# **Alternatives Cost Analysis**

Projected Costs Summary Table EE/CA - Caneel Bay Resort Site

	R	Altern emove Soil and					
	Un	discounted	Net	Present Value (NPV)			
Projected Capital Cost	\$	4,496,000	\$	4,496,000			
Capital Scope Contingency	\$	674,000	\$	674,000			
Capital Bid Contingency	\$	674,000	\$	674,000			
Projected O&M Cost	\$	123,000	\$	129,000			
O&M Scope Contingency	\$	9,000	\$	10,000			
O&M Bid Contingency	\$	18,000	\$ 19,000				
Projected Remediation Total	\$	\$ 5,996,000 \$ 6,004,0					

# 1.1. Alternative 2 - Remove Surface Soil in Area 2 & Soil and Landfill Debris from Area 3

Detailed Cost Projection EE/CA -

A - Caneel Bay Resort Site	
Present Value Year	2021
Start Year	2021
Discount Rate	-1.6%

Discount Rate	-1.6%		21 Discount R				,							Net Pr <u>esent</u>	Value Calcula	tions		1
						Estimated					Total Projected		Recurrence	Eff. Rate for				
				Occurr-	Daily	Duration				al Projected C	ost - Net Present	Cost Type	Frequency	Recurrence			Start-Year Value of	
	Task	Quant.	Unit	ence	Output	(d)	Unit Cost	Mark-u	р	Cost	Value	(F/A)	(yr)	Period	Start Year	Duration	Annual Costs	Notes/Source
mediation Capital Total									\$	4,496,322 \$	4,496,322							
pital Scope Contingency		15%							\$	674,448 \$	674,448							EPA 540-R-00-002, Section 5.4 EPA 540-R-00-002, Section 5.4
pital Bid Contingency		15%							>	674,448 \$	674,448							EPA 540-R-00-002, Section 5.4
emediation O&M Total &M Scope Contingency		7.5%							\$	123,099 \$ 9,232 \$	129,236 9,693							EPA 540-R-00-002, Section 5.4
&M Bid Contingency		15%							\$	18,465 \$	19,385							EPA 540-R-00-002, Section 5.4
emediation Total + Contingencies									\$	5,996,014 \$	6,003,532							
<u> </u>																		
ofessional/Technical Services Capital Cos	ts								\$	717,900 \$	717,900							
ofessional/Technical Services Capital Cos	ts								\$	717,900 \$	717,900							
Professional/Technical Services																		
Dreiest Management		F.0/							¢	188,921 \$	188,921							EPA 540-R-00-002, Exhibit 5-8. Includes planning, reporting, comm
Project Management		5%							\$	188,921 \$	100,921							relations, bid/contract administration, permitting.
																		EPA 540-R-00-002, Exhibit 5-8. Includes pre-design collection & ar
Remedial Design		8%							\$	302,274 \$	302,274							field data, engineering survey, design analysis, plans, specification,
																		estimating, scheduling.
Construction Management		<b>C</b> 0/							¢		226 705							EPA 540-R-00-002, Exhibit 5-8. Includes submittal review, design
Construction Management		6%							Þ	226,705 \$	226,705							modifications, construction oversight, engineering survey, O&M m preparation, QC/QA, record drawings.
																		preparation, QC/QA, record drawings.
emedy Construction									\$	3,778,421 \$	3,778,421							
ontractor Costs									\$	3,778,421 \$	3,778,421							
Contractor - Site Preparation	Estimated Duration	7	d															
Erosion & Sedimentation Controls	Synthetic erosion control, silt fence, install and	500	LF	1	650	1	¢ )	.00 1	¢	12,500 \$	12,500	E.	1	-1.60%	1	1		Daily Output Based on RSMeans 2021, 312514161000.
Erosion & Sedimentation Controls	maintain, remove, 3' high	500	LF	I	650	I	\$ 25	.00 I	\$	12,500 \$	12,500	F	1	-1.60%	I	I		Rate based on 2015 bids for contruction on St. John Island.
	Clearing & grubbing, medium trees, to 12"																	Daily Output Based on RSMeans 2020, 311110100200. Output halv
Clearing & grubbing site	diameter, cut and chip	2	ас	1	0.35	6	\$ 18,	000 1	\$	36,000 \$	36,000	F	1	-1.60%	1	1		to site access complexity.
																		Rate based on 2015 bids for contruction on St. John Island.
Waste characterization sampling	Sampling by TCLP for metals, pesticides + total	100	samples	1	50	2	\$	350 1.1	\$	38,500 \$	38,500	F	1	-1.60%	1	1		Rate based on one excavator collecting samples
Contractor - Excavation	PCBs Estimated Duration	32	d									1						
	Mobilization, Equipment hauled on 40-ton	52																RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI)
Mob/Demob 700 HP Dozer	capacity towed trailer	2	ea	1	NA	NA	\$ 1,845	5.20 1	\$	3,690 \$	3,690	F	1	-1.60%	1	1		for barge.
Male (Dave als EE)	Mobilization, Equipment hauled on 40-ton	2		1	NIA	NIA	¢ 1040	20 1	¢	2.000 ¢	2 600	-	1	1.00%	1	1		RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI)
Mob/Demob FEL	capacity towed trailer	2	ea		NA	NA	\$ 1,845	.20 1	\$	3,690 \$	3,690	F	1	-1.60%		1		for barge.
																		Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes
Excavation, bulldozer	Excavating, Bulk, Dozer, Open Site, 700 HP, 150'	19,594	BCY	1	615	32	\$ F	.19 1	\$	121,365 \$	121,365	F	1	-1.60%	1	1		CY trucks making four roundtrips)
	Haul, common earth	15,554	DCT		015	52	Ý (		4	121,505	121,505			1.0070				Rate based on RSMeans 2021, 312316466040 x 1.63 (DoD Area Cos
																		for VI)
Excavation, soil on-Site	Frequeting Dull Deal Manual Common Fasth																	Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes
transport/stockpiling, & loading on	Excavating, Bulk Bank Measure, Common Earth Piled, Front end loader, wheel mounted, 5 CY	25,472	LCY	1	800	NA	\$ 2	.23 1	\$	56,882 \$	56,882	F	1	-1.60%	1	1		CY trucks making four roundtrips) Rate based on RSMeans 2021, 312316421650 x 1.63 (DoD Area Cos
trucks	Flied, Front end loader, wheel mounted, 5 CF																	for VI)
Dust Control	Dust Control, Light	32	d	1	NA	NA	\$ 1,833	.75 1	\$	58,680 \$	58,680	F	1	-1.60%	1	1		RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI)
												_			-			Based on estimates provided by two waste haulers ( $$600 + $300 =$
Excavated Material Hauling	Transportation to Bovoni Landfill on St. Thomas	1,372	Loads	1	NA	NA	\$ 1,000	0.00 1	\$	1,372,000 \$	1,372,000	F	1	-1.60%	1	1		\$900/trip; \$800 - \$1200/trip).
Excavated Material Hauling - Haz	Transportation to Hazardous Landfill	210	Tons	1	NA	NA	\$ 350	.00 1	\$	73,448 \$	73,448	F	1	-1.60%	1	1		Off-island estimate
Truck Liners	Disposable plastic truck liners, per load	14	Loads	1	NA	NA	-	.00 1	¢	350 \$	350	F	1	-1.60%	1	1		
	Off-Site Disposal of Soil/material at Bovoni								φ									Based on mixed waste VIWMA Tipping Fee (see
Material Disposal	Landfill on St. Thomas	27,432	Tons	1	NA	NA	\$ 65	.26 1	\$	1,790,186 \$	1,790,186	F	1	-1.60%	1	1		
Material Disposal - Haz	Off-Site Disposal of Soil/material at Hazardous	210	Tons	1	NA	NA	\$ 700	0.00 1	¢	151,093 \$	151,093	С	1	-1.60%	1	1		http://www.viwma.org/index.php/businessinfo/tipping-fee) Based on prior experience, disposal may range from \$150-\$220/tor
	Landfill	210	TONS		IN/A	INA	÷ 720		\$	\$	131,093			- 1.00 %				depending on characterization, assume \$500/ton for transportation
Contractor - Grading/Seeding	Estimated Duration	8	d															
Rough Grading Slope Surface	Rough Grade sites 8,100 - 10,000 SF, dozer	4	10,000 SF	1	1	4	\$ 2,306	.45 1	\$	9,226 \$	9,226	F	1	-1.60%	1	1		RSMeans 2021, 312213200170 x 1.63 (DoD Area Cost Factor for VI)
	Topsoil Placement and Grading, Loam or Topsoil,						. 2,000		+		5,220							
Topsoil Placement and Grading	Screened, 4" Deep, Furnish and Place, Truck	3872	SY	1	1300	3	\$ 8	.43 1	\$	32,630 \$	32,630	F	1	-1.60%	1	1		RSMeans 2021, 329119130700 x 1.63 (DoD Area Cost Factor for VI)
5	Dumped																	· · · · · · · · · · · · · · · · · · ·
			T	1	NIA	NIA	\$ 1,833	75 1	¢	14,670 \$	14,670	F	1	-1.60%	1	1		RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI)
Dust Control	Dust Control, Light	8	d	1	NA	NA	<u>р</u> 1,055	.75	Ą	14,070   \$	14,070	I	1	-1.00%	I	1		RSMearis Edel, STESESEDEDOX 1.05 (DOD Area Cost factor for Vi)
Dust Control Seeding	Dust Control, Light Seeding, Slope mix, 6#/MSF, hydro seeding with	8 34.848	d Thousand	1	NA 80	1	\$ 1,055 \$ 100		ې د	3,510 \$	3,510	г Г	1	-1.60%	1	1		RSMeans 2021, 329219144600 x 1.63 (DoD Area Cost Factor for VI)

Discount Rate	-1.6%	M-21-09, 202	21 Discount F	Rates for ON	MB Circular	No. A-94 (5	-yr real rate)						Net Present	Value Calcula	tions		
				-		Estimated				Total Projected			e Eff. Rate for				
	Task	Quant.	Unit	Occurr- ence	Daily Output	Duration (d)	Unit Cost	Mark-up	Total Projected Cost	Cost - Net Present Value	t Cost Type (F/A)	Frequency (yr)	Recurrence Period	Start Year	Duration	Start-Year Value of Annual Costs	Notes/Source
emediation Capital Total	I d3N	Quant.	Onit	ence	Output	(u)	Onit Cost	Mark-up	\$ 4,496,32			(yr)	renou	Start real	Duration	Annual Costs	Notes/Source
pital Scope Contingency		15%							\$ 674,44	8 \$ 674,448							EPA 540-R-00-002, Section 5.4
pital Bid Contingency		15%							\$ 674,44								EPA 540-R-00-002, Section 5.4
mediation O&M Total १M Scope Contingency		7.5%							\$ 123,09 \$ 9,23								EPA 540-R-00-002, Section 5.4
2M Bid Contingency		15%							\$ 18,46								EPA 540-R-00-002, Section 5.4
mediation Total + Contingencies									\$ 5,996,01	4 \$ 6,003,532	2						•
ofessional/Technical Services Capital Cost ofessional/Technical Services Capital Cost									\$ 717,900 \$ 717,900								
Professional/Technical Services									<i>• • • • • • • • • •</i>	, , , , , , , , , , , , , , , , , , , ,							
Project Management		5%							\$ 188,92	1 \$ 188,921	,						EPA 540-R-00-002, Exhibit 5-8. Includes planning, reporting, community
		570							φ 100, <i>3</i> 2	1 \$ 100,92	1						relations, bid/contract administration, permitting.
Remedial Design		8%							\$ 302,27	4 \$ 302,274	,						EPA 540-R-00-002, Exhibit 5-8. Includes pre-design collection & analysis field data, engineering survey, design analysis, plans, specification, cost
Remedial Design		070							\$ 502,27	+ \$ 502,272	*						estimating, scheduling.
																	EPA 540-R-00-002, Exhibit 5-8. Includes submittal review, design
Construction Management		6%							\$ 226,70	5 \$ 226,705	5						modifications, construction oversight, engineering survey, O&M manual
																	preparation, QC/QA, record drawings.
medy Construction									\$ 3,778,42								
ntractor Costs Contractor - Site Preparation	Estimated Duration	7	d						\$ 3,778,42	\$ 3,778,421							
	Synthetic erosion control, silt fence, install and		-		650				4 40.50				1.000/				Daily Output Based on RSMeans 2021, 312514161000.
Erosion & Sedimentation Controls	maintain, remove, 3' high	500	LF	1	650	1	\$ 25.0	0 1	\$ 12,50	0 \$ 12,500	) F	1	-1.60%	1	1		Rate based on 2015 bids for contruction on St. John Island.
	Clearing & grubbing, medium trees, to 12"																Daily Output Based on RSMeans 2020, 311110100200. Output halved due
Clearing & grubbing site	diameter, cut and chip	2	ac	1	0.35	6	\$ 18,00	0 1	\$ 36,00	36,000	) F	1	-1.60%	1	1		to site access complexity.
	Sampling by TCLP for metals, pesticides + total																Rate based on 2015 bids for contruction on St. John Island.
Waste characterization sampling	PCBs	100	samples	1	50	2	\$ 35	50 1.1	\$ 38,50	0 \$ 38,500	) F	1	-1.60%	1	1		Rate based on one excavator collecting samples
Contractor - Excavation	Estimated Duration	32	d				1		1		-			1			DSManne 2021 015426501500 v 1 62 (DeD Aven Cost Forter for VI) + \$156
Mob/Demob 700 HP Dozer	Mobilization, Equipment hauled on 40-ton capacity towed trailer	2	ea	1	NA	NA	\$ 1,845.2	.0 1	\$ 3,69	3,690	) F	1	-1.60%	1	1		RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI) + \$150 for barge.
Mob/Demob FEL	Mobilization, Equipment hauled on 40-ton	2		1	NA	NA	\$ 1,845.2	0 1	\$ 3,69	0 \$ 3,690		1	-1.60%	1	1		RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI) + \$15
	capacity towed trailer	2	ea	1	INA	INA	¢ 1,045.2	.0 1	\$ 5,09	3 3 3,090	) г	1	- 1.00%	1	1		for barge.
	Excavating, Bulk, Dozer, Open Site, 700 HP, 150'																Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes ten 20 CY trucks making four roundtrips)
Excavation, bulldozer	Haul, common earth	19,594	BCY	1	615	32	\$ 6.1	9 1	\$ 121,36	5 \$ 121,365	5 F	1	-1.60%	1	1		Rate based on RSMeans 2021, 312316466040 x 1.63 (DoD Area Cost Factor
																	for VI)
Excavation, soil on-Site																	Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes ten 20
transport/stockpiling, & loading on	Excavating, Bulk Bank Measure, Common Earth Piled, Front end loader, wheel mounted, 5 CY	25,472	LCY	1	800	NA	\$ 2.2	3 1	\$ 56,88	2 \$ 56,882	2 F	1	-1.60%	1	1		CY trucks making four roundtrips) Rate based on RSMeans 2021, 312316421650 x 1.63 (DoD Area Cost Facto
trucks	Filed, Holit end loader, wheel mounted, 5 Ch																for VI)
Dust Control	Dust Control, Light	32	d	1	NA	NA	\$ 1,833.7	75 1	\$ 58,68	0 \$ 58,680	) F	1	-1.60%	1	1		RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI)
Excavated Material Hauling	Transportation to Bovoni Landfill on St. Thomas	1,372	Loads	1	NA	NA	\$ 1,000.0	0 1	\$ 1,372,00	5 \$ 1,372,000	) F	1	-1.60%	1	1		Based on estimates provided by two waste haulers (\$600 + \$300 =
Excavated Material Hauling - Haz	Transportation to Hazardous Landfill	210	Tons	1	NA	NA	\$ 350.0	10 1	\$ 73,44	3 \$ 73,448	2 -	1	-1.60%	1	1		\$900/trip; \$800 - \$1200/trip). Off-island estimate
	•	14	Loads	1	NA	NA	\$ 25.0		\$ 73,44			1	-1.60%	1	1		
	Disposable plastic truck liners, per load Off-Site Disposal of Soil/material at Bovoni																Based on mixed waste VIWMA Tipping Fee (see
Material Disposal	Landfill on St. Thomas	27,432	Tons	1	NA	NA	\$ 65.2	.6 1	\$ 1,790,18	5 \$ 1,790,186	5 F	1	-1.60%	1	1		http://www.viwma.org/index.php/businessinfo/tipping-fee) Based on prior experience, disposal may range from \$150-\$220/ton,
Material Disposal - Haz	Off-Site Disposal of Soil/material at Hazardous Landfill	210	Tons	1	NA	NA	\$ 720.0	0 1	\$ 151,09	3 \$ 151,093	3 F	1	-1.60%	1	1		
							l		I		1			<u> </u>			depending on characterization, assume \$500/ton for transportation
Contractor - Grading/Seeding Rough Grading Slope Surface	Estimated Duration	8	<b>d</b>	1	1	A	¢ 2.200	E 1	\$ 922			1	1.000/	1	1		DSMoone 2021 212212200170 v 1 62 (D=D Arres Cart Factor (art))
KOUGH GRACING SIODE SUITACE	Rough Grade sites 8,100 - 10,000 SF, dozer	4	10,000 SF		1	4	\$ 2,306.4		\$ 9,22	5 \$ 9,226			-1.60%				RSMeans 2021, 312213200170 x 1.63 (DoD Area Cost Factor for VI)
	Topsoli Placement and Gradind, Loam of Topsoli.		1	1	1		1		1	1	1	1	1	1	1	1	
Topsoil Placement and Grading	Topsoil Placement and Grading, Loam or Topsoil, Screened, 4" Deep, Furnish and Place, Truck	3872	SY	1	1300	3	\$ 8.4	3 1	\$ 32,63	32,630	) F	1	-1.60%	1	1		RSMeans 2021, 329119130700 x 1.63 (DoD Area Cost Factor for VI)
Topsoil Placement and Grading	Screened, 4" Deep, Furnish and Place, Truck Dumped	3872	SY	1		3						1		1	1		
	Screened, 4" Deep, Furnish and Place, Truck	3872 8	SY d Thousand	1	1300 NA	3 NA	\$ 8.4 \$ 1,833.7		\$ 32,63 \$ 14,67			1	-1.60%	1	1		RSMeans 2021, 329119130700 x 1.63 (DoD Area Cost Factor for VI) RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI)

Discount Rate	-1.6%	M-21-09, 202	21 Discount F	Rates for O	MB Circular	No. A-94 (5	-yr real rate)							Net Present	Value Calcul	ations		
															Galcun			
						Estimated					Total Projected		Recurrence	Eff. Rate for				
		-		Occurr-		Duration					Cost - Net Present		Frequency	Recurrence			Start-Year Value of	
emediation Capital Total	Task	Quant.	Unit	ence	Output	(d)	Unit Cost	Mark-up	6	Cost 4,496,322	Value \$ 4,496,322	(F/A)	(yr)	Period	Start Year	Duratio	on Annual Costs	Notes/Source
pital Scope Contingency		15%							⇒ \$	674,448								EPA 540-R-00-002, Section 5.4
pital Bid Contingency		15%							\$	674,448								EPA 540-R-00-002, Section 5.4
mediation O&M Total									\$	123,099								
&M Scope Contingency		7.5%							\$	9,232 18,465								EPA 540-R-00-002, Section 5.4 EPA 540-R-00-002, Section 5.4
&M Bid Contingency emediation Total + Contingencies		15%							> \$	5,996,014								EPA 540-R-00-002, Section 5.4
									Ť	5,556,614	+ 0,000,001							
ofessional/Technical Services Capital Cost	s								\$	717,900	\$ 717,900							
ofessional/Technical Services Capital Cost	S								\$	717,900	\$ 717,900							
Professional/Technical Services		-		1	1	1		-				-	1	1	1	1		
Project Management		5%							\$	188,921	\$ 188,921							EPA 540-R-00-002, Exhibit 5-8. Includes planning, reporting, community
																		relations, bid/contract administration, permitting. EPA 540-R-00-002, Exhibit 5-8. Includes pre-design collection & analysis
Remedial Design		8%							\$	302,274	\$ 302,274							field data, engineering survey, design analysis, plans, specification, cost
																		estimating, scheduling.
																		EPA 540-R-00-002, Exhibit 5-8. Includes submittal review, design
Construction Management		6%							\$	226,705	\$ 226,705							modifications, construction oversight, engineering survey, O&M manual
																		preparation, QC/QA, record drawings.
medy Construction									\$	3,778,421								
Contractor Costs	Estimated Duration	7	d						\$	3,778,421	\$ 3,778,421							
	Synthetic erosion control, silt fence, install and																	Daily Output Based on RSMeans 2021, 312514161000.
Erosion & Sedimentation Controls	maintain, remove, 3' high	500	LF	1	650	1	\$ 25.00	) 1	\$	12,500	\$ 12,500	F	1	-1.60%	1	1		Rate based on 2015 bids for contruction on St. John Island.
	Clearing & grubbing, medium trees, to 12"																	Daily Output Based on RSMeans 2020, 311110100200. Output halved due
Clearing & grubbing site	diameter, cut and chip	2	ac	1	0.35	6	\$ 18,000	) 1	\$	36,000	\$ 36,000	F	1	-1.60%	1	1		to site access complexity.
	Sampling by TCLP for metals, pesticides + total																	Rate based on 2015 bids for contruction on St. John Island.
Waste characterization sampling	PCBs	100	samples	1	50	2	\$ 350	) 1.1	\$	38,500	\$ 38,500	F	1	-1.60%	1	1		Rate based on one excavator collecting samples
Contractor - Excavation	Estimated Duration	32	d															
Mob/Demob 700 HP Dozer	Mobilization, Equipment hauled on 40-ton	2	ea	1	NA	NA	\$ 1,845.20	) 1	\$	3,690	\$ 3,690	F	1	-1.60%	1	1		RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI) + \$15
	capacity towed trailer Mobilization, Equipment hauled on 40-ton																	for barge. RSMeans 2021, 015436501500 x 1.63 (DoD Area Cost Factor for VI) + \$15
Mob/Demob FEL	capacity towed trailer	2	ea	1	NA	NA	\$ 1,845.20	) 1	\$	3,690	\$ 3,690	F	1	-1.60%	1	1		for barge.
																		Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes ten 20
Excavation, bulldozer	Excavating, Bulk, Dozer, Open Site, 700 HP, 150'	19,594	ВСҮ	1	615	32	\$ 6.19	9 1	\$	121,365	\$ 121,365	F	1	-1.60%	1	1		CY trucks making four roundtrips)
	Haul, common earth	15,554	ber		015	52	φ 0.15		1	121,505	φ 121,303			1.0070				Rate based on RSMeans 2021, 312316466040 x 1.63 (DoD Area Cost Facto
																		for VI) Daily Ouput Limited by Transportation to Bovoni Landfill (Assumes ten 20
Excavation, soil on-Site	Excavating, Bulk Bank Measure, Common Earth											_				_		CY trucks making four roundtrips)
transport/stockpiling, & loading on	Piled, Front end loader, wheel mounted, 5 CY	25,472	LCY	1	800	NA	\$ 2.23	3 1	\$	56,882	\$ 56,882	F	1	-1.60%	1	1		Rate based on RSMeans 2021, 312316421650 x 1.63 (DoD Area Cost Factor
trucks				-							·							for VI)
Dust Control	Dust Control, Light	32	d	1	NA	NA	\$ 1,833.75	5 1	\$	58,680	\$ 58,680	F	1	-1.60%	1	1		RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI) Based on estimates provided by two waste haulers (\$600 + \$300 =
Excavated Material Hauling	Transportation to Bovoni Landfill on St. Thomas	1,372	Loads	1	NA	NA	\$ 1,000.00	) 1	\$	1,372,000	\$ 1,372,000	F	1	-1.60%	1	1		saved on estimates provided by two waste natiers ( $600 + 300 =$ \$900/trip; \$800 - \$1200/trip).
Excavated Material Hauling - Haz	Transportation to Hazardous Landfill	210	Tons	1	NA	NA	\$ 350.00	) 1	\$	73,448	\$ 73,448	F	1	-1.60%	1	1		Off-island estimate
Truck Liners	Disposable plastic truck liners, per load	14	Loads	1	NA	NA	\$ 25.00		\$	350	\$ 350	F	1	-1.60%	1	1		
	Off-Site Disposal of Soil/material at Bovoni								Ψ 		÷ 550	_						Based on mixed waste VIWMA Tipping Fee (see
Material Disposal	Landfill on St. Thomas	27,432	Tons	1	NA	NA	\$ 65.26	1	\$	1,790,186	\$ 1,790,186	F	1	-1.60%	1	1		http://www.viwma.org/index.php/businessinfo/tipping-fee) Based on prior experience, disposal may range from \$150-\$220/ton,
Material Disposal - Haz	Off-Site Disposal of Soil/material at Hazardous Landfill	210	Tons	1	NA	NA	\$ 720.00	) 1	\$	151,093	\$ 151,093	F	1	-1.60%	1	1		Based on prior experience, disposal may range from \$150-\$220/ton, depending on characterization, assume \$500/ton for transportation
					I								<u> </u>	<u> </u>	l			repending on characterization, assume \$500/ton for transportation
Contractor - Grading/Seeding	Estimated Duration	8	d						L.C.			-				-		
Rough Grading Slope Surface	Rough Grade sites 8,100 - 10,000 SF, dozer Topsoil Placement and Grading, Loam or Topsoil,	4	10,000 SF	1	1	4	\$ 2,306.45	p 1	\$	9,226	\$ 9,226	F	1	-1.60%	1	1		RSMeans 2021, 312213200170 x 1.63 (DoD Area Cost Factor for VI)
Topsoil Placement and Grading	Screened, 4" Deep, Furnish and Place, Truck	3872	SY	1	1300	3	\$ 8.43	3 1	\$	32,630	\$ 32,630	F	1	-1.60%	1	1		RSMeans 2021, 329119130700 x 1.63 (DoD Area Cost Factor for VI)
,	Dumped																	
Dust Control	Dust Control, Light	8	d	1	NA	NA	\$ 1,833.75	5 1	\$	14,670	\$ 14,670	F	1	-1.60%	1	1		RSMeans 2021, 312323202500 x 1.63 (DoD Area Cost Factor for VI)
Seeding	Seeding, Slope mix, 6#/MSF, hydro seeding with	34.848	Thousand	1	80	1	\$ 100.73	3 1	\$	3,510	\$ 3,510	F	1	-1.60%	1	1		RSMeans 2021, 329219144600 x 1.63 (DoD Area Cost Factor for VI)
5	mulch and fertilizer		SF							- ,	-,- : •							

# 1.1. Alternative 2 - Remove Surface Soil in Area 2 & Soil and Landfill Debris from Area 3

Detailed Cost Projection EE/CA - Caneel Bay Resort Site

- Caneel Bay Resort Site	
Present Value Year	2021
Start Year	2021
Discount Rate	-1.6%

M-21-09, 2021 Discount Rates for OMB Circular No. A-94 (5-yr real rate)

Discount Rate	-1.6%	M-21-09, 202											Net Present	Value Calcula	ations		
	Task	Quant.	Unit	Occurr- ence	Daily Output	Estimated Duration (d)	Unit Cost	Mark-up	Total Projected Cost	Total Projected Cost - Net Present Value	Cost Type (F/A)		Eff. Rate for Recurrence Period	Start Year	Duration	Start-Year Value of Annual Costs	Notes/Source
									\$ 123,099	\$ 129,236							
pection									\$ 60,439								
Professional/Technical Services - O&	Μ																
Project Management		10%							\$ 5,494	\$ 5,768							EPA 540-R-00-002
Annual Inspection (Years 2-6)																	
Site Civil Engineer Specialist Level 8	Support and Planning	8	hr/trip	5			\$ 248.1	0 1	\$ 9,924	\$ 10,419	А	1	-1.60%	2	5	\$ 10,252	
Site Civil Engineer Specialist Level 6	Travel, Prep	16	hr/trip	5			\$ 199.6	8 1	\$ 15,974	\$ 16,771	А	1	-1.60%	2	5	\$ 16,502	
Site Civil Engineer Specialist Level 6	Site Inspection	6	hr/trip	5			\$ 199.6	8 1	\$ 5,990	\$ 6,289	А	1	-1.60%	2	5	\$ 6,188	
	Parking	3	d	5			\$ 24.0		\$ 360		А	1	-1.60%	2	5	\$ 372	
	POV mileage	70	mi/trip	5			\$ 0.5		\$ 196		А	1	-1.60%	2	5	\$ 202	
Travel Costs	Airfare	1	ea/trip	5			\$ 1,000.0	0 1	\$ 5,000	\$ 5,249	А	1	-1.60%	2	5	\$ 5,165	
navel costs	Per Diem	2.5	ea/trip	5			\$ 123.0	_	\$ 1,538		А	1	-1.60%	2	5	\$ 1,588	
	Lodging	2	ea/trip	5			\$ 230.0		\$ 2,300		A	1	-1.60%	2	5	\$ 2,376	https://www.defensetravel.dod.mil/site/perdiemCalc.cfm
	Rental Car	2	ea/trip	5			\$ 200.0	0 1	\$ 2,000	\$ 2,100	А	1	-1.60%	2	5	\$ 2,066	
Supplies	Misc. Supplies, Equipment	1	ea/trip	5			\$ 250.0		\$ 1,250		А	1	-1.60%	2	5	\$ 1,291	
Site Civil Engineer Specialist Level 8	Inspection Reporting	4	hr/trip	5			\$ 248.1	0 1	\$ 4,962	\$ 5,209	А	1	-1.60%	2	5	\$ 5,126	
Site Civil Engineer Specialist Level 6	Inspection Reporting	4	hr/trip	5			\$ 199.6	8 1	\$ 3,994	\$ 4,193	А	1	-1.60%	2	5	\$ 4,126	
Practice Area Leader	Inspection Reporting	1	hr/trip	5			\$ 291.2	5 1	\$ 1,456	\$ 1,529	А	1	-1.60%	2	5	\$ 1,504	
M									\$ 62,660	\$ 65,784							
rofessional/Technical Services - O&	Μ																
Project Management		10%							\$ 5,696	\$ 5,980							EPA 540-R-00-002
nnual Repair (Years 2-6)	Estimated Duration	1	d														
Erosion Repair - grading	Rough grading Sites, 400 SF or less, hand labor	1	ea	5	1.5	0.67	\$ 1,312.1	5 1	\$ 6,561	\$ 6,888	А	1	-1.60%	2	5	\$ 6,778	RSMeans 2021, 312213200100 x 1.63 (DoD Area Cost Factor for assume 400 SF repaired
Erosion Repair - topsoil	Top dress by hand, 1 CY for 600 SF	1	ea	5	11.5	0.09	\$ 127.9	6 1	\$ 640	\$ 672	А	1	-1.60%	2	5	\$ 661	RSMeans 2021, 329119130600 x 1.63 (DoD Area Cost Factor for V
Re-seeding	Seeding, Slope mix, 6#/MSF, push spreader	0.6	Thousand SF	5	8	0.08	\$ 128.6	1 1	\$ 386	\$ 405	А	1	-1.60%	2	5	\$ 399	RSMeans 2021, 329219144400 x 1.63 (DoD Area Cost Factor for V
Mulching	Mulching, Hay, 1" deep, hand spread	67	SY	5	475	0.14	\$ 2.5	4 1	\$ 852	\$ 894	А	1	-1.60%	2	5	\$ 880	RSMeans 2021, 329113160200 x 1.63 (DoD Area Cost Factor for \
nnual Repair Oversight (Years 2-6)					÷												
Site Civil Engineer Specialist Level 8	Support and Planning	8	hr/trip	5			\$ 248.1	0 1	\$ 9,924	\$ 10,419	А	1	-1.60%	2	5	\$ 10,252	
Site Civil Engineer Specialist Level 6	Travel, Prep	16	hr/trip	5			\$ 199.6	8 1	\$ 15,974	\$ 16,771	А	1	-1.60%	2	5	\$ 16,502	
Site Civil Engineer Specialist Level 6	Oversight	10	hr/trip	5			\$ 199.6	8 1	\$ 9,984	\$ 10,482	А	1	-1.60%	2	5	\$ 10,314	
	Parking	3	d	5			\$ 24.0	0 1	\$ 360	\$ 378	А	1	-1.60%	2	5	\$ 372	
	POV mileage	70	mi/trip	5			\$ 0.5	6 1	\$ 196		А	1	-1.60%	2	5	\$ 202	https://www.irs.gov/tax-professionals/standard-mileage-rates
Travel Costs	Airfare	1	ea/trip	5			\$ 1,000.0	0 1	\$ 5,000	\$ 5,249	А	1	-1.60%	2	5	\$ 5,165	
Traver Costs	Per Diem	2.5	ea/trip	5			\$ 123.0	0 1	\$ 1,538	\$ 1,614	А	1	-1.60%	2	5	\$ 1,588	https://www.defensetravel.dod.mil/site/perdiemCalc.cfm
	Lodging	2	ea/trip	5			\$ 230.0	0 1	\$ 2,300	\$ 2,415	А	1	-1.60%	2	5	\$ 2,376	https://www.defensetravel.dod.mil/site/perdiemCalc.cfm
	Rental Car	2	ea/trip	5			\$ 200.0	0 1	\$ 2,000	\$ 2,100	А	1	-1.60%	2	5	\$ 2,066	
Supplies	Misc. Supplies, Equipment	1	ea/trip	5			\$ 250.0	0 1	\$ 1,250	\$ 1,312	А	1	-1.60%	2	5	\$ 1,291	

Notes

1. RSMeans unit rates adopted from RSMeans 2021 Heavy Construction cost database, National Average. Rates include contractor overhead and profit.

2. LF = Linear Foot, SF = Square Foot, SY = Square Yard, ac = Acre, BCY = Bank Cubic Yards, LCY = Loose Cubic Yards, hr = hour, d = Day

### 2.0 Remediation Schedule

Alternatives Cost Evaluation EE/CA - Caneel Bay Resort Site

Year	Remedy Construction	Annual Inspection/ Repairs
1	х	
2		х
3		Х
4		х
5		х
6		х
Count	1	5

#### 3.0 Alternatives Areas & Volumes

Alternatives Cost Evaluation EE/CA - Caneel Bay Resort Site

# **Global Parameters**

Parameter	Value	Unit	Notes/Source
Assumed Bulking Factor	1.3	LCY/BCY	RSMeans R312316-45 for Common Earth
Assumed Material Bulk Density	1.4	ton/BCY	RSMeans R312316-45 for Common Earth
Assumed Material Loose Density	1.08	ton/LCY	RSMeans R312316-45 for Common Earth
BMP Length	500	ft	Estimated based on Site topography
Area for Clearing	2	٨	Area 2: 0.5 Ac
Area for Clearing	2	Ac	Area 3: 1.5 Ac
Excavation Volume	10 504	BCY	Area 2: 327 BCY
	19,594	DCY	Area 3: 19,267 BCY
Percent Characteristic Hazardous Waste	0.765%	%	Estimated
Excavation Volume - Non-Haz	19444	ВСҮ	Calculated
Excavation Volume - Haz	150	BCY	Calculated
Area for grading, revegetation	0.8	Ac	
Area for grading, revegetation	3,872	SY	
Area for grading, revegetation	34.8	Thousand SF	

# 4.0 Technical/Professional Labor Rates

Alternatives Cost Evaluation EE/CA - Caneel Bay Resort Site

Position	Rate
Practice Area Leader	291.25
Site Civil Engineer Specialist Level 8	248.1
Site Civil Engineer Specialist Level 6	199.68
Site Civil Engineer Specialist Level 3	90.77
Environmental Scientist Level 7	150.99
Environmental Scientist Level 3	73.67
Project Assistant Level 3	66.56
CADD Civil Engineer Specialist	90.77

### 5.0 References

Alternatives Cost Evaluattion EE/CA - Caneel Bay Resort Site

#### EPA 540-R-00-002

https://semspub.epa.gov/work/HQ/174890.pdf Accessed: 2021-04-22

<i>Exhibit 5-6</i> Example FS-Level Scope Contingency	v Percentages
Remedial Technology	Scope Contingency (%)
Soil Excavation	15-55
Groundwater Treatment (Multiple)	15-35
On-Site Incineration	15-35
Extraction Wells	10-30
Vertical Barriers	10-30
Synthetic Cap	10-20
Sludge Stabilization	10-20
Off-Site Disposal	5-15
Off-Site Incineration	5-15
Drum Processing	5-15
Bulk Liquid Processing	5-15
Groundwater Treatment (Single)	5-10
Clay Cap	5-10
Surface Grading/Diking	5-10
Revegetation	5-10

<i>Exhibit 5-8</i> Example Percentages	s for Professi	ional/Technical	Services Cap	ital Costs	
Capital Cost Element	< \$100K (%)	\$100K-\$500K (%)	\$500K-\$2M (%)	\$2M-\$10M (%)	> \$10M (%)
Project Management	10	8	6	5	5
Remedial Design	20	15	12	8	6
Construction Management	15	10	8	6	6

#### M-21-09, 2021 Discount Rates for OMB Circular No. A-94

https://www.whitehouse.gov/wp-content/uploads/2020/12/M-21-09.pdf Accessed: 2021-04-22

**<u>Real Discount Rates</u>**. A forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the 2022 Budget is presented below. These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.

Real Interest Rates on Treasury Not	es and Bonds
of Specified Maturities (in pe	rcent)

3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
-1.8	-1.6	-1.4	-1.1	-0.5	-0.3

Analyses of programs with terms different from those presented above may use a linear interpolation. For example, a four-year project can be evaluated with a rate equal to the average of the three-year and five-year rates. Programs with durations longer than 30 years may use the 30-year interest rate.

### 5.1 References

Alternatives Cost Evaluattion EE/CA - Caneel Bay Resort Site

# VIWMA Tipping Fees

http://www.viwma.org/index.php/businessinfo/tipping-fee Accessed: 2021-03-31

	9	WASTE TYPE (WT)	DESCRIPTION	UNIT RATE (\$/TON)
FEE SCHEDULE Approved by the PSC April 19, 201	MSW	Municipal Solid Waste (typical waste from households and businesses)	\$52.13	
	PSC April	C&D	Construction and Demolition Waste (asphalt, concrete, building, materials, etc.)	\$65.26
	GW	Green Waste (trees, shrubs, leaves, grass)	\$52.13	
	FILL	Fill Waste (soil, sand, spoils, domestic sewage sludge)	\$31.28	
	SM	Scrap Metal (vehicles, steel, aluminum, metal appliances	\$39.15	
	A	MIXED	Mixed Waste (co-mingled load of previous Waste Types)	\$65.26

MSW	\$52.13
C&D	\$65.26
GW	\$52.13
FILL	\$31.28
SM	\$39.15
MIXED	\$65.26

# 5.2 References

Alternatives Cost Evaluattion EE/CA - Caneel Bay Resort Site

#### Rates

https://www.defensetravel.dod.mil/site/perdiemCalc.cfm Accessed: 2021-04-13

* All rates are in US Dollars									
Locality	Seasons (Beg-End)	Maximum Lodging	Local Meals	Proportional Meals	Local Incidental	Footnote	Footnote Rate	Maximum Per Diem	Effective Date
ST. CROIX	04/15-12/14	247	96	56	24			367	04/01/2021
ST. CROIX	12/15-04/14	299	96	56	24			419	04/01/2021
ST. JOHN	05/01-12/03	170	98	57	25			293	04/01/2021
ST. JOHN	12/04-04/30	230	98	57	25			353	04/01/2021
ST. THOMAS	04/15-12/15	249	95	55	23			367	04/01/2021
ST. THOMAS	12/16-04/14	339	95	55	23			457	04/01/2021

\*Use the OTHER rate if neither the CITY, PLACE, ISLAND, nor MILITARY INSTALLATION is listed.