAIN LINK W/ 3 STRANDS BARB WIRE)	LF	1,960	$ 20.00	$ 40,000
	SITEWORK SUBTOTAL				**$ 75,000**
	TOTAL ITEMS 1 THROUGH 5				
	SUBTOTAL CONSTRUCTION COSTS				$ 205,000
	CONTINGENCY (20%)				$ 41,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 246,000**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 50,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 296,000**

TABLE F-6: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
2 LARGE EQUALIZATION BASINS
SEPTEMBER 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	EARTHWORK				
1	EXCAVATION	CY	170,754	$ 5.00	$ 853,800
2	FILL AND COMPACT	CY	170,754	$ 5.00	$ 853,800
3	HAUL, FILL AND COMPACT	CY	16,944	$ 10.00	$ 169,500
	EARTHWORK SUBTOTAL				**$ 1,707,600**
	ODOR CONTROL				
4	AERATORS	EA	30	$ 10,000.00	$ 300,000
	ODOR CONTROL SUBTOTAL				**$ 300,000**
	CONCRETE				
5	CONCRETE SCOUR PAD	SY	5,107	$ 28.00	$ 143,000
	CONCRETE SUBTOTAL				**$ 150,000**
	SITEWORK				
6	SITE PIPING	LS	1	$ 100,000.00	$ 100,000
7	MISCELLANEOUS SITEWORK	LS	1	$ 50,000.00	$ 50,000
8	FENCE	LF	4,575	$ 20.00	$ 92,000
	SITEWORK SUBTOTAL				**$ 150,000**
	SUBTOTAL CONSTRUCTION COSTS				$ 2,307,600
	CONTINGENCY (20%)				$ 462,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 2,769,600**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 554,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 3,324,000**

TABLE F-7: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST

LIFT STATION TO PUMP TO HARRISBURG WWTP (2011-2021)

AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	DEWATERING	LS	1.0	$ 30,000.00	$ 30,000
3	L.S. & WETWELL EXCAVATION	CY	23,200	$ 5.00	$ 116,000
4	STRUCTURAL FILL	CY	33,900	$ 5.00	$ 169,500
5	CRUSHED ROCK UNDER WET WELL & VALVE VAULT	TON	250	$ 25.00	$ 6,300
6	ASPHALT SURFACING	LS	1.0	$ 60,000.00	$ 60,000
7	LANDSCAPING	LS	1.0	$ 10,000.00	$ 10,000
8	FENCING	LS	1.0	$ 15,000.00	$ 15,000
9	GATE	EA	1.0	$ 5,000.00	$ 5,000
10	WATER SERVICE	LF	2,640	$ 25.00	$ 66,000
	SITE WORK SUBTOTAL				**$ 487,800**
	LIFT STATION AND WETWELL				
11	REINFORCED CONCRETE BOTTOM SLAB	CY	150.0	$ 400.00	$ 60,000
12	REINFORCED CONCRETE TOP SLAB	CY	80.0	$ 1,200.00	$ 96,000
13	REINFORCED CONCRETE WALLS	CY	332.0	$ 700.00	$ 232,400
14	FILLABLE CONCRETE	CY	5.0	$ 200.00	$ 1,000
15	ENTRANCE & EQUIPMENT HATCH	LS	1.0	$ 10,000.00	$ 10,000
16	ENTRANCE LADDER	EA	1.0	$ 5,000.00	$ 5,000
17	SLUICE & STOP GATES	LS	1.0	$ 40,000.00	$ 40,000
	LIFT STATION & WETWELL SUBTOTAL				**$ 444,400**
	PUMPS AND PIPING				
18	NON CLOG PUMPS & VFD'S	EA	2.0	$ 105,000.00	$ 210,000
19	16" D.I. FLANGED PIPE (PROCESS)	LS	1.0	$ 15,000.00	$ 15,000
20	PIPE FITTINGS (PROCESS)	LS	1.0	$ 10,000.00	$ 10,000
21	VALVES (PROCESS)	LS	1.0	$ 100,000.00	$ 100,000
22	SUMP PUMP & ASSOCIATED PIPING	LS	1.0	$ 1,500.00	$ 1,500
23	WATER AND PUMPING TESTS	LS	1.0	$ 2,500.00	$ 2,500
	PUMPS AND PIPING SUBTOTAL				**$ 339,000**
	BUILDING				
24	PRECAST ROOF SYSTEM	SF	1405	$ 15.00	$ 22,000
25	MASONRY BUILDING (BRICK & BLOCK)	SF	1405	$ 40.00	$ 57,000
26	METALS (STAIRS, HANDRAILS, ETC)	SF	1405	$ 12.00	$ 17,000
27	THERMAL & MOISTURE PROTECTION	SF	1405	$ 15.00	$ 22,000
28	DOORS & WINDOWS	SF	1405	$ 25.00	$ 36,000
29	PAINTING	LS	1.0	$ 75,000.00	$ 75,000
30	PLUMBING	LS	1.0	$ 66,000.00	$ 66,000
31	HVAC	LS	1.0	$ 128,500.00	$ 129,000
32	ELECTRICAL (NON-EQUIPMENT)	LS	1.0	$ 195,000.00	$ 195,000
33	HOIST/MONORAIL	EA	1.0	$ 25,000.00	$ 25,000
34	SURGE TANK	LS	1.0	$ 40,000.00	$ 40,000
35	ODOR CONTROL UNIT	LS	1.0	$ 100,000.00	$ 100,000
36	GENERATOR	LS	1.0	$ 340,000.00	$ 340,000
37	INSTRUMENTATION AND CONTROL SYSTEM	LS	1.0	$ 90,000.00	$ 90,000
38	MAG METER	LS	1.0	$ 7,000.00	$ 7,000
	BUILDING SUBTOTAL				**$ 1,230,000**
	SCREENING				
39	MECHANICAL BAR SCREEN	LS	1.0	$ 175,000.00	$ 175,000
	SCREENING SUBTOTAL				**$ 175,000**
	TOTAL ITEMS 1 THROUGH 39				
	SUBTOTAL CONSTRUCTION COSTS				$ 2,676,200
	CONTINGENCY (20%)				$ 536,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 3,212,200**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 643,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 3,855,000**

TABLE F-8: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST

LIFT STATION TO PUMP TO SIOUX FALLS (2011-2021)

AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	DEWATERING	LS	1.0	$ 30,000.00	$ 30,000
3	L.S. & WETWELL EXCAVATION	CY	25,000	$ 5.00	$ 125,000
4	STRUCTURAL FILL	CY	36,600	$ 5.00	$ 183,000
5	CRUSHED ROCK UNDER WET WELL & VALVE VAULT	TON	295	$ 25.00	$ 7,400
6	ASPHALT SURFACING	LS	1.0	$ 60,000.00	$ 60,000
7	LANDSCAPING	LS	1.0	$ 10,000.00	$ 10,000
8	FENCING	LS	1.0	$ 15,000.00	$ 15,000
9	GATE	EA	1.0	$ 5,000.00	$ 5,000
10	WATER SERVICE	LF	2,640	$ 25.00	$ 66,000
	SITE WORK SUBTOTAL				**$ 511,400**
	LIFT STATION AND WETWELL				
11	REINFORCED CONCRETE BOTTOM SLAB	CY	180.0	$ 400.00	$ 72,000
12	REINFORCED CONCRETE TOP SLAB	CY	95.0	$ 1,200.00	$ 114,000
13	REINFORCED CONCRETE WALLS	CY	440.0	$ 700.00	$ 308,000
14	FILLABLE CONCRETE	CY	5.0	$ 200.00	$ 1,000
15	ENTRANCE & EQUIPMENT HATCH	LS	1.0	$ 10,000.00	$ 10,000
16	ENTRANCE LADDER	EA	1.0	$ 5,000.00	$ 5,000
17	SLUICE & STOP GATES	LS	1.0	$ 40,000.00	$ 40,000
	LIFT STATION & WETWELL SUBTOTAL				**$ 550,000**
	PUMPS AND PIPING				
18	4 - NON CLOG PUMPS (2 IN SERIES) & VFD'S	LS	1.0	$ 350,000.00	$ 350,000
19	16" D.I. FLANGED PIPE (PROCESS)	LS	1.0	$ 20,000.00	$ 20,000
20	PIPE FITTINGS (PROCESS)	LS	1.0	$ 15,000.00	$ 15,000
21	VALVES (PROCESS)	LS	1.0	$ 125,000.00	$ 125,000
22	SUMP PUMP & ASSOCIATED PIPING	LS	1.0	$ 1,500.00	$ 1,500
23	WATER AND PUMPING TESTS	LS	1.0	$ 2,500.00	$ 2,500
	PUMPS AND PIPING SUBTOTAL				**$ 514,000**
	BUILDING				
24	PRECAST ROOF SYSTEM	SF	1705	$ 15.00	$ 26,000
25	MASONRY BUILDING (BRICK & BLOCK)	SF	1705	$ 40.00	$ 69,000
26	METALS (STAIRS, HANDRAILS, ETC)	SF	1705	$ 12.00	$ 21,000
27	THERMAL & MOISTURE PROTECTION	SF	1705	$ 15.00	$ 26,000
28	DOORS & WINDOWS	SF	1705	$ 25.00	$ 43,000
29	PAINTING	LS	1.0	$ 75,000.00	$ 75,000
30	PLUMBING	LS	1.0	$ 85,000.00	$ 85,000
31	HVAC	LS	1.0	$ 165,000.00	$ 165,000
32	ELECTRICAL (NON-EQUIPMENT)	LS	1.0	$ 286,000.00	$ 286,000
33	HOIST/MONORAIL	EA	1.0	$ 25,000.00	$ 25,000
34	SURGE TANK	LS	1.0	$ 40,000.00	$ 40,000
35	ODOR CONTROL UNIT	LS	1.0	$ 100,000.00	$ 100,000
36	GENERATOR	LS	1.0	$ 441,000.00	$ 441,000
37	INSTRUMENTATION AND CONTROL SYSTEM	LS	1.0	$ 121,000.00	$ 121,000
38	MAG METER	LS	1.0	$ 7,000.00	$ 7,000
	BUILDING SUBTOTAL				**$ 1,530,000**
	SCREENING				
39	MECHANICAL BAR SCREEN	LS	1.0	$ 175,000.00	$ 175,000
	SCREENING SUBTOTAL				**$ 175,000**
	TOTAL ITEMS 1 THROUGH 39				
	SUBTOTAL CONSTRUCTION COSTS				$ 3,280,400
	CONTINGENCY (20%)				$ 657,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 3,937,400**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 788,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 4,725,000**

TABLE F-9: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
LIFT STATION TO PUMP TO HARRISBURG WWTP (2021-2031)
AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	PUMPS AND PIPING				
1	PUMP REPLACEMENT	EA	2.0	$ 232,000.00	$ 464,000
2	WATER AND PUMPING TESTS	LS	1.0	$ 2,500.00	$ 2,500
	PUMPS AND PIPING SUBTOTAL				**$ 466,500**
	BUILDING				
3	ELECTRICAL & CONTROLS UPGRADE	LS	1.0	$ 70,000.00	$ 70,000
	BUILDING SUBTOTAL				**$ 70,000**
	TOTAL ITEMS 1 THROUGH 3				
	SUBTOTAL CONSTRUCTION COSTS				$ 536,500
	CONTINGENCY (20%)				$ 108,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 644,500**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 129,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 774,000**

TABLE F-10: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST
LIFT STATION TO PUMP TO SIOUX FALLS (2021-2031)
AUGUST 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	PUMPS AND PIPING				
1	PUMP REPLACEMENT	EA	4.0	$ 178,000.00	$ 712,000
2	WATER AND PUMPING TESTS	LS	1.0	$ 2,500.00	$ 2,500
	PUMPS AND PIPING SUBTOTAL				**$ 714,500**
	BUILDING				
3	ELECTRICAL & CONTROLS UPGRADE	LS	1.0	$ 110,000.00	$ 110,000
	BUILDING SUBTOTAL				**$ 110,000**
	TOTAL ITEMS 1 THROUGH 3				
	SUBTOTAL CONSTRUCTION COSTS				$ 824,500
	CONTINGENCY (20%)				$ 165,000
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 989,500**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 198,000
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 1,188,000**

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-11: Sequencing Batch Reactor Alternative 2021 Construction Costs

Item Description	Quantity	Unit Cost	Total Cost
PRELIMINARY TREATMENT			
Fine Screens (including washer/compactor)	1 ea	$ 50,000.00	$50,000
Sampler	1 ea	$ 6,500.00	$6,500
Grit Removal Equipment			
Structure			
Slabs	28 cu yds	$ 400.00	$11,200
Channel/Foundation Walls	21 cu yds	$ 700.00	$14,700
Vortex Chamber Walls	6 cu yds	$ 1,000.00	$6,000
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	20 cu yds	$ 26.00	$520
Backfill	175 cu yds	$ 12.00	$2,100
Grit Equipment (Vortex/Classifier)	1 ea	$150,000.00	$150,000
Grit Pumps	1 ea	$ 15,000.00	$15,000
Process Piping	1 Lump Sum	$ 15,000.00	$15,000
Misc. Metals	1 ea	$ 5,000.00	$5,000
Slide Gates	1 ea	$ 8,000.00	$8,000
Stop Plates	3 ea	$ 2,500.00	$7,500
Painting	1 Lump Sum	$ 15,000.00	$15,000
Flowmeter-Parshall Flume	1 ea	$ 7,000.00	$7,000
Headworks Structure			
Slabs	128 cu yds	$ 400.00	$51,200
Walls	58 cu yds	$ 700.00	$40,600
Excavation	930 cu yds	$ 8.00	$7,440
Structural Backfill	350 cu yds	$ 26.00	$9,100
Backfill	350 cu yds	$ 12.00	$4,200
Misc. Metals	1 Lump Sum	$ 15,000.00	$15,000
Superstructure	1500 sq ft	$ 70.00	$105,000
HVAC	Lump Sum	15%	$35,000
Plumbing	Lump Sum	15%	$35,000
Equipment Installation	Lump Sum	20%	$45,700
Electrical	Lump Sum	15%	$83,000
Instrumentation & Controls	Lump Sum	5%	$28,000
		Subtotal =	$776,800
BIOLOGICAL TREATMENT SPLITTER STRUCTURE			
Structure	Lump Sum		$38,350
Process			
Pipe	Lump Sum		$13,700
Stop Plates	3 ea	$ 800.00	$2,400
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 26.00	$1,820
Backfill	1000 cu yds	$ 12.00	$12,000
		Subtotal=	$72,270

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

Table F-11: Sequencing Batch Reactor Alternative 2021 Construction Costs

SBR - BIOLOGICAL TREATMENT				
Structure				
Slab/footing	941	cu yd	$ 400.00	$376,400
Walls	780	cu yd	$ 700.00	$546,000
Excavation	6750	cu yd	$ 8.00	$54,000
Backfill	2378	cu yd	$ 12.00	$28,536
Structural Backfill	941	cu yd	$ 26.00	$24,466
Miscellaneous Structure		Lump Sum	4%	$41,176
Process				
Equipment Package	1	Lump Sum	$747,500.00	$747,500
Process/Aeration Piping	1	Lump Sum	$100,000.00	$100,000
Painting	1	Lump Sum	$ 20,000.00	$20,000
Electrical		Lump Sum	10%	$194,000
Instrumentation & Controls		Lump Sum	0%	$0
			Subtotal =	$2,132,078
EFFLUENT/DISINFECTION STRUCTURE				
Flowmeter-Parshall Flume	1	ea	$ 7,000.00	$7,000
Sampler	1	ea	$ 8,000.00	$8,000
UV Equipment	1	Lump Sum	$180,000.00	$180,000
Sluice Gate	1	ea	$ 8,000.00	$8,000
Structure				
Slab/footing	4.5	cu yd	$ 400.00	$1,800
Walls	10	cu yd	$ 700.00	$7,000
Excavation	51	cu yd	$ 8.00	$408
Backfill	25.5	cu yd	$ 12.00	$306
Metals (handrail, grating, stairs)	1	Lump Sum	$ 20,000.00	$20,000
Electrical			8%	$19,000
Instrumentation & Controls			4%	$9,000
			Subtotal =	$260,514
AEROBIC DIGESTION				
Existing Digestion Facilities				
Primary Digester Concrete				
Walls	795	cu yds	$ 700.00	$556,500
Slab	435	cu yds	$ 400.00	$174,000
Excavation	4620	cu yds	$ 8.00	$36,960
Backfill	1960	cu yds	$ 12.00	$23,520
Structural Backfill	190	cu yds	$ 26.00	$4,940
125 hp Blowers	2	ea	$ 75,000.00	$150,000
Diffusers and Piping	1	Lump Sum	$ 40,000.00	$40,000
Process Pipe and Fittings	1	Lump Sum	$ 50,000.00	$50,000
Electrical			14%	$145,000
Instrumentation & Controls			5%	$52,000
			Subtotal =	$1,232,920

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-11: Sequencing Batch Reactor Alternative 2021 Construction Costs

THICKENING/DEWATERING BUILDING

RDT	0	EA	$182,000.00	$0
RDT Feed Pumps	0	EA	$ 20,000.00	$0
RDT-to-Digester Feed Pumps	0	EA	$ 25,000.00	$0
Polymer Feed Unit	1	EA	$ 15,000.00	$15,000
BFP	1	EA	$300,000.00	$300,000
BFP Feed Pumps	2	EA	$ 20,000.00	$40,000
Conveyor	1	EA	$ 60,000.00	$60,000
Process				
Piping	1	Lump Sum	$ 20,000.00	$20,000
Valves	1	Lump Sum	$ 15,000.00	$15,000
Structure	1800	sq ft	$ 150.00	$270,000
Footing	30	cu yds	$ 400.00	$12,000
Slab	35	cu yds	$ 400.00	$14,000
Misc Concrete	10	cu yds	$ 700.00	$7,000
Excavation	100	cu yds	$ 8.00	$800
Structural Backfill	35	cu yds	$ 26.00	$900
Backfill	100	cu yds	$ 12.00	$1,200
WAS Holding Tank	1	Lump Sum	$ 15,000.00	$15,000
Excavation	1400	cu yds	$ 8.00	$11,200
Backfill	500	cu yds	$ 12.00	$6,000
Structural Backfill	250	cu yds	$ 26.00	$6,500
Walls	130	cu yds	$ 700.00	$91,000
Slab	200	cu yds	$ 400.00	$80,000
Roofing	1800	sq ft	$ 100.00	$180,000
HVAC			6%	$63,000
Plumbing			7%	$74,500
Electrical			12%	$137,500
Instrumentation & Controls			6%	$68,700
			Subtotal =	$1,489,300

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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October 24, 2007

Table F-11: Sequencing Batch Reactor Alternative 2021 Construction Costs

NEW CONTROL BUILDING				
Structure	1000 Sq Ft	$ 100.00		$100,000
Laboratory Equip	1 Lump Sum	$ 25,000.00		$25,000
Plumbing	1000 Sq Ft	$ 20.00		$20,000
HVAC	1000 Sq Ft	$ 15.00		$15,000
Roofing	1000 Sq Ft	$ 50.00		$50,000
Finishes	1 Lump Sum	$ 10,000.00		$10,000
Electrical Modifications		10%		$22,000
Instrumentation & Controls		8%		$18,000
		Subtotal =		$260,000
Subtotal				$6,223,882
SITEWORK			10%	$622,388
Subtotal				$6,846,270
GENERAL REQUIREMENTS			10%	$685,000
Subtotal				$7,531,270
CONTINGENCY			20%	$1,506,000
Opinion of Probable Construction Cost				**$9,037,270**

*** Based on 2007 costs**

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CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

Table F-12: Sequencing Batch Reactor Alternative 2031 Construction Costs

Item Description			Total Cost*
PRELIMINARY TREATMENT			
Fine Screens (including washer/compactor)	1 ea	$ 50,000.00	$50,000
Sampler	0 ea	$ 6,500.00	$0
Grit Removal Equipment			$0
Structure			$0
Slabs	0 cu yds	$ 400.00	$0
Channel/Foundation Walls	0 cu yds	$ 700.00	$0
Vortex Chamber Walls	0 cu yds	$ 1,000.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
Grit Equipment (Vortex/Classifier)	1 ea	$ 150,000.00	$150,000
Grit Pumps	1 ea	$ 15,000.00	$15,000
Process Piping	1 Lump Sum	$ 15,000.00	$15,000
Misc. Metals	1 ea	$ 5,000.00	$5,000
Slide Gates	1 ea	$ 8,000.00	$8,000
Stop Plates	3 ea	$ 2,500.00	$7,500
Painting	1 Lump Sum	$ 15,000.00	$15,000
Flowmeter-Parshall Flume	0 ea	$ 7,000.00	$0
Headworks Structure			$0
Slabs	0 cu yds	$ 400.00	$0
Walls	0 cu yds	$ 700.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
Misc. Metals	1 Lump Sum	$ 15,000.00	$15,000
Superstructure	0 sq ft	$ 70.00	$0
HVAC	Lump Sum	0%	$0
Plumbing	Lump Sum	15%	$2,000
Equipment Installation	Lump Sum	20%	$43,000
Electrical	Lump Sum	15%	$42,000
Instrumentation & Controls	Lump Sum	5%	$14,000
		Subtotal =	$381,500

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
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Table F-12: Sequencing Batch Reactor Alternative 2031 Construction Costs

PRIMARY CLARIFIER				
Structure				
Walls	376	cu yds	$ 700.00	$263,200
Slab	528	cu yds	$ 400.00	$211,200
Misc concrete	55	cu yds	$ 700.00	$38,500
Excavation	4647	cu yds	$ 8.00	$37,176
Structural Backfill	715	cu yds	$ 26.00	$18,590
Backfill	2033	cu yds	$ 12.00	$24,396
Pump Structure				$0
Walls	80	cu yds	$ 700.00	$56,000
Slab	50	cu yds	$ 400.00	$20,000
Suspended Slab	50	cu yds	$ 700.00	$35,000
Misc Metals	3	ea	$ 5,000.00	$15,000
Primary Sludge Pumps	3	ea	$ 15,000.00	$45,000
Piping & Valves	1	Lump	$ 20,000.00	$20,000
Misc Metals	3	ea	$ 5,000.00	$15,000
Process				$0
4" Pipe	30	lin ft	$ 24.00	$720
6" Pipe	135	lin ft	$ 36.00	$4,860
18" Pipe	135	lin ft	$ 108.00	$14,580
Concrete Encasement	270	lin ft	$ 20.00	$5,400
Mechanisms	3	ea	$ 100,000.00	$300,000
Weirs & Baffles	3	ea	$ 8,000.00	$24,000
Scum Pumping Structures	3	ea	$ 5,000.00	$15,000
Painting	1	Lump Sum	$ 20,000.00	$20,000
Equipment Installation		Lump Sum	20%	$73,800
Electrical		Lump Sum	15%	$178,000
Instrumentation & Controls		Lump Sum	5%	$59,000
			Subtotal=	$1,494,422
PRIMARY CLARIFIER SPLITTER STRUCTURE				
Structure	1	Lump Sum	$ 38,350.00	$38,350
Process				$0
Pipe		Lump Sum		$0
Slide Gates	3	ea	$ 6,000.00	$18,000
Excavation	500	cu yds	$ 8.00	$4,000
Structural Backfill	70	cu yds	$ 26.00	$1,820
Backfill	1000	cu yds	$ 12.00	$12,000
			Subtotal=	$74,170

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
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Table F-12: Sequencing Batch Reactor Alternative 2031 Construction Costs

BIOLOGICAL TREATMENT SPLITTER STRUCTURE			
Structure	1 Lump Sum	$38,350	$38,350
Process			
Pipe	1 Lump Sum	$ 13,700.00	$13,700
Stop Plates	3 ea	$ 800.00	$2,400
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 12.00	$840
Backfill	1000 cu yds	$ 26.00	$26,000
		Subtotal =	$85,290
SBR - BIOLOGICAL TREATMENT			
Structure			
Slab/footing	882 cu yd	$ 400.00	$352,800
Walls	595 cu yd	$ 700.00	$416,500
Excavation	5688 cu yd	$ 8.00	$45,504
Backfill	1412 cu yd	$ 12.00	$16,944
Structural Backfill	882 cu yd	$ 26.00	$22,932
Miscellaneous Structure	Lump Sum	4%	$34,200
Process			
Equipment Package	1 Lump Sum	$ 644,000.00	$644,000
Process/Aeration Piping	1 Lump Sum	$ 100,000.00	$100,000
Painting	1 Lump Sum	$ 20,000.00	$20,000
Electrical	Lump Sum	10%	$165,000
Instrumentation & Controls	Lump Sum	0%	$0
		Subtotal =	$1,817,880
EFFLUENT/DISINFECTION STRUCTURE			
Flowmeter-Parshall Flume	0 ea	$ 7,000.00	$0
Sampler	0 ea	$ 8,000.00	$0
UV Equipment	0 Lump Sum	$ 115,000.00	$0
Sluice Gate	0 ea	$ 8,000.00	$0
Structure	0 Lump Sum	$ 30,000.00	$0
Electrical		8%	$0
Instrumentation & Controls		4%	$0
		Subtotal =	$0

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

Table F-12: Sequencing Batch Reactor Alternative 2031 Construction Costs

ANAEROBIC DIGESTION CONVERSION			
Existing Digestion Facilities			
Selective Demolition			
Aeration System	1 Lump Sum	$ 20,000.00	$20,000
Digester Cleaning	2 ea	$ 5,000.00	$10,000
New Digestion Facilities			$0
Dual-fuel Boiler	2 ea	$ 100,000.00	$200,000
Heat Exchanger	2	$ 20,000.00	$40,000
Recirculation Pumps	1	$ 30,000.00	$30,000
Equipment Building	1	$ 62,500.00	$62,500
Waste Gas Burner, Piping, & Controls	1 Lump Sum	$ 100,000.00	$100,000
Primary Digester Mixing System	1 ea	$ 75,000.00	$75,000
Primary Digester Covers-fixed	1 ea	$ 125,000.00	$125,000
Secondary Digester Cover-floating	1 ea	$ 200,000.00	$200,000
Process Pipe and Fittings	1 Lump Sum	$ 25,000.00	$25,000
Electrical		14%	$120,000
Instrumentation & Controls		5%	$43,000
		Subtotal =	$1,050,500
THICKENING/DEWATERING BUILDING			
RDT	1 EA	$ 182,000.00	$182,000
RDT Feed Pumps	2 EA	$ 20,000.00	$40,000
RDT-to-Digester Feed Pumps	2 EA	$ 25,000.00	$50,000
Polymer Feed Unit	1 EA	$ 15,000.00	$15,000
BFP	0 EA	$ 300,000.00	$0
BFP Feed Pumps	0 EA	$ 20,000.00	$0
Conveyor	0 EA	$ 60,000.00	$0
Process			
Piping	0 Lump Sum	$ 20,000.00	$0
Valves	0 Lump Sum	$ 15,000.00	$0
Structure	0 sq ft	$ 150.00	$0
Footing	0 cu yds	$ 400.00	$0
Slab	0 cu yds	$ 400.00	$0
Misc Concrete	0 cu yds	$ 700.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
WAS Holding Tank	0 Lump Sum	$ 15,000.00	$0
Excavation	0 cu yds	$ 8.00	$0
Backfill	0 cu yds	$ 12.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Walls	0 cu yds	$ 700.00	$0
Slab	0 cu yds	$ 400.00	$0
Roofing	0 sq ft	$ 100.00	$0
HVAC		6%	$15,800
Plumbing		7%	$18,700

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
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Table F-12: Sequencing Batch Reactor Alternative 2031 Construction Costs

Electrical			12%	$34,400
Instrumentation & Controls			6%	$17,200
			Subtotal =	$373,100
NEW CONTROL BUILDING				
Structure	0 Sq Ft		$ 100.00	$0
Laboratory Equip	0 Lump Sum		$ 25,000.00	$0
Plumbing	0 Sq Ft		$ 20.00	$0
HVAC	0 Sq Ft		$ 15.00	$0
Roofing	0 Sq Ft		$ 50.00	$0
Finishes	0 Lump Sum		$ 10,000.00	$0
Electrical Modifications			10%	$0
Instrumentation & Controls			8%	$0
			Subtotal =	$0
Subtotal				$5,276,862
SITEWORK		10%		$527,686
Subtotal				$5,804,548
GENERAL REQUIREMENTS		10%		$580,000
Subtotal				$6,384,548
CONTINGENCY		20%		$1,277,000
Opinion of Probable Construction Cost				**$7,661,548**

*** Based on 2007 costs**

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CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

TABLE F-13: Conventional Activated-Sludge Alternative 2021 Construction Costs

Item Description	Quantity	Unit		Unit Cost	Total Cost
PRELIMINARY TREATMENT					
Fine Screens (including washer/compactor)	1	ea	$	50,000.00	$50,000
Sampler	1	ea	$	6,500.00	$6,500
Grit Removal Equipment					
Structure					
Slabs	28	cu yds	$	400.00	$11,200
Channel/Foundation Walls	21	cu yds	$	700.00	$14,700
Vortex Chamber Walls	6	cu yds	$	1,000.00	$6,000
Excavation	500	cu yds	$	8.00	$4,000
Structural Backfill	20	cu yds	$	26.00	$520
Backfill	175	cu yds	$	12.00	$2,100
Grit Equipment (Vortex/Classifier)	1	ea	$	150,000.00	$150,000
Grit Pumps	1	ea	$	15,000.00	$15,000
Process Piping	1	Lump Sum	$	15,000.00	$15,000
Misc. Metals	1	ea	$	5,000.00	$5,000
Slide Gates	1	ea	$	8,000.00	$8,000
Stop Plates	3	ea	$	2,500.00	$7,500
Painting	1	Lump Sum	$	15,000.00	$15,000
Flowmeter-Parshall Flume	1	ea	$	7,000.00	$7,000
Headworks Structure					
Slabs	128	cu yds	$	400.00	$51,200
Walls	58	cu yds	$	700.00	$40,600
Excavation	930	cu yds	$	8.00	$7,440
Structural Backfill	350	cu yds	$	26.00	$9,100
Backfill	350	cu yds	$	12.00	$4,200
Misc. Metals	1	Lump Sum	$	15,000.00	$15,000
Superstructure	1500	sq ft	$	70.00	$105,000
HVAC		Lump Sum		15%	$35,000
Plumbing		Lump Sum		15%	$35,000
Equipment Installation		Lump Sum		20%	$45,700
Electrical		Lump Sum		15%	$83,000
Instrumentation & Controls		Lump Sum		5%	$28,000
			Subtotal =		$776,800
BIOLOGICAL TREATMENT SPLITTER STRUCTURE					
Structure		Lump Sum			$38,350
Process					
Pipe		Lump Sum			$13,700
Stop Plates	3	ea	$	800.00	$2,400
Excavation	500	cu yds	$	8.00	$4,000
Structural Backfill	70	cu yds	$	26.00	$1,820
Backfill	1000	cu yds	$	12.00	$12,000
			Subtotal=		$72,270

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

TABLE F-13: Conventional Activated-Sludge Alternative 2021 Construction Costs

CONVENTIONAL AS - BIOLOGICAL TREATMENT			
Structure			
Slab/footing	905.2 cu yd	$ 400.00	$362,080
Walls	566.6 cu yd	$ 700.00	$396,620
Excavation	5237 cu yd	$ 8.00	$41,896
Backfill	1877 cu yd	$ 12.00	$22,524
Structural Backfill	905.2 cu yd	$ 26.00	$23,535
Miscellaneous Structure	Lump Sum	4%	$33,866
Process			
75 Hp Blowers	3 ea	$ 45,000.00	$135,000
Air Piping	1 Lump Sum	$ 70,000.00	$70,000
Diffusers	1 Lump Sum	$ 150,000.00	$150,000
Baffles	1 Lump Sum	$ 50,000.00	$50,000
Painting	1 Lump Sum	$ 10,000.00	$10,000
Electrical	Lump Sum	10%	$130,000
Instrumentation & Controls	Lump Sum	4%	$52,000
		Subtotal =	$1,477,521
SECONDARY CLARIFIER SPLITTER STRUCTURE			
Structure	Lump Sum		$38,350
Process			
Pipe	Lump Sum		$13,700
Stop Plates	3 ea	$ 800.00	$2,400
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 26.00	$1,820
Backfill	1000 cu yds	$ 12.00	$12,000
		Subtotal=	$72,270
SECONDARY CLARIFIER			
Clarifier Structure			
Concrete Structures	1 Lump Sum	$ 375,000.00	$375,000
Miscellaneous Structures	1 Lump Sum	$ 40,000.00	$40,000
Secondary Solids Handling			
Incl. WAS, RAS, scum, structures	1 Lump Sum	$ 1,000,000.00	$1,000,000
Process			
Equipment (incl. installation)	1 Lump Sum	$ 260,000.00	$260,000
Piping	1 Lump Sum	$ 25,000.00	$25,000
Electrical	Lump Sum	10%	$170,000
Instrumentation & Controls	Lump Sum	4%	$68,000
		Subtotal=	$1,938,000
EFFLUENT/DISINFECTION STRUCTURE			
Flowmeter-Parshall Flume	1 ea	$ 7,000.00	$7,000
Sampler	1 ea	$ 8,000.00	$8,000
UV Equipment	1 Lump Sum	$ 120,000.00	$120,000
Sluice Gate	1 ea	$ 8,000.00	$8,000
Structure			
Slab/footing	4.5 cu yd	$ 400.00	$1,800
Walls	10 cu yd	$ 700.00	$7,000
Excavation	51 cu yd	$ 8.00	$408
Backfill	25.5 cu yd	$ 12.00	$306
Metals (handrail, grating, stairs)	1 Lump Sum	$ 20,000.00	$20,000
Electrical		8%	$14,000
Instrumentation & Controls		4%	$7,000
		Subtotal =	$193,514

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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TABLE F-13: Conventional Activated-Sludge Alternative 2021 Construction Costs

AEROBIC DIGESTION				
Existing Digestion Facilities				
Primary Digester Concrete				
Walls	795	cu yds	$ 700.00	$556,500
Slab	435	cu yds	$ 400.00	$174,000
Excavation	4620	cu yds	$ 8.00	$36,960
Backfill	1960	cu yds	$ 12.00	$23,520
Structural Backfill	190	cu yds	$ 26.00	$4,940
125 hp Blowers	2	ea	$ 75,000.00	$150,000
Diffusers and Piping	1	Lump Sum	$ 40,000.00	$40,000
Process Pipe and Fittings	1	Lump Sum	$ 50,000.00	$50,000
Electrical			14%	$145,000
Instrumentation & Controls			5%	$52,000
			Subtotal =	$1,232,920
THICKENING/DEWATERING BUILDING				
RDT	0	EA	$ 182,000.00	$0
RDT Feed Pumps	0	EA	$ 20,000.00	$0
RDT-to-Digester Feed Pumps	0	EA	$ 25,000.00	$0
Polymer Feed Unit	1	EA	$ 15,000.00	$15,000
BFP	1	EA	$ 300,000.00	$300,000
BFP Feed Pumps	2	EA	$ 20,000.00	$40,000
Conveyor	1	EA	$ 60,000.00	$60,000
Process				
Piping	1	Lump Sum	$ 20,000.00	$20,000
Valves	1	Lump Sum	$ 15,000.00	$15,000
Structure	1800	sq ft	$ 150.00	$270,000
Footing	30	cu yds	$ 400.00	$12,000
Slab	35	cu yds	$ 400.00	$14,000
Misc Concrete	10	cu yds	$ 700.00	$7,000
Excavation	100	cu yds	$ 8.00	$800
Structural Backfill	35	cu yds	$ 26.00	$900
Backfill	100	cu yds	$ 12.00	$1,200
WAS Holding Tank	1	Lump Sum	$ 15,000.00	$15,000
Excavation	1400	cu yds	$ 8.00	$11,200
Backfill	500	cu yds	$ 12.00	$6,000
Structural Backfill	250	cu yds	$ 26.00	$6,500
Walls	130	cu yds	$ 700.00	$91,000
Slab	200	cu yds	$ 400.00	$80,000
Roofing	1800	sq ft	$ 100.00	$180,000
HVAC			6%	$63,000
Plumbing			7%	$74,500
Electrical			12%	$137,500
Instrumentation & Controls			6%	$68,700
			Subtotal =	$1,489,300

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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TABLE F-13: Conventional Activated-Sludge Alternative 2021 Construction Costs

NEW CONTROL BUILDING				
Structure	1000 Sq Ft	$	100.00	$100,000
Laboratory Equip	1 Lump Sum	$	25,000.00	$25,000
Plumbing	1000 Sq Ft	$	20.00	$20,000
HVAC	1000 Sq Ft	$	15.00	$15,000
Roofing	1000 Sq Ft	$	50.00	$50,000
Finishes	1 Lump Sum	$	10,000.00	$10,000
Electrical Modifications		10%		$22,000
Instrumentation & Controls		8%		$18,000
		Subtotal =		$260,000
Subtotal				$7,512,595
SITEWORK	10%			$751,260
Subtotal				$8,263,855
GENERAL REQUIREMENTS	10%			$826,000
Subtotal				$9,089,855
CONTINGENCY	20%			$1,818,000
Opinion of Probable Construction Cost				**$10,907,855**

*** Based on 2007 costs**

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CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-14: Conventional Activated-Sludge Alternative 2031 Construction Costs

Item Description				Total Cost*
PRELIMINARY TREATMENT				
Fine Screens (including washer/compactor)	1	ea	$ 50,000.00	$50,000
Sampler	0	ea	$ 6,500.00	$0
Grit Removal Equipment				$0
Structure				$0
Slabs	0	cu yds	$ 400.00	$0
Channel/Foundation Walls	0	cu yds	$ 700.00	$0
Vortex Chamber Walls	0	cu yds	$ 1,000.00	$0
Excavation	0	cu yds	$ 8.00	$0
Structural Backfill	0	cu yds	$ 26.00	$0
Backfill	0	cu yds	$ 12.00	$0
Grit Equipment (Vortex/Classifier)	1	ea	$150,000.00	$150,000
Grit Pumps	1	ea	$ 15,000.00	$15,000
Process Piping	1	Lump Sum	$ 15,000.00	$15,000
Misc. Metals	1	ea	$ 5,000.00	$5,000
Slide Gates	1	ea	$ 8,000.00	$8,000
Stop Plates	3	ea	$ 2,500.00	$7,500
Painting	1	Lump Sum	$ 15,000.00	$15,000
Flowmeter-Parshall Flume	0	ea	$ 7,000.00	$0
Headworks Structure				$0
Slabs	0	cu yds	$ 400.00	$0
Walls	0	cu yds	$ 700.00	$0
Excavation	0	cu yds	$ 8.00	$0
Structural Backfill	0	cu yds	$ 26.00	$0
Backfill	0	cu yds	$ 12.00	$0
Misc. Metals	1	Lump Sum	$ 15,000.00	$15,000
Superstructure	0	sq ft	$ 70.00	$0
HVAC		Lump Sum	0%	$0
Plumbing		Lump Sum	15%	$2,000
Equipment Installation		Lump Sum	20%	$43,000
Electrical		Lump Sum	15%	$42,000
Instrumentation & Controls		Lump Sum	5%	$14,000
			Subtotal =	$381,500

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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October 24, 2007

Table F-14: Conventional Activated-Sludge Alternative 2031 Construction Costs

PRIMARY CLARIFIER			
Structure			
Walls	376 cu yds	$ 700.00	$263,200
Slab	528 cu yds	$ 400.00	$211,200
Misc concrete	55 cu yds	$ 700.00	$38,500
Excavation	4647 cu yds	$ 8.00	$37,176
Structural Backfill	715 cu yds	$ 26.00	$18,590
Backfill	2033 cu yds	$ 12.00	$24,396
Pump Structure			$0
Walls	80 cu yds	$ 700.00	$56,000
Slab	50 cu yds	$ 400.00	$20,000
Suspended Slab	50 cu yds	$ 700.00	$35,000
Misc Metals	3 ea	$ 5,000.00	$15,000
Primary Sludge Pumps	3 ea	$ 15,000.00	$45,000
Piping & Valves	1 Lump	$ 20,000.00	$20,000
Misc Metals	3 ea	$ 5,000.00	$15,000
Process			$0
4" Pipe	30 lin ft	$ 24.00	$720
6" Pipe	135 lin ft	$ 36.00	$4,860
18" Pipe	135 lin ft	$ 108.00	$14,580
Concrete Encasement	270 lin ft	$ 20.00	$5,400
Mechanisms	3 ea	$100,000.00	$300,000
Weirs & Baffles	3 ea	$ 8,000.00	$24,000
Scum Pumping Structures	3 ea	$ 5,000.00	$15,000
Painting	1 Lump Sum	$ 20,000.00	$20,000
Equipment Installation	Lump Sum	20%	$73,800
Electrical	Lump Sum	15%	$178,000
Instrumentation & Controls	Lump Sum	5%	$59,000
		Subtotal=	$1,494,422
PRIMARY CLARIFIER SPLITTER STRUCTURE			
Structure	1 Lump Sum	$ 38,350.00	$38,350
Process			$0
Pipe	Lump Sum		$0
Slide Gates	3 ea	$ 6,000.00	$18,000
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 26.00	$1,820
Backfill	1000 cu yds	$ 12.00	$12,000
		Subtotal=	$74,170

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-14: Conventional Activated-Sludge Alternative 2031 Construction Costs

BIOLOGICAL TREATMENT SPLITTER STRUCTURE			
Structure	Lump Sum		$0
Process			
Pipe	Lump Sum		$0
Stop Plates	0 ea	$ 800.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
		Subtotal=	$0
CONVENTIONAL AS - BIOLOGICAL TREATMENT			
Structure			
Slab/footing	0 cu yd	$ 400.00	$0
Walls	0 cu yd	$ 700.00	$0
Excavation	0 cu yd	$ 8.00	$0
Backfill	0 cu yd	$ 12.00	$0
Structural Backfill	0 cu yd	$ 26.00	$0
Miscellaneous Structure	Lump Sum	4%	$0
Process			
75 Hp Blowers	2 ea	$ 45,000.00	$90,000
Air Piping	1 Lump Sum	$ 25,000.00	$25,000
Diffusers	0 Lump Sum	$150,000.00	$0
Baffles	0 Lump Sum	$ 50,000.00	$0
Painting	0 Lump Sum	$ 10,000.00	$0
Electrical	Lump Sum	10%	$12,000
Instrumentation & Controls	Lump Sum	4%	$5,000
		Subtotal =	$132,000
SECONDARY CLARIFIER SPLITTER STRUCTURE			
Structure	Lump Sum		$0
Process			
Pipe	Lump Sum		$0
Stop Plates	0 ea	$ 800.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
		Subtotal=	$0

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-14: Conventional Activated-Sludge Alternative 2031 Construction Costs

SECONDARY CLARIFIER			
Clarifier Structure			
Concrete Structures	1 Lump Sum	$200,000.00	$200,000
Miscellaneous Structures	1 Lump Sum	$ 10,000.00	$10,000
Secondary Solids Handling			
Incl. WAS, RAS, scum, structures	1 Lump Sum	$ -	$0
Process			
Equipment (incl. installation)	1 Lump Sum	$130,000.00	$130,000
Piping	1 Lump Sum	$ 10,000.00	$10,000
Electrical	Lump Sum	10%	$35,000
Instrumentation & Controls	Lump Sum	4%	$14,000
		Subtotal=	$399,000
EFFLUENT/DISINFECTION STRUCTURE			
Flowmeter-Parshall Flume	0 ea	$ 7,000.00	$0
Sampler	0 ea	$ 8,000.00	$0
UV Equipment	1 Lump Sum	$ 60,000.00	$60,000
Sluice Gate	0 ea	$ 8,000.00	$0
Structure	0 Lump Sum	$ 30,000.00	$0
Electrical		8%	$5,000
Instrumentation & Controls		4%	$2,000
		Subtotal =	$67,000
ANAEROBIC DIGESTION CONVERSION			
Existing Digestion Facilities			
Selective Demolition			
Aeration System	1 Lump Sum	$ 20,000.00	$20,000
Digester Cleaning	2 ea	$ 5,000.00	$10,000
New Digestion Facilities			$0
Dual-fuel Boiler	2 ea	$100,000.00	$200,000
Heat Exchanger	2 ea	$ 20,000.00	$40,000
Recirculation Pumps	1 ea	$ 30,000.00	$30,000
Equipment Building	1 ea	$ 62,500.00	$62,500
Waste Gas Burner, Piping, & Controls	1 Lump Sum	$100,000.00	$100,000
Primary Digester Mixing System	1 ea	$ 75,000.00	$75,000
Primary Digester Covers-fixed	1 ea	$125,000.00	$125,000
Secondary Digester Cover-floating	1 ea	$200,000.00	$200,000
Process Pipe and Fittings	1 Lump Sum	$ 25,000.00	$25,000
Electrical		14%	$120,000
Instrumentation & Controls		5%	$43,000
		Subtotal =	$1,050,500

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-14: Conventional Activated-Sludge Alternative 2031 Construction Costs

THICKENING/DEWATERING BUILDING			
RDT	1 EA	$182,000.00	$182,000
RDT Feed Pumps	2 EA	$ 20,000.00	$40,000
RDT-to-Digester Feed Pumps	2 EA	$ 25,000.00	$50,000
Polymer Feed Unit	1 EA	$ 15,000.00	$15,000
BFP	0 EA	$300,000.00	$0
BFP Feed Pumps	0 EA	$ 20,000.00	$0
Conveyor	0 EA	$ 60,000.00	$0
Process	0		
Piping	0 Lump Sum	$ 20,000.00	$0
Valves	0 Lump Sum	$ 15,000.00	$0
Structure	0 sq ft	$ 150.00	$0
Footing	0 cu yds	$ 400.00	$0
Slab	0 cu yds	$ 400.00	$0
Misc Concrete	0 cu yds	$ 700.00	$0
Excavation	0 cu yds	$ 8.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Backfill	0 cu yds	$ 12.00	$0
WAS Holding Tank	0 Lump Sum	$ 15,000.00	$0
Excavation	0 cu yds	$ 8.00	$0
Backfill	0 cu yds	$ 12.00	$0
Structural Backfill	0 cu yds	$ 26.00	$0
Walls	0 cu yds	$ 700.00	$0
Slab	0 cu yds	$ 400.00	$0
Roofing	0 sq ft	$ 100.00	$0
HVAC		6%	$15,800
Plumbing		7%	$18,700
Electrical		12%	$34,400
Instrumentation & Controls		6%	$17,200
		Subtotal =	$373,100
NEW CONTROL BUILDING			
Structure	0 Sq Ft	$ 100.00	$0
Laboratory Equip	0 Lump Sum	$ 25,000.00	$0
Plumbing	0 Sq Ft	$ 20.00	$0
HVAC	0 Sq Ft	$ 15.00	$0
Roofing	0 Sq Ft	$ 50.00	$0
Finishes	0 Lump Sum	$ 10,000.00	$0
Electrical Modifications		10%	$0
Instrumentation & Controls		8%	$0
		Subtotal =	$0
Subtotal			$3,971,692
SITEWORK	10%		$397,169
Subtotal			$4,368,861
GENERAL REQUIREMENTS	10%		$437,000
Subtotal			$4,805,861
CONTINGENCY	20%		$961,000
Opinion of Probable Construction Cost			**$5,766,861**

*** Based on 2007 costs**

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CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

Table F-15: Membrane Biological Reactor Alternative 2021 Construction Costs

Item Description			Total Cost
PRELIMINARY TREATMENT			
Fine Screens (including washer/compactor)	1 ea	$ 200,000.00	$200,000
Sampler	1 ea	$ 6,500.00	$6,500
Grit Removal Equipment			
Structure			
Slabs	28 cu yds	$ 400.00	$11,200
Channel/Foundation Walls	21 cu yds	$ 700.00	$14,700
Vortex Chamber Walls	6 cu yds	$ 1,000.00	$6,000
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	20 cu yds	$ 26.00	$520
Backfill	175 cu yds	$ 12.00	$2,100
Grit Equipment (Vortex/Classifier)	1 ea	$ 150,000.00	$150,000
Grit Pumps	1 ea	$ 15,000.00	$15,000
Process Piping	1 Lump Sum	$ 15,000.00	$15,000
Misc. Metals	1 ea	$ 5,000.00	$5,000
Slide Gates	1 ea	$ 8,000.00	$8,000
Stop Plates	3 ea	$ 2,500.00	$7,500
Painting	1 Lump Sum	$ 15,000.00	$15,000
Flowmeter-Parshall Flume	1 ea	$ 7,000.00	$7,000
Headworks Structure			
Slabs	128 cu yds	$ 400.00	$51,200
Walls	58 cu yds	$ 700.00	$40,600
Excavation	930 cu yds	$ 8.00	$7,440
Structural Backfill	350 cu yds	$ 26.00	$9,100
Backfill	350 cu yds	$ 12.00	$4,200
Misc. Metals	1 Lump Sum	$ 15,000.00	$15,000
Superstructure	1500 sq ft	$ 70.00	$105,000
HVAC	Lump Sum	15%	$35,000
Plumbing	Lump Sum	15%	$35,000
Equipment Installation	Lump Sum	20%	$75,700
Electrical	Lump Sum	15%	$105,000
Instrumentation & Controls	Lump Sum	5%	$35,000
		Subtotal =	$985,800
BIOLOGICAL TREATMENT SPLITTER STRUCTURE			
Structure	Lump Sum		$38,350
Process			
Pipe	Lump Sum		$13,700
Stop Plates	3 ea	$ 800.00	$2,400
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 26.00	$1,820
Backfill	1000 cu yds	$ 12.00	$12,000
		Subtotal=	$72,270

MEMBRANE - BIOLOGICAL TREATMENT			
Structure			
Slab/footing	441 cu yd	$ 400.00	$176,400
Walls	350 cu yd	$ 700.00	$245,000
Excavation	2700 cu yd	$ 8.00	$21,600
Backfill	1130 cu yd	$ 12.00	$13,560
Structural Backfill	441 cu yd	$ 26.00	$11,466
Miscellaneous Structure	Lump Sum	5%	$23,401
Process			
75 Hp Blowers	3 ea	$ 45,000.00	$135,000
Air Piping	1 Lump Sum	$ 65,000.00	$65,000
Diffusers	1 Lump Sum	$ 80,000.00	$80,000
Baffles	1 Lump Sum	$ 30,000.00	$30,000
Painting	1 Lump Sum	$ 10,000.00	$10,000
Electrical	Lump Sum	10%	$34,000
Instrumentation & Controls	Lump Sum	4%	$14,000
		Subtotal =	$859,427
MEMBRANE CLARIFICATION			
Membrane Module Tank Structure			
Slab/footing	45 cu yd	$ 400.00	$18,000
Walls	142 cu yd	$ 700.00	$99,400
Excavation	350 cu yd	$ 8.00	$2,800
Membrane Module Equipment Bldg	1 Lump Sum	$ 665,300.00	$665,300
Membrane Process Equipment Package	1 Lump Sum	$2,152,600.00	$2,152,600
Electrical	Lump Sum	10%	$282,000
Instrumentation & Controls	Lump Sum	0%	$0
		Subtotal=	$3,220,100
EFFLUENT/DISINFECTION STRUCTURE			
Flowmeter-Parshall Flume	1 ea	$ 7,000.00	$7,000
Sampler	1 ea	$ 8,000.00	$8,000
UV Equipment	1 Lump Sum	$ 120,000.00	$120,000
Sluice Gate	1 ea	$ 8,000.00	$8,000
Structure			
Slab/footing	4.5 cu yd	$ 400.00	$1,800
Walls	10 cu yd	$ 700.00	$7,000
Excavation	51 cu yd	$ 8.00	$408
Backfill	25.5 cu yd	$ 12.00	$306
Metals (handrail, grating, stairs)	1 Lump Sum	$ 20,000.00	$20,000
Electrical		8%	$14,000
Instrumentation & Controls		4%	$7,000
		Subtotal =	$193,514
AEROBIC DIGESTION			
Existing Digestion Facilities			
Primary Digester Concrete			
Walls	795 cu yds	$ 700.00	$556,500
Slab	435 cu yds	$ 400.00	$174,000
Excavation	4620 cu yds	$ 8.00	$36,960
Backfill	1960 cu yds	$ 12.00	$23,520
Structural Backfill	190 cu yds	$ 26.00	$4,940
125 hp Blowers	2 ea	$ 75,000.00	$150,000
Diffusers and Piping	1 Lump Sum	$ 40,000.00	$40,000
Process Pipe and Fittings	1 Lump Sum	$ 50,000.00	$50,000
Electrical		14%	$145,000
Instrumentation & Controls		5%	$52,000
		Subtotal =	$1,232,920

THICKENING/DEWATERING BUILDING			
RDT	0 EA	$ 182,000.00	$0
RDT Feed Pumps	0 EA	$ 20,000.00	$0
RDT-to-Digester Feed Pumps	0 EA	$ 25,000.00	$0
Polymer Feed Unit	1 EA	$ 15,000.00	$15,000
BFP	1 EA	$ 300,000.00	$300,000
BFP Feed Pumps	2 EA	$ 20,000.00	$40,000
Conveyor	1 EA	$ 60,000.00	$60,000
Process			
Piping	1 Lump Sum	$ 20,000.00	$20,000
Valves	1 Lump Sum	$ 15,000.00	$15,000
Structure	1800 sq ft	$ 150.00	$270,000
Footing	30 cu yds	$ 400.00	$12,000
Slab	35 cu yds	$ 400.00	$14,000
Misc Concrete	10 cu yds	$ 700.00	$7,000
Excavation	100 cu yds	$ 8.00	$800
Structural Backfill	35 cu yds	$ 26.00	$900
Backfill	100 cu yds	$ 12.00	$1,200
WAS Holding Tank	1 Lump Sum	$ 15,000.00	$15,000
Excavation	1400 cu yds	$ 8.00	$11,200
Backfill	500 cu yds	$ 12.00	$6,000
Structural Backfill	250 cu yds	$ 26.00	$6,500
Walls	130 cu yds	$ 700.00	$91,000
Slab	200 cu yds	$ 400.00	$80,000
Roofing	1800 sq ft	$ 100.00	$180,000
HVAC		6%	$63,000
Plumbing		7%	$74,500
Electrical		12%	$137,500
Instrumentation & Controls		6%	$68,700
		Subtotal =	$1,489,300
NEW CONTROL BUILDING			
Structure	1000 Sq Ft	$ 100.00	$100,000
Laboratory Equip	1 Lump Sum	$ 25,000.00	$25,000
Plumbing	1000 Sq Ft	$ 20.00	$20,000
HVAC	1000 Sq Ft	$ 15.00	$15,000
Roofing	1000 Sq Ft	$ 50.00	$50,000
Finishes	1 Lump Sum	$ 10,000.00	$10,000
Electrical Modifications		10%	$22,000
Instrumentation & Controls		8%	$18,000
		Subtotal =	$260,000
Subtotal			$8,313,331
SITEWORK	10%		$831,333
Subtotal			$9,144,664
GENERAL REQUIREMENTS	10%		$914,000
Subtotal			$10,058,664
CONTINGENCY	20%		$2,012,000
Opinion of Probable Construction Cost			**$12,070,664**

*** Based on 2007 costs**

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CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
OPINION OF PROBABLE PROJECT COST
October 24, 2007

Table F-16: Membrane Biological Reactor Alternative 2031 Construction Costs

Item Description				Total Cost*
PRELIMINARY TREATMENT				
Fine Screens (including washer/compactor)	1 ea	$	200,000.00	$200,000
Sampler	0 ea	$	6,500.00	$0
Grit Removal Equipment				$0
Structure				$0
Slabs				$0
Channel/Foundation Walls	0 cu yds	$	400.00	$0
Vortex Chamber Walls	0 cu yds	$	700.00	$0
Excavation	0 cu yds	$	1,000.00	$0
Structural Backfill	0 cu yds	$	8.00	$0
Backfill	0 cu yds	$	26.00	$0
	0 cu yds	$	12.00	$0
Grit Equipment (Vortex/Classifier)	1 ea	$	150,000.00	$150,000
Grit Pumps	1 ea	$	15,000.00	$15,000
Process Piping	1 Lump Sum	$	15,000.00	$15,000
Misc. Metals	1 ea	$	5,000.00	$5,000
Slide Gates	1 ea	$	8,000.00	$8,000
Stop Plates	3 ea	$	2,500.00	$7,500
Painting	1 Lump Sum	$	15,000.00	$15,000
Flowmeter-Parshall Flume	0 ea	$	7,000.00	$0
Headworks Structure				$0
Slabs	0 cu yds	$	400.00	$0
Walls	0 cu yds	$	700.00	$0
Excavation	0 cu yds	$	8.00	$0
Structural Backfill	0 cu yds	$	26.00	$0
Backfill	0 cu yds	$	12.00	$0
Misc. Metals	1 Lump Sum	$	15,000.00	$15,000
Superstructure	0 sq ft	$	70.00	$0
HVAC	Lump Sum		0%	$0
Plumbing	Lump Sum		15%	$2,000
Equipment Installation	Lump Sum		20%	$73,000
Electrical	Lump Sum		15%	$65,000
Instrumentation & Controls	Lump Sum		5%	$22,000
		Subtotal =		$592,500

CITY OF HARRISBURG, SOUTH DAKOTA
WASTEWATER TREATMENT IMPROVEMENTS
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Table F-16: Membrane Biological Reactor Alternative 2031 Construction Costs

PRIMARY CLARIFIER				
Structure				
Walls	376 cu yds	$	700.00	$263,200
Slab	528 cu yds	$	400.00	$211,200
Misc concrete	55 cu yds	$	700.00	$38,500
Excavation	4647 cu yds	$	8.00	$37,176
Structural Backfill	715 cu yds	$	26.00	$18,590
Backfill	2033 cu yds	$	12.00	$24,396
Pump Structure				$0
Walls	80 cu yds	$	700.00	$56,000
Slab	50 cu yds	$	400.00	$20,000
Suspended Slab	50 cu yds	$	700.00	$35,000
Misc Metals	3 ea	$	5,000.00	$15,000
Primary Sludge Pumps	3 ea	$	15,000.00	$45,000
Piping & Valves	1 Lump	$	20,000.00	$20,000
Misc Metals	3 ea	$	5,000.00	$15,000
Process				$0
4" Pipe	30 lin ft	$	24.00	$720
6" Pipe	135 lin ft	$	36.00	$4,860
18" Pipe	135 lin ft	$	108.00	$14,580
Concrete Encasement	270 lin ft	$	20.00	$5,400
Mechanisms	3 ea	$	100,000.00	$300,000
Weirs & Baffles	3 ea	$	8,000.00	$24,000
Scum Pumping Structures	3 ea	$	5,000.00	$15,000
Painting	1 Lump Sum	$	20,000.00	$20,000
Equipment Installation	Lump Sum		20%	$73,800
Electrical	Lump Sum		15%	$178,000
Instrumentation & Controls	Lump Sum		5%	$59,000
		Subtotal=		$1,494,422
PRIMARY CLARIFIER SPLITTER STRUCTURE				
Structure	1 Lump Sum	$	38,350.00	$38,350
Process				$0
Pipe	Lump Sum			$0
Slide Gates	3 ea	$	6,000.00	$18,000
Excavation	500 cu yds	$	8.00	$4,000
Structural Backfill	70 cu yds	$	26.00	$1,820
Backfill	1000 cu yds	$	12.00	$12,000
		Subtotal=		$74,170

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Table F-16: Membrane Biological Reactor Alternative 2031 Construction Costs

BIOLOGICAL TREATMENT SPLITTER STRUCTURE			
Structure	1 Lump Sum	$38,350	$38,350
Process			
Pipe	1 Lump Sum	$ 13,700.00	$13,700
Stop Plates	3 ea	$ 800.00	$2,400
Excavation	500 cu yds	$ 8.00	$4,000
Structural Backfill	70 cu yds	$ 26.00	$1,820
Backfill	1000 cu yds	$ 12.00	$12,000
		Subtotal=	$72,270
MEMBRANE - BIOLOGICAL TREATMENT			
Structure			
Slab/footing	645 cu yd	$ 400.00	$258,000
Walls	484 cu yd	$ 700.00	$338,800
Excavation	3800 cu yd	$ 8.00	$30,400
Backfill	1460 cu yd	$ 12.00	$17,520
Structural Backfill	644 cu yd	$ 26.00	$16,744
Miscellaneous Structure	Lump Sum	5%	$33,073
Process			
75 Hp Blowers	2 ea	$ 45,000.00	$90,000
Air Piping	1 Lump Sum	$ 15,000.00	$15,000
Diffusers	1 Lump Sum	$ 35,000.00	$35,000
Baffles	1 Lump Sum	$ 15,000.00	$15,000
Painting	1 Lump Sum	$ 10,000.00	$10,000
Electrical	Lump Sum	10%	$20,000
Instrumentation & Controls	Lump Sum	4%	$8,000
		Subtotal =	$887,537
MEMBRANE CLARIFICATION			
Membrane Module Tank Structure			
Slab/footing	45 cu yd	$ 400.00	$18,000
Walls	142 cu yd	$ 700.00	$99,400
Excavation	350 cu yd	$ 8.00	$2,800
Membrane Module Equipment Bldg	1 Lump Sum	$ 670,320.00	$670,320
Membrane Process Equipment Package	1 Lump Sum	$ 2,152,600.00	$2,152,600
Electrical	Lump Sum	10%	$282,000
Instrumentation & Controls	Lump Sum	0%	$0
		Subtotal=	$3,225,120
EFFLUENT/DISINFECTION STRUCTURE			
Flowmeter-Parshall Flume	0 ea	$ 7,000.00	$0
Sampler	0 ea	$ 8,000.00	$0
UV Equipment	1 Lump Sum	$ 60,000.00	$60,000
Sluice Gate	0 ea	$ 8,000.00	$0
Structure	0 Lump Sum	$ 30,000.00	$0
Electrical		8%	$5,000
Instrumentation & Controls		4%	$2,000
		Subtotal =	$67,000

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Table F-16: Membrane Biological Reactor Alternative 2031 Construction Costs

ANAEROBIC DIGESTION CONVERSION				
Existing Digestion Facilities				
Selective Demolition				
Aeration System	1 Lump Sum	$	20,000.00	$20,000
Digester Cleaning	2 ea	$	5,000.00	$10,000
New Digestion Facilities				$0
Dual-fuel Boiler	2 ea	$	100,000.00	$200,000
Heat Exchanger	2	$	20,000.00	$40,000
Recirculation Pumps	1	$	30,000.00	$30,000
Equipment Building	1	$	62,500.00	$62,500
Waste Gas Burner, Piping, & Controls	1 Lump Sum	$	100,000.00	$100,000
Primary Digester Mixing System	1 ea	$	75,000.00	$75,000
Primary Digester Covers-fixed	1 ea	$	125,000.00	$125,000
Secondary Digester Cover-floating	1 ea	$	200,000.00	$200,000
Process Pipe and Fittings	1 Lump Sum	$	25,000.00	$25,000
Electrical			14%	$120,000
Instrumentation & Controls			5%	$43,000
		Subtotal =		$1,050,500
THICKENING/DEWATERING BUILDING				
RDT	1 EA	$	182,000.00	$182,000
RDT Feed Pumps	2 EA	$	20,000.00	$40,000
RDT-to-Digester Feed Pumps	2 EA	$	25,000.00	$50,000
Polymer Feed Unit	1 EA	$	15,000.00	$15,000
BFP	0 EA	$	300,000.00	$0
BFP Feed Pumps	0 EA	$	20,000.00	$0
Conveyor	0 EA	$	60,000.00	$0
Process				
Piping	0 Lump Sum	$	20,000.00	$0
Valves	0 Lump Sum	$	15,000.00	$0
Structure	0 sq ft	$	150.00	$0
Footing	0 cu yds	$	400.00	$0
Slab	0 cu yds	$	400.00	$0
Misc Concrete	0 cu yds	$	700.00	$0
Excavation	0 cu yds	$	8.00	$0
Structural Backfill	0 cu yds	$	26.00	$0
Backfill	0 cu yds	$	12.00	$0
WAS Holding Tank	0 Lump Sum	$	15,000.00	$0
Excavation	0 cu yds	$	8.00	$0
Backfill	0 cu yds	$	12.00	$0
Structural Backfill	0 cu yds	$	26.00	$0
Walls	0 cu yds	$	700.00	$0
Slab	0 cu yds	$	400.00	$0
Roofing	0 sq ft	$	100.00	$0
HVAC			6%	$15,800
Plumbing			7%	$18,700

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Table F-16: Membrane Biological Reactor Alternative 2031 Construction Costs

Electrical			12%	$34,400
Instrumentation & Controls			6%	$17,200
		Subtotal =		$373,100
NEW CONTROL BUILDING				
Structure	0 Sq Ft	$	100.00	$0
Laboratory Equip	0 Lump Sum	$	25,000.00	$0
Plumbing	0 Sq Ft	$	20.00	$0
HVAC	0 Sq Ft	$	15.00	$0
Roofing	0 Sq Ft	$	50.00	$0
Finishes	0 Lump Sum	$	10,000.00	$0
Electrical Modifications		10%		$0
Instrumentation & Controls		8%		$0
		Subtotal =		$0
Subtotal				$7,836,619
SITEWORK	10%			$783,662
Subtotal				$8,620,281
GENERAL REQUIREMENTS	10%			$862,000
Subtotal				$9,482,281
CONTINGENCY	20%			$1,896,000
Opinion of Probable Construction Cost				**$11,378,281**

*** Based on 2007 costs**

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TABLE F-17: PRELIMINARY ENGINEERS OPINION OF PROBABLE COST

GRAVITY OUTFALL

SEPTEMBER 2007

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	SITE WORK				
1	CLEARING & GRUBBING	LS	1.0	$ 10,000.00	$ 10,000
2	SALVAGE TOPSOIL	CY	1,125	$ 2.00	$ 2,300
3	PLACING TOPSOIL	CY	1,125	$ 4.00	$ 4,500
4	LOCATING UTILITIES	EA	2	$ 500.00	$ 1,000
5	RIPRAP	TON	50	$ 30.00	$ 1,500
	SITE WORK SUBTOTAL				**$ 19,300**
	EROSION CONTROL				
6	TEMPORARY SILT FENCE	LF	2,000	$ 5.00	$ 10,000
7	PERMANENT SEEDING	LB	250	$ 12.00	$ 3,000
8	FERTILIZING	LB	925	$ 1.00	$ 1,000
9	MULCHING	TON	15	$ 150.00	$ 2,300
	EROSION CONTROL SUBTOTAL				**$ 16,300**
	SANITARY SEWER				
10	TRENCH DEWATERING	LS	1	$ 50,000.00	$ 50,000
11	TRENCH STABILIZATION MATERIAL	TON	160	$ 21.00	$ 3,360
12	GRANULAR INITIAL BACKFILL FOR SANITARY SEWER	TON	525	$ 11.00	$ 5,775
13	MH FRAME AND COVER	EA	4	$ 350.00	$ 1,400
14	MH CONSTRUCTION PLATE MARKER	EA	4	$ 200.00	$ 800
15	MH EXTERNAL FRAME SEAL	EA	4	$ 400.00	$ 1,600
16	48"ø MH, IN PLACE, COMPLETE	EA	4	$ 2,500.00	$ 10,000
17	30" SAN SWR PVC PIPE SDR 35	LF	2,000	$ 300.00	$ 600,000
18	MH EXFILTRATION\VACUUM TEST	EA	4	$ 300.00	$ 1,200
19	SAN SWR EXFILTRATION TESTING	LF	2,000	$ 1.25	$ 2,500
20	SWR PIPE DEFLECTION TEST	LF	2,000	$ 1.00	$ 2,000
	SANITARY SEWER SUBTOTAL				**$ 680,000**
	TOTAL ITEMS 1 THROUGH 20				
	SUBTOTAL CONSTRUCTION COSTS				$ 715,600
	CONTINGENCY (20%)				$ 143,120
	PRELIMINARY OPINION OF CONSTRUCTION COSTS				**$ 858,720**
	ENGINEERING, LEGAL, CONSTRUCTION ADMINISTRATION (20%)				$ 171,744
	TOTAL ENGINEER'S OPINION OF PROBABLE PROJECT COST				**$ 1,030,000**