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## Memorandum

**To:** Cheryl Henlin, City of New Bedford  
**From:** David M. Sullivan, LSP, TRC Environmental Corporation  
**Subject:** Phase III ARP and Nemasket Cost Estimate Detail  
**Date:** April 18, 2012

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As you requested, in response to an inquiry by a community member, please find attached cost estimate details used in support of the cost estimate summary provided in Table 2 of the Phase III Remedial Action Plan for the Acquired Residential Properties and Nemasket Street Lots issued for public comment. The aforementioned cost detail will be included in the final document.

## COST ESTIMATE SUMMARY

## ALTERNATIVE 2 - Maintenance of Existing Site Controls

**Assumptions:**

Costs to achieve a Permanent Solution are not included.

Date: 03/26/12

DESCRIPTION	QTY	UNIT	UNIT COST	COST	TOTAL
<b>CAPITAL COSTS</b>					
1.0 Confirmation of Existing Site Control Integrity					\$1,000
1.1 Confirmatory Site Visit and Review	1	day	\$1,000.00	\$1,000.00	
2.0 Regulatory Compliance					\$20,000
2.1 Class C Partial RAO	1	ls	\$10,000.00		
2.2 Activity and Use Limitation	1	ls	\$10,000.00		
3.0 Project Oversight					\$1,050
3.1 Project Management			5%	\$1,050.00	
4.0 Contingencies					\$2,205
4.1 10% Scope Contingency			10%	\$2,205	
<b>Total Estimated Capital Cost:</b>					<b>\$24,000</b>
<b>MONITORING COSTS</b>					
5.0 Annual Costs					\$3,000
5.1 Annual Inspection of Existing Site Controls	1	day	\$1,000.00	\$1,000	
5.2 Annual Inspection Report	1	ea	\$1,500.00	\$1,500	
5.3 Post-RAO MCP Compliance Fee	1	ea	\$800.00	\$800	
<b>Total Estimated Monitoring Costs:</b>					<b>\$3,000</b>

## COST ESTIMATE SUMMARY

## ALTERNATIVE 3 - Partial Pavement, Soil Excavation/Disposal, and Institutional Controls

## Assumptions:

MCP and Federal Reporting Costs Are Not Included  
 All soil will be treated for TCLP  
 Excavation dewatering is not anticipated  
 40% of the total soil volume will be >50 ppm total PCBs

Date: 03/26/12

Description	QTY	UNIT	UNIT COST	COST	TOTAL
<b>CAPITAL COSTS</b>					
<b>1.0 Site Preparation and General Equipment</b>					<b>\$269,500</b>
1.1 Mobilization/Demobilization (Assume 10%)	1	ls	\$189,360.39	\$189,360.39	
1.2 Temporary storage trailer	1	mo	\$165.29	\$165.29	
1.3 Portable Facilities	1	mo	\$136.00	\$136.00	
1.4 Dumpster, each 1 dump/wk, 30 cy capacity	4	ea	\$626.00	\$2,504.00	
1.5 Install erosion control measures	1600	lf	\$10.56	\$16,892.71	
1.6 Dust monitoring	1	mo	\$5,391.47	\$5,391.47	
1.7 Remove existing fence	1550	lf	\$7.10	\$11,005.00	
1.8 Temporary security fence	1600	lf	\$5.45	\$8,720.00	
1.9 Temporary concrete median barrier	150	lf	\$40.55	\$6,082.50	
1.10 Police Detail	160	hr	\$70.00	\$11,200.00	
1.11 Tree Removal	5	ea	\$470.02	\$2,350.10	
1.12 Selective clearing and thinning	3.0	acre	\$5,218.86	\$15,632.50	
<b>2.0 Excavation and Disposal</b>					<b>\$3,566,700</b>
2.1 Excavate	11,656	cy	\$1.66	\$19,320.54	
2.2 Transport to Storage Yard	13,987	cy	\$4.55	\$63,687.34	
2.3 Off-site disposal & transport, fail TCLP, < 50 ppm PCB	10,490	ton	\$133.00	\$1,395,223.20	
2.4 TSCA soil offsite disposal, fail TCLP	6,994	ton	\$277.45	\$1,940,374.32	
2.5 Post Ex Samples (General)	40	ea	\$1,232.10	\$49,049.90	
2.6 Post Ex Samples (TSCA)	398	ea	\$115.00	\$45,781.50	
2.7 Disposal characterization analysis (1 sample every 250 tons)	70	ea	\$760.00	\$53,200.00	
<b>3.0 Install Engineered Soil Cap Barrier</b>					<b>\$839,700</b>
3.1 Install Geotextile Fabric (2 layers)	148,548	sf	\$0.69	\$102,498.12	
3.2 Backfill Characterization Analysis	37	tests	\$1,928.60	\$70,972.48	
3.3 Gravel Borrow Backfill & Haul Cost (5 mi haul)	15,262	lcy	\$29.12	\$444,419.73	
3.4 Backfill, Place, and Grade Loam Material	3,052	lcy	\$36.93	\$112,722.67	
3.5 Compact Borrow Layers - Vibrating Plate	15,262	lcy	\$5.67	\$86,460.96	
3.6 Compacting - Proctor Testing	37	ls	\$300.00	\$11,010.00	
3.7 Compaction Testing - 2 per 1 foot lift	10	day	\$1,160.00	\$11,600.00	
<b>4.0 Install Engineered Asphalt Cap Barrier</b>					<b>\$602,600</b>
4.1 Install Geotextile Fabric (2 layers)	112,410	sf	\$0.69	\$77,562.90	
4.2 Backfill Characterization Analysis	9	tests	\$1,928.60	\$17,935.98	
4.3 6" stone base, 2" binder course, 1" topping	112,410	sf	\$3.31	\$372,360.93	
4.4 Compact Borrow Layers - Vibrating Plate	2,862	lcy	\$5.67	\$16,215.56	
4.5 Compacting - Proctor Testing	9	ls	\$300.00	\$2,700.00	
4.6 Compaction Testing - 2 per 1 foot lift	8	day	\$1,160.00	\$9,280.00	
4.7 Catch Basin	3	ea	\$2,153.00	\$6,459.00	
4.8 Stormwater Retention System	1	ea	\$100,000.00	\$100,000.00	
<b>5.0 Site Restoration</b>					<b>\$140,300</b>
5.1 Finish grading area with grader - small area	6,245	sy	\$4.37	\$27,265.53	
5.2 Seed lawn	8,253	sy	\$0.56	\$4,636.69	
5.3 Install permanent fence	1,977	lf	\$48.50	\$95,884.50	
5.4 Complete and implement an AUL	1	ls	\$12,500.00	\$12,500.00	
<b>6.0 Project Oversight</b>					<b>\$333,300</b>
6.1 Project Management			5%	\$104,148	
6.2 Remedial Design			5%	\$104,148	
6.3 Construction Management			6%	\$124,978	
<b>7.0 Contingencies</b>					<b>\$1,438,025</b>
15% Scope + 10% Bid			25%	\$1,438,025	
<b>Total Estimated Capital Costs:</b>					<b>\$7,000,000</b>
<b>MONITORING COSTS</b>					
<b>8.0 Annual Costs</b>					<b>\$7,000</b>
8.1 Semi Annual Cap Inspection	2	day	\$1,000.00	\$2,000	
8.2 Semi-annual Cap Inspection Report	2	ea	\$2,500.00	\$5,000	
<b>Total Estimated Annual Monitoring Costs:</b>					<b>\$7,000</b>

## COST ESTIMATE SUMMARY

## ALTERNATIVE 4 - Partial Pavement, Soil Excavation/Disposal, Soil Exposure Barrier (Cap), and Institutional Controls

**Assumptions:**

MCP and Federal Reporting Costs Are Not Included  
 All soil will be treated for TCLP  
 Excavation dewatering is not anticipated  
 25% of the total soil volume will be TSCA regulated waste

Date: 03/26/12

Description	QTY	UNIT	UNIT COST	COST	TOTAL
<b>CAPITAL COSTS</b>					
<b>1.0 Site Preparation and General Equipment</b>					<b>\$238,200</b>
1.1 Mobilization/Demobilization (Assume 10%)	1	ls	\$157,494.73	\$157,494.73	
1.2 Temporary storage trailer	1	mo	\$165.29	\$165.29	
1.3 Portable Facilities	1	mo	\$136.00	\$136.00	
1.4 Dumpster, each 1 dump/wk, 30 cy capacity	4	ea	\$626.00	\$2,504.00	
1.5 Install erosion control measures	1600	lf	\$10.56	\$16,892.71	
1.6 Dust monitoring	1	mo	\$5,391.47	\$5,391.47	
1.7 Remove existing fence	1550	lf	\$7.10	\$11,005.00	
1.8 Temporary security fence	1600	lf	\$5.45	\$8,720.00	
1.9 Temporary concrete median barrier	150	lf	\$40.55	\$6,082.50	
1.10 Police Detail	160	hr	\$70.00	\$11,200.00	
1.11 Tree Removal	5	ea	\$470.02	\$2,350.10	
1.12 Selective clearing and thinning	3.1	acre	\$5,218.86	\$16,221.72	
<b>2.0 Excavation and Disposal</b>					<b>\$2,147,000</b>
2.1 Excavate	7,732	cy	\$1.66	\$12,816.27	
2.2 Transport to Storage Yard	9,278	cy	\$4.55	\$42,246.96	
2.3 Off-site disposal & transport, fail TCLP, < 50 ppm PCB	8,699	ton	\$133.00	\$1,156,900.50	
2.4 TSCA soil offsite disposal, fail TCLP	2,900	ton	\$277.45	\$804,466.28	
2.5 Post Ex Samples (General)	40	ea	\$1,232.10	\$49,049.90	
2.6 Post Ex Samples (TSCA)	398	ea	\$115.00	\$45,781.50	
2.7 Disposal characterization analysis (1 sample every 250 tons)	47	ea	\$760.00	\$35,720.00	
<b>3.0 Install Engineered Soil Cap Barrier</b>					<b>\$980,700</b>
3.1 Install Geotextile Fabric (2 layers)	233,110	sf	\$0.69	\$160,845.90	
3.2 Backfill Characterization Analysis	37	tests	\$1,928.60	\$72,129.64	
3.3 Gravel Borrow Backfill & Haul Cost	15,570	lcy	\$30.78	\$479,310.66	
3.4 Backfill, Place, and Grade Loam Material	3,114	lcy	\$36.93	\$115,000.02	
3.5 Compact Backfill Layers - Vibrating Plate	15,570	lcy	\$5.67	\$88,207.74	
3.6 Compacting - Proctor Testing	37	ls	\$300.00	\$11,220.00	
3.7 Compaction Testing - 2 per 1 foot lift	10	day	\$5,391.47	\$53,914.74	
<b>4.0 Install Engineered Asphalt Cap Barrier</b>					<b>\$199,700</b>
4.1 Install Geotextile Fabric (2 layers)	37,684	sf	\$0.69	\$26,001.96	
4.2 Backfill Characterization Analysis	3	tests	\$1,928.60	\$6,171.52	
4.3 6" stone base, 2" binder course, 1" topping	37,684	sf	\$3.31	\$124,829.19	
4.4 Compact Backfill Layer - Vibrating Plate	960	lcy	\$5.67	\$5,436.06	
4.5 Compacting - Proctor Testing	2	ls	\$300.00	\$600.00	
4.6 Compaction Testing - 2 per 1 foot lift	6	day	\$5,391.47	\$32,348.85	
4.7 Catch Basin	2	ea	\$2,153.00	\$4,306.00	
<b>5.0 Site Restoration</b>					<b>\$128,400</b>
5.1 Finish grading area with grader - small area	2,094	sy	\$4.37	\$9,140.42	
5.2 Seed lawn	12,951	sy	\$0.56	\$7,276.16	
5.3 Install permanent fence	2,050	lf	\$48.50	\$99,425.00	
5.4 Complete and Implement an AUL	1	ls	\$12,500.00	\$12,500.00	
<b>6.0 Project Oversight</b>					<b>\$277,200</b>
6.1 Project Management			5%	\$86,622	
6.2 Remedial Design			5%	\$86,622	
6.3 Construction Management			6%	\$103,947	
<b>7.0 Contingencies</b>					<b>\$992,800</b>
7.1 15% Scope + 10% Bid			25%	\$992,800	
<b>Total Estimated Capital Costs:</b>					<b>\$5,000,000</b>
<b>MONITORING COSTS</b>					
<b>8.0 Annual Costs</b>					<b>\$7,000</b>
8.1 Semi Annual Cap Inspection	2	day	\$1,000.00	\$2,000	
8.2 Semi-annual Cap Inspection Report	2	ea	\$2,500.00	\$5,000	
<b>Total Estimated Annual Monitoring Costs:</b>					<b>\$7,000</b>

## COST ESTIMATE SUMMARY

## ALTERNATIVE 5 - Soil Excavation to Three Feet/Disposal and Institutional Controls

**Assumptions:**

MCP and Federal Reporting Costs Are Not Included  
 All soil will be treated for TCLP  
 Excavation dewatering is not anticipated  
 50% of the total soil volume will be TSCA regulated waste

Date: 03/26/12

Description	QTY	UNIT	UNIT COST	COST	TOTAL
<b>CAPITAL COSTS</b>					
1.0 Site Preparation and General Equipment					\$227,200
1.1 Mobilization/Demobilization (Assume 10%)	1	ls	\$147,062.45	\$147,062.45	
1.2 Temporary storage trailer	1	mo	\$165.29	\$165.29	
1.3 Portable Facilities	1	mo	\$136.00	\$136.00	
1.4 Dumpster, each 1 dump/wk, 30 cy capacity	4	ea	\$626.00	\$2,504.00	
1.5 Install erosion control measures	1600	lf	\$10.56	\$16,892.71	
1.6 Dust monitoring	1	mo	\$5,391.47	\$5,391.47	
1.7 Remove existing fence	1550	lf	\$7.10	\$11,005.00	
1.8 Temporary security fence	1600	lf	\$5.45	\$8,720.00	
1.9 Temporary concrete median barrier	150	lf	\$40.55	\$6,082.50	
1.10 Police Detail	160	hr	\$70.00	\$11,200.00	
1.11 Tree Removal	5	ea	\$470.02	\$2,350.10	
1.12 Selective clearing and thinning	3.0	acre	\$5,218.86	\$15,660.77	
2.0 Excavation and Disposal					\$5,126,400
2.1 Excavate	15,746	cy	\$1.66	\$26,099.96	
2.2 Transport to Storage Yard	18,895	cy	\$4.55	\$86,034.73	
2.3 Off-site disposal & transport, fail TCLP, < 50 ppm PCB	11,810	ton	\$133.00	\$1,570,663.50	
2.4 TSCA soil offsite disposal, fail TCLP	11,810	ton	\$277.45	\$3,276,545.78	
2.5 Post Ex Samples (General)	40	ea	\$1,232.10	\$49,049.90	
2.6 Post Ex Samples (TSCA)	398	ea	\$115.00	\$45,781.50	
2.7 Disposal characterization analysis (1 sample every 250 tons)	95	ea	\$760.00	\$72,200.00	
3.0 Install Engineered Barrier					\$972,400
3.1 Install Geotextile Fabric (2 layers)	261,430	sf	\$0.69	\$180,386.70	
3.2 Backfill Characterization Analysis	38	tests	\$1,928.60	\$72,901.08	
3.3 Gravel Borrow Backfill & Haul Cost	15,747	lcy	\$30.78	\$484,749.21	
3.4 Backfill, Place, and Grade Loam Material	3,149	lcy	\$36.93	\$116,304.88	
3.5 Compact Backfill Layers - Vibrating Plate	15,747	lcy	\$5.67	\$89,208.60	
3.6 Compacting - Proctor Testing	38	ls	\$300.00	\$11,400.00	
3.7 Compaction Testing - 2 per 1 foot lift	15	day	\$1,160.00	\$17,400.00	
4.0 Site Restoration					\$139,100
4.1 Seed lawn	14,524	sy	\$0.56	\$8,160.13	
4.2 Install permanent fence	2,440	lf	\$48.50	\$118,340.00	
4.3 Complete and Implement an AUL	1	ls	\$12,500.00	\$12,500.00	
5.0 Project Oversight					\$258,800
5.1 Project Management			5%	\$80,884	
5.2 Remedial Design			5%	\$80,884	
5.3 Construction Management			6%	\$97,061	
6.0 Contingencies					\$1,681,000
6.1 15% Scope + 10% Bid			25%	\$1,680,975	
<b>Total Estimated Capital Costs:</b>					<b>\$8,000,000</b>
<b>MONITORING COSTS</b>					
7.0 Annual Costs					\$7,000
7.1 Semi Annual Inspection	2	day	\$1,000.00	\$2,000	
7.2 Semi-annual Inspection Report	2	ea	\$2,500.00	\$5,000	
<b>Total Estimated Annual Monitoring Costs:</b>					<b>\$7,000</b>

## COST ESTIMATE SUMMARY

## ALTERNATIVE 5a - Soil Excavation to Three Feet, Removal of Additional Soil for High-Occupancy Use, and Institutional Controls

**Assumptions:**

MCP and Federal Reporting Costs Are Not Included

All soil will be treated for TCLP

Excavation dewatering is not anticipated

50% of the total soil volume will be TSCA regulated waste

Additional scope contingency is associated with TSCA post excavation sampling

Date: 03/26/12

Description	QTY	UNIT	UNIT COST	COST	TOTAL
<b>CAPITAL COSTS</b>					
1.0 Site Preparation and General Equipment					\$231,900
1.1 Mobilization/Demobilization (Assume 10%)	1	ls	\$151,707.72	\$151,707.72	
1.2 Temporary storage trailer	1	mo	\$165.29	\$165.29	
1.3 Portable Facilities	1	mo	\$136.00	\$136.00	
1.4 Dumpster, each 1 dump/wk, 30 cy capacity	4	ea	\$626.00	\$2,504.00	
1.5 Install erosion control measures	1600	lf	\$10.56	\$16,892.71	
1.6 Dust monitoring	1	mo	\$5,391.47	\$5,391.47	
1.7 Remove existing fence	1550	lf	\$7.10	\$11,005.00	
1.8 Temporary security fence	1600	lf	\$5.45	\$8,720.00	
1.9 Temporary concrete median barrier	150	lf	\$40.55	\$6,082.50	
2 Police Detail	160	hr	\$70.00	\$11,200.00	
2.1 Tree Removal	5	ea	\$470.02	\$2,350.10	
2.2 Selective clearing and thinning	3.0	acre	\$5,218.86	\$15,660.77	
2.0 Excavation and Disposal					\$5,385,100
2.1 Excavate	16,319	cy	\$1.66	\$27,049.75	
2.2 Transport to Storage Yard	19,583	cy	\$4.55	\$89,165.55	
2.3 Off-site disposal & transport, fail TCLP, < 50 ppm PCB	12,239	ton	\$133.00	\$1,627,820.25	
2.4 TSCA soil offsite disposal, fail TCLP	12,239	ton	\$277.45	\$3,395,779.91	
2.5 Post Ex Samples (General)	95	ea	\$1,232.10	\$116,433.45	
2.6 Post Ex Samples (TSCA)	473	ea	\$115.00	\$54,337.50	
2.7 Disposal characterization analysis (1 sample every 250 tons)	98	ea	\$760.00	\$74,480.00	
3.0 Install Containment Remedy					\$1,002,300
3.1 Install Geotextile Fabric (2 layers)	261,430	sf	\$0.69	\$180,386.70	
3.2 Backfill Characterization Analysis	38	tests	\$1,928.60	\$72,901.08	
3.3 Gravel Borrow Backfill & Haul Cost	16,719	lcy	\$30.78	\$514,686.88	
3.4 Backfill, Place, and Grade Loam Material	3,344	lcy	\$36.93	\$123,487.77	
3.5 Compact Backfill Layers - Vibrating Plate	16,719	lcy	\$5.67	\$94,718.04	
3.6 Compacting - Proctor Testing	38	ls	\$300.00	\$11,400.00	
3.7 Compaction Testing - 2 per 1 foot lift	4	day	\$1,160.00	\$4,640.00	
4.0 Site Restoration					\$73,300
4.1 Seed lawn	14,524	sy	\$0.56	\$8,160.13	
4.2 Install permanent fence	1,085	lf	\$48.50	\$52,622.50	
4.3 Complete and Implement an AUL	1	ls	\$12,500.00	\$12,500.00	
5.0 Project Oversight					\$267,006
5.1 Project Management			5%	\$83,439	
5.2 Remedial Design			5%	\$83,439	
5.3 Construction Management			6%	\$100,127	
6.0 Contingencies					\$2,435,862
6.1 25% Scope + 10% Bid			35%	\$2,435,862	
<b>Total Estimated Capital Costs:</b>					<b>\$9,000,000</b>
<b>MONITORING COSTS</b>					
7.0 Annual Costs					\$7,000
7.1 Semi Annual Inspection	2	day	\$1,000.00	\$2,000	
7.2 Semi-annual Inspection Report	2	ea	\$2,500.00	\$5,000	
<b>Total Estimated Annual Monitoring Costs:</b>					<b>\$7,000</b>