



NAVFAC PACIFIC

RED HILL, HI - UG TANK CLOSURE - ALTERNATIVE 02 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 02

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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



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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
03 ALTERNATIVE 2: CLOSURE IN PLACE & SECURED							
01543.305 Equipment Rental							
Boom System & ODC's - Large Tanks	14.00 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
Equipment Rental							20,540,000
01740.013 Progress Cleaning							
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
Progress Cleaning							39,563,600
02110.300 Hazards waste clnp/pckp/							
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
Hazards waste clnp/pckp/							1,912,446
03310.701 Placing concrete							
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
Placing concrete							1,020,750
05090.900 Welding structural							
Welding, continuous fillet, 2 passes, to 5/16" thick, 0.4#/L.F. - Weld Grating over Manway Opening (28.27 lf each)	565.40 lf	83.14 /lf	0.95 /lf	-	-	309.09 /lf	174,757
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
Welding structural							330,369
05120.680 Structural steel projects							
Structural st projs, pnts & prot coatings, sprayed, epoxy, primer with topcoat	1,558,858.00 sf	0.00 /sf	24.10 /sf	-	-	24.10 /sf	37,568,478
Structural steel projects							37,568,478
11200.100 Filter Underdrain-Leopold							
Mechanical Grout Mixer (10 day per tank nozzle)(See Note 1)	200.00 day	665.12 /day	-	-	-	1,165.12 /day	233,024
Filter Underdrain-Leopold							233,024
11202.100 Granular Media Filter							
8' Tank Manway - removal and destruction	20.00 ea	5,392.32 /ea	1,500.00 /ea	-	-	9,392.32 /ea	187,846
Granular Media Filter							187,846
11390.052 Plant Water Submersible Pumps							
Machine Grout - Grout Tank Nozzle Piping, solid, 12" dia x 50 lf (39.27 cu ft) EA(See Note 2)	785.40 cuft	103.93 /cuft	56.00 /cuft	-	-	159.93 /cuft	125,605



Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount
Plant Water Submersible Pumps							125,605
13851.350 Tank leak detection systems							
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
Tank leak detection systems							200,000
r01511.380 Temporary Utilities							
Temporary Utilities, power/air/water/ventilation for job duration	15,840.00 lf	-	-	-	19.15 /lf	19.15 /lf	303,336
Temporary Utilities							303,336
r01543.380 Marine equipment rental without operators							
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
Marine equipment rental without operators							1,619,928
r02411.346 Selective Demolition, Steel Pipe With Insulation							
Selective demolition, Nozzles @ Lower Access Tunnel Bulkhead	20.00 ea	2,566.48 /ea	-	-	-	2,684.69 /ea	53,694
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
Selective Demolition, Steel Pipe With Insulation							2,387,725
r02411.927 Selective Demolition, Torch Cutting							
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
Selective Demolition, Torch Cutting							292,228
r03305.340 Concrete In Place							
Structural concrete, pumped, 750 psi flexural strength, excludes forms, reinforcing steel and finishing - Fill Tank botton with 4' of concrete (583 CY each tank)	11,660.00 cy	101.58 /cy	208.00 /cy	-	-	320.36 /cy	3,735,427
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
Concrete In Place							11,083,928
r03310.570 Placing Concrete							
Structural concrete, placing, tank bottom, pumped, includes strike off & consolidation, excludes material - Fill Tank botton with 4' of concrete (583 CY each tank)	11,660.00 cy	65.89 /cy	-	-	-	72.64 /cy	846,996
Placing Concrete							846,996
r04013.020 Cleaning Masonry							



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r04013.020 Cleaning Masonry							
Cleaning tank interior steel skin,with inspection & necessary repairs	1,558,858.00 sf	7.29 /sf	-	-	-	8.87 /sf	13,822,394
Cleaning Masonry							13,822,394
r05532.150 Floor Grating, Steel							
Floor grating, stainless steel, 1-1/4" x 3/16" bearing bars @ 15/16" O.C., cross bars @ 4" O.C., up to 300 S.F. - Manway cover 5' dia	628.40 sf	162.11 /sf	129.00 /sf	-	-	291.48 /sf	183,165
Floor Grating, Steel							183,165
r13050.550 Selective Demolition, Pre-Engineered Steel Buildings							
Vents, circular, 12" to 24" diameter, selective demolition - demo/grout/seal off to outside	20.00 ea	11,987.36 /ea	-	-	-	11,987.36 /ea	239,747
Selective Demolition, Pre-Engineered Steel Buildings							239,747
r22111.374 Pipe, Plastic							
Pipe, plastic, PVC, high impact/pressure, 4" diameter, schedule 80, includes couplings 10' OC, and hangers 3 per 10' - New Water Collection Drainpipe in lower tunnel	2,000.00 lf	26.90 /lf	24.50 /lf	-	-	51.40 /lf	102,796
Pipe, Plastic							102,796
r23212.014 Air Purging Scoop							
Tank Ventilation System - repaired/replaced/upgraded(See Note 3)	20.00 ea	17,320.20 /ea	100,000.00 /ea	-	-	117,320.20 /ea	2,346,404
Air Purging Scoop							2,346,404
r26050.510 Electrical Demolition							
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
Electrical Demolition							262,215
03 ALTERNATIVE 2: CLOSURE IN PLACE & SECURED	1.00 LS	21,251,374.34 /LS	46,252,587.28 /LS	1,912,446.00 /LS	60,606,936.00 /LS	135,172,981.05 /LS	135,172,981

Notes:

1. Filter Underdrain-Leopold - Mechanical Grout Mixer: The grout mixer is used to mix and distribute the grouting of the tank nozzle piping completely 12' diameter piping assumed at 50' each.
2. Plant Water Submersible Pumps Machine Grout - Grout Tank Nozzle Piping: Red Hill Tank Closure Plan Document identified the Tank Nozzle Piping to be fully grouted. The estimator anticipated a 50' length of 12" pipe to be fully grouted per tank.
3. 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	21,251,374		390,862.318 hrs			9.53%
Material	46,252,587					20.74%
Subcontract	1,912,446					0.86%
Equipment	5,149,637		241,494.233 hrs			2.31%
Other	60,606,936					27.17%
Subtotal Raw Costs	135,172,980	135,172,980				60.60%
Material Sales & Use Tax - %	2,179,422			4.712 %		0.98%
Construction Equip Tax - %	242,651			4.712 %		0.11%
Total Taxes	2,422,073	137,595,053				1.09%
Location Adj. Factor (incl. in Estimate Detail)						
Security/Site Access Premium	13,759,505			10.000 %		6.17%
Subtotal Adj. Factors	13,759,505	151,354,558				6.17%
Subtotal Subcontractor I,OH&P	11,012,406	162,366,964				4.94%
Contractor Contingency						
Subtotal Contingency		162,366,964				72.79%
Total Cost To Prime Contractor		162,366,964				72.79%
General Conditions	16,236,697			10.000 %		7.28%
In-Tunnel Train Logistics	3,247,339			2.000 %		1.46%
Mobilization/Demobilization (2.50%/2.50%)	8,118,348			5.000 %		3.64%
Subtotal Indirect Costs	27,602,384	189,969,348				12.37%
Prime Contractor Home OfficeOH	7,598,774			4.000 %		3.41%
Prime Contractor Profit	18,996,935			10.000 %		8.52%
Bonds & Insurance	6,496,952			3.000 %		2.91%
Subtotal OH&P	33,092,661	223,062,009				14.84%
Architectural/Engineering Fees						
PMCM Fees						
Total A/E & PMCM Fees		223,062,009				100.00%
Design Contingency						
Subtotal Contingency		223,062,009				100.00%
Escalation						
Subtotal Escalation		223,062,009				100.00%
Total Prime Contractor Costs		223,062,009				100.00%
Mech Owner-Provided Equip						
Elec Owner-Provided Equip						
Total Owner-Provided Equipment		223,062,009				100.00%
Total Contractor Costs w/ OFCI		223,062,009				100.00%
Total Construction Cost		223,062,009				100.00%
Partial Total		223,062,009				