

ALTERNATIVE 1 - EXCAVATION & OFF-SITE DISPOSAL

Description: This alternative includes the excavation of all impacted soils to a depth of four feet below ground surface. All excavated soils are disposed off site in a thermal desorption facility. The four feet deep excavation is then backfilled with clean fill from off site. The clean fill is compacted and the area is loamed and seeded. Costs of loaming, seeding and providing six inches of topsoil are considered site development costs and are not included as remediation costs. The MTBE in groundwater is bioremediated using oxygen release compounds (ORC). To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	3780	CY	\$ 18.00	\$ 67,880.00
Transportation & disposal	5640	Ton	\$ 50.00	\$ 282,000.00
Borrow backfill	3289	CY	\$ 17.00	\$ 55,913.00
Place and compact backfill	3289	CY	\$ 3.00	\$ 9,867.00
Bioremediation of MTBE with ORC	1	LS	\$ 9,000.00	\$ 9,000.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 4,664.00	\$ 18,656.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 462,116.00

ALTERNATIVE 2 - RENDERING SOILS INACCESSIBLE

Description: This alternative includes the rendering of all impacted soils inaccessible by placing four feet of clean fill over the impacted soils. The clean fill is from off site, is compacted, and loamed and seeded. The costs of loaming and seeding are site development costs and are not included in this remediation cost estimate. To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	0	CY	\$ 18.00	\$ -
Transportation & disposal	0	Ton	\$ 50.00	\$ -
Borrow fill	3289	CY	\$ 17.00	\$ 55,913.00
Place and compact fill	3289	CY	\$ 3.00	\$ 9,867.00
Bioremediation of MTBE with ORC	1	LS	\$ 9,000.00	\$ 9,000.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 4,664.00	\$ 18,656.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 112,436.00

ALTERNATIVE 3 - EXCAVATION & OFF-SITE DISPOSAL AND RENDERING SOILS INACCESSIBLE

Description: This alternative includes the excavation of all impacted soils to a depth of two feet below ground surface. All excavated soils are disposed off site in a thermal desorption facility. The two feet deep excavation is then backfilled with processed gravel and paved. The cost of providing processed gravel and paving are site development costs and are not included in this remediation cost estimate. To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	1880	CY	\$ 18.00	\$ 33,840.00
Transportation & disposal	2820	Ton	\$ 50.00	\$ 141,000.00
Bioremediation of MTBE with ORC	1	LS	\$ 9,000.00	\$ 9,000.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 3,040.00	\$ 12,160.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 215,000.00

Notes:

Volume (ton)=volume (cubic feet)*1.6

Monitoring costs assume sampling of 4 wells 4 times per year and analysis for PAH and lead (4x4hrs @ \$55 + 4x\$125) = \$5640

REVISION 1: This revision was made to add the third alternative and not include site development costs as remediation costs. This alternative is now possible based on preliminary site development plans.

ALTERNATIVE 1 - EXCAVATION & OFF-SITE DISPOSAL

Description: This alternative includes the excavation of all impacted soils to a depth of four feet below ground surface. All excavated soils are disposed off site in a thermal desorption facility. The four feet deep excavation is then backfilled with clean fill from off site. The clean fill is compacted and the area is loamed and seeded. Costs of loaming, seeding and providing six inches of topsoil are considered site development costs and are not included as remediation costs. To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	1065	CY	\$ 18.00	\$ 19,170.00
Transportation & disposal	1598	Ton	\$ 50.00	\$ 79,900.00
Borrow backfill	933	CY	\$ 17.00	\$ 15,861.00
Place and compact backfill	933	CY	\$ 3.00	\$ 2,799.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 3,040.00	\$ 12,160.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 148,890.00

ALTERNATIVE 2 - RENDERING SOILS INACCESSIBLE

Description: This alternative includes the rendering of all impacted soils inaccessible by placing four feet of clean fill over the impacted soils. The clean fill is from off site, is compacted, and loamed and seeded. The costs of loaming and seeding are site development costs and are not included in this remediation cost estimate. To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	0	CY	\$ 18.00	\$ -
Transportation & disposal	0	Ton	\$ 50.00	\$ -
Borrow fill	933	CY	\$ 17.00	\$ 15,861.00
Place and compact fill	933	CY	\$ 3.00	\$ 2,799.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 3,040.00	\$ 12,160.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 49,820.00

ALTERNATIVE 3 - EXCAVATION & OFF-SITE DISPOSAL AND RENDERING SOILS INACCESSIBLE

Description: This alternative includes the excavation of all impacted soils to a depth of two feet below ground surface. All excavated soils are disposed off site in a thermal desorption facility. The two feet deep excavation is then backfilled with processed gravel and paved. The cost of providing processed gravel and paving are site development costs and are not included in this remediation cost estimate. To complete the voluntary remediation of the site an environmental conditions assessment form is submitted to CTDEP, post-remediation groundwater monitoring is conducted for four years, and a licensed environmental professional submits a closure report and final verification that remediation is complete to CTDEP.

Item Description	Quantity	Units	Unit Price	Costs
Excavation	532	CY	\$ 18.00	\$ 9,576.00
Transportation & disposal	799	Ton	\$ 50.00	\$ 39,950.00
Monitoring well installation	4	Each	\$ 1,250.00	\$ 5,000.00
Post-remediation monitoring	4	YR	\$ 3,040.00	\$ 12,160.00
Environmental conditions assessment form filing	1	LS	\$ 6,000.00	\$ 6,000.00
Establish Environmental Land Use Restriction	1	LS	\$ 5,000.00	\$ 5,000.00
Closure report and LEP verification	1	LS	\$ 3,000.00	\$ 3,000.00
Engineering (15%)	0	LS	\$ -	\$ -
Contingency (15%)	0	LS	\$ -	\$ -
Total:				\$ 80,686.00

Notes:

Volume (ton)/volume (cubic feet) 1.5

Monitoring costs assume sampling of 4 wells 4 times per year and analysis for PAH and lead (4x(4hrs)x065 + 4x\$126) = \$9040

REVISION 1: This revision was made to add the third alternative and not include site development costs as remediation costs. This alternative is now possible based on preliminary site development plans.