

**Table 5-12**  
**Cost Estimate Alternative GW-3<sup>1</sup>**  
**Groundwater Extraction and Treatment/Institutional Controls**

ITEM DESCRIPTION	UNITS	QUANTITY	UNIT COST (\$)	TOTAL COST (\$)
<b>Capital Cost</b>				
<b>1.0 INSTITUTIONAL CONTROLS</b>				
1.1 Draft Deed Covenant	LS	1	\$ 15,000	\$ 15,000
1.2 Coordination with Regulators	LS	1	\$ 8,000	\$ 8,000
1.3 Public Involvement (Meetings and Review)	LS	1	\$ 9,000	\$ 9,000
1.4 Professional Services <sup>2</sup>	LS	1	\$ 10,000	\$ 10,000
1.5 Filing Deed Covenant	LS	1	\$ 8,000	\$ 8,000
1.6 Contingency	30%	of	\$ 50,000	\$ 15,000
<b>2.0 DEVELOPMENT OF MONITORING PLAN</b>				
2.1 Draft Monitoring Plan	LS	1	\$ 7,000	\$ 7,000
2.2 Submit to MEDEP for approval	HR	30	\$ 115	\$ 3,450
2.4 Reponse to Regulator Comments	LS	1	\$ 7,000	\$ 7,000
2.5 Contingency	30%	of	\$ 17,450	\$ 5,235
<b>3.0 Installation of Sand Layer Extraction Well</b>				
3.1 Drilling of Sand Layer Extraction Wells	LS	12	\$ 8,546	\$ 102,557
3.2 Supply & Install Pumps	LS	12	\$ 1,999	\$ 23,987
3.3 Disposal of Well Spoil	TN	77	\$ 50	\$ 3,852
3.4 MOBILIZATION	5%	of	\$ 130,396	\$ 6,520
3.5 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 130,396	\$ 19,559
3.6 CONTINGENCY	30%	of	\$ 156,475	\$ 46,943
<b>4.0 Installation of Bedrock Layer Extraction Well</b>				
4.1 Drilling of Bedrock Layer Extraction Wells	LS	87	\$ 13,955	\$ 1,214,128
4.2 Supply & Install Pumps	LS	87	\$ 1,999	\$ 173,905
4.3 Disposal of Well Spoil	TN	1,349	\$ 50	\$ 67,452
4.4 MOBILIZATION	5%	of	\$ 1,455,485	\$ 72,774
4.5 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 1,455,485	\$ 218,323
4.6 CONTINGENCY	30%	of	\$ 1,746,582	\$ 523,975
<b>5.0 Installation of Infiltration Bed</b>				
5.1 Installation of trench & PVC pipe	CY	9,648	\$ 100	\$ 964,191
5.2 Connection of Infiltration bed from WWTP	LF	3,169	\$ 34	\$ 108,475
5.3 MOBILIZATION	5%	of	\$ 1,072,666	\$ 53,633
5.4 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 1,072,666	\$ 160,900
5.5 CONTINGENCY	30%	of	\$ 1,287,199	\$ 386,160
<b>6.0 Installation of Clay Soil Extraction System</b>				
6.1 Installation of Trench	LF	4,032	\$ 341	\$ 1,375,354
6.2 Install Sump System Incl Pumps	LS	6	\$ 10,168	\$ 61,005
6.3 Connect of Clay Soil Extraction System to distribution piping	LS	6	\$ 1,068	\$ 6,409
6.4 MOBILIZATION	5%	of	\$ 1,442,768	\$ 72,138
6.5 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 1,442,768	\$ 216,415
6.6 CONTINGENCY	30%	of	\$ 1,731,322	\$ 519,397
<b>7.0 Distribution Piping</b>				
7.1 Supply of Distribution Pipe	LF	9,344	\$ 11	\$ 103,530
7.2 Install Distribution Piping	LS	1	\$ 239,385	\$ 239,385
7.3 Install & Connect Extraction Wells to Distribution Pipe	LS	99	\$ 978	\$ 96,843
7.4 Connect Distribution Pipe to WWTP	LS	1	\$ 8,264	\$ 8,264
7.5 MOBILIZATION	5%	of	\$ 448,023	\$ 22,401
7.6 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 448,023	\$ 67,203
7.7 CONTINGENCY	30%	of	\$ 448,023	\$ 134,407
<b>8.0 Construction of WWTP</b>				
8.1 WWTP General Construction Items	LS	1	\$ 1,030,265	\$ 1,030,265
8.2 Microfiltration System	LS	1	\$ 236,101	\$ 236,101
8.3 Reverse Osmosis	LS	1	\$ 158,949	\$ 158,949
8.4 GAC System	LS	1	\$ 51,645	\$ 51,645
8.5 MOBILIZATION	5%	of	\$ 1,476,960	\$ 73,848
8.6 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 1,476,960	\$ 221,544
8.7 CONTINGENCY	30%	of	\$ 1,772,352	\$ 531,706
<b>9.0 Post Closure Costs (Year 30)</b>				
9.1 Well Abandonment	LS	99	\$ 1,000	\$ 99,000
9.2 Equipment Rental	wk	4	\$ 200	\$ 800
9.3 Subcontractor General Requirements	5%	of	\$ 99,800	\$ 4,990
9.4 Contingency	30%	of	\$ 104,790	\$ 31,437

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ITEM DESCRIPTION	UNITS	QUANTITY	UNIT COST (\$)	TOTAL COST (\$)
<b>Capital Cost</b>				
<b>Preliminary Capital Cost</b>				<b>\$ 9,598,056</b>
Project Management	5%	of	\$ 9,598,056	\$ 479,903
Remedial Design	6%	of	\$ 9,598,056	\$ 575,883
Construction Management	6%	of	\$ 9,598,056	\$ 575,883
<b>TOTAL CAPITAL COST</b>				<b>\$ 11,229,725</b>
<b>Year 1 to 30 Operations and Maintenance<sup>3</sup></b>				
1.0 Maintenance of WWTP				
1.1 Treated Groundwater Testing (1 in 1,000CY)	LS	53	\$ 905	\$ 47,706
1.2 Groundwater Sample and Analysis (23 Wells)	LS	4	\$ 20,000	\$ 80,000
1.3 Data Validation	LS	4	\$ 1,500	\$ 6,000
1.4 Annual Reporting	LS	1	\$ 12,000	\$ 12,000
1.5 Maintenance of WWTP resins/components & disposal costs	LS	1	\$ 1,118,789	\$ 1,118,789
1.6 Construction Oversight	10%	of	\$ 1,264,495	\$ 126,449
1.7 Mobilization	5%	of	\$ 1,264,495	\$ 63,225
1.8 Subcontractor General Requirements	15%	of	\$ 1,264,495	\$ 189,674
1.9 Contingency	30%	of	\$ 1,643,843	\$ 493,153
2.0 Maintenance of Support System				
2.1 Maintenance of Sand Layer/Bedrock Extraction Well Pumps	LS	1	\$ 234,141	\$ 234,141
2.2 Maintenance of Clay Soil Extraction System	LS	1	\$ 19,711	\$ 19,711
2.3 Maintenance of Infiltration Beds & Recharge Pipe	LS	1	\$ 14,472	\$ 14,472
2.4 Maintenance of Distribution Pipe	LS	1	\$ 6,044	\$ 6,044
2.5 CONSTRUCTION OVERSIGHT	10%	of	\$ 274,368	\$ 27,437
2.6 MOBILIZATION	5%	of	\$ 274,368	\$ 13,718
2.7 GENERAL SUBCONTRACT CONDITIONS	15%	of	\$ 274,368	\$ 41,155
2.8 CONTINGENCY	30%	of	\$ 356,679	\$ 107,004
<b>Preliminary O&amp;M Cost</b>				<b>\$ 2,600,679</b>
Project Management	5%	of	\$ 2,600,679	\$ 130,034
Remedial Design	6%	of	\$ 2,600,679	\$ 156,041
Construction Management	6%	of	\$ 2,600,679	\$ 156,041
Annual Institutional Control Monitoring and Enforcement <sup>3</sup>	LS	1	\$ 1,500	\$ 1,500
<b>ANNUAL O&amp;M COST</b>				<b>\$ 3,044,294</b>
<b>TOTAL YEAR 1-30 O&amp;M COST</b>				<b>\$ 91,328,826</b>
<b>TOTAL COST</b>				
Subtotal - Capital Costs				\$ 11,229,725
Subtotal - Operations and Maintenance				\$ 91,328,826
Total Cost				\$ 102,558,551
<b>PRESENT WORTH COST<sup>4</sup></b>				
Subtotal - Present Worth Capital Costs				\$ 11,129,871
Subtotal - Present Worth Operations and Maintenance Costs (year 1-30)				\$ 49,588,169
<b>Total Present Worth Cost</b>				<b>\$ 60,718,040</b>

NOTES:

- The estimates shown above are considered budgetary-level cost estimates (+50%/-30%), suitable for use in project evaluation and planning. Actual costs may vary significantly from these estimates due to site conditions, market conditions, actual costs of purchased materials, quantity variations, regulatory requirements, and other factors existing at the time of project implementation.
- Professional Services includes Project Management and Technical Support. Professional Services for Operations and Maintenance also includes updating groundwater model and evaluating potential reduction of parameters to be sampled.
- Operations and maintenance assumes 30 years of operation. Quarterly groundwater monitoring is assumed to continue for 30 years while the groundwater extraction and treatment system is in operation. Annual evaluation of groundwater concentrations may result in the reduction of parameters to be sampled. This will decrease the annual sampling cost. Institutional control monitoring and enforcement includes an annual letter to DEP confirming conditions of institutional controls have been maintained.
- Present Worth based on 4.50% discount rate. Present Worth calculation tables included in Appendix F.