

Construction Cost Estimate

Phase I

Landfill Cells 1 and 2

San Cristobal Landfill

Landfill Area (square meters) = 25,300

2.53 hectares

AREA OF WORK		TYPE	UNIT	CONSTRUCTION ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 92,634.85	\$ 92,635
2	Subgrade	Waste Relocation	m ³	48,993	\$ 5.25	\$ 257,213
3	Subgrade	Excavation of Soils and Stockpiling On-Site	m ³	50,680	\$ 5.25	\$ 266,070
4	Subgrade	Rough and Finish Grading	hectare	2.53	\$ 5,000.00	\$ 12,650
5	Subgrade	Construct Perimeter Soil Berms, Channel, and Access Road	m ³	26,000	\$ 2.60	\$ 67,600
6	Liner System	60.96-cm Compacted Low Permeability Soil Liner (using on-site excavated soils - Permeability $\leq 1.0 \times 10^{-7}$ cm/sec)	m ³	15,423	\$ 4.15	\$ 64,005
7	Liner System	Geosynthetics Anchor Trench Material and Installation	meter	547	\$ 36.00	\$ 19,692
8	Liner System	Furnish Protective Soil Cover from Off-Site Source (Permeability $\geq 1.0 \times 10^{-3}$ cm/sec)	m ³	7,590	\$ 18.50	\$ 140,415
9	Liner System	30-cm Protective Soil Cover Installation	m ³	7,590	\$ 3.25	\$ 24,668
GEOSYNTHETICS						
10	Mobilization/Demobilization	Installer Mobilization and Demobilization	EA	2	\$ 2,000.00	\$ 4,000
11	Geomembrane	Supply and Install 60-mil HDPE Textured Liner	m ²	25,300	\$ 4.60	\$ 116,380
STORMWATER MANAGEMENT						
12	Stormwater Control	Drop Inlets and Culvert Pipes	LS	1	\$ 12,500.00	\$ 12,500
13	Stormwater Control	Seeding	hectare	3.0	\$ 950.00	\$ 2,850
14	E&S Control	Stormwater Storage Basin	EA	1	\$ 25,000.00	\$ 25,000
LEACHATE MANAGEMENT						
15	Leachate Collection	250 mm HDPE Perforated and Solid Pipe and Fittings includes Stone and Geotextile Fabric	meter	269	\$ 170.00	\$ 45,730
16	Leachate Collection	630 mm HDPE Leachate Sideslope Riser Perforated and Solid Pipe and Fittings	meter	110	\$ 225.00	\$ 24,750
17	Leachate Collection	Leachate Pump and Controls	EA	2	\$ 30,000.00	\$ 60,000
18	Leachate Collection	140 mm HDPE Leachate Forcemain (Dual Containment Pipe)	meter	1,100	\$ 110.00	\$ 121,000
19	Leachate Storage	Aboveground Storage Tanks with Secondary Containment (1,893 m ³ Total Capacity)	EA	1	\$ 500,000.00	\$ 500,000
20	Leachate Treatment	Leachate Evaporator	EA	1	\$ 400,000.00	\$ 400,000
MISCELLANEOUS						
21	General Condition	Bonds and Insurance (3%)	EA	1	\$ 77,820.96	\$ 77,821
22	Engineering and Bidding	Engineering and Bidding	EA	2	\$ 40,000.00	\$ 80,000
23	Construction Quality Assurance	Construction Quality Assurance	EA	2	\$ 100,000.00	\$ 200,000
24	Surveying	Construction and CQA Surveying	LS	2	\$ 12,000.00	\$ 24,000
25	Electrical	Electrical Service for Leachate Pumps and Controls	EA	2	\$ 5,000.00	\$ 10,000
26	One Scale and 230 m ² Administration Buil	One Scale and 230 m ² Administration Building	LS	1	\$ 648,700.00	\$ 648,700
27	Gravel Covered Perimeter Road	Gravel Covered Perimeter Road including Woven Geotextile Fabric Underlayment	m ²	6,234	\$ 12.54	\$ 78,174
SUBTOTAL						\$3,375,853
5% CONTINGENCY						\$168,793
TOTAL CONSTRUCTION COST						\$3,544,646

Construction Cost Estimate
Phase II
Landfill Cell 3
San Cristobal Landfill

Landfill Area (square meters) = 16,100

1.61 hectares

AREA OF WORK		TYPE	UNIT	CONSTRUCTION ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 38,856.17	\$ 38,856
2	Subgrade	Waste Relocation	m ³	88,982	\$ 5.25	\$ 467,156
3	Subgrade	Excavation of Soils and Stockpiling On-Site	m ³	0	\$ 5.25	\$ -
4	Subgrade	Rough and Finish Grading	hectare	1.61	\$ 5,000.00	\$ 8,050
5	Subgrade	Construct Perimeter Soil Berms, Channel, and Access Road	m ³	0	\$ 2.60	\$ -
6	Liner System	60.96-cm Compacted Low Permeability Soil Liner (using on-site excavated soils - Permeability $\leq 1.0 \times 10^{-7}$ cm/sec)	m ³	9,815	\$ 4.15	\$ 40,730
7	Liner System	Geosynthetics Anchor Trench Material and Installation	meter	200	\$ 36.00	\$ 7,200
8	Liner System	Furnish Protective Soil Cover from Off-Site Source (Permeability $\geq 1.0 \times 10^{-3}$ cm/sec)	m ³	4,830	\$ 18.50	\$ 89,355
9	Liner System	30-cm Protective Soil Cover Installation	m ³	4,830	\$ 3.25	\$ 15,698
GEOSYNTHETICS						
10	Mobilization/Demobilization	Installer Mobilization and Demobilization	EA	1	\$ 2,000.00	\$ 2,000
11	Geomembrane	Supply and Install 60-mil HDPE Textured Liner	m ²	16,100	\$ 4.60	\$ 74,060
STORMWATER MANAGEMENT						
12	Stormwater Control	Drop Inlets and Culvert Pipes	LS	0	\$ 12,500.00	\$ -
13	Stormwater Control	Seeding	hectare	0.0	\$ 950.00	\$ -
14	E&S Control	Stormwater Storage Basin	EA	0	\$ 25,000.00	\$ -
LEACHATE MANAGEMENT						
15	Leachate Collection	250 mm HDPE Perforated and Solid Pipe and Fittings includes Stone and Geotextile Fabric	meter	150	\$ 170.00	\$ 25,500
16	Leachate Collection	630 mm HDPE Leachate Sideslope Riser Perforated and Solid Pipe and Fittings	meter	55	\$ 225.00	\$ 12,375
17	Leachate Collection	Leachate Pump and Controls	EA	1	\$ 30,000.00	\$ 30,000
18	Leachate Collection	140 mm HDPE Leachate Forcemain (Dual Containment Pipe)	meter	0	\$ 110.00	\$ -
19	Leachate Storage	Aboveground Storage Tanks with Secondary Containment (1,893 m ³ Total Capacity)	EA	0	\$ 500,000.00	\$ -
20	Leachate Treatment	Leachate Evaporator	EA	0	\$ 400,000.00	\$ -
MISCELLANEOUS						
20	General Condition	Bonds and Insurance (3%)	EA	1	\$ 24,479.39	\$ 24,479
21	Engineering and Bidding	Engineering and Bidding	EA	1	\$ 40,000.00	\$ 40,000
22	Construction Quality Assurance	Construction Quality Assurance	EA	1	\$ 100,000.00	\$ 100,000
23	Surveying	Construction and CQA Surveying	EA	1	\$ 12,000.00	\$ 12,000
24	Electrical	Electrical Service for Leachate Pumps and Controls	EA	1	\$ 5,000.00	\$ 5,000
25	One Scale and 230 m ² Administration Buil	One Scale and 230 m ² Administration Building	LS	0	\$ 648,700.00	\$ -
26	Gravel Covered Perimeter Road	Gravel Covered Perimeter Road including Woven Geotextile Fabric Underlayment	m ²	0	\$ 12.54	\$ -
SUBTOTAL						\$992,459
5% CONTINGENCY						\$49,623
TOTAL CONSTRUCTION COST						\$1,042,082

Construction Cost Estimate

Phase III

Landfill Cell 4

San Cristobal Landfill

Landfill Area (square meters) = 30,300

3.03 hectares

AREA OF WORK		TYPE	UNIT	CONSTRUCTION ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 66,929.98	\$ 66,930
2	Subgrade	Waste Relocation	m ³	165,864	\$ 5.25	\$ 870,786
3	Subgrade	Excavation of Soils and Stockpiling On-Site	m ³	0	\$ 5.25	\$ -
4	Subgrade	Rough and Finish Grading	hectare	3.03	\$ 5,000.00	\$ 15,150
5	Subgrade	Construct Perimeter Soil Berms, Channel, and Access Road	m ³	0	\$ 2.60	\$ -
6	Liner System	60.96-cm Compacted Low Permeability Soil Liner (using on-site excavated soils - Permeability $\leq 1.0 \times 10^{-7}$ cm/sec)	m ³	18,471	\$ 4.15	\$ 76,654
7	Liner System	Geosynthetics Anchor Trench Material and Installation	meter	192	\$ 36.00	\$ 6,912
8	Liner System	Furnish Protective Soil Cover from Off-Site Source (Permeability $\geq 1.0 \times 10^{-3}$ cm/sec)	m ³	9,090	\$ 18.50	\$ 168,165
9	Liner System	30-cm Protective Soil Cover Installation	m ³	9,090	\$ 3.25	\$ 29,543
GEOSYNTHETICS						
10	Mobilization/Demobilization	Installer Mobilization and Demobilization	EA	1	\$ 2,000.00	\$ 2,000
11	Geomembrane	Supply and Install 60-mil HDPE Textured Liner	m ²	30,300	\$ 4.60	\$ 139,380
STORMWATER MANAGEMENT						
12	Stormwater Control	Drop Inlets and Culvert Pipes	LS	1	\$ 12,500.00	\$ 12,500
13	Stormwater Control	Seeding	hectare	0.0	\$ 950.00	\$ -
14	E&S Control	Stormwater Storage Basin	EA	0	\$ 25,000.00	\$ -
LEACHATE MANAGEMENT						
15	Leachate Collection	250 mm HDPE Perforated and Solid Pipe and Fittings includes Stone and Geotextile Fabric	meter	103	\$ 170.00	\$ 17,510
16	Leachate Collection	630 mm HDPE Leachate Sideslope Riser Perforated and Solid Pipe and Fittings	meter	0	\$ 225.00	\$ -
17	Leachate Collection	Leachate Pump and Controls	EA	0	\$ 30,000.00	\$ -
18	Leachate Collection	140 mm HDPE Leachate Forcemain (Dual Containment Pipe)	meter	0	\$ 110.00	\$ -
19	Leachate Storage	Aboveground Storage Tanks with Secondary Containment (1,893 m ³ Total Capacity)	EA	0	\$ 500,000.00	\$ -
20	Leachate Treatment	Leachate Evaporator	EA	0	\$ 400,000.00	\$ -
MISCELLANEOUS						
20	General Condition	Bonds and Insurance (3%)	EA	1	\$ 42,165.89	\$ 42,166
21	Engineering and Bidding	Engineering and Bidding	EA	1	\$ 40,000.00	\$ 40,000
22	Construction Quality Assurance	Construction Quality Assurance	EA	1	\$ 100,000.00	\$ 100,000
23	Surveying	Construction and CQA Surveying	EA	1	\$ 12,000.00	\$ 12,000
24	Electrical	Electrical Service for Leachate Pumps and Controls	EA	0	\$ 5,000.00	\$ -
25	One Scale and 230 m ² Administration Buil	One Scale and 230 m ² Administration Building	LS	0	\$ 648,700.00	\$ -
26	Gravel Covered Perimeter Road	Gravel Covered Perimeter Road including Woven Geotextile Fabric Underlayment	m ²	0	\$ 12.54	\$ -
SUBTOTAL						\$1,599,696
5% CONTINGENCY						\$79,985
TOTAL CONSTRUCTION COST						\$1,679,680

Construction Cost Estimate

Phase IV

Landfill Cell 5

San Cristobal Landfill

Landfill Area (square meters) = 20,700

2.07 hectares

AREA OF WORK		TYPE	UNIT	CONSTRUCTION ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 37,852.26	\$ 37,852
2	Subgrade	Waste Relocation	m ³	0	\$ 5.25	\$ -
3	Subgrade	Excavation of Soils and Stockpiling On-Site	m ³	52,532	\$ 5.25	\$ 275,793
4	Subgrade	Rough and Finish Grading	hectare	2.07	\$ 5,000.00	\$ 10,350
5	Subgrade	Construct Perimeter Soil Berms, Channel, and Access Road	m ³	8,609	\$ 2.60	\$ 22,383
6	Liner System	60.96-cm Compacted Low Permeability Soil Liner (using on-site excavated soils - Permeability $\leq 1.0 \times 10^{-7}$ cm/sec)	m ³	12,619	\$ 4.15	\$ 52,368
7	Liner System	Geosynthetics Anchor Trench Material and Installation	meter	295	\$ 36.00	\$ 10,620
8	Liner System	Furnish Protective Soil Cover from Off-Site Source (Permeability $\geq 1.0 \times 10^{-3}$ cm/sec)	m ³	6,210	\$ 18.50	\$ 114,885
9	Liner System	30-cm Protective Soil Cover Installation	m ³	6,210	\$ 3.25	\$ 20,183
GEOSYNTHETICS						
10	Mobilization/Demobilization	Installer Mobilization and Demobilization	EA	1	\$ 2,000.00	\$ 2,000
11	Geomembrane	Supply and Install 60-mil HDPE Textured Liner	m ²	20,700	\$ 4.60	\$ 95,220
STORMWATER MANAGEMENT						
12	Stormwater Control	Drop Inlets and Culvert Pipes	LS	0	\$ 12,500.00	\$ -
13	Stormwater Control	Seeding	hectare	0.6	\$ 950.00	\$ 570
14	E&S Control	Stormwater Storage Basin	EA	0	\$ 25,000.00	\$ -
LEACHATE MANAGEMENT						
15	Leachate Collection	250 mm HDPE Perforated and Solid Pipe and Fittings includes Stone and Geotextile Fabric	meter	308	\$ 170.00	\$ 52,360
16	Leachate Collection	630 mm HDPE Leachate Sideslope Riser Perforated and Solid Pipe and Fittings	meter	55	\$ 225.00	\$ 12,375
17	Leachate Collection	Leachate Pump and Controls	EA	1	\$ 30,000.00	\$ 30,000
18	Leachate Collection	140 mm HDPE Leachate Forcemain (Dual Containment Pipe)	meter	300	\$ 110.00	\$ 33,000
19	Leachate Storage	Aboveground Storage Tanks with Secondary Containment (1,893 m ³ Total Capacity)	EA	0	\$ 500,000.00	\$ -
20	Leachate Treatment	Leachate Evaporator	EA	0	\$ 400,000.00	\$ -
MISCELLANEOUS						
20	General Condition	Bonds and Insurance (3%)	EA	1	\$ 23,846.92	\$ 23,847
21	Engineering and Bidding	Engineering and Bidding	EA	1	\$ 40,000.00	\$ 40,000
22	Construction Quality Assurance	Construction Quality Assurance	EA	1	\$ 100,000.00	\$ 100,000
23	Surveying	Construction and CQA Surveying	EA	1	\$ 12,000.00	\$ 12,000
24	Electrical	Electrical Service for Leachate Pumps and Controls	EA	1	\$ 5,000.00	\$ 5,000
25	One Scale and 230 m ² Administration Buil	One Scale and 230 m ² Administration Building	LS	0	\$ 648,700.00	\$ -
26	Gravel Covered Perimeter Road	Gravel Covered Perimeter Road including Woven Geotextile Fabric Underlayment	m ²	1,590	\$ 12.54	\$ 19,939
SUBTOTAL						\$970,744
5% CONTINGENCY						\$48,537
TOTAL CONSTRUCTION COST						\$1,019,282

Construction Cost Estimate

Total
Landfill Cells 1 thru 5
San Cristobal Landfill

Landfill Area (square meters) = 92,400

9.24 hectares

AREA OF WORK		TYPE	UNIT	CONSTRUCTION ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 236,273	\$ 236,273
2	Subgrade	Waste Relocation	m ³	303,839	\$ 5.25	\$ 1,595,155
3	Subgrade	Excavation of Soils and Stockpiling On-Site	m ³	103,212	\$ 5.25	\$ 541,863
4	Subgrade	Rough and Finish Grading	hectare	9.24	\$ 5,000.00	\$ 46,200
5	Subgrade	Construct Perimeter Soil Berms, Channel, and Access Road	m ³	34,609	\$ 2.60	\$ 89,983
6	Liner System	60.96-cm Compacted Low Permeability Soil Liner (using on-site excavated soils - Permeability $\leq 1.0 \times 10^{-7}$ cm/sec)	m ³	56,327	\$ 4.15	\$ 233,757
7	Liner System	Geosynthetics Anchor Trench Material and Installation	meter	1,234	\$ 36.00	\$ 44,424
8	Liner System	Furnish Protective Soil Cover from Off-Site Source (Permeability $\geq 1.0 \times 10^{-3}$ cm/sec)	m ³	27,720	\$ 18.50	\$ 512,820
9	Liner System	30-cm Protective Soil Cover Installation	m ³	27,720	\$ 3.25	\$ 90,090
GEOSYNTHETICS						
10	Mobilization/Demobilization	Installer Mobilization and Demobilization	EA	5	\$ 2,000.00	\$ 10,000
11	Geomembrane	Supply and Install 60-mil HDPE Textured Liner	m ²	92,400	\$ 4.60	\$ 425,040
STORMWATER MANAGEMENT						
12	Stormwater Control	Drop Inlets and Culvert Pipes	LS	2	\$ 12,500.00	\$ 25,000
13	Stormwater Control	Seeding	hectare	3.60	\$ 950.00	\$ 3,420
14	E&S Control	Stormwater Storage Basin	EA	1	\$ 25,000.00	\$ 25,000
LEACHATE MANAGEMENT						
15	Leachate Collection	250 mm HDPE Perforated and Solid Pipe and Fittings includes Stone and Geotextile Fabric	meter	830	\$ 170.00	\$ 141,100
16	Leachate Collection	630 mm HDPE Leachate Sideslope Riser Perforated and Solid Pipe and Fittings	meter	220	\$ 225.00	\$ 49,500
17	Leachate Collection	Leachate Pump and Controls	EA	4	\$ 30,000.00	\$ 120,000
18	Leachate Collection	140 mm HDPE Leachate Forcemain (Dual Containment Pipe)	meter	1,400	\$ 110.00	\$ 154,000
19	Leachate Storage	Aboveground Storage Tanks with Secondary Containment (1,893 m ³ Total Capacity)	EA	1	\$ 500,000.00	\$ 500,000
20	Leachate Treatment	Leachate Evaporator	EA	1	\$ 400,000.00	\$ 400,000
MISCELLANEOUS						
21	General Condition	Bonds and Insurance (3%)	EA	1	\$ 168,313.16	\$ 168,313
22	Engineering and Bidding	Engineering and Bidding	EA	5	\$ 40,000.00	\$ 200,000
23	Construction Quality Assurance	Construction Quality Assurance	EA	5	\$ 100,000.00	\$ 500,000
24	Surveying	Construction and CQA Surveying	EA	5	\$ 12,000.00	\$ 60,000
25	Electrical	Electrical Service for Leachate Pumps and Controls	EA	4	\$ 5,000.00	\$ 20,000
26	One Scale and 230 m ² Administration Buil	One Scale and 230 m ² Administration Building	LS	1	\$ 648,700.00	\$ 648,700
27	Gravel Covered Perimeter Road	Gravel Covered Perimeter Road including Woven Geotextile Fabric Underlayment	m ²	7,824	\$ 12.54	\$ 98,113
SUBTOTAL						\$6,938,752
5% CONTINGENCY						\$346,938
TOTAL CONSTRUCTION COST						\$7,285,689
COST PER HECTARE						\$788,495

Closure Cost Estimate
Landfill Cells 1-5

San Cristobal Landfill

2D Area (square meters) = 92,400

9.24 hectares

3D Surface Area (square meters) = 94,646

9.46 hectares

AREA OF WORK		TYPE	UNIT	CLOSURE ESTIMATE		
				These costs are in U.S. dollars, based on average costs in the southeastern U.S.		
				ESTIMATED QUANTITY	ESTIMATED PRICE PER UNIT (\$)	EXTENDED COST(\$)
EARTHWORK						
1	Mobilization/Demobilization	GC Mobilization (5%)	LS	1	\$ 127,361.90	\$ 127,362
2	Final Grade Preparation	Surface Grading and Soil Filling	hectare	9.46	\$ 3,500.00	\$ 33,110
3	Soil Cap	Excavation and Soil Hauling from Soil Stockpile/Borrow (30% increase for compaction and swell)	m ³	36,912	\$ 2.48	\$ 91,542
4	Soil Cap	Compacted 30-cm Intermediate Soil Cover Installation	m ³	28,394	\$ 6.12	\$ 173,770
5	Geosynthetic Cap	Anchor Trench Material and Installation	meter	1,234	\$ 36.00	\$ 44,424
6	Geosynthetic Cap	Toe Drain Installation	meter	1,234	\$ 100.00	\$ 123,400
7	Soil Cap	Excavation and Soil Hauling from Borrow (15% increase for compaction and swell)	m ³	50,068	\$ 2.48	\$ 124,168
8	Soil Cap	46-cm Protective Soil Cover Installation	m ³	43,537	\$ 3.82	\$ 166,312
GEOSYNTHETICS						
9	Mobilization/Demobilization	Installer Mobilization and Demobilization	LS	1	\$ 10,000.00	\$ 10,000
10	Geosynthetic Cap	Supply and Install 40-mil LLDPE Textured Liner	m ²	94,646	\$ 5.70	\$ 539,482
11	Geosynthetic Cap	Supply and Install Drainage Geocomposite	m ²	94,646	\$ 7.75	\$ 733,507
STORMWATER MANAGEMENT						
12	Cap Stormwater Control	Sideslope Channel/Berms	meter	3,450	\$ 35.00	\$ 120,750
13	Cap Stormwater Control	Downslope Pipe	meter	330	\$ 120.00	\$ 39,600
14	Cap Stormwater Control	Sideslope Pipe Inlets	EA	13	\$ 5,500.00	\$ 71,500
15	Cap Stormwater Control	Seeding	hectare	9.46	\$ 10,400.00	\$ 98,432
16	Cap Stormwater Control	Erosion Matting for Sideslope Berms	m ²	17,250	\$ 1.90	\$ 32,775
17	Cap Stormwater Control	Sideslope Pipe Outlets and Riprap Protection	EA	3	\$ 2,500.00	\$ 7,500
18	Perimeter Stormwater Control	Regrade Perimeter Ditch, Install Erosion Matting and Seeding	meter	1,234	\$ 55.65	\$ 68,672
19	E&S Control	Cleanout Stormwater Storage Basin	EA	1	\$ 15,000.00	\$ 15,000
GAS COLLECTION AND CONTROL SYSTEM						
20	Gas Collection and Control System	New Collection Wells with Wellhead	EA		\$ 6,270.00	\$ -
21	Gas Collection and Control System	Collection Piping and Fittings	meter		\$ 135.00	\$ -
22	Gas Collection and Control System	Condensate Sumps and/or Traps	EA		\$ 30,000.00	\$ -
23	Gas Collection and Control System	LLDPE Boot for Wells, Condensate Sumps/Traps & Valves	EA		\$ 523.00	\$ -
MISCELLANEOUS						
24	General Condition	Bonds and Insurance (3%)	EA	1	\$ 80,238.00	\$ 80,238
25	Engineering and Bidding	Engineering and Bidding	EA	1	\$ 40,000.00	\$ 40,000
26	Construction Quality Assurance	Construction Quality Assurance	EA	1	\$ 200,000.00	\$ 200,000
27	Surveying	Construction and CQA Surveying	LS	1	\$ 20,000.00	\$ 20,000
28	Reclamation of Soil Stockpile or Borrow Area	Rough Grading and Seeding	LS	1	\$ 25,000.00	\$ 25,000
29	Permanent Edge of Liner Marker Posts	Supply and Install Landfill Extents Marker Posts (Anchor Trench)	EA	50	\$ 285.00	\$ 14,250
30	Gravel Covered Access Road	Gravel Covered Access Road Including Woven Geotextile Fabric Underlayment	m ²	1,120	\$ 12.54	\$ 14,045
CONSTRUCTION COST SUBTOTAL						\$3,014,838
5% CONTINGENCY						\$150,742
TOTAL CONSTRUCTION COST						\$3,165,580
COST PER HECTARE						\$342,595

GCCS Cost Estimate

San Cristobal Landfill

GCCS Element	Unit Cost	Quantity			Estimated Cost		
		Phase I	Phase II	Phase III	Phase I	Phase II	Phase III
Engineering	\$ 35,000	1	1	1	\$ 35,000	\$ 35,000	\$ 35,000
Mobilization	\$ 6,500	1	1	1	\$ 6,500	\$ 6,500	\$ 6,500
Vertical Extraction Well	\$ 10,640	32	20	15	\$ 340,480	\$ 212,800	\$ 159,600
Header Piping (m) 300mm Ø	\$ 121	800	380	365	\$ 96,432	\$ 45,805	\$ 43,997
Lateral Piping (m) 12mm Ø	\$ 42	1000	430	550	\$ 42,189	\$ 18,141	\$ 23,204
Condensate Sump	\$ 20,475	3	1	0	\$ 61,425	\$ 20,475	\$ -
Isolation Valve	\$ 3,938	5	2	0	\$ 19,688	\$ 7,875	\$ -
Blind Frange	\$ 500	2	2	0	\$ 1,000	\$ 1,000	\$ -
Road Crossing	\$ 900	2	1	0	\$ 1,800	\$ 900	\$ -
Blower/Flare Station	\$ 356,000	1	0	0	\$ 356,000	\$ -	\$ -
		Subtotal			\$ 960,514	\$ 348,496	\$ 268,301
		Contingency 5%			\$ 48,026	\$ 17,425	\$ 13,415
		Total			\$ 1,008,539	\$ 365,921	\$ 281,716

Typical Landfill Post-Closure Care Items
(30-year Post-Closure Period)
San Cristobal Landfill

ITEM		QUANTITY	UNIT	UNIT COST	ANNUAL COST	30 YEAR COST
1	Administration and Recordkeeping	1	Each	\$ 5,000	\$ 5,000	\$ 150,000
2	Groundwater Monitoring					
	(Estimated 6 Groundwater Wells) x (2 Sample Events per Year) =	12	Each	\$ 1,200	\$ 14,400	\$ 432,000
3	Methane Gas Monitoring					
	(Estimated 6 Gas Probes) x (4 Sample Events per Year) =	24	Each	\$ 35	\$ 840	\$ 25,200
4	Mowing	9.5	Hectare	\$ 45	\$ 428	\$ 12,825
5	Final Cover (Cap) Maintenance					
	(5% of 9.5 Hectares) =	0.5	Hectare	\$ 1,100	\$ 523	\$ 15,675
6	Stormwater Basin Sediment Cleanout					
	(Labor and Equipment) x (Once every 5 Years) =	0.2	Each	\$ 1,500	\$ 300	\$ 9,000
7	Leachate Collection and Removal System Maintenance	1	Each	\$ 7,500	\$ 7,500	\$ 225,000
8	Leachate Disposal					
	(500 liters per hectare after closure) x (9.24 ha) =	4,620	Liter	\$ 0.19	\$ 878	\$ 26,334
9	Landfill Gas Collection and Control System Monitoring					
	(Labor and Equipment) x (Once per Month) =	12	Month	\$ 1,500	\$ 18,000	\$ 540,000
10	Landfill Gas Collection and Control System Maintenance					
	(Maintenance and/or Replacement Wells & Piping) x (Once every 3 Years) =	0.3	Each	\$ 30,000	\$ 9,000	\$ 270,000
11	Replace LFG Blower/Flare Equipment					
	(Once in 30 Years)	1	LS	\$ 350,000	\$ 11,667	\$ 350,000
12	Landfill Inspections					
	(Quarterly) =	4	Each	\$ 2,500	\$ 10,000	\$ 300,000
					Annual Cost: \$ 78,536	
					30 Year Post-Closure Care Cost: \$	2,356,034