SACO RIVER AND CAMP ELLIS BEACH

SECTION 111 SHORE DAMAGE MITIGATION STUDY

APPENDIX E

DESIGN AND COST ESTIMATES

DESIGN

Design activities for the Section 111 study for Camp Ellis, Saco, ME beach fill involved combining the hydrographic survey done in 2004, a LIDAR survey flown in 2007, and a beach survey performed in 2009. Data from each survey were used to create three dimensional surfaces which were then merged to form a single existing surface providing elevations of both the land forms and the ocean floor. Added to this surface was the city's assessor's maps showing map and lot numbers. Finally, aerial photos were referenced to the drawings.

Quantities of beach fill were calculated based on the Coastal Engineering report (Appendix B) which indicated a healthy beach profile was thought to be similar to the existing profile to the north of the study area. The minimum amount of sand necessary to stabilize the beach without off-shore structures was predicted to be the equivalent of a beach with a 20-30' berm. This berm width provides for the seasonal migration of sand to and from the beach without jeopardizing the structures landward of the beach.

The control line for measuring the berm width was established initially by locating a series of line segments parallel to the existing shoreline either 50' or 60' seaward of arbitrary points on shore. These distances were dictated by Areas "A" and "B" as shown in the Coastal Engineering report. Fillets connecting this series of segments were formed into a smooth single line which was then moved 50' or 60' landward and treated as the "shore line" for beach berm purposes.

For the alternatives of beach fill only and beach fill plus spur (Case 6) a beach berm having width varying from 20 to30' was laid out seaward from this control line and sloped at 1v to 10H at the seaward edge. A shape of the beach berm included the seaward edge, the northern and southern limits of the 3250' study area and an approximation of the 18' MLLW contour of the existing surface. The berm was assigned the elevation 17.39 MLLW based on the Beach Fill Analysis & Risk Comparison report - elevation 12.0 NAVD88 converted to MLLW by adding 5.39.

In order to stay consistent with the Coastal Engineering report's volume calculation methodology for initial fill, a portion of the existing surface that had been shifted the same amount as the proposed berm to the east was added to the beach berm and slope volumes. This shifted surface runs from the toe of the proposed berm slope to approximately 2700' offshore to depth of closure. This shifted surface volume can be seen in Figure 1 as the long thin "tail" running from the toe of slope out to the end of the typical section.As mentioned in the Beach Fill Analysis & Risk Comparison report, sand movement was modeled as deep as -11.6 MLLW (-17 NAVD88) so the extent of any comparison between initial existing surface and the proposed beach berm surface requires examining the surfaces out to a distance of approximately 2700' offshore.

Similar shape building and merging of surfaces were performed for the alternatives 25 and 25A. Each alternative requiring extending a beach berm from the control line either 10' or 20' and the same procedure for the 1V to 10H slope to intersect the "existing" healthy profile.

The amount of sand required for each alternative's initial fill volume were calculated by comparing the three dimensional surfaces. Initial fill volumes are shown as follows:

INITIAL FILL VOLUMES

Alternative	InRoads Quantity
Sand Only	233,588 cy
Case 6	233,588 cy
Case25A	198,039 cy
Case 25	169,621 cy

The above quantities are the minimum amounts of sand necessary for the initial fill which would protect against storm induced erosion of the shoreline. There must be additional sand placed seaward of this as sacrificial sand for normal erosion or the above minimum amounts would be worn away thus not providing the desired protection Shifting the proposed initial fill profiles in 10' increments to the east results in adding approximately 32,000 cy for each increment.

The Coastal Engineering report suggested the amount of additional sand required. A trial and error approach to calculate the amount of additional beach berm width required was used. A surface was created using the same 1V to 10H slope but with a wider beach berm and compared to the "existing" profile (i.e. no long thin layer extending far from shore). Within a few attempts the desired additional amount of sand was bracketed and the final beach berm width was established. For the alternatives of sand fill only and Case 6 the final beach berm width seaward of the control line was 88.5' and for Case 25A the beach berm width was 81.5'. Although not calculated it can be inferred that the width of the berm for Case 25 would be in the mid-70's.

The following typical section conveys the concept of the initial fill ,the additional sacrificial layer and the final design berm and slope.

The quantity of rock required for the structures of Cases 6 and 25A were developed from simplified figures of the structures. Geotechnical considerations are discussed elsewhere (Appendix D) resulting in the general design of the structures. For Case 6, the spur jetty, rock for both the new spur and for reinforcement of the existing jetty is needed. The 750' spur would be placed on a double layer of stone mattresses and

consists of armor stone and an underlayer of smaller rock. The 50' head and seaward side of the spur have toe protection. The crest width is about 15' and side slopes are 1V to 2H. In addition to the spur, Case 6 included some reinforcement of the existing north jetty using armor stone on the sides and toe all resting on 2 layers of stone mattress. The quantities of rock necessary for the spur and reinforcement of the existing jetty are shown in the table below.

Case 6 Total Quantities

Material	Weight (tons)	Volume (cy)	Area (sy)
Armor Stone	30,100	21,500	n/a
Underlayer/Core	11,760	8,400	n/a
Toe Stone	6,440	4,600	n/a
Mattress	n/a	n/a	20,100

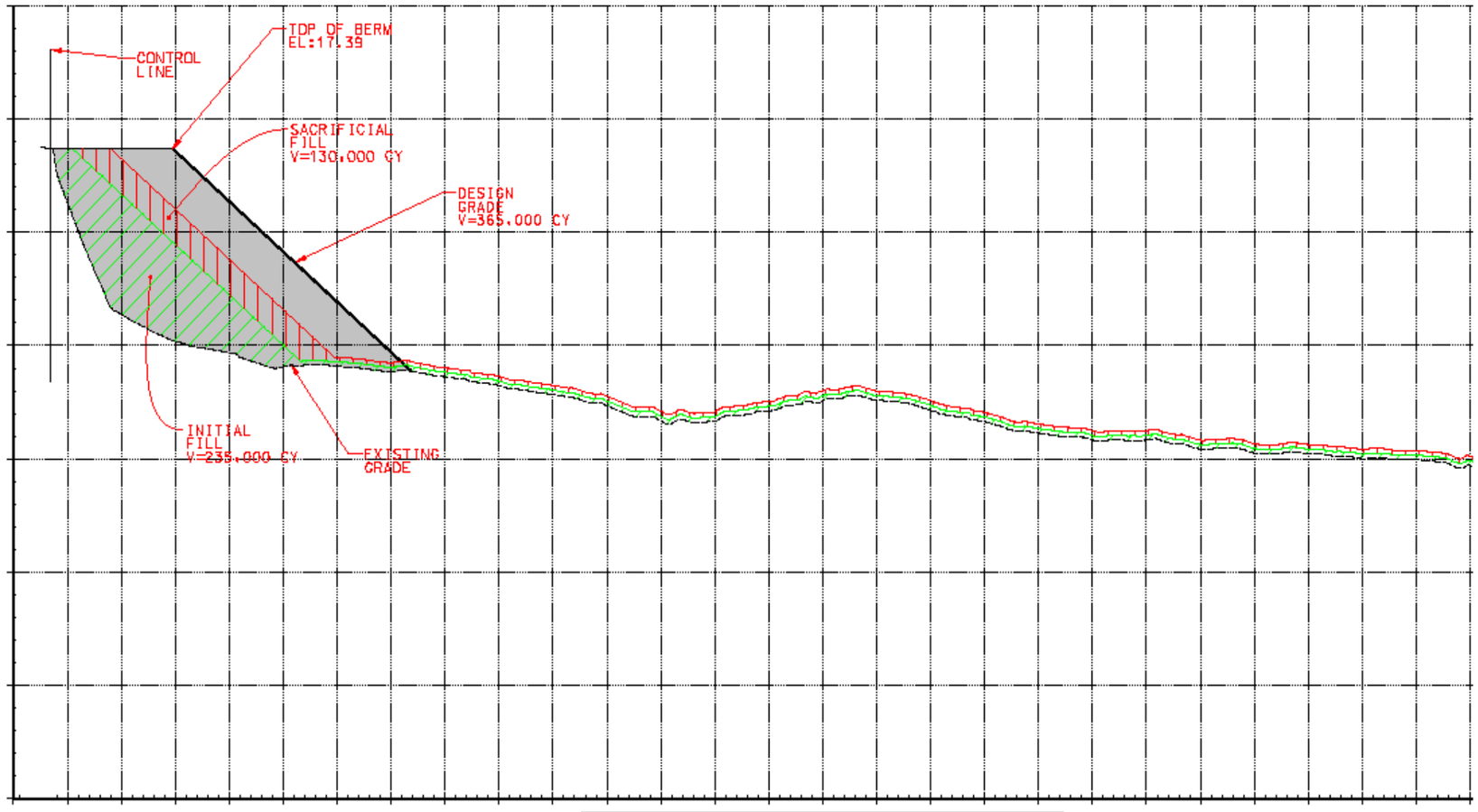
Case 25A requires rock for existing jetty reinforcement, a shorter spur, and two independent breakwaters. The shorter spur is 500' long having toe protection on the seaward side only with a 50' head having toe protection wrapped around to the landward edge. The main portion of the spur jetty has a crest width of 15' and side slopes of 1V to 2H. Reinforcement of the existing jetty provides 200' of armor stone and toe protection and an additional 200' of just toe protection. The two breakwaters, 410' and 395', have similar characteristics but are placed at different bottom elevations with the northern breakwater being the shorter of the two. Seaward breakwater slopes are 1V to 2H while the beach side slopes are slightly steeper at 1V to 1.5H. The crest width of each is 13.2' and the elevation is 13.4 MLLW (9' NAVD88 + 5.39'). Rock quantities for Case 25A are provided below.

Case 25A Total Quantities

Material	Weight (tons)	Volume (cy)	Area (sy)
Armor Stone	43,960	31,400	n/a
Underlayer/Core	17,920	12,800	n/a
Toe Stone	10,220	7,300	n/a
Mattress	n/a	n/a	31,200

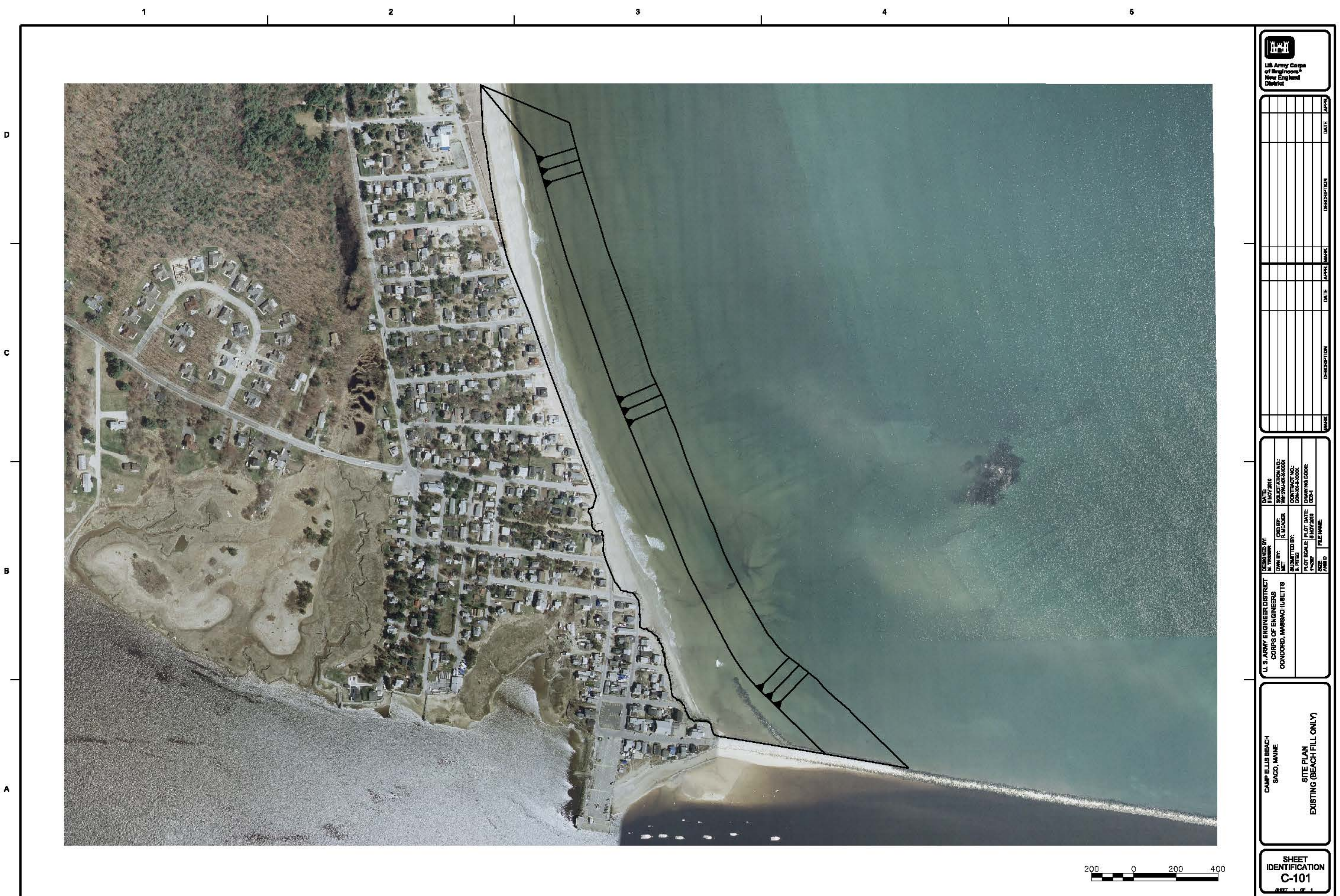
Typical cross sections of both Cases 6 and 25A components are shown on Figures 1 thru 9.

Figure 1



Typical Section

NOT TO SCALE



1
2
3
4
5
D
C
B
A
US Army Corps of Engineers New England District
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS
DESIGNED BY:
DWN BY:
CKD BY:
R. MEADER
SUBMITTED BY:
DATE:
5 NOV 2010
SOLICITATION NO.:
CONTRACT NO.:
DRAWING CODE:
PLOT SCALE:
PLOT DATE:
5 NOV 2010
SIZE:
ANSI D
FILE NAME:
CAMP ELLIS BEACH
SACO, MAINE
SITE PLAN
EXISTING (BEACH FILL ONLY)
SHEET IDENTIFICATION
C-101
SHEET 1 OF 1
200
0
200
400

Figure 2


1
2
3
4
5
D
C
B
A
200
0
200
400
U.S. Army Corps of Engineers
New England District
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS
CAMP ELLIS BEACH
SACO, MAINE
SITE PLAN
CASE 6
SHEET IDENTIFICATION
C-101

Figure 3


1
2
3
4
5
D
C
B
A
200
0
200
400
U.S. Army Corps of Engineers®
New England District
CAMP ELLIS BEACH
SACO, MAINE
SITE PLAN
CASE 2SA
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
CONCORD, MASSACHUSETTS
SHEET IDENTIFICATION
C-101

Figure 4

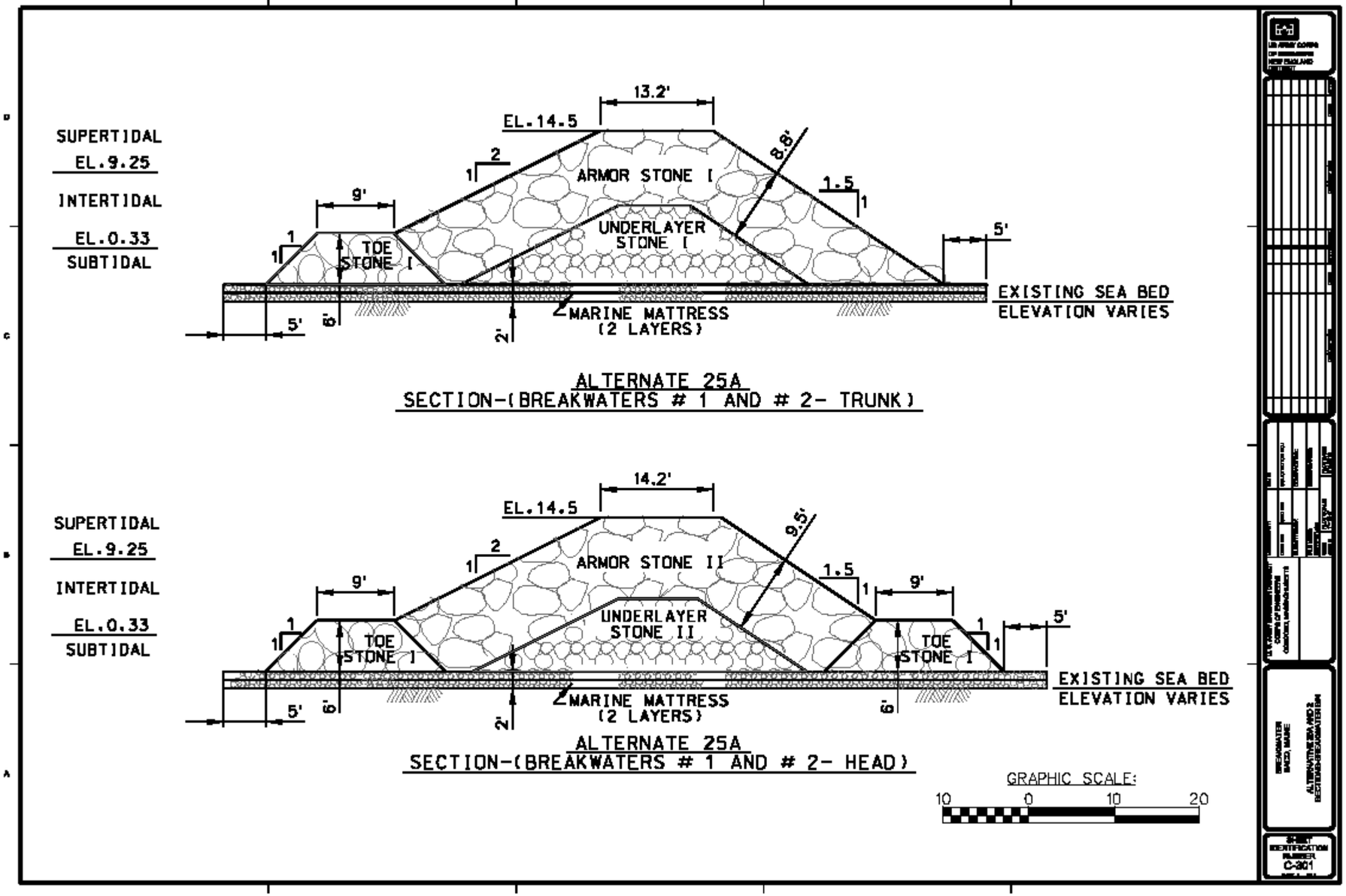

SUPERTIDAL
EL.9.25
INTERTIDAL
EL.0.33
SUBTIDAL
13.2'
EL.14.5
2
1
8.8'
ARMOR STONE I
1.5
1
9'
1
1
TOE STONE I
UNDERLAYER STONE I
5'
EXISTING SEA BED
ELEVATION VARIES
5'
6'
2'
MARINE MATTRESS
(2 LAYERS)
ALTERNATE 25A
SECTION-(BREAKWATERS # 1 AND # 2- TRUNK)
14.2'
EL.14.5
9.5'
ARMOR STONE II
UNDERLAYER STONE II
TOE STONE I
TOE STONE I
EXISTING SEA BED
ELEVATION VARIES
MARINE MATTRESS
(2 LAYERS)
ALTERNATE 25A
SECTION-(BREAKWATERS # 1 AND # 2- HEAD)
GRAPHIC SCALE:
10 0 10 20
C-301

Figure 5

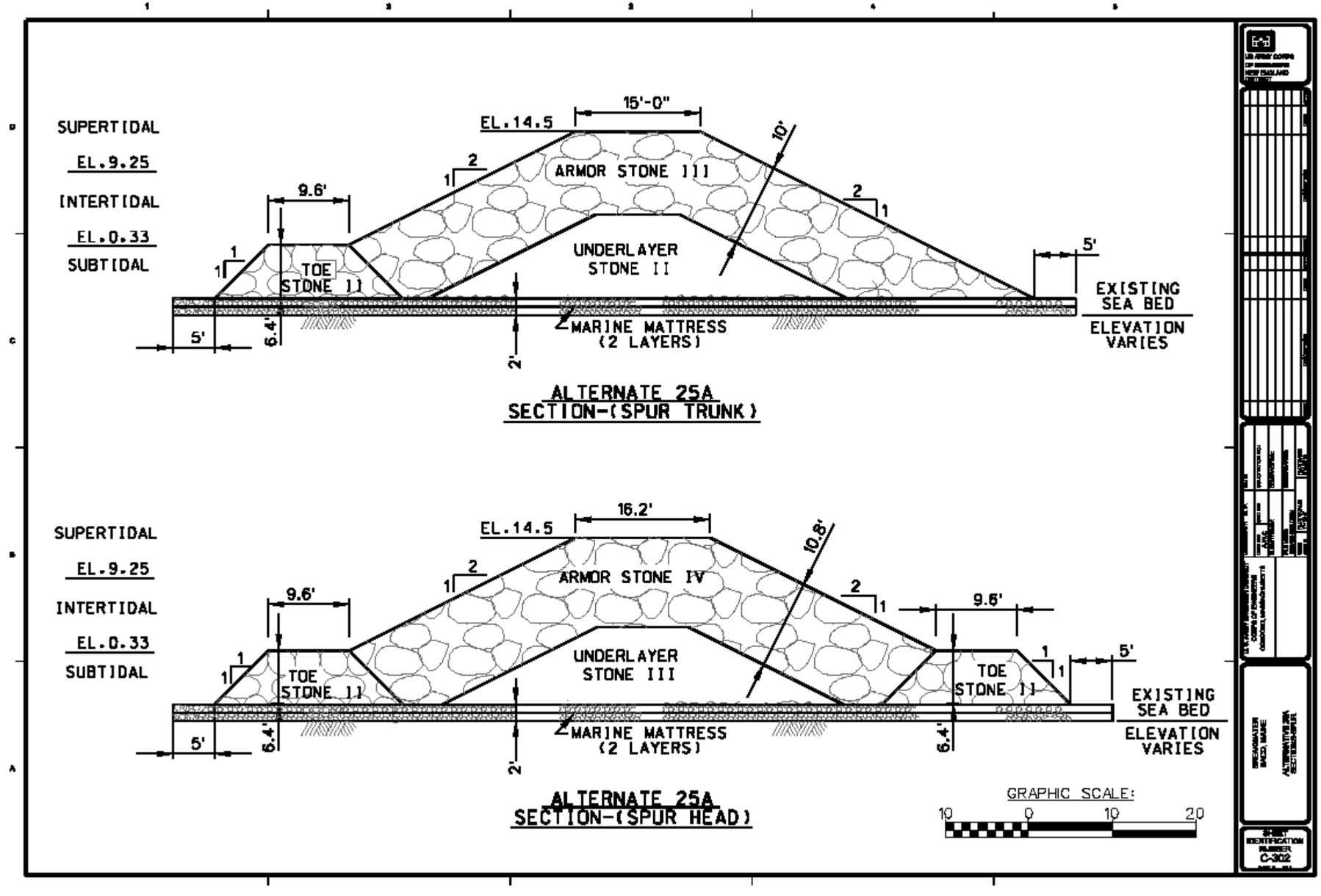

SUPERTIDAL
EL.9.25
INTERTIDAL
EL.0.33
SUBTIDAL
EL.14.5
15'-0"
10'
ARMOR STONE III
9.6'
2
1
TOE STONE II
UNDERLAYER STONE II
5'
6.4'
2'
MARINE MATTRESS (2 LAYERS)
EXISTING SEA BED
ELEVATION VARIES
ALTERNATE 25A
SECTION-(SPUR TRUNK)
16.2'
10.8'
ARMOR STONE IV
UNDERLAYER STONE III
TOE STONE II
ALTERNATE 25A
SECTION-(SPUR HEAD)
GRAPHIC SCALE:
10 0 10 20

Figure 6

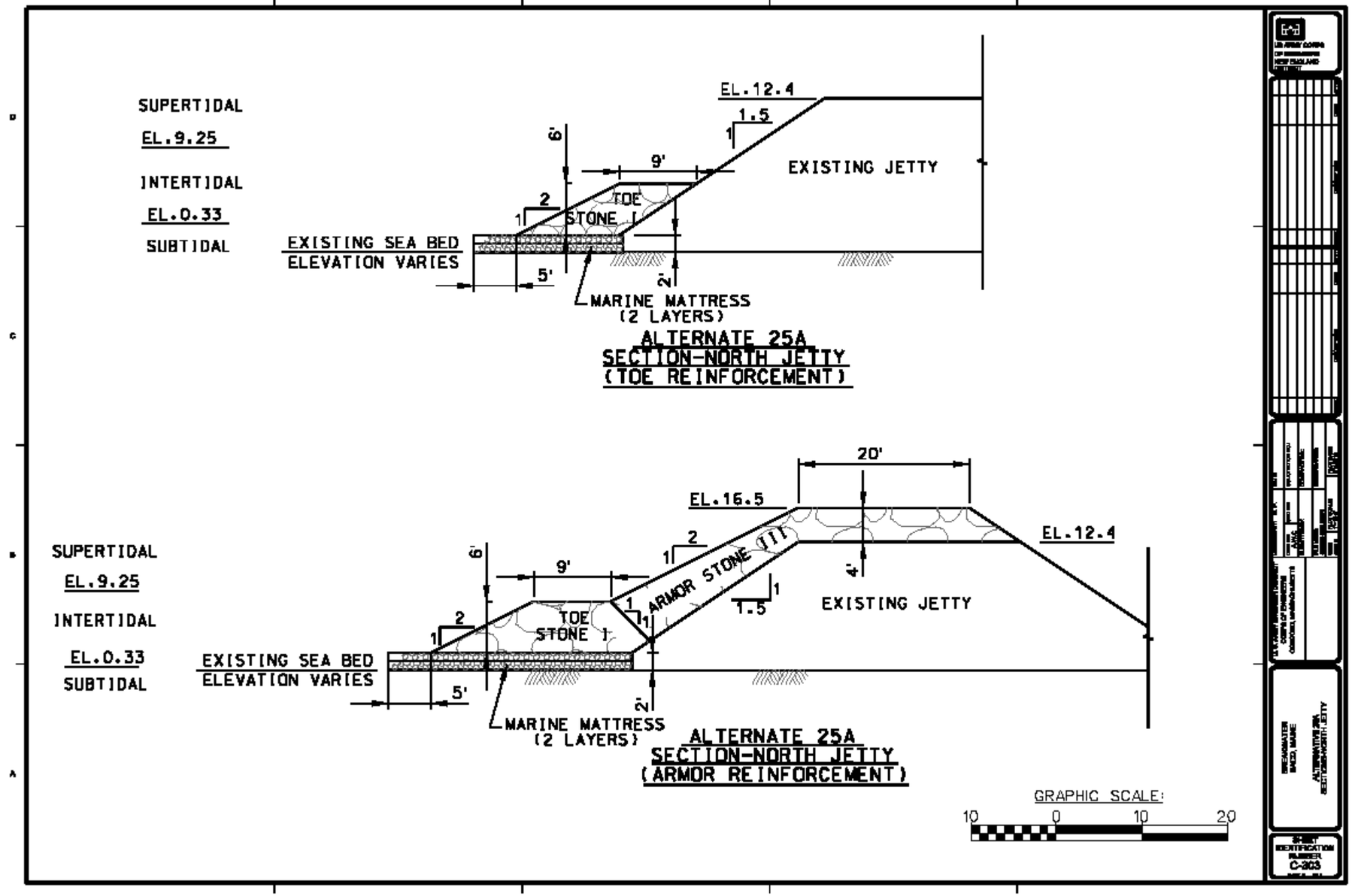

SUPERTIDAL
EL.9.25
INTERTIDAL
EL.0.33
SUBTIDAL
EXISTING SEA BED
ELEVATION VARIES
EL.12.4
1.5
1
6'
9'
2
1
TOE
STONE
EXISTING JETTY
5'
2'
MARINE MATTRESS
(2 LAYERS)
ALTERNATE 25A
SECTION-NORTH JETTY
(TOE REINFORCEMENT)
20'
EL.16.5
2
1
ARMOR STONE (II)
4'
EL.12.4
EXISTING JETTY
GRAPHIC SCALE:
10 0 10 20
C-303

Figure 7

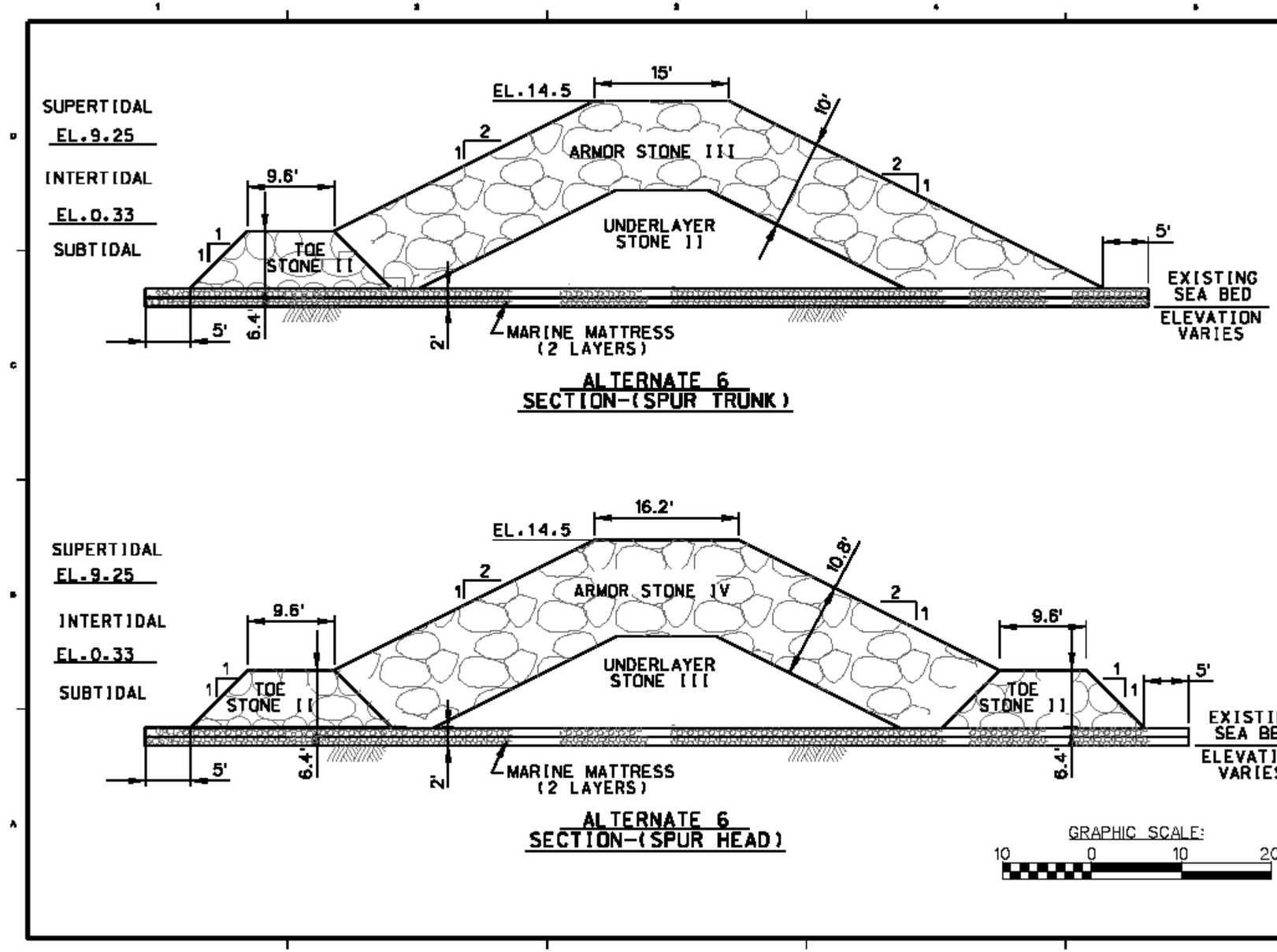

SUPERTIDAL
EL.9.25
INTERTIDAL
EL.0.33
SUBTIDAL
EL.14.5
15'
10'
ARMOR STONE III
UNDERLAYER STONE II
TOE STONE II
9.6'
5'
6.4'
2'
MARINE MATTRESS (2 LAYERS)
EXISTING SEA BED
ELEVATION VARIES
ALTERNATE 6
SECTION-(SPUR TRUNK)
16.2'
10.8'
ARMOR STONE IV
UNDERLAYER STONE III
TOE STONE II
ALTERNATE 6
SECTION-(SPUR HEAD)
GRAPHIC SCALE:
10 0 10 20

Figure 8

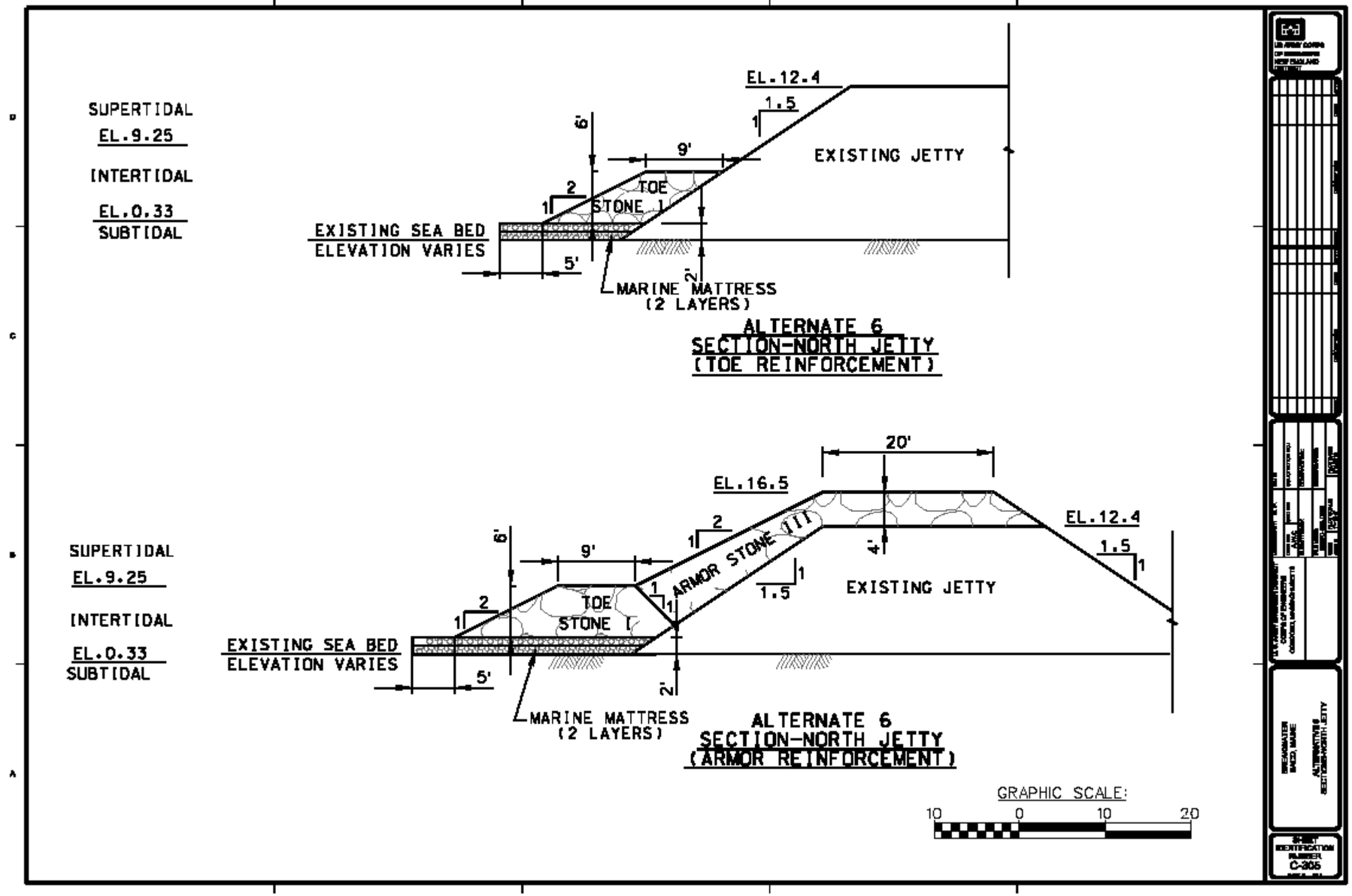

SUPERTIDAL
EL.9.25
INTERTIDAL
EL.0.33
SUBTIDAL
EL.12.4
1.5
1
6'
9'
2
1
TOE
STONE I
EXISTING JETTY
EXISTING SEA BED
ELEVATION VARIES
5'
2'
MARINE MATTRESS
(2 LAYERS)
ALTERNATE 6
SECTION-NORTH JETTY
(TOE REINFORCEMENT)
20'
EL.16.5
2
1
ARMOR STONE (II)
4'
EL.12.4
1.5
1
6'
9'
2
1
1
1.5
TOE
STONE I
EXISTING JETTY
EXISTING SEA BED
ELEVATION VARIES
5'
2'
MARINE MATTRESS
(2 LAYERS)
ALTERNATE 6
SECTION-NORTH JETTY
(ARMOR REINFORCEMENT)
GRAPHIC SCALE:
10
0
10
20
SHEET IDENTIFICATION NUMBER
C-305

Figure 9

COST ESTIMATES

TOTAL PROJECT COST SUMMARY

**** TOTAL PROJECT COST SUMMARY ****

PROJECT: Camp Ellis Shore Damage Mitigation
LOCATION: Saco, ME

DISTRICT: NAE
POC: CHIEF, COST ENGINEERING, xxx

PREPARED: 7/22/2011

This Estimate reflects the scope and schedule in report;

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

WBS NUMBER	Civil Works Feature & Sub-Feature Description	BASE COST COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	FIRST COST COST ($K)	CNTG ($K)	TOTAL ($K)	Spent Thru: 21-Jul-11 ($K)		FULLY FUNDED PROJECT ESTIMATE COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
10	BREAKWATER & SEAWALLS	$9,413	$2,353	25%	$11,766	0.9%	$9,497	$2,374	**$11,871**			$9,696	$2,424	$12,120
17	BEACH REPLENISHMENT	$4,549	$682	15%	$5,231	0.9%	$4,589	$688	**$5,278**			$4,745	$712	$5,457
	#N/A		-			-								
	#N/A		-			-								
	#N/A		-			-								
	CONSTRUCTION ESTIMATE TOTALS:	$13,962	$3,036		**$16,998**	0.9%	$14,086	$3,063	**$17,149**			$14,441	$3,136	$17,576
01	LANDS AND DAMAGES	$345	$52	15%	$397	0.9%	$348	$52	**$400**			$351	$53	$403
21	RECONNAISSANCE STUDY (CAP)									$648				
22	FEASIBILITY STUDY (CAP)									$400				
30	PLANNING, ENGINEERING & DESIGN	$885	$18	2%	$903	1.6%	$899	$18	**$917**	$2,220		$923	$18	$3,162
31	CONSTRUCTION MANAGEMENT	$543	$54	10%	$597	1.6%	$552	$55	**$607**			$588	$59	$647
	PROJECT COST TOTALS:	$15,735	$3,159	20%	**$18,894**	0.9%	$15,885	$3,188	**$19,073**	$3,268		$16,303	$3,266	$22,837

ESTIMATED FEDERAL COST: 100% **$22,837**
ESTIMATED NON-FEDERAL COST:

ESTIMATED TOTAL PROJECT COST: $22,837

O&M OUTSIDE OF TOTAL PROJECT COST:

_____ CHIEF, COST ENGINEERING, xxx

_____ PROJECT MANAGER, xxx

_____ CHIEF, REAL ESTATE, xxx

_____ CHIEF, PLANNING,xxx

_____ CHIEF, ENGINEERING, xxx

_____ CHIEF, OPERATIONS, xxx

_____ CHIEF, CONSTRUCTION, xxx

_____ CHIEF, CONTRACTING,xxx

_____ CHIEF, PM-PB, xxxx

_____ CHIEF, DPM, xxx

**** TOTAL PROJECT COST SUMMARY ****

**** CONTRACT COST SUMMARY ****

PROJECT: Camp Ellis Shore Damage Mitigation
LOCATION: Saco, ME
This Estimate reflects the scope and schedule in report;

DISTRICT: NAE PREPARED: 7/22/2011
POC: CHIEF, COST ENGINEERING, xxx

Estimate Prepared: 21-Jul-11
Effective Price Level: 21-Jul-11

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	RISK BASED CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	FULLY FUNDED PROJECT ESTIMATE Mid-Point Date	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
	PHASE 1													
10	BREAKWATER & SEAWALLS	$9,413	$2,353	25%	$11,766	0.9%	$9,497	$2,374	$11,871	2013Q2	2.1%	$9,696	$2,424	$12,120
17	BEACH REPLENISHMENT			15%										
	#N/A													
	#N/A													
	#N/A													
	CONSTRUCTION ESTIMATE TOTALS:	$9,413	$2,353	25%	**$11,766**		$9,497	$2,374	$11,871			$9,696	$2,424	$12,120
01	LANDS AND DAMAGES	$0	$0	0%	$0	0.9%	$0	$0	$0	2012Q4	1.2%	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN													
1.1%	Project Management	$108	$2	2%	$110	1.6%	$110	$2	$112	2012Q2	0.8%	$111	$2	$113
1.1%	Planning & Environmental Compliance	$101	$2	2%	$103	1.6%	$103	$2	$105	2012Q2	0.8%	$103	$2	$105
3.0%	Engineering & Design	$283	$6	2%	$289	1.6%	$287	$6	$293	2012Q2	0.8%	$290	$6	$296
0.5%	Engineering Tech Review ITR & VE	$51	$1	2%	$52	1.6%	$52	$1	$53	2012Q2	0.8%	$52	$1	$53
0.3%	Contracting & Reprographics	$27	$1	2%	$28	1.6%	$27	$1	$28	2012Q2	0.8%	$28	$1	$28
0.3%	Engineering During Construction	$27	$1	2%	$28	1.6%	$27	$1	$28	2013Q2	5.0%	$29	$1	$29
0.0%	Planning During Construction			0%										
0.0%	Project Operations			0%										
31	CONSTRUCTION MANAGEMENT													
3.9%	Construction Management	$366	$37	10%	$403	1.6%	$372	$37	$409	2013Q2	5.0%	$390	$39	$429
	Project Operation:			0%										
	Project Management			0%										
	CONTRACT COST TOTALS:	$10,376	$2,402		**$12,778**		$10,475	$2,423	$12,898			$10,698	$2,475	**$13,174**

****** TOTAL PROJECT COST SUMMARY ******

****** CONTRACT COST SUMMARY ******

PROJECT: Camp Ellis Shore Damage Mitigation
LOCATION: Saco, ME
This Estimate reflects the scope and schedule in report;

DISTRICT: NAE PREPARED: 7/22/2011
POC: CHIEF, COST ENGINEERING, xxx

Estimate Prepared: 28-Mar-11
Effective Price Level: 1 OCT 11

Program Year (Budget EC): 2012
Effective Price Level Date: 1 OCT 11

WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	FULLY FUNDED PROJECT ESTIMATE Mid-Point Date	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
	PHASE 2													
10	BREAKWATER & SEAWALLS	$0	$0	0%	$0	0.9%	$0	$0	$0	2013Q1	1.7%	$0	$0	$0
17	BEACH REPLENISHMENT	$4,549	$682	15%	$5,231	0.9%	$4,589	$688	$5,278	2014Q1	3.4%	$4,745	$712	$5,457
	#N/A													
	#N/A													
	#N/A													
	CONSTRUCTION ESTIMATE TOTALS:	$4,549	$682	15%	**$5,231**		$4,589	$688	$5,278			$4,745	$712	$5,457
01	LANDS AND DAMAGES	$345	$52	15%	$397	0.9%	$348	$52	$400	2012Q3	0.8%	$351	$53	$403
30	PLANNING, ENGINEERING & DESIGN													
1.1%	Project Management	$52	$1	2%	$53	1.6%	$53	$1	$54	2013Q3	6.0%	$56	$1	$57
1.1%	Planning & Environmental Compliance	$49	$1	2%	$50	1.6%	$50	$1	$51	2013Q3	6.0%	$53	$1	$54
3.0%	Engineering & Design	$137	$3	2%	$140	1.6%	$139	$3	$142	2013Q3	6.0%	$148	$3	$150
0.5%	Engineering Tech Review ITR & VE	$24	$0	2%	$24	1.6%	$24	$0	$25	2013Q3	6.0%	$26	$1	$26
0.3%	Contracting & Reprographics	$13	$0	2%	$13	1.6%	$13	$0	$13	2013Q3	6.0%	$14	$0	$14
0.3%	Engineering During Construction	$13	$0	2%	$13	1.6%	$13	$0	$13	2014Q3	10.2%	$15	$0	$15
0.0%	Planning During Construction			0%										
0.0%	Project Operations			0%										
31	CONSTRUCTION MANAGEMENT													
3.9%	Construction Management	$177	$18	10%	$195	1.6%	$180	$18	$198	2014Q3	10.2%	$198	$20	$218
	Project Operation:			0%										
	Project Management			0%										
	CONTRACT COST TOTALS:	$5,359	$758		**$6,117**		$5,410	$764	$6,174			$5,605	$790	**$6,395**

ABBREVIATED RISK ANALYSIS

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " -

Project Development Stage: Feasibility
Abbreviated Risk Analysis

Project Manager: Richard Heidebrecht

Meeting Date: 25-Mar-11

PDT Members (Typical Recommended)

Project Management:	Richard Heidebrecht
Contracting:	Evamarie D'Antuono
Real Estate:	Nor Required
Relocations:	Not Required
Engineering & Design:	Robert Meader
Cost Engineering:	Michael Remy and Christopher Lindsay
Construction:	Sean Dolan and Christine Johnson
Operations:	N/A

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " - **PROJECT < $40M**

Project Development Stage: Feasibility

Abbreviated Risk Analysis

	WBS	Item	Contract Cost		% Contingency	$ Contingency	Total
1	10 BREAKWATERS AND SEAWALLS	Spur Jetty (Contract 1)	$ 9,413,000		25.00%	$ 2,353,250.00	$ 11,766,250.00
2	17 BEACH REPLENISHMENT	Beach Nourishment (Contract 2)	$ 4,549,000		14.58%	$ 663,395.83	$ 5,212,395.83
3		Item Name	$ -		0.00%	$ -	$ -
4		Item Name	$ -		0.00%	$ -	$ -
5		Item Name	$ -		0.00%	$ -	$ -
6		Item Name	$ -		0.00%	$ -	$ -
7		Item Name	$ -		0.00%	$ -	$ -
8		Item Name	$ -		0.00%	$ -	$ -
9		Item Name	$ -		0.00%	$ -	$ -
10		Item Name	$ -		0.00%	$ -	$ -
11		Item Name	$ -		0.00%	$ -	$ -
12		**Remaining Construction Items (Total Const. Contract Cost minus Σ of items #1-11)**	$ -	0.0%	0.00%	$ -	$ -
13	30 PLANNING, ENGINEERING, AND DESIGN	**Planning, Engineering, & Design**	$ 885,000		2.08%	$ 18,437.50	$ 903,437.50
14	31 CONSTRUCTION MANAGEMENT	**Construction Management**	$ 543,000		10.42%	$ 56,562.50	$ 599,562.50
		Total Construction Estimate	$ 13,962,000			$ 3,016,646	$ 16,978,646
		Total Planning, Engineering & Design	$ 885,000			$ 18,438	$ 903,438
		Total Construction Management	$ 543,000			$ 56,563	$ 599,563
		Total	$ 15,390,000			$ 3,091,646	$ 18,481,646

Weighted Construction Contingency = 21.6%

Planning, Engineering & Design Contingency = 2.1%

Construction Management Contingency = 10.4%

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " - PROJECT < $40M

Project Development Stage: Feasibility
Abbreviated Risk Analysis

Meeting Date: 25-Mar-11

Risk Level

	Negligible	Marginal	Significant	Critical	Crisis
Very Likely	2	3	4	5	5
Likely	1	2	4	5	5
Unlikely	0	1	3	3	4
Very Unlikely	0	0	1	2	4

Risk Element	Affected WBS Item	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Likelihood	Impact	Risk Level
Project Scope						
PS-1	Spur Jetty (Contract 1)	Level of detail in design. Opportnities for scope change.	Spur design was based on extensive field work and design analysis. This included surveys, subsurface investigations, detailed wave analysis, coastal modeling, and extensive geotechnical analysis. No scope changes are anticipated.	Very Unlikely	Significant	1
PS-2	Beach Nourishment (Contract 2)	Designer confidence in scope of work. Opportunities for scope change	The beach nourishment design was based on detailed coastal modeling. As this alternative is likely the most accurately modeled alternative, beach fill performance is expected to closely match modeled results.	Unlikely	Negligible	0
PS-3	Item Name			Very Unlikely	Negligible	0
PS-4	Item Name			Very Unlikely	Marginal	0
PS-5	Item Name			Very Unlikely	Negligible	0
PS-6	Item Name			Very Unlikely	Negligible	0
PS-7	Item Name			Very Unlikely	Negligible	0
PS-8	Item Name			Very Unlikely	Negligible	0
PS-9	Item Name			Very Unlikely	Negligible	0
PS-10	Item Name			Very Unlikely	Negligible	0
PS-11	Item Name			Very Unlikely	Negligible	0
PS-12	Remaining Construction Items			Very Unlikely	Negligible	0
PS-13	Planning, Engineering, & Design	Potential Changes in design	Changes in design could increase design costs. This is unlikely.	Unlikely	Marginal	1
PS-14	Construction Management	Potential change in scope	Quantities could increase. This is unlikely but impact could be significant.	Very Unlikely	Significant	1

Acquisition Strategy

AS-1	Spur Jetty (Contract 1)	Contracting plan unclear. Potential for small business contractor.	Based on the size of the contract and amount of specialized equipment and skilled operators needed, it is unlikely that a small business set-aside contractor would be able to do the work. Contract should end up being advertised as unrestricted.	Very Unlikely	Marginal	0
AS-2	Beach Nourishment (Contract 2)	Contracting Pplan unclear. Potential for small business contractor. Degree of subcontracting uncertain and depends on the method of procurement.	It is likely that the construction contract will be some sort of small business set-aside.	LIKELY	Marginal	2
AS-3	Item Name			Very Unlikely	Negligible	0
AS-4	Item Name			Very Unlikely	Negligible	0
AS-5	Item Name			Very Unlikely	Negligible	0
AS-6	Item Name			Very Unlikely	Negligible	0
AS-7	Item Name			Very Unlikely	Negligible	0
AS-8	Item Name			Very Unlikely	Negligible	0
AS-9	Item Name			Very Unlikely	Negligible	0
AS-10	Item Name			Very Unlikely	Negligible	0
AS-11	Item Name			Very Unlikely	Negligible	0
AS-12	Remaining Construction Items			Very Unlikely	Negligible	0
AS-13	Planning, Engineering, & Design	No concerns		Very Unlikely	Negligible	0
AS-14	Construction Management	Contracting plan unclear. Potential for small business contractor.	The beach fill contract could be some sort of small business set-aside. This could increase management efforts.	LIKELY	Negligible	1

Construction Complexity

CC-1	Spur Jetty (Contract 1)	Availability of equipment operators experienced in jetty construction.	Equipment operators skilled in jetty construction are uncommon. Lack of availability of operators with this skill set is likely. However, low production rates have been used in the cost estimate to account for some on the job training. The overall impact on construction is expected to be significant.	LIKELY	Critical	5
CC-2	Beach Nourishment (Contract 2)	Community disruption caused by trucks traveling to the project site.	Although access routes will be approved, it is likely that there will be concerns during construction. Concern include potential roadway damage, noise and safety issues.	LIKELY	Marginal	2
CC-3	Item Name			Very Unlikely	Negligible	0
CC-4	Item Name			Very Unlikely	Negligible	0
CC-5	Item Name			Very Unlikely	Negligible	0
CC-6	Item Name			Very Unlikely	Negligible	0
CC-7	Item Name			Very Unlikely	Negligible	0
CC-8	Item Name			Very Unlikely	Negligible	0
CC-9	Item Name			Very Unlikely	Negligible	0
CC-10	Item Name			Very Unlikely	Negligible	0
CC-11	Item Name			Very Unlikely	Negligible	0
CC-12	Remaining Construction Items			Very Unlikely	Negligible	0
CC-13	Planning, Engineering, & Design	Not applicable		Very Unlikely	Negligible	0
CC-14	Construction Management	Selection of experienced contractor.	The skill level of the contractor will directly impact management efforts. It is expected that someon the job training will be required to get the contractor operating efficiently.	LIKELY	Marginal	2

Volatile Commodities

VC-1	Spur Jetty (Contract 1)	Escalation of fuel prices	It is likely that fuel prices will change, but the impact will be negligible	LIKELY	Negligible	1
VC-2	Beach Nourishment (Contract 2)	Escalation of fuel prices	It is likely that fuel prices will change, but the impact will be negligible	LIKELY	Negligible	1
VC-3	Item Name			Very Unlikely	Negligible	0
VC-4	Item Name			Very Unlikely	Negligible	0
VC-5	Item Name			Very Unlikely	Negligible	0
VC-6	Item Name			Very Unlikely	Negligible	0
VC-7	Item Name			Very Unlikely	Negligible	0
VC-8	Item Name			Very Unlikely	Negligible	0
VC-9	Item Name			Very Unlikely	Negligible	0
VC-10	Item Name			Very Unlikely	Negligible	0
VC-11	Item Name			Very Unlikely	Negligible	0
VC-12	Remaining Construction Items			Very Unlikely	Negligible	0
VC-13	Planning, Engineering, & Design	Not applicable		Very Unlikely	Negligible	0
VC-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

Quantities

Q-1	Spur Jetty (Contract 1)	Change in volume of armor and toe stone	Placement accuracy and difficulty may result in some increase in rock volume, Increase in volume should be minor.	LIKELY	Marginal	2
Q-2	Beach Nourishment (Contract 2)	Change in volume of sand fill	No major increases in sand volume are expected as this alternative is likely the most accurately modeled alternative. PDT agreed that it is unlikely that there will be any appreciable change in sand volume	Unlikely	Negligible	0
Q-3	Item Name			Very Unlikely	Negligible	0
Q-4	Item Name			Very Unlikely	Negligible	0
Q-5	Item Name			Very Unlikely	Negligible	0
Q-6	Item Name			Very Unlikely	Negligible	0
Q-7	Item Name			Very Unlikely	Negligible	0
Q-8	Item Name			Very Unlikely	Negligible	0
Q-9	Item Name			Very Unlikely	Negligible	0
Q-10	Item Name			Very Unlikely	Negligible	0
Q-11	Item Name			Very Unlikely	Negligible	0
Q-12	Remaining Construction Items			Very Unlikely	Negligible	0
Q-13	Planning, Engineering, & Design	Not Applicable		Very Unlikely	Negligible	0
Q-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

Fabrication & Project Installed Equipment

FI-1	Spur Jetty (Contract 1)	Not Applicable		Very Unlikely	Negligible	0
FI-2	Beach Nourishment (Contract 2)	Not Applicable		Very Unlikely	Negligible	0
FI-3	Item Name			Very Unlikely	Negligible	0
FI-4	Item Name			Very Unlikely	Negligible	0
FI-5	Item Name			Very Unlikely	Negligible	0
FI-6	Item Name			Very Unlikely	Negligible	0
FI-7	Item Name			Very Unlikely	Negligible	0
FI-8	Item Name			Very Unlikely	Negligible	0
FI-9	Item Name			Very Unlikely	Negligible	0
FI-10	Item Name			Very Unlikely	Negligible	0
FI-11	Item Name			Very Unlikely	Negligible	0
FI-12	Remaining Construction Items			Very Unlikely	Negligible	0
FI-13	Planning, Engineering, & Design	Not Applicable		Very Unlikely	Negligible	0
FI-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

Cost Estimating Method

CE-1	Spur Jetty (Contract 1)	Reliability of quotes and transport of rock.	Quotes were based on rock specifications, but specific sources must be approved based on hardness, etc. It's unlikely that there would be a problem finding acceptable stone in Maine, but this could have a small impact on pricing.	Unlikely	Marginal	1
CE-2	Beach Nourishment (Contract 2)	None.	Cost estimate is based on reliable quotes. Project area is very accessible.	Very Unlikely	Negligible	0
CE-3	Item Name			Very Unlikely	Negligible	0
CE-4	Item Name			Very Unlikely	Negligible	0
CE-5	Item Name			Very Unlikely	Negligible	0
CE-6	Item Name			Very Unlikely	Negligible	0
CE-7	Item Name			Very Unlikely	Negligible	0
CE-8	Item Name			Very Unlikely	Negligible	0
CE-9	Item Name			Very Unlikely	Negligible	0
CE-10	Item Name			Very Unlikely	Negligible	0
CE-11	Item Name			Very Unlikely	Negligible	0
CE-12	Remaining Construction Items			Very Unlikely	Negligible	0
CE-13	Planning, Engineering, & Design	Not Applicable		Very Unlikely	Negligible	0
CE-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

External Project Risks

EX-1	Spur Jetty (Contract 1)	Affect of adverse weather on project.	Adverse weather could delay project. Reduced production rates have been factored into the cost estimate so it is unlikely that there would be additional delay.	Unlikely	Marginal	1
EX-2	Beach Nourishment (Contract 2)	Adverse weather could impact placement of sand and cause loss of sand during construction.	PDT agreed that there is the potential for loss of sand, but expected losses should be minor as the spur, which will be constructed first, reduces reflected wave energy.	LIKELY	Marginal	2
EX-3	Item Name			Very Unlikely	Negligible	0
EX-4	Item Name			Very Unlikely	Negligible	0
EX-5	Item Name			Very Unlikely	Negligible	0
EX-6	Item Name			Very Unlikely	Negligible	0
EX-7	Item Name			Very Unlikely	Negligible	0
EX-8	Item Name			Very Unlikely	Negligible	0
EX-9	Item Name			Very Unlikely	Negligible	0
EX-10	Item Name			Very Unlikely	Negligible	0
EX-11	Item Name			Very Unlikely	Negligible	0
EX-12	Remaining Construction Items			Very Unlikely	Negligible	0
EX-13	Planning, Engineering, & Design	Not Applicable		Very Unlikely	Negligible	0
EX-14	Construction Management	Affect of adverse weather on project.	Adverse weather could delay project. Reduced production rates have been factored into the cost estimate so it is unlikely that there would be additional delay.	Unlikely	Marginal	1

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " - PROJECT < $40M

Project Development Stage: Feasibility

Abbreviated Risk Analysis

Typical Risk Elements	Selected Work Breakdown Structure Items													
		Spur Jetty (Contract 1)	Beach Nourishment (Contract 2)	Item Name	Item Name	Item Name	Item Name	Item Name	Item Name	Item Name	Item Name	Item Name	Remaining Construction Ite	Planning, Engineering, & Design	Construction Management
1	Project Scope	1	-	-	-	-	-	-	-	-	-	-	-	1	1
2	Acquisition Strategy	-	2	-	-	-	-	-	-	-	-	-	-	-	1
3	Construction Complexity	5	2	-	-	-	-	-	-	-	-	-	-	-	2
4	Volatile Commodities	1	1	-	-	-	-	-	-	-	-	-	-	-	-
5	Quantities	2	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Fabrication & Project Installed Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Cost Estimating Method	1	-	-	-	-	-	-	-	-	-	-	-	-	-
8	External Project Risks	1	2	-	-	-	-	-	-	-	-	-	-	-	1

RECOMMENDED PLAN

COST ESTIMATES

Saco Camp Ellis - Corrected Estimate 7-20-11

This is the estimate for the Recommended Alt 6 Plan without project markups for escalation and contingency. This is a shore damage mitigation project. Construct new stone spur groin approximately 750' long to include a stone mattress foundation. Reinforce the existing Jetty to include stone mattress foundation. The spur groin and Jetty reinforcement will be constructed in 5' to 10' depth of water depending on the status of tides.

Assumptions Made:

-for all stone, used 1.4 conversion factor CY to Tons

-based on a survey conducted and vendor quotes, the location of source of stone materials is within 20 miles (Shaw Brothers has numerous quarries in the area)

-all stone materials will be delivered to and loaded at dock in Portland Maine, loaded on barges, then towed to the project site

-larger stone material will be placed by a crane or large excavator mounted on a spud barge

MCACES MII estimating program was used to development the estimate. The 2011 Davis Bacon Labor Rates for York Maine were used for labor only line items. Means estimating guide and vendor quotes were used as a backup references for developing user defined line items. The prime contractor markups consist of 10% FOOH, 7% HOOH, 12% profit and 2% bond. Because this project work site abuts the open sea the work productivity factor is set at 85% for marine/over water construction. For all other contract items the productivity is set at 95% in consideration of population density of the areas adjacent to project site. .

Estimated by Mike Remy

Designed by CENAE

Prepared by Mike Remy

Preparation Date 7/18/2011

Effective Date of Pricing 9/28/2013

Estimated Construction Time 365 Days

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost
Detailed Estimate			**314,811**	**242,404**	**444,639**	**82,999**	**9,413,013**
Mobilization	**1.0**	**EA**	**17,573**	**13,531**	**24,820**	**4,633**	**236,282**
(Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine. Assume a contractor yard will be set up with office trailer, portable toilets, tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailer, dump truck and pickup. This folder also includes costs to mob and demob spud barge and work barges.)							
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	80.0	HR	124	96	176	33	1,672
MIL X-TRKDVRLT Outside Truck Drivers, Light	80.0	HR	107	83	152	28	1,443
MIL X-EQOPRLT Outside Equip. Operators, Light	40.0	HR	231	178	326	61	3,108
MIL X-EQOPRMED Outside Equip. Operators, Medium	40.0	HR	231	178	327	61	3,109
MIL X-CARPNTER Outside Carpenters	80.0	HR	132	102	186	35	1,775
MIL X-ELECTRN Outside Electricians	40.0	HR	197	152	278	52	2,648
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0	HR	203	156	287	53	2,728
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up etc. at work site.)							
RSM 015213400100 User defined for contractor yard property rental	24.0	MO	1,200	924	1,695	316	16,135
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	231	178	327	61	3,110
RSM 015113800430 Temporary Power, for temp lighting only, 11.8 KWH/month, average	1,000.0	CSF	165	127	233	44	2,219
RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	24.0	MO	463	357	654	122	6,228
(Note: two each)							
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	24.0	MO	222	171	314	59	2,985
AF 015205001400 Toilet, portable, chemical, rent per month	48.0	EA	404	311	571	107	5,432
(Note: two each for 24 months/48 months)							
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	276	213	390	73	3,711
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	327	252	462	86	4,397
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	26	20	37	7	354
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	103	79	146	27	1,387
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR	100	77	141	26	1,345
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	HR	197	152	279	52	2,651
RSM 061333520300 User defined for mobilization of spud barge, including tug and crew	150.0	MI	11,053	8,511	15,611	2,914	148,614
RSM 061333520300 User defined for mobilization of local work barges, including tug and crew	50.0	MI	1,579	1,216	2,230	416	21,231
Materials and Land Transportation	**48,300.0**	**TON**	**197,952**	**152,423**	**279,587**	**52,190**	**2,661,669**
(Note: Costs to puchase and transport all stone materials. Based on a survey conducted and vendor quotes, it is assumed that the location of source of stone materials is within 20 miles (Shaw Brothers has access to numerous quarries in the area).)							
Purchase Materials/Stone	**48,300.0**	**TON**	**132,580**	**102,087**	**187,256**	**34,954**	**1,782,677**
(Note: Cost for stone materials only as per ton at quarry cost. Does not include cost for mattress stone.)							
RSM 023704500100 Under Layer/Core Stone	11,760.0	TON	29,400	22,638	41,525	7,751	395,314
RSM 023704500100 Armor Stone	30,100.0	TON	90,300	69,531	127,540	23,807	1,214,178
MIL 027202001510 Toe Stone	6,440.0	TON	12,880	9,918	18,192	3,396	173,185
Loading Trucks and Transportation To Docks	**48,300.0**	**TON**	**65,372**	**50,336**	**92,331**	**17,235**	**878,992**
(Note: Costs to load stone into trucks at quarry and transport to Portland docks. Assume 20 mile haul from quarry to dock. Load and transport all stone materials, including mattress stone.)							
Loading Crew	**958.3**	**HR**	**33,258**	**25,608**	**46,973**	**8,768**	**447,184**
(Note: Load (57,680t/1.4) 41,200 cy of stone .5 to 13 tons per stone at quarry. Production rate of 36 cy per hour)							
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,916.7	HR	3,481	2,681	4,917	918	46,809
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer (for general traffic control))							
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	958.3	HR	1,901	1,464	2,686	501	25,567
(Note: Crane operator...Assumed Davis Bacon Power Equip. Operators Group 1)							
EP L40KM003 LOADER, FRONT END, WHEEL, 3.00 CY BUCKET, ARTICULATED, 4X4	958.3	HR	4,724	3,638	6,673	1,246	63,524
EP C75PB002 CRANES, HYDRAULIC, SELF-PROPELLED, ROUGH TERRAIN, 20 TON, 64.1' BOOM, 4X4X4	1,916.7	HR	19,692	15,163	27,812	5,192	264,775
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for crane)	1,916.7	HR	3,459	2,663	4,885	912	46,509
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)							
Hauling Crew	**958.3**	**HR**	**32,114**	**24,728**	**45,358**	**8,467**	**431,809**

Labor ID: BOS2010 EQ ID: EP09R01 | Currency in US dollars | TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost
(Note: Assume 20 mile on way haul. Use 1.5 hours per round trip. Haul Q = 48,300 T. Truck Cap =15T Trk rate = 15/1.5 = 10 T/HR. Loading Rate at Quarry = 36 CY/hr x 1.4 T/CY = 50 T/HR. Therefore need 5 Trks. Time == loading time = 938 HRS)							
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	4,791.7	HR	7,447	5,735	10,519	1,963	100,138
(Note: Assumed Davis Bacon Truck Drivers: Group 6 Assume cycle 1.5 hr round trip per truck 12 cy truck load. Haul 41,200 cy of stone 5,150 hours of labor)							
GEN T40Z6860 TRUCK OPTION, DUMP BODY, REAR, 16-23.5 CY (12.2-18 M3) (ADD 45,000 LB (20,412 KG) GVW TRUCK)	4,791.7	HR	1,858	1,431	2,625	490	24,989
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	4,791.7	HR	20,378	15,691	28,782	5,373	274,000
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,916.7	HR	2,431	1,872	3,433	641	32,682
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer (for general traffic control) Assume 3 trucks running per cycle 5,150/3= 1,717 hours)							
Marine Construction - Spur Groin & Reinforce Jetty	**48,300.0**	**EA**	**85,108**	**65,533**	**120,206**	**22,439**	**6,324,418**
(Note: Assume material production rate of 150 tons per day average, or 322 days of work on site. Place 48,300 tons of breakwater stone, not including mattress stone.)							
Loading Barges	**958.3**	**TON**	**22,462**	**17,296**	**31,726**	**5,922**	**302,028**
(Note: All stone materials, including mattress stone. Loading time = load and haul time = 968 hrs.)							
MIL X-LABORER Outside Laborers, (Semi-Skilled)	958.3	HR	1,358	1,046	1,918	358	18,263
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	958.3	HR	2,125	1,636	3,002	560	28,575
(Note: Operate Crane....Assumed Davis Bacon Power Equip. Operators Group 1)							
EP C75GV025 CRANES, HYDRAULIC, SELF-PROPELLED, ROUGH TERRAIN, 70 TON, 110' BOOM 4X4	958.3	HR	18,979	14,614	26,806	5,004	255,190
(Note: equipment and labor cost should it become necessary to load barges with crane vs. driving onto and dumping. Assume .5 hours loading time average for 12 cy truck delivery. Assume 10 cy or 14 tons of stone delivered per truck. 57,680 tons/14t= 4,120 trips x .33 hours per load = 1,373 hours.)							
Barging Materials to Work Site	**57,680.0**	**TON**	**62,646**	**48,237**	**88,481**	**16,516**	**842,337**
(Note: Barge the total of all stone materials including mattress stone. Crew hours input for one operator a deckhand and a maintenance engineer.)							
EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	1,536.0	HR	7,976	6,142	11,266	2,103	107,250
(Note: 57,680 tons of stone required -.Assume 400 ton barge, hauls 300 tons per load x 192 trips x 8 hours per trip 40 mile round trip (includes loading and unloading time) = 1,536 hours Assume 1 deckhand/man per hour associated with barging.)							
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	1,536.0	HR	54,669	42,095	77,215	14,413	735,086
(Note: for misc movement of spud barge and delivery barges during breakwater construction. assum moving the spud barge three times per month for 12 months.)							
Surveying	**1.0**	**EA**	**0**	**0**	**0**	**0**	**40,595**
FOP FC-SURYR Surveyors	576.0	HR	0	0	0	0	30,914
(Note: Assume two men three days per month for 12 months of the contract period to determine existing elevations and other surveying tasks. Use costbook line item rate, there is no Maine Davis Bacon rate for surveyors.)							
HTW 029110106124 Boat rental, with motor	24.0	DAY	0	0	0	0	9,681
(Note: Assume surveyors can run the boat. Two days per month for 12 months. Includes rental, fuel and transportation.)							
Stone Foundation Mats	**20,100.0**	**SY**	**0**	**0**	**0**	**0**	**3,092,468**
(Note: 20,100 sy of stone filled foundation mats are required. 6,700 tons of 3"-6" stone to fill mats is required. Loading and Transportation for mattress stone is not included in this section. It is included in all stone transportation and barging section.)							
MIL 023704500600 Mesh mats 5'x30', stone filled, 12" deep- includes stone material, steel mesh mats, fill mats and placement	20,100.0	SY	0	0	0	0	3,092,468
(Note: unit cost based on historical data for 1' thick stone filled mesh mats, reference bidders on Seabrook Project Includes cost of 5'x30' mesh mats filled with 3"-6" stone and placed on site. Abstract from 2007 on New Jersey shoreline indicates constract bids averaging approx $150 per sy installed. SF price of mattress material from Triton Company verbal quote. Material cost overides includes mattress and stone fill.)							
Placing Stone Materials for Spur and Jetty	**48,300.0**	**EA**	**0**	**0**	**0**	**0**	**2,046,990**
(Note: 48,300 tons of stone material, does not include stone mattress placement)							
Under Layer /Core Stone	**11,760.0**	**TON**	**0**	**0**	**0**	**0**	**134,236**
Placement Crew	**470.4**	**HR**	**0**	**0**	**0**	**0**	**134,236**
(Note: Place Rate is 300 Ton/ 8 hr shift or 25 T/HR)							
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING	470.4	HR	0	0	0	0	0
MIL B-EQOPRCRN Equip. Operators, Heavy	470.4	HR	0	0	0	0	55,454
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)							
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	470.4	HR	0	0	0	0	41,250
(Note: A laborer or an Oiler can be a grade checker, Group 6)							

Labor ID: BOS2010 EQ ID: EP09R01 | Currency in US dollars | TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost
MIL X-LABORER Outside Laborers, (Semi-Skilled)	470.4	HR	0	0	0	0	37,532
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)							
Armor Stone	**30,100.0**	**TON**	**0**	**0**	**0**	**0**	**687,161**
Placement Crew	**2,408.0**	**HR**	**0**	**0**	**0**	**0**	**687,161**
(Note: Place Rate is 150 Ton/ 8 hr shift or 12.5 T/HR)							
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING	2,408.0	HR	0	0	0	0	0
MIL B-EQOPRCRN Equip. Operators, Heavy	2,408.0	HR	0	0	0	0	283,870
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)							
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	2,408.0	HR	0	0	0	0	211,160
(Note: A laborer or an Oiler can be a grade checker, Group 6)							
MIL X-LABORER Outside Laborers, (Semi-Skilled)	2,408.0	HR	0	0	0	0	192,130
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)							
Toe Stone	**6,440.0**	**TON**	**0**	**0**	**0**	**0**	**73,510**
Placement Crew	**257.6**	**HR**	**0**	**0**	**0**	**0**	**73,510**
(Note: Place Rate is 200 Ton/ 8 hr shift or 25 T/HR)							
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING	257.6	HR	0	0	0	0	0
MIL B-EQOPRCRN Equip. Operators, Heavy	257.6	HR	0	0	0	0	30,368
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)							
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	257.6	HR	0	0	0	0	22,589
(Note: A laborer or an Oiler can be a grade checker, Group 6)							
MIL X-LABORER Outside Laborers, (Semi-Skilled)	257.6	HR	0	0	0	0	20,553
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)							
Additional Placement Costs	**3,135.0**	**EA**	**0**	**0**	**0**	**0**	**1,152,083**
(Note: Time = sum of under (470) plus Armor (2408) = toe stone (257) = 3135 hours)							
EP M10XX008 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON	3,135.0	HR	0	0	0	0	67,876
(Note: additional barge at work site for misc. use for sorting materials and loading and unloading materials and equipment. Assume one half total hours required for construction)							
EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH KNEES, INBOARD, 25.25' X 10' X 3.5'	3,135.0	HR	0	0	0	0	229,711
MIL X-LABORER Outside Laborers, (Semi-Skilled)	3,135.0	HR	0	0	0	0	62,925
HNC 313219161650 Drainage geotextiles, non-woven polypropylene, 120 mils thick	9,380.0	SY	0	0	0	0	141,961
(Note: plans indicate 1' thick stone mattress required.)							
EP T15KM007 TRACTOR, CRAWLER (DOZER), 225 HP, POWERSHIFT, W/6.80 CY STRAIGHT TILL BLADE	1,567.5	HR	0	0	0	0	428,454
(Note: Assume 8 hours per day 20 days per month for 6 months = 480 hours)							
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	1,567.5	HR	0	0	0	0	48,870
(Note: operate dozer on barge deck to push rock of barge)							
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	360.0	HR	0	0	0	0	172,286
(Note: for misc movement of spud barge and delivery barges during breakwater construction. assum moving the spud barge three times per month for 12 months.)							
EP M10MZ005 MARINE EQUIPMENT, WORK BARGE, SECTIONAL, MEDIUM DUTY', W/ONE BUCKHEAD AND SPUDS, 40' X 12' X 4', 36 TON	3,135.0	HR	0	0	0	0	0
(Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crane on barge as seperate line item.)							
Demobilization	**1.0**	**EA**	**14,178**	**10,917**	**20,026**	**3,738**	**190,644**
(Note: demobilize equipments, clean lay down areas, remove temp fencing, etc.)							
MIL X-CARPNTER Outside Carpenters	16.0	HR	26	20	37	7	355
MIL X-ELECTRN Outside Electricians	24.0	HR	118	91	167	31	1,589
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	76	59	108	20	1,027
MIL X-EQOPRMED Outside Equip. Operators, Medium	80.0	HR	140	108	197	37	1,879
MIL X-LABORER Outside Laborers, (Semi-Skilled)	240.0	HR	305	235	431	80	4,105
(Note: assume three laborers two weeks for various tasks associated with preparing to move equipment back to home office and general cleanup and packing equipment at work site contractor yard.)							
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0	HR	62	48	88	16	836
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0	HR	54	41	76	14	722

Labor ID: BOS2010 EQ ID: EP09R01 | Currency in US dollars | TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0	ACR	244	188	344	64	3,277
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)							
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	32	24	45	8	425
(Note: Used for labor to remove signs and posts during demobilization)							
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	2.0	MO	21	16	30	6	283
(Note: Cost to remove and return rental storage box at end of project)							
RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	2.0	MO	42	32	59	11	566
(Note: Cost to remove and return office trailer at end of project)							
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	26	20	37	7	354
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	103	79	146	27	1,387
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR	100	77	141	26	1,345
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	HR	197	152	279	52	2,651
RSM 061333520300 User defined for demobilization of spud barge, including tug and crew	150.0	MI	11,053	8,511	15,611	2,914	148,614
RSM 061333520300 User defined for demobilization of local work barges, including tug and crew	50.0	MI	1,579	1,216	2,230	416	21,231

Labor ID: BOS2010 EQ ID: EP09R01 Currency in US dollars TRACES MII Version 4.1

This is the estimate for the Recommended Plan to purchase, deliver and spread 364,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE $5.75 FOR THE SAND AND $6.00 FOR DELIVERY WITHIN 15 MILES. $12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy
Designed by CENAE
Prepared by Mike Remy
Preparation Date 3/28/2011
Effective Date of Pricing 9/28/2014
Estimated Construction Time 365 Days

Estimate by W. Brassfield revised by C. Lindsay

Description	Quantity	UOM	ContractCost	Escalation	ProjectCost
Project Owner Summary			4,549,440	272,966	5,545,768
Beach Nourishment Alt 6	364,000.0	CY	4,549,440	272,966	5,545,768
Sand-Transport and Spead on Beach- 364,000 cy	364,000.0	CY	4,549,440	272,966	5,545,768

Currency in US dollars

Description	UOM	Quantity	CostToPrime	JOOH	HOOH	Profit	Bond	ContractCost
Project Indirect Summary			**146,730**	**10,271**	**4,710**	**16,171**	**3,558**	**4,549,440**
			0.40					*12.50*
Beach Nourishment Alt 6	**CY**	**364,000.0**	**146,730**	**10,271**	**4,710**	**16,171**	**3,558**	**4,549,440**
			0.40					*12.50*
Sand-Transport and Spead on Beach- 364,000 cy	**CY**	**364,000.0**	**146,730**	**10,271**	**4,710**	**16,171**	**3,558**	**4,549,440**

Currency in US dollars

Description	Quantity	UOM	LaborCost	EQCost	MatlCost	BareCost	DirectMU	CostToPrime
Detailed Estimate			**24,437**	**102,735**	**0**	**4,495,172**	**19,558**	**146,730**
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Beach Nourishment Alt 6 (Note: This is cost out for 364,000 cy for beach nourishment.)	**364,000.0**	**CY**	**24,437**	**102,735**	**0**	**4,495,172**	**19,558**	**146,730**
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Sand-Transport and Spead on Beach- 364,000 cy (Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	**364,000.0**	**CY**	**24,437**	**102,735**	**0**	**4,495,172**	**19,558**	**146,730**
			0.00	*0.00*	*0.00*	*12.00*	*0.00*	*0.00*
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading (Note: Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS $5.75/CY AND ACTUAL COST OF HAUL IS $6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. $12.00/cy used for this estimate.)	364,000.0	LCY	0	0	0	4,368,000	0	0
			10.07	*0.00*	*0.00*	*10.07*	*3.36*	*13.43*
MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: One laborer to assist in sand speading operations on beach.)	2,426.7	HR	24,437	0	0	24,437	8,143	32,580
			0.00	*42.34*	*0.00*	*42.34*	*4.70*	*47.04*
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	2,426.7	HR	0	102,735	0	102,735	11,415	114,150

Currency in US dollars

This is the estimate for the Recommended Plan to purchase, deliver and spread 116,350 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE $5.75 FOR THE SAND AND $6.00 FOR DELIVERY WITHIN 15 MILES. $12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy
Designed by CENAE
Prepared by Mike Remy
Preparation Date 3/28/2011
Effective Date of Pricing 9/28/2014
Estimated Construction Time 365 Days

Estimate by W. Brassfield revised by C. Lindsay

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Description	Quantity	UOM	ContractCost	Escalation	ProjectCost
Project Owner Summary			1,454,196	87,252	1,772,665
Beach Nourishment Alt 6	116,350.0	CY	1,454,196	87,252	1,772,665
Sand-Transport and Spead on Beach- 116,350 cy	116,350.0	CY	1,454,196	87,252	1,772,665

Currency in US dollars

Description	UOM	Quantity	CostToPrime	JOOH	HOOH	Profit	Bond	ContractCost
Project Indirect Summary			**46,901**	**3,283**	**1,506**	**5,169**	**1,137**	**1,454,196**
			0.40					*12.50*
Beach Nourishment Alt 6	**CY**	**116,350.0**	**46,901**	**3,283**	**1,506**	**5,169**	**1,137**	**1,454,196**
			0.40					*12.50*
Sand-Transport and Spead on Beach- 116,350 cy	**CY**	**116,350.0**	**46,901**	**3,283**	**1,506**	**5,169**	**1,137**	**1,454,196**

Currency in US dollars

Description	Quantity	UOM	LaborCost	EQCost	MatlCost	BareCost	DirectMU	CostToPrime
Detailed Estimate			**7,811**	**32,839**	**0**	**1,436,850**	**6,252**	**46,901**
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Beach Nourishment Alt 6	**116,350.0**	**CY**	**7,811**	**32,839**	**0**	**1,436,850**	**6,252**	**46,901**
(Note: This is cost out for 116,350 cy for beach nourishment.)								
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Sand-Transport and Spead on Beach- 116,350 cy	**116,350.0**	**CY**	**7,811**	**32,839**	**0**	**1,436,850**	**6,252**	**46,901**
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)								
			0.00	*0.00*	*0.00*	*12.00*	*0.00*	*0.00*
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading	116,350.0	LCY	0	0	0	1,396,200	0	0
(Note: Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS $5.75/CY AND ACTUAL COST OF HAUL IS $6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. $12.00/cy used for this estimate.)								
			10.07	*0.00*	*0.00*	*10.07*	*3.36*	*13.43*
MIL X-LABORER Outside Laborers, (Semi-Skilled)	775.7	HR	7,811	0	0	7,811	2,603	10,414
(Note: One laborer to assist in sand speading operations on beach.)								
			0.00	*42.34*	*0.00*	*42.34*	*4.70*	*47.04*
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	775.7	HR	0	32,839	0	32,839	3,649	36,487

Currency in US dollars

This is the estimate for the Recommended Plan to purchase, deliver and spread 191,750 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE $5.75 FOR THE SAND AND $6.00 FOR DELIVERY WITHIN 15 MILES. $12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy
Designed by CENAE
Prepared by Mike Remy
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Effective Date of Pricing 9/28/2014
Estimated Construction Time 365 Days

Estimate by W. Brassfield revised by C. Lindsay

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Description	Quantity	UOM	ContractCost	Escalation	ProjectCost
Project Owner Summary			2,396,580	143,795	2,921,431
Beach Nourishment Alt 6	191,750.0	CY	2,396,580	143,795	2,921,431
Sand-Transport and Spead on Beach- 191,750 cy	191,750.0	CY	2,396,580	143,795	2,921,431

Currency in US dollars

Description	UOM	Quantity	CostToPrime	JOOH	HOOH	Profit	Bond	ContractCost
Project Indirect Summary			**77,295**	**5,411**	**2,481**	**8,519**	**1,874**	**2,396,580**
			0.40					*12.50*
Beach Nourishment Alt 6	**CY**	**191,750.0**	**77,295**	**5,411**	**2,481**	**8,519**	**1,874**	**2,396,580**
			0.40					*12.50*
Sand-Transport and Spead on Beach- 191,750 cy	**CY**	**191,750.0**	**77,295**	**5,411**	**2,481**	**8,519**	**1,874**	**2,396,580**

Currency in US dollars

Description	Quantity	UOM	LaborCost	EQCost	MatlCost	BareCost	DirectMU	CostToPrime
Detailed Estimate			**12,873**	**54,120**	**0**	**2,367,992**	**10,303**	**77,295**
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Beach Nourishment Alt 6	**191,750.0**	**CY**	**12,873**	**54,120**	**0**	**2,367,992**	**10,303**	**77,295**
(Note: This is cost out for 191,750 cy for beach nourishment.)								
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Sand-Transport and Spead on Beach- 191,750 cy	**191,750.0**	**CY**	**12,873**	**54,120**	**0**	**2,367,992**	**10,303**	**77,295**
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)								
			0.00	*0.00*	*0.00*	*12.00*	*0.00*	*0.00*
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading	191,750.0	LCY	0	0	0	2,301,000	0	0
(Note: Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS $5.75/CY AND ACTUAL COST OF HAUL IS $6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. $12.00/cy used for this estimate.)								
			10.07	*0.00*	*0.00*	*10.07*	*3.36*	*13.43*
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,278.3	HR	12,873	0	0	12,873	4,290	17,163
(Note: One laborer to assist in sand speading operations on beach.)								
			0.00	*42.34*	*0.00*	*42.34*	*4.70*	*47.04*
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	1,278.3	HR	0	54,120	0	54,120	6,013	60,133

Currency in US dollars

This is the estimate for the Recommended Plan to purchase, deliver and spread 235,733 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE $5.75 FOR THE SAND AND $6.00 FOR DELIVERY WITHIN 15 MILES. $12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy
Designed by CENAE
Prepared by Mike Remy
Preparation Date 3/28/2011
Effective Date of Pricing 9/28/2014
Estimated Construction Time 365 Days

Estimate by W. Brassfield revised by C. Lindsay

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Description	Quantity	UOM	ContractCost	Escalation	ProjectCost
Project Owner Summary			2,946,300	176,778	3,591,540
Beach Nourishment Alt 6	235,733.0	CY	2,946,300	176,778	3,591,540
Sand-Transport and Spead on Beach- 235,733 cy	235,733.0	CY	2,946,300	176,778	3,591,540

Currency in US dollars

Description	UOM	Quantity	CostToPrime	JOOH	HOOH	Profit	Bond	ContractCost
Project Indirect Summary			**95,025**	**6,652**	**3,050**	**10,473**	**2,304**	**2,946,300**
			0.40					*12.50*
Beach Nourishment Alt 6	**CY**	**235,733.0**	**95,025**	**6,652**	**3,050**	**10,473**	**2,304**	**2,946,300**
			0.40					*12.50*
Sand-Transport and Spead on Beach- 235,733 cy	**CY**	**235,733.0**	**95,025**	**6,652**	**3,050**	**10,473**	**2,304**	**2,946,300**

Currency in US dollars

Description	Quantity	UOM	LaborCost	EQCost	MatlCost	BareCost	DirectMU	CostToPrime
Detailed Estimate			**15,826**	**66,533**	**0**	**2,911,155**	**12,666**	**95,025**
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Beach Nourishment Alt 6	**235,733.0**	**CY**	**15,826**	**66,533**	**0**	**2,911,155**	**12,666**	**95,025**
(Note: This is cost out for 235,733 cy for beach nourishment.)								
			0.07	*0.28*	*0.00*	*12.35*	*0.05*	*0.40*
Sand-Transport and Spead on Beach- 235,733 cy	**235,733.0**	**CY**	**15,826**	**66,533**	**0**	**2,911,155**	**12,666**	**95,025**
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)								
			0.00	*0.00*	*0.00*	*12.00*	*0.00*	*0.00*
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading	235,733.0	LCY	0	0	0	2,828,796	0	0
(Note: Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS $5.75/CY AND ACTUAL COST OF HAUL IS $6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. $12.00/cy used for this estimate.)								
			10.07	*0.00*	*0.00*	*10.07*	*3.36*	*13.43*
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,571.6	HR	15,826	0	0	15,826	5,274	21,099
(Note: One laborer to assist in sand speading operations on beach.)								
			0.00	*42.34*	*0.00*	*42.34*	*4.70*	*47.04*
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	1,571.6	HR	0	66,533	0	66,533	7,393	73,926

Labor ID: NLS2010 EQ ID: EP09R01 | Currency in US dollars | TRACES MII Version 4.1

COST ESTIMATES OF ALTERNATIVE PLANS

Saco CE - 712,000 cy Beach Nourishment Estimate

This is an estimate to purchase, deliver and spread 712,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. The beach nourishment contractor markups consist of 5% JOH, 3% HOH 10% profit, 2% bond and 15% constingency. Productivity is set at 90%, Escalation at 8% (2% for one year database adjustment and 2% percent per year for three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R01 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**441,558**	**278,181**	**955,089**	**210,120**	**10,716,100**	**857,288**	**1,736,008**	**13,309,396**
Beach Nourishment Estimate	**712,000.0**	**CY**	**441,558**	**278,181**	**955,089**	**210,120**	**10,716,100**	**857,288**	**1,736,008**	**13,309,396**
(Note: This is cost out for 712,000 cy for beach nourishment.)										
Sand-Transport and Spead on Beach- 712,000 cy	**712,000.0**	**CY**	**441,558**	**278,181**	**955,089**	**210,120**	**10,716,100**	**857,288**	**1,736,008**	**13,309,396**
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading	712,000.0	LCY	427,200	269,136	924,034	203,287	10,367,657	829,413	1,679,560	12,876,630
(Note: Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS $5.75/CY AND ACTUAL COST OF HAUL IS $6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. $12.00/cy used for this estimate.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	4,749.0	HR	3,188	2,008	6,896	1,517	77,368	6,189	12,534	96,091
(Note: One laborer to assist in sand speading operations on beach.)										
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	4,749.0	HR	11,170	7,037	24,160	5,315	271,075	21,686	43,914	336,675

Labor ID: NLS2010 EQ ID: EP09R01 Currency in US dollars TRACES MII Version 4.1

Saco Camp Ellis Alt 6

This is a shore damage mitigation project. Construct new stone spur groin approximately 750' long to include a stone mattress foundation. Reinforce the existing Jetty to include stone mattress. Assumptions are made in regards to actual stone source, cost and the general construction process and schedule. The spur groin and Jetty reinforcement will be constructed in 5' to 10' depth of water depending on the status of tides.

Assumptions Made:

-for all stone, used 1.4 conversion factor CY to Tons
-the location of source of stone materials within 20 miles
-all stone materials will be loaded at dock in Portland Maine and barged to the project site
-larger stone material will be placed by a crane or large excavator mounted on a spud barge

MCACES MII estimating program was used to development the estimate. The 2010 Davis Bacon Labor Rates for York Maine were used for labor only line items. Means estimating guide and vendor quotes were used as a backup references for developing user defined line items. The prime contractor markups consist of 10% FOH, 7% HOH, 10% profit, 2% bond, 25% contingency (15% for possible additional sub contractor costs and 10% minor final design changes, unforseen site and weather conditions) 6% escalation (2% for database update and 2% per year for two years to mid point of construction. Because this project abuts the open sea it is subject to tides, wave action and harse weather conditions, productivity level is set at 70% .

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2013
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**815,648**	**628,049**	**960,018**	**211,204**	**10,771,403**	**646,284**	**2,854,422**	**14,272,109**
Mobilization	**1.0**	**EA**	**21,316**	**16,413**	**25,089**	**5,520**	**281,498**	**16,890**	**74,597**	**372,985**
(Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine. Assume a contractor yard will be set up with office trailer, portable toilets, tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailer, dump truck and pickup. This folder also includes costs to mob and demob spud barge and work barges.)										
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	80.0	HR	169	130	199	44	2,238	134	593	2,965
MIL X-TRKDVRLT Outside Truck Drivers, Light	80.0	HR	146	113	172	38	1,931	116	512	2,559
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
MIL X-EQOPRLT Outside Equip. Operators, Light	40.0	HR	314	242	369	81	4,143	249	1,098	5,489
MIL X-EQOPRMED Outside Equip. Operators, Medium	40.0	HR	314	242	369	81	4,144	249	1,098	5,491
MIL X-CARPNTER Outside Carpenters	80.0	HR	179	138	211	46	2,365	142	627	3,134
MIL X-ELECTRN Outside Electricians	40.0	HR	267	206	315	69	3,529	212	935	4,676
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0	HR	275	212	324	71	3,636	218	964	4,818
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up etc. at work site.)										
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,221	5,391	26,957
RSM 015213400100 User defined for contractor yard property rental	24.0	MO	1,200	924	1,412	311	15,847	951	4,199	20,997
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	314	242	369	81	4,145	249	1,098	5,492
RSM 015113800430 Temporary Power, for temp lighting only, 11.8 KWH/month, average	1,000.0	CSF	165	127	194	43	2,179	131	577	2,887
RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	24.0	MO	463	357	545	120	6,117	367	1,621	8,105
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	24.0	MO	222	171	261	57	2,932	176	777	3,885
AF 015205001400 Toilet, portable, chemical, rent per month	48.0	EA	404	311	476	105	5,335	320	1,414	7,069
(Note: two each for 24 months/48 months)										
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	276	213	325	71	3,645	219	966	4,829
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	327	252	385	85	4,318	259	1,144	5,722
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	35	27	42	9	468	28	124	620
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	139	107	164	36	1,838	110	487	2,436
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR	129	99	151	33	1,697	102	450	2,249

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	HR	268	206	315	69	3,539	212	938	4,690
RSM 061333520300 User defined for mobilization of spud barge, including tug and crew	150.0	MI	10,714	8,250	12,611	2,774	141,492	8,490	37,495	187,477
RSM 061333520300 User defined for mobilization of local work barges, including tug and crew	50.0	MI	2,143	1,650	2,522	555	28,298	1,698	7,499	37,495
Materials and Transportation	**52,611.0**	**TON**	**243,701**	**187,650**	**286,836**	**63,104**	**3,218,301**	**193,098**	**852,850**	**4,264,249**
(Note: Cost to puchase and transport all stone materials.)										
Purchase Materials/Stone	**48,300.0**	**TON**	**84,332**	**64,935**	**99,258**	**21,837**	**1,113,680**	**66,821**	**295,125**	**1,475,626**
(Note: Cost for stone materials only as per ton at quarry cost. Does not include cost for mattress stone.)										
RSM 023704500100 Under Layer/Core Stone	11,760.0	TON	17,640	13,583	20,762	4,568	232,953	13,977	61,732	308,662
RSM 023704500100 Armor Stone	30,100.0	TON	54,180	41,719	63,770	14,029	715,498	42,930	189,607	948,035
MIL 027202001510 Toe Stone	6,440.0	TON	9,660	7,438	11,370	2,501	127,569	7,654	33,806	169,029
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,221	5,391	26,957
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Loading Trucks and Transportation To Docks	**57,680.0**	**TON**	**73,785**	**56,815**	**86,845**	**19,106**	**974,402**	**58,464**	**258,217**	**1,291,083**
(Note: Costs to load stone into trucks at quarry and transport to Portland docks. Assume 20 mile haul from quarry to dock. Load and transport all stone materials, including mattress stone.)										
CIV 023154260170 Load trucks at Quarry	41,200.0	BCY	13,052	10,050	15,362	3,380	172,360	10,342	45,675	228,377
(Note: Stone materials range from .5 ton to 13 ton stones. Assume unit cost to be average cost for loading the various size stones.)										
MIL 023154900545 Hauling, 20 cy truck, 40 miles round trip, factor up 25% for traffic around Portland and Portland dock areas.	41,200.0	LCY	56,341	43,383	66,314	14,589	744,038	44,642	197,170	985,850
(Note: Assume 20 cy per haul average, 40 mile round trip haul. Assume local quarry to Portland Maine docks)										
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	2,441	10,783	53,914
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Loading & Unloading Barges	**57,680.0**	**TON**	**20,706**	**15,944**	**24,371**	**5,362**	**273,443**	**16,407**	**72,462**	**362,312**
(Note: All stone materials, including mattress stone.)										
EP C75GV022 CRANES, HYDRAULIC, SELF-PROPELLED, YARD, 15 TON / 52' BOOM, 4X4, NON-ROTATING OPERATOR'S CAB	1,545.0	HR	11,905	9,167	14,012	3,083	157,213	9,433	41,662	208,308
(Note: equipment and labor cost should it become necessary to load barges vs. driving onto and dumping. Assume two hours loading time average for 20 cy truck delivery. Truck cannot be filled to capacity because of large size stone, therefore assume approx 15 cy or 20 tons of stone delivered per truck. 61,819 tons/20 t= 3,090 trips x 1/2 hours per load = 1,545 hours.)										
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	2,441	10,783	53,914

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
MIL 013107000310 Civil superintendent	2.0	MO	2,622	2,019	3,086	679	34,630	2,078	9,177	45,884
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,800.0	HR	3,098	2,385	3,646	802	40,910	2,455	10,841	54,206
Barging Materials to Work Site	**57,680.0**	**TON**	**64,878**	**49,956**	**76,362**	**16,800**	**856,777**	**51,407**	**227,046**	**1,135,229**
(Note: Barge the total of all stone materials including mattress stone.)										
EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	1,536.0	HR	9,686	7,458	11,400	2,508	127,907	7,674	33,895	169,477
(Note: 57,680 tons of stone required -.Assume 400 ton barge, hauls 300 tons per load x 192 trips x 8 hours per trip 40 mile round trip (includes loading and unloading time) = 1,536 hours Assume 1 laborer/man per hour associated with barging.)										
EP M10XX029 MARINE EQUIPMENT, TUGS, 58 FT LENGTH, 24 FT BEAM, 7'6" DRAFT, PUSH BOAT	1,536.0	HR	50,800	39,116	59,792	13,154	670,865	40,252	177,779	888,896
(Note: Tug hours, assume same hours as barge. Assume tug operator and 2 crewmen on tug based on verbal vendor quote.)										
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	2,441	10,783	53,914
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Construct Spur Groin & Reinforce Jetty	**48,300.0**	**EA**	**534,422**	**411,505**	**629,015**	**138,383**	**7,057,544**	**423,453**	**1,870,249**	**9,351,246**
(Note: Assume material production rate of 150 tons per day, or 322 days of work on site. Place 48,300 tons of breakwater stone, not including mattress stone.)										
Surveying	**1.0**	**EA**	**4,346**	**3,346**	**5,115**	**1,125**	**57,387**	**3,443**	**15,207**	**76,037**
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,221	5,391	26,957
(Note: Cost for whatever engineering method is used to determine elevations during breakwater construction.)										
FOP FC-SURYR Surveyors	192.0	HR	885	681	1,042	229	11,686	701	3,097	15,484
(Note: Assume two men two days per month for 48 months to determine existing elevations and other surveying tasks.)										
HTW 029110106124 Boat rental, with motor	192.0	DAY	1,920	1,478	2,260	497	25,355	1,521	6,719	33,596
Placing Stone Materials for Spur and Jetty	**48,300.0**	**EA**	**271,793**	**209,281**	**319,901**	**70,378**	**3,589,285**	**215,357**	**951,160**	**4,755,802**
(Note: 48,300 tons of stone material, does not include stone mattress placement)										
RSM 023704500100 Under Layer/Core Stone	11,760.0	TON	18,445	14,203	21,710	4,776	243,587	14,615	64,551	322,753
(Note: Assume under layer/core stone will be partially dumped into position and partially placed by crane with clamshell.)										
RSM 023704500100 Armor Stone	30,100.0	TON	94,422	72,705	111,135	24,450	1,246,934	74,816	330,438	1,652,188
(Note: Armor stone ranges from approximately 6-13 tons (place 4 stones per hour of 8 ton average or 3 cy per stone), placing and re-arranging will be slow, therefore production rates will be low. Assume 12 cy per hour placed.)										
MIL 027202001510 Toe Stone	6,440.0	TON	12,106	9,322	14,249	3,135	159,877	9,593	42,367	211,837
(Note: Toe stone is approx .5 to 1 ton stone that will require placing in position by crane with clamshell.)										
NON XX0XX510 BARGE MTD CRANE, 100T,150'B,LIFT & PILEDRIVING, 150'X 60'X 12'B	3,220.0	HR	16,473	12,684	19,388	4,265	217,536	13,052	57,647	288,235

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
(Note: Crane for spud barge, labor not included in this item because it is in placing armor stone line item. Assume approx productivity of 150 tons of material placed per day.)										
EP M10MZ005 MARINE EQUIPMENT, WORK BARGE, SECTIONAL, MEDIUM DUTY', W/ONE BUCKHEAD AND SPUDS, 40' X 12' X 4', 36 TON	3,220.0	HR	27,632	21,277	32,523	7,155	364,909	21,895	96,701	483,505
(Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crane on barge as seperate line item.)										
EP M10XX008 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON	1,610.0	HR	2,916	2,245	3,432	755	38,506	2,310	10,204	51,020
(Note: additional barge at work site for misc. use for sorting materials and loading and unloading materials and equipment. Assume one half total hours required for construction)										
EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH KNEES, INBOARD, 25.25' X 10' X 3.5'	1,610.0	HR	16,955	13,056	19,956	4,390	223,912	13,435	59,337	296,683
EP M10XX028 MARINE EQUIPMENT, TUGS, 55 FT LENGTH, 20 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	1,610.0	HR	55,834	42,992	65,716	14,458	737,337	44,240	195,394	976,972
(Note: for misc movement of spud barge and delivery barges during breakwater construction)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,343.0	HR	2,318	1,785	2,729	600	30,615	1,837	8,113	40,564
HNC 013113200550 Field Personnel, civil engineer	6.0	MO	9,244	7,117	10,880	2,394	122,069	7,324	32,348	161,742
MIL 013107000310 Civil superintendent	3.0	MO	3,933	3,029	4,630	1,019	51,944	3,117	13,765	68,826
HNC 313219161650 Drainage geotextiles, non-woven polypropylene, 120 mils thick	9,380.0	SY	11,514	8,866	13,552	2,982	152,058	9,123	40,295	201,477
(Note: plans indicate 1' thick stone mattress required.)										
Stone Material, Steel Mats, Fill Mats and Placement	**20,100.0**	**SY**	**258,283**	**198,878**	**303,999**	**66,880**	**3,410,873**	**204,652**	**903,881**	**4,519,406**
(Note: Loading and Transportation for mattress stone is not included in this section. It is included in all stone transportation and barging section.)										
MIL 023704500600 Mesh mats 5'x30', stone filled, 12" deep- includes stone material, steel mesh mats, fill mats and placement	20,100.0	SY	258,283	198,878	303,999	66,880	3,410,873	204,652	903,881	4,519,406
(Note: use historical data for 1' thick stone filled mesh mats, reference bidders on Seabrook Project Includes cost of 5'x30' mesh mats filled with 3"-6" stone and place on site.)										
Demobilization	**1.0**	**EA**	**16,209**	**12,481**	**19,078**	**4,197**	**214,060**	**12,844**	**56,726**	**283,629**
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
(Note: misc supervisory labor associated with cleanup and closeout of contractor area and work site.)										
MIL X-CARPNTER Outside Carpenters	16.0	HR	36	28	42	9	473	28	125	627
MIL X-ELECTRN Outside Electricians	24.0	HR	160	123	189	42	2,118	127	561	2,806
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	104	80	122	27	1,368	82	363	1,813
MIL X-EQOPRMED Outside Equip. Operators, Medium	80.0	HR	190	146	223	49	2,504	150	664	3,318
MIL X-LABORER Outside Laborers, (Semi-Skilled)	240.0	HR	414	319	488	107	5,471	328	1,450	7,249

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
(Note: assume three laborers two weeks for various tasks associated with preparing to move equipment back to home office and general cleanup and packing equipment at work site contractor yard.)										
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0	HR	85	65	100	22	1,119	67	296	1,482
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0	HR	73	56	86	19	966	58	256	1,279
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0	ACR	280	215	329	72	3,695	222	979	4,896
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	0	0	0	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)										
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	43	33	50	11	566	34	150	750
(Note: Used for labor to remove signs and posts during demobilization)										
RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	2.0	MO	57	44	67	15	755	45	200	1,000
(Note: Cost to remove and return office trailer at end of project)										
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	2.0	MO	29	22	34	7	377	23	100	500
(Note: Cost to remove and return rental storage box at end of project)										
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	35	27	42	9	468	28	124	620
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	139	107	164	36	1,838	110	487	2,436
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR	129	99	151	33	1,697	102	450	2,249
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	HR	268	206	315	69	3,539	212	938	4,690
RSM 061333520300 User defined for demobilization of spud barge, including tug and crew	150.0	MI	10,714	8,250	12,611	2,774	141,492	8,490	37,495	187,477
RSM 061333520300 User defined for demobilization of local work barges, including tug and crew	50.0	MI	2,143	1,650	2,522	555	28,298	1,698	7,499	37,495

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco CE Alt 6 - 364,000 cy Beach Nourishment Estimate

This is and estimate to purchase, deliver and spread 364,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. The beach nourishment contractor markups consist of 5% FOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90%, Escalation at 8% (2% for one year database adjustment and 2% per year for three years to mid point of construction) .

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**261,534**	**164,766**	**565,698**	**124,453**	**6,347,128**	**507,770**	**1,028,235**	**7,883,134**
Beach Nourishment Alt 6	**364,000.0**	**CY**	**261,534**	**164,766**	**565,698**	**124,453**	**6,347,128**	**507,770**	**1,028,235**	**7,883,134**
(Note: This is cost out for 364,000 cy for beach nourishment.)										
Sand-Transport and Spead on Beach- 364,000 cy	**364,000.0**	**CY**	**261,534**	**164,766**	**565,698**	**124,453**	**6,347,128**	**507,770**	**1,028,235**	**7,883,134**
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	364,000.0	LCY	240,561	151,554	520,334	114,473	5,838,147	467,052	945,780	7,250,979
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per vendor quote,Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	200.0	HR	143	90	310	68	3,474	278	563	4,315
(Note: One laborer for three months to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	364,000.0	BCY	20,829	13,123	45,054	9,912	505,507	40,441	81,892	627,840
(Note: Grading nourishment sand on Camp Ellis Beach)										

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Saco Camp Ellis Alt 25A

This is a shore damage mitigation project. This is an estimate for alternative #25A which consists of construction of one new 500' stone spur jetty, reinforcement existing jetty and construct two breakwaters. In addtion to installing various layers of stone, there will be stone filled foundation mattresses installed prior to installation of the larger stone materials. The spur jetty is approximately 500' long and each of the two breakwaters are approximately 400' feet in length. The stone structures will be constructed in 5' to 10' depth of water depending on the status of tides.

Assumptions Made:

-use a conversion factor of 1.4 for CYs to tons
-the location of source of stone materials within 20 miles
-all stone materials will be loaded onto barges at a dock in Portland Maine and barged to the project site
-stone material will be placed by a crane or excavator mounted on a spud barge
-contract period will be two years for construction

MCACES MII estimating program was used to development the estimate. The labor rates are based on York County Davis Bacon Labor Rates. The Means estimating guide was used as a backup reference for developing user defined line items. The markups consist of 10% FOH, 7% HOH, 10% profit, 2% bond, 20% contingency (assume and allowance of 10% for possible sub -contractor markups and allowance of 10% for unforseen site or weather conditions) 8% escalation (2% one year database adjustment and 2% per year for three years to midpoint of construction . Because this project abuts the open ocean, it is subject to tides, severe wave action and harse weather conditions, the general productivity level is set at 70% .

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	720 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**1,206,503**	**929,007**	**1,420,054**	**312,412**	**15,933,002**	**1,274,640**	**3,441,528**	**20,649,170**
Mobilization-plus	**1.0**	**EA**	**23,135**	**17,814**	**27,230**	**5,991**	**305,516**	**24,441**	**65,991**	**395,949**
(Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine. Assume a contractor yard will be set up with office trailer, portable toilets, tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailer, dump truck and pickup. This folder also includes cost and mob demob of spud barge and work barges.)										
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	80.0	HR	632	487	744	164	8,352	668	1,804	10,824
MIL X-TRKDVRLT Outside Truck Drivers, Light	80.0	HR	300	231	353	78	3,966	317	857	5,139
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,385	3,740	22,440
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	343	264	404	89	4,534	363	979	5,876
MIL X-EQOPRLT Outside Equip. Operators, Light	40.0	HR	337	259	397	87	4,450	356	961	5,767
MIL X-EQOPRMED Outside Equip. Operators, Medium	40.0	HR	340	262	400	88	4,488	359	969	5,817
MIL X-CARPNTER Outside Carpenters	80.0	HR	388	299	456	100	5,121	410	1,106	6,637
MIL X-ELECTRN Outside Electricians	40.0	HR	386	297	454	100	5,095	408	1,101	6,603
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0	HR	1,098	845	1,292	284	14,499	1,160	3,132	18,790
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up etc. at work site.)										
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,628	4,394	26,367
RSM 015113800430 Temporary Power, for temp lighting only, 11.8 KWH/month, average	1,000.0	CSF	165	127	194	43	2,179	174	471	2,824
AF 015205000350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	24.0	MO	394	303	463	102	5,197	416	1,123	6,736
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	24.0	MO	222	171	261	57	2,932	235	633	3,800
AF 015205001400 Toilet, portable, chemical, rent per month	48.0	EA	404	311	476	105	5,335	427	1,152	6,915
(Note: two each for 24 months/48 months)										
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	276	213	325	71	3,645	292	787	4,724
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	327	252	385	85	4,318	345	933	5,597
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	36	28	42	9	474	38	102	615
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	141	108	166	36	1,858	149	401	2,408
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR	135	104	159	35	1,780	142	384	2,306

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Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	HR	303	233	356	78	3,996	320	863	5,179
RSM 061333520300 User defined item for mobilization of spud barge, includes tug and crew	150.0	MI	10,714	8,250	12,611	2,774	141,492	11,319	30,562	183,374
AF 015205000350 User defined for monthly rental of contractor storage yard.	24.0	MO	1,200	924	1,412	311	15,847	1,268	3,423	20,538
RSM 061333520300 User defined item for mobilization of work barges, includes tug and crew	50.0	MI	2,143	1,650	2,522	555	28,298	2,264	6,112	36,675
Materials and Transportation	**86,550.0**	**TON**	**402,743**	**310,112**	**474,029**	**104,286**	**5,318,604**	**425,488**	**1,148,819**	**6,892,911**
(Note: Cost to puchase and transport stone materials. Does not include cost to purchase stone for mattresses)										
Purchase Materials/Stone	**72,100.0**	**TON**	**125,616**	**96,724**	**147,850**	**32,527**	**1,658,872**	**132,710**	**358,316**	**2,149,898**
(Note: Cost for stone materials only as per ton at quarry cost. Cost to purchase mattress stone in not included here.)										
RSM 023704500100 Under Layer/Core Stone	17,920.0	TON	26,880	20,698	31,638	6,960	354,976	28,398	76,675	460,048
RSM 023704500100 Armor Stone	43,960.0	TON	79,128	60,929	93,134	20,489	1,044,960	83,597	225,711	1,354,268
MIL 027202001510 Toe Stone	10,220.0	TON	15,330	11,804	18,043	3,970	202,447	16,196	43,729	262,371
HNC 013113200550 Field Personnel, civil engineer	1.5	MO	2,311	1,779	2,720	598	30,517	2,441	6,592	39,550
MIL 013107000310 Civil superintendent	1.5	MO	1,967	1,514	2,315	509	25,972	2,078	5,610	33,660
Loading Trucks and Transportation To Docks	**86,550.0**	**TON**	**153,019**	**117,825**	**180,104**	**39,623**	**2,020,766**	**161,661**	**436,485**	**2,618,913**
(Note: Costs to load stone into trucks at quarry and transport to Portland dock. Assume 20 mile haul from quarry to dock. This includes all stone materials, including mattress stone material.)										
CIV 023154260170 Load trucks at Quarry	86,550.0	BCY	27,418	21,112	32,271	7,100	362,081	28,966	78,210	469,257
(Note: Stone materials range from 3" to 13 ton stones. Assume unit cost to be average cost for loading the various size stones.)										
MIL 023154900545 Hauling, 20 cy truck, 40 miles round trip, factor up 25% for traffic around Portland and Portland dock areas.	86,550.0	LCY	118,357	91,135	139,307	30,647	1,563,021	125,042	337,613	2,025,675
(Note: Assume 15 cy per haul average, 40 mile round trip haul. Assume local quarry to Portland Maine docks)										
HNC 013113200550 Field Personnel, civil engineer	3.0	MO	4,622	3,559	5,440	1,197	61,035	4,883	13,183	79,101
MIL 013107000310 Civil superintendent	2.0	MO	2,622	2,019	3,086	679	34,630	2,770	7,480	44,880
Loading Barges	**86,550.0**	**TON**	**33,382**	**25,704**	**39,290**	**8,644**	**440,835**	**35,267**	**95,220**	**571,323**
EP C75GV022 CRANES, HYDRAULIC, SELF-PROPELLED, YARD, 15 TON / 52' BOOM, 4X4, NON-ROTATING OPERATOR'S CAB	2,164.0	HR	20,893	16,088	24,591	5,410	275,912	22,073	59,597	357,582
(Note: Cost for equipment and labor should it become necessary to load all stone onto barges vs. driving onto and dumping. Assume 1/2 hour loading time average for 20 cy truck/flat bed delivery. Truck or flatbed cannot be filled to capacity because of large size stone, therefore assume approx 15cy or 20 tons of stone delivered per truck. (86,550 tons/20 tons x 1/2 hr = 2164 hrs))										

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Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
HNC 013113200550 Field Personnel, civil engineer	3.0	MO	4,622	3,559	5,440	1,197	61,035	4,883	13,183	79,101
MIL 013107000310 Civil superintendent	6.0	MO	7,867	6,057	9,259	2,037	103,889	8,311	22,440	134,640
Barging Materials to Work Site	**86,550.0**	**TON**	**90,727**	**69,860**	**106,785**	**23,493**	**1,198,131**	**95,850**	**258,796**	**1,552,778**
EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	2,312.0	HR	4,954	3,815	5,831	1,283	65,426	5,234	14,132	84,792
(Note: Assume 400 ton barge averages 300 tons per load. 86,550 tons required divided by 300 = 289 trips x 8 hours per trip. 40 mile round trip (includes loading and unloading time) = 2,312 hours)										
EP M10XX029 MARINE EQUIPMENT, TUGS, 58 FT LENGTH, 24 FT BEAM, PUSH BOAT	2,312.0	HR	80,069	61,653	94,241	20,733	1,057,386	84,591	228,395	1,370,372
(Note: Tug hours assume same hours at barge. Assume tug operator and 2 crewmen on tug based on verbal vendor quote.)										
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	3,255	8,789	52,734
MIL 013107000310 Civil superintendent	2.0	MO	2,622	2,019	3,086	679	34,630	2,770	7,480	44,880
Reinforce Jetty, Construct Spur and 2 Breakwaters	**86,550.0**	**TON**	**762,026**	**586,760**	**896,905**	**197,319**	**10,063,272**	**805,062**	**2,173,667**	**13,042,000**
(Note: Assume material production rate of 150 tons per day, or 577 days of work on site.)										
Surveying	**1.0**	**EA**	**3,766**	**2,900**	**4,433**	**975**	**49,739**	**3,979**	**10,744**	**64,462**
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,628	4,394	26,367
(Note: Cost for whatever engineering method is used to determine elevations during breakwater construction.)										
FOP FC-SURYR Surveyors	384.0	HR	1,770	1,363	2,083	458	23,373	1,870	5,049	30,291
(Note: assume two days per month for 24 months for assisting civil engineer with determining existing elevations and other surveying tasks.)										
HTW 029110106124 boat rental, with motor	48.0	DAY	456	351	537	118	6,022	482	1,301	7,804
(Note: for surveying)										
Placement of Stone Materials for Spur, Breakwaters and Jetty	**72,998.0**	**TON**	**357,342**	**275,154**	**420,592**	**92,530**	**4,719,043**	**377,523**	**1,019,313**	**6,115,880**
RSM 023704500100 Under Layer/Core Stone	17,920.0	TON	28,107	21,642	33,082	7,278	371,180	29,694	80,175	481,050
(Note: Assume under layer/core stone will be partially dumped into position and partially placed by crane with clamshell.)										
RSM 023704500100 Armor Stone	43,960.0	TON	137,900	106,183	162,309	35,708	1,821,104	145,688	393,358	2,360,151
(Note: Armor stone ranges from approximately 6-13 tons (place 4 stones per hour of 8 ton average or 3 cy per stone), placing and re-arranging will be slow, therefore production rates will be low. Assume 12 cy per hour placed.)										
MIL 027202001510 Toe Stone	7,300.0	TON	13,723	10,567	16,152	3,553	181,227	14,498	39,145	234,871
(Note: Toe stone is approx .5 to 1 ton stone that will require placing in position by crane with clamshell.)										
NON XX0XX510 BARGE MTD CRANE, 100T,150'B,LIFT & PILEDRIVING, 150'X 60'X 12'B	3,845.0	HR	10,986	8,459	12,930	2,845	145,077	11,606	31,337	188,019
(Note: Crane for spud barge, labor not included in this item because it is in placing 72,100 tons of stone . Assume approx productivity of 150 tons of material placed per eight hour day.)										

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Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP M10MZ005 MARINE EQUIPMENT, WORK BARGE, SECTIONAL, MEDIUM DUTY', W/ONE BUCKHEAD AND SPUDS, 40' X 12' X 4', 36 TON	3,845.0	HR	27,464	21,148	32,325	7,112	362,692	29,015	78,341	470,048
(Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crane on barge as seperate line item.)										
EP M10XX008 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON	3,845.0	HR	5,697	4,387	6,706	1,475	75,237	6,019	16,251	97,508
(Note: additional barge at work site for misc. use for sorting materials and loading and unloading materials and equipment. Assume one half total hours required for construction)										
EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH KNEES, INBOARD, 25.25' X 10' X 3.5'	1,922.0	HR	21,037	16,198	24,760	5,447	277,810	22,225	60,007	360,042
(Note: assume onel half of hours for placement of stone)										
EP M10XX028 MARINE EQUIPMENT, TUGS, 55 FT LENGTH, 20 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	1,922.0	HR	71,155	54,790	83,750	18,425	939,675	75,174	202,970	1,217,819
(Note: assume one half of hours for stone placement for misc movement of spud barge and delivery barges during construction)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0	HR	1,098	845	1,292	284	14,499	1,160	3,132	18,790
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up etc. at work site.)										
HNC 013113200550 Field Personnel, civil engineer	9.0	MO	13,865	10,676	16,319	3,590	183,104	14,648	39,550	237,302
MIL 013107000310 Civil superintendent	4.0	MO	5,245	4,038	6,173	1,358	69,259	5,541	14,960	89,760
HNC 313219161650 Drainage geotextiles, non-woven polypropylene, 120 mils thick	17,160.0	SY	21,065	16,220	24,793	5,454	278,179	22,254	60,087	360,520
(Note: Use 15,600 sy plus 10% wast and overlap past perimeter of structure footprints = 17,160 sy)										
Stone Materials, Steel Mesh Mat, Preparation and Placement of Stone Mattresses	**14,450.0**	**TON**	**400,917**	**308,706**	**471,880**	**103,814**	**5,294,489**	**423,559**	**1,143,610**	**6,861,658**
RSM 313613100600 Gabion boxes, galvanized steel mesh mats or boxes, stone filled, 12" deep	31,200.0	SY	400,917	308,706	471,880	103,814	5,294,489	423,559	1,143,610	6,861,658
(Note: Use historical data for 1' thick stone filled mesh mats, reference bidders on Seabrook Project. Includes cost materials for 5'x30' mesh mats filled with 3"-6" stone and placing them at breakwater and jetty sites.)										
Demobilization	**1.0**	**EA**	**18,598**	**14,321**	**21,890**	**4,816**	**245,610**	**19,649**	**53,052**	**318,310**
MIL 013107000310 Civil superintendent	1.0	MO	1,311	1,010	1,543	340	17,315	1,385	3,740	22,440
(Note: misc supervisory labor associated with cleanup and closeout of contractor area and work site.)										
MIL X-CARPNTER Outside Carpenters	16.0	HR	78	60	91	20	1,024	82	221	1,327
MIL X-ELECTRN Outside Electricians	24.0	HR	231	178	272	60	3,057	245	660	3,962
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	343	264	404	89	4,534	363	979	5,876
MIL X-EQOPRMED Outside Equip. Operators, Medium	80.0	HR	680	523	800	176	8,977	718	1,939	11,634

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Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
MIL X-LABORER Outside Laborers, (Semi-Skilled)	240.0	HR	1,647	1,268	1,938	426	21,748	1,740	4,698	28,185
(Note: assume three laborers two weeks for various tasks associated with preparing to move equipment back to home office and general cleanup and packing equipment at work site contractor yard.)										
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0	HR	316	243	372	82	4,176	334	902	5,412
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0	HR	150	116	177	39	1,983	159	428	2,570
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0	ACR	285	220	336	74	3,766	301	813	4,881
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	0	0	0	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)										
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	43	33	50	11	566	45	122	733
(Note: Used for labor to remove signs and posts during demobilization)										
AF 015205000350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	1.0	MO	29	22	34	7	377	30	81	489
(Note: Cost to remove and return office trailer at end of project)										
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	1.0	MO	14	11	17	4	189	15	41	244
(Note: Cost to remove and return rental storage box at end of project)										
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0	HR	36	28	42	9	474	38	102	615
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0	HR	141	108	166	36	1,858	149	401	2,408
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RSM 061333520300 User defined item for demobilization of spud barge, includes tug and crew	150.0	MI	10,714	8,250	12,611	2,774	141,492	11,319	30,562	183,374
RSM 061333520300 User defined item for demobilization of work barges, includes tug and crew	50.0	MI	2,143	1,650	2,522	555	28,298	2,264	6,112	36,675

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Saco Camp Ellis Alt 25A - Beach Nourishment Estimate
This estimate is to purchase, deliver and spread 328,000 cy of beach nourishment sand on the Saco Camp Ellis beach.
The Means estimating guide was used as a backup reference for developing user defined line items. The markups consist of 5% FOH, 3% HOH, 5% profit, 2% bond, 15% contingency and 8% escalation (2% for one year of database adjustment and 2% per year for three years to mid point of construction)

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2014
Estimated Construction Time	365 Days

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**430,235**	**331,281**	**506,387**	**111,405**	**5,681,660**	**454,533**	**920,429**	**7,056,622**
Beach Nourishment 25A	**328,040.0**	**EA**	**430,235**	**331,281**	**506,387**	**111,405**	**5,681,660**	**454,533**	**920,429**	**7,056,622**
(Note: This is cost out for 328,040 cy for beach nourishment.)										
Sand-Transport and Spead on Beach-328,040 cy	**328,040.0**	**CY**	**430,235**	**331,281**	**506,387**	**111,405**	**5,681,660**	**454,533**	**920,429**	**7,056,622**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	328,040.0	LCY	387,874	298,663	456,527	100,436	5,122,235	409,779	829,802	6,361,816
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per vendor quote,Shaw Brothers Gorham NH, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,040.0	HR	5,723	4,407	6,736	1,482	75,579	6,046	12,244	93,869
(Note: One laborer for three months to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	328,040.0	BCY	36,638	28,212	43,123	9,487	483,846	38,708	78,383	600,936
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

BEACH RENOURISHMENT COSTS

ALTERNATIVE PLANS

Saco - Beach Fill Only Hist SL- 432,000 cy

This is an estimate to provide, deliver and spread 432,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH,10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2111
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**306,151**	**192,875**	**662,204**	**145,685**	**7,429,927**	**594,394**	**1,203,648**	**9,227,969**
Beach Fill Renourishment	**432,000.0**	**CY**	**306,151**	**192,875**	**662,204**	**145,685**	**7,429,927**	**594,394**	**1,203,648**	**9,227,969**
Sand-Transport and Spread on Beach	**432,000.0**	**CY**	**306,151**	**192,875**	**662,204**	**145,685**	**7,429,927**	**594,394**	**1,203,648**	**9,227,969**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	432,000.0	LCY	280,821	176,917	607,415	133,631	6,815,200	545,216	1,104,062	8,464,478
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	600.0	HR	1,601	1,009	3,463	762	38,857	3,109	6,295	48,260
(Note: One laborer to assist in sand spreading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	432,000.0	BCY	23,729	14,949	51,325	11,292	575,870	46,070	93,291	715,231
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco-Beach Fill Only Inter SL Renourishment 505,000 cy

This is an estimate to provide, deliver and spread 505,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2011
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**357,881**	**225,465**	**774,096**	**170,301**	**8,685,357**	**694,829**	**1,407,028**	**10,787,213**
Beach Fill Renourishment	**505,000.0**	**CY**	**357,881**	**225,465**	**774,096**	**170,301**	**8,685,357**	**694,829**	**1,407,028**	**10,787,213**
Sand-Transport and Spread on Beach	**505,000.0**	**CY**	**357,881**	**225,465**	**774,096**	**170,301**	**8,685,357**	**694,829**	**1,407,028**	**10,787,213**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	505,000.0	LCY	328,274	206,813	710,057	156,213	7,966,843	637,347	1,290,629	9,894,819
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	700.0	HR	1,868	1,177	4,040	889	45,333	3,627	7,344	56,303
(Note: One laborer for one month to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	505,000.0	BCY	27,738	17,475	59,998	13,200	673,181	53,855	109,055	836,091
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - Beach Fill Only -High SL-Beach Renourishment Fill - 548,000 cy

This is an estimate to provide, deliver and spread 548,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**388,328**	**244,647**	**839,954**	**184,790**	**9,424,280**	**753,942**	**1,526,733**	**11,704,956**
Beach Fill Renourishment	**548,000.0**	**CY**	**388,328**	**244,647**	**839,954**	**184,790**	**9,424,280**	**753,942**	**1,526,733**	**11,704,956**
Sand-Transport and Spread on Beach	**548,000.0**	**CY**	**388,328**	**244,647**	**839,954**	**184,790**	**9,424,280**	**753,942**	**1,526,733**	**11,704,956**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	548,000.0	LCY	356,226	224,423	770,518	169,514	8,645,207	691,617	1,400,524	10,737,348
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	750.0	HR	2,001	1,261	4,329	952	48,571	3,886	7,868	60,325
(Note: One laborer for to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	548,000.0	BCY	30,100	18,963	65,107	14,324	730,502	58,440	118,341	907,283
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - Alt 6 Hist SL-Beach Renourishment Fill - 116,350 cy

This is an estimate to provide, deliver and spread 116,350 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**82,611**	**52,045**	**178,688**	**39,311**	**2,004,875**	**160,390**	**324,790**	**2,490,054**
Beach Fill Renourishment	**116,350.0**	**CY**	**82,611**	**52,045**	**178,688**	**39,311**	**2,004,875**	**160,390**	**324,790**	**2,490,054**
Sand-Transport and Spread on Beach	**116,350.0**	**CY**	**82,611**	**52,045**	**178,688**	**39,311**	**2,004,875**	**160,390**	**324,790**	**2,490,054**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	116,350.0	LCY	75,633	47,649	163,594	35,991	1,835,529	146,842	297,356	2,279,727
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	220.0	HR	587	370	1,270	279	14,247	1,140	2,308	17,695
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	116,350.0	BCY	6,391	4,026	13,823	3,041	155,098	12,408	25,126	192,632
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - Alt 6 Inter SL-Beach Renourishment Fill - 191,750 cy

This is an estimate to provide, deliver and spread 191,750 CY of cyclical beach nourishment sand from and upland source. No general contactor markups are included. Markups are 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**136,113**	**85,751**	**294,413**	**64,771**	**3,303,309**	**264,265**	**535,136**	**4,102,710**
Beach Fill Renourishment	**191,750.0**	**CY**	**136,113**	**85,751**	**294,413**	**64,771**	**3,303,309**	**264,265**	**535,136**	**4,102,710**
Sand-Transport and Spread on Beach	**191,750.0**	**CY**	**136,113**	**85,751**	**294,413**	**64,771**	**3,303,309**	**264,265**	**535,136**	**4,102,710**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	191,750.0	LCY	124,647	78,527	269,611	59,314	3,025,034	242,003	490,055	3,757,092
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	350.0	HR	934	588	2,020	444	22,666	1,813	3,672	28,152
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	191,750.0	BCY	10,532	6,635	22,782	5,012	255,609	20,449	41,409	317,466
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - Alt 6 High SL-Beach Renourishment Fill - 235,733 cy

This is an estimate to provide, deliver and spread 235,733 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 15% contingency. Productivity is set at 90% and 8% escalation (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**167,187**	**105,328**	**361,625**	**79,557**	**4,057,432**	**324,595**	**657,304**	**5,039,330**
Beach Fill Renourishment	**235,733.0**	**CY**	**167,187**	**105,328**	**361,625**	**79,557**	**4,057,432**	**324,595**	**657,304**	**5,039,330**
Sand-Transport and Spread on Beach	**235,733.0**	**CY**	**167,187**	**105,328**	**361,625**	**79,557**	**4,057,432**	**324,595**	**657,304**	**5,039,330**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	235,733.0	LCY	153,238	96,540	331,453	72,920	3,718,906	297,513	602,463	4,618,882
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	375.0	HR	1,001	630	2,164	476	24,285	1,943	3,934	30,162
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	235,733.0	BCY	12,948	8,157	28,007	6,162	314,240	25,139	50,907	390,286
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - Alt 25A Hist SL-Beach Renourishment Fill 123,188 cy

This is an estimate to provide, deliver and spread 123,188 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	3/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**87,512**	**55,132**	**189,288**	**41,643**	**2,123,809**	**169,905**	**344,057**	**2,637,770**
Beach Fill Renourishment	**123,188.0**	**CY**	**87,512**	**55,132**	**189,288**	**41,643**	**2,123,809**	**169,905**	**344,057**	**2,637,770**
Sand-Transport and Spread on Beach	**123,188.0**	**CY**	**87,512**	**55,132**	**189,288**	**41,643**	**2,123,809**	**169,905**	**344,057**	**2,637,770**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	123,188.0	LCY	80,078	50,449	173,209	38,106	1,943,405	155,472	314,832	2,413,709
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	250.0	HR	667	420	1,443	317	16,190	1,295	2,623	20,108
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	123,188.0	BCY	6,766	4,263	14,636	3,220	164,214	13,137	26,603	203,953
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco -Alt 25A Int SL-Beach Renourishment Fill - 225,940 cy

This is an estimate to provide, deliver and spread 225,940 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of constructiont).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**160,067**	**100,842**	**346,226**	**76,170**	**3,884,652**	**310,772**	**629,314**	**4,824,738**
Beach Fill Renourishment	**225,940.0**	**CY**	**160,067**	**100,842**	**346,226**	**76,170**	**3,884,652**	**310,772**	**629,314**	**4,824,738**
Sand-Transport and Spread on Beach	**225,940.0**	**CY**	**160,067**	**100,842**	**346,226**	**76,170**	**3,884,652**	**310,772**	**629,314**	**4,824,738**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	225,940.0	LCY	146,872	92,529	317,684	69,890	3,564,413	285,153	577,435	4,427,001
(Note: used Means estimating guide for 12cy load, 20 mile round trip adjusted for 30 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	400.0	HR	1,067	672	2,309	508	25,904	2,072	4,197	32,173
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	225,940.0	BCY	12,128	7,641	26,233	5,771	294,335	23,547	47,682	365,564
(Note: Grading nourishment sand on Camp Ellis Beach)										
HNC 312323184100 Hauling, sand, 12 C.Y. truck, 5 mile haul, includes loading	0.0	LCY	0	0	0	0	0	0	0	0

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Saco - 25A High SL-Beach Renourishment Fill - 285,879cy

This is an estimate to provide, deliver and spread 285,879 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Estimated by	Mike Remy
Designed by	CENAE
Prepared by	Mike Remy
Preparation Date	3/28/2011
Effective Date of Pricing	9/28/2014
Estimated Construction Time	365 Days

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1

Description	Quantity	UOM	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			**202,872**	**127,809**	**438,812**	**96,539**	**4,923,473**	**393,878**	**797,603**	**6,114,953**
Beach Fill Renourishment	**285,879.0**	**CY**	**202,872**	**127,809**	**438,812**	**96,539**	**4,923,473**	**393,878**	**797,603**	**6,114,953**
Sand-Transport and Spread on Beach	**285,879.0**	**CY**	**202,872**	**127,809**	**438,812**	**96,539**	**4,923,473**	**393,878**	**797,603**	**6,114,953**
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)										
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	285,879.0	LCY	185,835	117,076	401,961	88,431	4,510,006	360,800	730,621	5,601,427
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)										
MIL X-LABORER Outside Laborers, (Semi-Skilled)	500.0	HR	1,334	841	2,886	635	32,381	2,590	5,246	40,217
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	285,879.0	BCY	15,703	9,893	33,965	7,472	381,086	30,487	61,736	473,309
(Note: Grading nourishment sand on Camp Ellis Beach)										

Labor ID: NLS2010 EQ ID: EP09R08 Currency in US dollars TRACES MII Version 4.1