



NAVFAC PACIFIC

**RED HILL, HI - UG TANK CLOSURE - ALTERNATIVE 04** Project # RED HILL HI - UG TANK CLOSURE OPTIONS - REV-06 - 2022-11-30

**DRAFT - ROM ESTIMATE - REV-04**

Date: 11/30/2022

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**RED HILL, HI - UG TANK CLOSURE - ALTERNATIVE 04**

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**Project name** RED HILL HI - UG TANK CLOSURE OPTIONS - REV-06 - 2022-11-30  
Moanalua  
HI 96819  
USA

**Labor rate table** 22\_Labor\_Union\_2022

**Equipment rate table** 1\_RSM\_Equip\_2022

**Report format** Sorted by 'Alternative/Phase'  
'Detail' summary

**Factor table** Hawaii-Honolulu



Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount
<b>05 ALTERNATIVE 4: DEMO INCL STEEL LINER - FILL W/INERT</b>							
<b>01543.305 Equipment Rental</b>							
Boom System & ODC's - Large Tanks	14.00 tank	-	0.00 /tank	-	1,350,000.00 /tank	1,350,000.00 /tank	18,900,000
ODC's - Surge Tanks	4.00 tank	-		-	410,000.00 /tank	410,000.00 /tank	1,640,000
<b>Equipment Rental</b>							<b>20,540,000</b>
<b>01740.013 Progress Cleaning</b>							
Utilities & Cleaning - Large Tanks	14.00 tank		-	-	2,611,500.00 /tank	2,611,500.00 /tank	36,561,000
Utilities & Cleaning - Surge Tanks	4.00 tank		-	-	750,650.00 /tank	750,650.00 /tank	3,002,600
<b>Progress Cleaning</b>							<b>39,563,600</b>
<b>02110.300 Hazards waste clnp/pckp/</b>							
Hazardous W cln/pu/dspl, dumpsite disposal charge, max - demo'd 32" steel pipe/fittings/misc. - Surge Tank Infill	2,124.94 ton	-	-	900.00 /ton	-	900.00 /ton	1,912,446
<b>Hazards waste clnp/pckp/</b>							<b>1,912,446</b>
<b>02315.100 Earthwork: Backfill</b>							
Backfill, boring hole	1,000.00 cy	278.77 /cy	-	-	-	528.77 /cy	528,772
<b>Earthwork: Backfill</b>							<b>528,772</b>
<b>02315.340 Earthwork: Drilling and blasting</b>							
Drilling & blasting, deep hole method, 36" hole x 150' each Tank	1,000.00 cy	145.14 /cy	2.82 /cy	-	-	947.96 /cy	947,960
<b>Earthwork: Drilling and blasting</b>							<b>947,960</b>
<b>03310.701 Placing concrete</b>							
Placing concrete, concrete pump, for structural infill >24" thick - Surge Tank Infill	8,317.90 cy	122.72 /cy	-	-	-	122.72 /cy	1,020,750
<b>Placing concrete</b>							<b>1,020,750</b>
<b>05090.900 Welding structural</b>							
Welding, continuous fillet, 4 passes, 1/2" thick, 0.7#/L.F. - Weld shut 8' Diameter Manhole @ 190' Level	502.60 lf	83.14 /lf	1.48 /lf	-	-	309.62 /lf	155,613
<b>Welding structural</b>							<b>155,613</b>
<b>13851.350 Tank leak detection systems</b>							
Tank leak detection systems,, monitoring, internal, product line - Modification of lower access tunnel lines for water monitoring	20.00 ea	-		-	10,000.00 /ea	10,000.00 /ea	200,000
<b>Tank leak detection systems</b>							<b>200,000</b>
<b>m3211.023 Exterior Improvements</b>							
Top of Hill Roadway Improvement for Truck/Vehical Access (2 miles total length x 24' wide estimated)	28,157.18 sy				78.50 /sy	78.50 /sy	2,210,339
<b>Exterior Improvements</b>							<b>2,210,339</b>
<b>r01511.380 Temporary Utilities</b>							



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<b>r01511.380 Temporary Utilities</b>							
Temporary Utilities, power/air/water/ventilation for job duration	15,840.00 lf	-	-	-	19.15 /lf	19.15 /lf	303,336
<b>Temporary Utilities</b>							<b>303,336</b>
<b>r01543.340 General equipment rental without operators</b>							
Rent water truck, off highway, 6000 gallon capacity (10 years at 260 days/yr)	12,775.00 day	-	-	-	-	1,392.52 /day	17,789,443
<b>General equipment rental without operators</b>							<b>17,789,443</b>
<b>r01543.380 Marine equipment rental without operators</b>							
Marine equipment rental;barge,800 ton,45' wide x 90' long - hauling demo'd pipe off-island - Surge Tank Infill	1,460.00 day	-	-	-	-	1,109.54 /day	1,619,928
<b>Marine equipment rental without operators</b>							<b>1,619,928</b>
<b>r02411.346 Selective Demolition, Steel Pipe With Insulation</b>							
Selective demolition, steel pipe with insulation, 26"-36", includes valves & fittings - Asbestos & Lead Contaminated - Surge Tank Infill	18,480.00 lf	102.66 /lf	-	-	-	126.30 /lf	2,334,031
<b>Selective Demolition, Steel Pipe With Insulation</b>							<b>2,334,031</b>
<b>r02411.395 Selective Demo., Athletic/Playground Equipment</b>							
Selective demolition, Tank Internal Platforms/Walkways	20.00 ea	135,504.89 /ea	-	-	-	249,999.97 /ea	4,999,999
<b>Selective Demo., Athletic/Playground Equipment</b>							<b>4,999,999</b>
<b>r02411.927 Selective Demolition, Torch Cutting</b>							
Selective demolition, torch cutting & removal, steel, 1/4" thick plate & removal, includes hauling & disposal off-island	1,558,858.00 sf	39.70 /sf	-	-	-	40.50 /sf	63,133,756
Selective demolition, Steel Plate installation for Tank sealing - Surge Tank Infill	4,000.00 sf	39.70 /sf	25.00 /sf	-	-	73.06 /sf	292,228
<b>Selective Demolition, Torch Cutting</b>							<b>63,425,984</b>
<b>r03305.340 Concrete In Place</b>							
Structural concrete, in place, tank infill (3000 psi), over 20 C.Y. - Surge Tank Infill	8,317.90 cy	407.96 /cy	475.00 /cy	-	-	883.46 /cy	7,348,501
<b>Concrete In Place</b>							<b>7,348,501</b>
<b>r13050.550 Selective Demolition, Pre-Engineered Steel Buildings</b>							
Vents, circular, 12" to 24" diameter, selective demolition - demo/grout/seal off to outside	20.00 ea	25,000.00 /ea	-	-	-	25,000.00 /ea	500,000
<b>Selective Demolition, Pre-Engineered Steel Buildings</b>							<b>500,000</b>
<b>r23212.014 Air Purging Scoop</b>							
Tank Ventilation System - Manways/Vents & Nozzles reconfigured for infill process (See Note 1)	20.00 ea	32,658.37 /ea	67,341.63 /ea	-	-	100,000.00 /ea	2,000,000



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Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount
<b>Air Purging Scoop</b>							<b>2,000,000</b>
<b>r23341.610 Centrifugal Type HVAC Fans</b>							
Additional Tank Exhaust system w/vent piping	20.00 ea	18,682.85 /ea	106,317.14 /ea	-	-	124,999.99 /ea	2,500,000
<b>Centrifugal Type HVAC Fans</b>							<b>2,500,000</b>
<b>r26050.510 Electrical Demolition</b>							
Disconnect Tank Electrical Connections, electrical demolition, remove, including disconnecting wire & conduit terminations	20.00 ea	12,985.76 /ea	125.00 /ea	-	-	13,110.76 /ea	262,215
<b>Electrical Demolition</b>							<b>262,215</b>
<b>r31232.315 Borrow, Loading And/Or Spreading</b>							
Borrow, infill material only, bank run gravel	1,644,325.00 ton	-	70.00 /ton	-	-	70.00 /ton	115,102,750
Borrow, bank run gravel, haul and infill tank	1,644,325.00 ton	29.86 /ton	-	-	-	37.42 /ton	61,538,741
<b>Borrow, Loading And/Or Spreading</b>							<b>176,641,491</b>
<b>r33491.310 Storm Drainage Manholes, Frames &amp; Covers</b>							
Boring Location, Frame and Cover	20.00 ea	7,810.61 /ea	16,187.51 /ea	-	-	25,000.03 /ea	500,001
<b>Storm Drainage Manholes, Frames &amp; Covers</b>							<b>500,001</b>
<b>r41212.316 Container Piece Material Conveyors</b>							
Conveyors, material handling, horizontal belt, center drive & takeup, 60 fpm, 24" belt, 61.5' length - Estimate assumes a dump site off the mountal adjacent to the quarry	50.00 ea	7,475.23 /ea	17,524.77 /ea	-	-	25,000.00 /ea	1,250,000
<b>Container Piece Material Conveyors</b>							<b>1,250,000</b>
<b>05 ALTERNATIVE 4: DEMO INCL STEEL</b>	<b>1.00 LS</b>	<b>122,944,696.10 /LS</b>	<b>123,832,980.34 /LS</b>	<b>1,912,446.00 /LS</b>	<b>62,817,274.94 /LS</b>	<b>348,554,409.96 /LS</b>	<b>348,554,410</b>
<b>LINER - FILL W/INERT</b>							

Notes:

1. Air Purging Scoop Tank Ventilation System: Red Hill Tank Closure Plan Document indicated that fresh air would be required during the closure of the tanks. Jacobs estimators used this line item to include cost for using the air-purging scoop tank ventilation system to be repurposed for fresh air intake during closure.



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**Partial Totals**

Description	Amount	Totals	Hours	Rate	Cost / Unit	% of Total
Labor	122,944,696		1,639,723.845 hrs			21.16%
Material	123,832,980					21.32%
Subcontract	1,912,446					0.33%
Equipment	37,047,013		997,458.653 hrs			6.38%
Other	62,817,275					10.81%
<b>Subtotal Raw Costs</b>	<b>348,554,410</b>	<b>348,554,410</b>				<b>60.00%</b>
Material Sales & Use Tax - %	5,835,010			4.712 %		1.00%
Construction Equip Tax - %	1,745,655			4.712 %		0.30%
<b>Total Taxes</b>	<b>7,580,665</b>	<b>356,135,075</b>				<b>1.30%</b>
Location Adj. Factor (incl. in Estimate Detail)						
Security/Site Access Premium	35,613,508			10.000 %		6.13%
<b>Subtotal Adj. Factors</b>	<b>35,613,508</b>	<b>391,748,583</b>				<b>6.13%</b>
<b>Subtotal Subcontractor I,OH&amp;P</b>	<b>31,110,753</b>	<b>422,859,336</b>				<b>5.36%</b>
Contractor Contingency						
<b>Subtotal Contingency</b>		<b>422,859,336</b>				<b>72.79%</b>
<b>Total Cost To Prime Contractor</b>		<b>422,859,336</b>				<b>72.79%</b>
General Conditions	42,285,934			10.000 %		7.28%
In-Tunnel Train Logistics	8,457,187			2.000 %		1.46%
Mobilization/Demobilization (2.50%/2.50%)	21,142,967			5.000 %		3.64%
<b>Subtotal Indirect Costs</b>	<b>71,886,088</b>	<b>494,745,424</b>				<b>12.37%</b>
Prime Contractor Home Office OH	19,789,817			4.000 %		3.41%
Prime Contractor Profit	49,474,542			10.000 %		8.52%
Bonds & Insurance	16,920,293			3.000 %		2.91%
<b>Subtotal OH&amp;P</b>	<b>86,184,652</b>	<b>580,930,076</b>				<b>14.84%</b>
Architectural/Engineering Fees						
PMCM Fees						
<b>Total A/E &amp; PMCM Fees</b>		<b>580,930,076</b>				<b>100.00%</b>
Design Contingency						
<b>Subtotal Contingency</b>		<b>580,930,076</b>				<b>100.00%</b>
Escalation						
<b>Subtotal Escalation</b>		<b>580,930,076</b>				<b>100.00%</b>
<b>Total Prime Contractor Costs</b>		<b>580,930,076</b>				<b>100.00%</b>
Mech Owner-Provided Equip						
Elec Owner-Provided Equip						
<b>Total Owner-Provided Equipment</b>		<b>580,930,076</b>				<b>100.00%</b>
<b>Total Contractor Costs w/ OFCI</b>		<b>580,930,076</b>				<b>100.00%</b>
<b>Total Construction Cost</b>		<b>580,930,076</b>				<b>100.00%</b>
<b>Partial Total</b>		<b>580,930,076</b>				