GREAT CHEBEAGUE ISLAND

MAINE

NAVIGATION IMPROVEMENT PROJECT

APPENDIX C

COST ENGINEERING

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GREAT CHEBEAGUE
FEDERAL NAVIGATION PROJECT – SECTION 107
NAVIGATION IMPROVEMENT STUDY

COST ESTIMATE, RISK ANALYSIS, TPCS DEVELOPMENT SUMMARY

COST ESTIMATE

The cost estimate is based on the site plan and dredge quantities developed by the Civil Engineering Section. The tentatively selected plan (TSP) includes constructing a new 100-ft wide, 10-ft deep channel along with a new 150-ft wide, 8-ft deep turning basin. It also includes Eel Grass Mitigation. There is no pre-existing federal navigation project in this area.

Numerous alternatives were considered for this project, including different channel and turning basin depths (6-ft through 11-ft). The TSP was selected through an economic analysis.

Assumptions

- Construction methodology for clean material: the CEDEP estimate assumes that mechanical dredging equipment will be used throughout the project. The estimate assumes a 5-cy bucket will place clean material directly into two 600-cy bottom dump scows which will be towed 14-miles to the Portland Disposal Site (PDS) and disposed of. The estimate assumes one 3000 HP tug will haul the scows to/from the dredge site and the disposal areas.
- Estimate assumes the prime contractor will self-perform all work.
- Estimate assumes mobilization will occur from 200 miles away.
- Estimate assumes competition amongst small businesses and invitation for bid procurement method.
- Global Production: 75%. Global production set to account for marine work, weather delays, and lost work days associated with dredging. Construction will take place in winter due to high traffic in the area during the summer months.

RISK ANALYSIS

Risk Mitigation was conducted through an Abbreviated Risk Analysis (ARA) of the project as it is currently presented in addition to the acknowledgement of risk in the scope and estimated quantities. The District has mitigated this risk through a conservative approach to the excavation and hauling of dredge material as well as

utilizing a conservative cost of fuel. The values included in the project cost provide an amount that the PDT is confident will provide substantive costs to mitigate any issues. The District will continue to monitor and include all risks in continuing assessment of contingency and amend as necessary as an essential element to the continued development of the project. The potential risk areas identified through formal risk and sensitivity analysis were mobilization & demobilization, dredge & disposal of clean material to the PDS.

The Abbreviated Risk Analysis or ARA was developed relying on local District staff to provide expertise and information gathering. The cost engineer facilitated a risk assessment meeting on site with the PDT in addition to a qualitative analysis to produce a risk register that served as the framework for the risk analysis.

The ARA assumes the Project Development Stage/Alternative is "Feasibility (Recommended Plan)" with a "Low Risk" risk category based on the experience of the cost engineer and vetted with the PDT. The resultant contingencies are 20% for Mobilization, 39% for the 10' Channel Dredge, and 33% for the 8' Turn-around Dredge, 10% for the Eel Grass Mitigation, 12% for Total Planning, Engineering & Design, and 23% for Total Construction Management. These contingency percentages were then utilized in the Total Project Cost Summary. It should be noted that no Lands and Damages are anticipated for this project.

TOTAL PROJECT COST SUMMARY (TPCS)

The Total Project Cost Summary (TPCS) was then computed to summarize the construction cost, project first cost, and the Total Project Cost or the Fully Funded Cost. The TPCS was utilized to calculate the construction cost estimate applied contingency and escalated to the midpoints of the features of work and the remaining work breakdown structure to include Planning, Engineering & Design (PED) and Construction Management. The inputs of the TPCS were obtained from the project manager. The inputs for PED and Construction Management were obtained from both Engineering and Construction.

The resultant TPCS from the cost estimate, risk analysis, and escalation is $1,964,000 with an estimated federal cost of $1,768,000 and non-federal cost of $196,000 utilizing a 90%/10% federal/non-federal cost of project split.

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

PROJECT: **Great Chebeague Dredge**
PROJECT NO: **Plan C - 10', 8'**
LOCATION: **Maine**

DISTRICT: **NAE**
PREPARED: **9/3/2020**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Report Name and date

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2021									
						Effective Price Level Date: 1-Oct- 20									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	REMAINING COST ($K)	Spent Thru: 1-Oct-18 ($K)	TOTAL FIRST COST ($K)	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
12	NAVIGATION PORTS & HARBORS	$503	$101	20%	$604	3.0%	$518	$104	$622		$622	3.6%	$537	$107	$645
12	NAVIGATION PORTS & HARBORS	$263	$103	39%	$366	3.0%	$271	$106	$377		$377	3.6%	$281	$109	$390
12	NAVIGATION PORTS & HARBORS	$135	$45	33%	$180	3.0%	$140	$46	$186		$186	3.6%	$145	$48	$192
12	NAVIGATION PORTS & HARBORS	$301	$30	10%	$331	3.0%	$310	$31	$341		$341	3.6%	$321	$32	$353
	CONSTRUCTION ESTIMATE TOTALS:	$1,203	$278		$1,481	3.0%	$1,239	$286	$1,525		$1,525	3.6%	$1,283	$297	$1,580
01	LANDS AND DAMAGES		-			-						-			
30	PLANNING, ENGINEERING & DESIGN	$259	$31	12%	$290	4.6%	$270	$32	$303		$303	3.0%	$278	$33	$312
31	CONSTRUCTION MANAGEMENT	$53	$12	23%	$66	4.6%	$56	$13	$69		$69	5.0%	$59	$14	$72
	PROJECT COST TOTALS:	$1,515	$321	21%	$1,836		$1,565	$332	$1,897		**$1,897**	3.6%	$1,620	$344	$1,964

C-3

CHIEF, COST ENGINEERING, Jeffrey Gaeta

Project Manager, Mark Habel

CHIEF, REAL ESTATE, Gaelen Daly

CHIEF, PLANNING, John Kennelly

CHIEF, ENGINEERING, David Margolis

CHIEF, OPERATIONS, Eric Pedersen

CHIEF, CONSTRUCTION, Sean Dolan

CHIEF, CONTRACTING, Sheila Winston-Vincuilla

CHIEF, PM-PB, Janet Harrington

CHIEF, DPM, Scott Acone

ESTIMATED TOTAL PROJECT COST:		**$1,964**
ESTIMATED FEDERAL COST:	**90%**	$1,768
ESTIMATED NON-FEDERAL COST:	**10%**	$196
22 - FEASIBILITY STUDY (CAP studies):		**$525**
ESTIMATED FEDERAL COST:	50%	$313
ESTIMATED NON-FEDERAL COST:	50%	$213
ESTIMATED FEDERAL COST OF PROJECT		**$2,080**

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

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

PROJECT: Great Chebeague Dredge
LOCATION: Maine
This Estimate reflects the scope and schedule in report; Report Name and date

DISTRICT: NAE
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta
PREPARED: 9/3/2020

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Aug-20 Estimate Price Level: 1-Oct-19				Program Year (Budget EC): 2021 Effective Price Level Date: 1 -Oct-20								
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	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 or CONTRACT 1													
12	NAVIGATION PORTS & HARBORS	$503	$101	20.0%	$604	3.0%	$518	$104	$622	2022Q2	3.6%	$537	$107	$645
12	NAVIGATION PORTS & HARBORS	$263	$103	39.0%	$366	3.0%	$271	$106	$377	2022Q2	3.6%	$281	$109	$390
12	NAVIGATION PORTS & HARBORS	$135	$45	33.0%	$180	3.0%	$140	$46	$186	2022Q2	3.6%	$145	$48	$192
12	NAVIGATION PORTS & HARBORS	$301	$30	10.0%	$331	3.0%	$310	$31	$341	2022Q2	3.6%	$321	$32	$353
	CONSTRUCTION ESTIMATE TOTALS:	$1,203	$278	23.1%	$1,481		$1,239	$286	$1,525			$1,283	$297	$1,580
01	LANDS AND DAMAGES			25.0%										
30	PLANNING, ENGINEERING & DESIGN													
	Project Management	$45	$5	12.0%	$50	4.6%	$47	$6	$52	2021Q3	2.1%	$48	$6	$53
	Planning & Environmental Compliance	$17	$2	12.0%	$19	4.6%	$18	$2	$20	2021Q3	2.1%	$18	$2	$20
	Engineering & Design	$117	$14	12.0%	$130	4.6%	$122	$15	$136	2021Q3	2.1%	$124	$15	$139
	Reviews, ATRs, IEPRs, VE			12.0%										
	Life Cycle Updates (cost, schedule, risks)			12.0%										
	Contracting & Reprographics	$10	$1	12.0%	$11	4.6%	$11	$1	$12	2022Q2	5.0%	$11	$1	$12
	Engineering During Construction	$70	$8	12.0%	$79	4.6%	$74	$9	$82	2022Q2	5.0%	$77	$9	$87
	Planning During Construction			12.0%										
	Adaptive Management & Monitoring			12.0%										
	Project Operations			12.0%										
31	CONSTRUCTION MANAGEMENT													
	Construction Management	$53	$12	23.0%	$66	4.6%	$56	$13	$69	2022Q2	5.0%	$59	$14	$72
	Project Operation:			23.0%										
	Project Management			23.0%										
	CONTRACT COST TOTALS:	$1,515	$321		$1,836		$1,565	$332	**$1,897**			$1,620	$344	**$1,964**

Filename: Plan C - 10'-8' CAP G Chebeague TPCS 02SEP2020.xlsx
TPCS

Abbreviated Risk Analysis

Project (less than $40M): **Great Chebeague Maintenance Dredge, ME**
Project Development Stage/Alternative: **Feasibility (Recommended Plan)**
Risk Category: **Low Risk: Typical Construction, Simple**

Alternative: Decision Dredge

Meeting Date: 7/11/2019
Revised:

Total Estimated Construction Contract Cost = **$ 1,202,600**

	CWWBS	Feature of Work	Estimated Cost		% Contingency	$ Contingency	Total
	01 LANDS AND DAMAGES	Real Estate	$ -		0%	$ -	$ -
1	12 NAVIGATION, PORTS AND HARBORS	Mobilization/Demobilization	$ 503,353		20%	$ 101,908	$ 605,261
2	12 NAVIGATION, PORTS AND HARBORS	10' Channel Dredge	$ 263,061		39%	$ 102,212	$ 365,273
3	12 NAVIGATION, PORTS AND HARBORS	8' Turn Around Dredge	$ 135,486		33%	$ 44,687	$ 180,173
4	12 NAVIGATION, PORTS AND HARBORS	Eel Grass Mitigation	$ 300,700		10%	$ 30,070	$ 330,770
5					0%	$ -	$ -
6					0%	$ -	$ -
7					0%	$ -	$ -
8			$ -		0%	$ -	$ -
9			$ -		0%	$ -	$ -
10			$ -		0%	$ -	$ -
11			$ -		0%	$ -	$ -
12	All Other	Remaining Construction Items		*0.0%*	0%	$ -	$ -
13	30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	$ 258,610		12%	$ 31,269	$ 289,879
14	31 CONSTRUCTION MANAGEMENT	Construction Management	$ 53,485		23%	$ 12,409	$ 65,894
XX	FIXED DOLLAR RISK ADD (EQUALLY DISPERSED TO ALL, MUST INCLUDE JUSTIFICATION SEE BELOW)					$ -	

Totals					
Real Estate	$ -	0%	$ -	$ -	
Total Construction Estimate	$ 1,202,600	23%	$ 278,877	$ 1,481,477	
Total Planning, Engineering & Design	$ 258,610	12%	$ 31,269	$ 289,879	
Total Construction Management	$ 53,485	23%	$ 12,409	$ 65,894	
Total Excluding Real Estate	**$ 1,514,695**	**21%**	**$ 322,555**	**$ 1,837,250**	
		Base	**50%**	**80%**	
Confidence Level Range Estimate ($000's)		$1,515k	$1,708k	$1,837k	

* 50% based on base is at 5% CL.

Fixed Dollar Risk Add: (Allows for additional risk to be added to the risk analsyis. Must include justification. Does not allocate to Real Estate.	

Great Chebeague Maintenance Dredge, ME Decision Dredg

Feasibility (Recommended Plan)

Abbreviated Risk Analysis

Meeting Date: 11-Jul-19

Risk Level

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

Risk Register

Risk Element	Feature of Work	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Impact	Likelihood	Risk Level
Project Management & Scope Growth				**Maximum Project Growth**		**40%**
PS-1	Mobilization/Demobilization	1. Change in Scope	Discussion regarding the possibility that the Town my desire upland disposal vs. water disposal, resulting in a change to the type of equipment mobilized/demobilized. While this possibility was discussed, the ARA process does not fully capture all the potential risks involved with this level of scope change and would have to be revisited should the Town wish to pursue this option.	Marginal	Likely	2
PS-2	10' Channel Dredge	1. Change in Scope - A. 500' length of channel, B. Widths of channel. C. fish habitat	A. PDT discussion regarding the likelihood of the dimensions for both the channel and turn around changing. The Town sponsor preferred the 10' channel and 8' turn around, thus these dimensions are not likely to change. Scope change possible for material, however, the current probes go to depth, but not over depth. PDT chose MD/L designation. B. The width was reviewed by the town, however, a current survey and borings could change the alignment. PDT chose MA/L. C. Fish habitat not expected to be an issue in this area (per environmental), however, eel grass could impact the site and will have to be mitigated. PDT chose /LS. Use MD/L for overall rating.	Moderate	Likely	3
PS-3	8' Turn Around Dredge	1. Change in Scope - A. 500' length of channel, B. Widths of channel. C. fish habitat	A. PDT discussion regarding the likelihood of the dimensions for both the channel and turn around changing. The Town sponsor preferred the 10' channel and 8' turn around, thus these dimensions are not likely to change. Scope change possible for material, however, the current probes go to depth, but not over depth. PDT chose MD/L designation. B. The width was reviewed by the town, however, a current survey and borings could change the alignment. PDT chose MA/L. C. Fist habitat not expected to be an issue in this area (per environmental), however, eel grass could impact the site and will have to be mitigated. PDT chose /LS. Use MD/L for overall rating.	Significant	Possible	3

PS-13	Planning, Engineering, & Design	1. Change in Scope - A. 500' length of channel, B. Widths of channel. C. fish habitat	A, B, and C: Because little design has been completed for this work, the impact to the design will be minimal should any of these factors change.	Negligible	Likely	1
PS-14	Construction Management	1. Change in Scope - A. 500' length of channel, B. Widths of channel. C. fish habitat	A, B, and C: Because little design has been completed for this work, the impact to the design will be minimal should any of these factors change. The greatest change to Construction Management would be the period of performance of the contract and the duration of construction oversight.	Marginal	Likely	2
Acquisition Strategy				**Maximum Project Growth**		**30%**
AS-1	Mobilization/Demobilization	1. SB Set-Aside possible due to size of estimate.	Discussions regarding the size of the job could lead this to a small business acquisition which would increase the pricing. Capability of a small busness to perform the work and have the correct equipment was also discussed. The work would then be sub-contracted. Higher OH and bond rates are carried in the estimate, so while it is very likely that the contract will be let as small business set aside, the impact to General Conditions would be marginal. These risks have been mitigated in the estimate by utilizing HOOH and bond rates typically attributed to small business set-aside contracts. Because there are fewer cmall businesses for dreging, the contractor's ability to mobilize and perform the work in a timely manner and within the construction windows was also discussed. The PDT while this was very likely to occur, the impacts would be marginal to the overall pricing.	Marginal	Likely	2
AS-2	10' Channel Dredge	1. SB Set-Aside possible due to size of estimate.	Discussions regarding the size of the job could lead this to a small business acquisition which would increase the pricing. Capability of a small busness to perform the work and have the correct equipment was also discussed. The work would then be sub-contracted. Higher OH and bond rates are carried in the estimate, so while it is very likely that the contract will be let as small business set aside, the impact to General Conditions would be marginal. These risks have been mitigated in the estimate by utilizing HOOH and bond rates typically attributed to small business set-aside contracts. Because there are fewer cmall businesses for dreging, the contractor's ability to mobilize and perform the work in a timely manner and within the construction windows was also discussed. The area in question is a high-traffic area for ferry crossing and other vehicles. A small business may not be able to react in time thus delaying the project. The PDT while this was very likely to occur, with proper controls in place, the impacts would be marginal to the overall pricing.	Marginal	Likely	2

AS-3	8' Turn Around Dredge	1. SB Set-Aside possible due to size of estimate.	Discussions regarding the size of the job could lead this to a small business acquisition which would increase the pricing. Capability of a small busness to perform the work and have the correct equipment was also discussed. The work would then be sub-contracted. the estimate, so while it is very likely that the contract will be let as small business set aside, the impact to excavation would be marginal. These risks have been mitigated in the estimate by utilizing HOOH and bond rates typically attributed to small business set-aside contracts.	Marginal	Unlikely	**0**
AS-13	Planning, Engineering, & Design	1. SB Set-Aside possible due to size of estimate.	Impact on Planning Engineering and Design is negligible as the effort is performed prior to Acquisition Stratagy is completed.	Negligible	Possible	**0**
AS-14	Construction Management	1. SB Set-Aside possible due to size of estimate.	Discussions regarding the size of the job could lead this to a small business acquisition which would increase the pricing. Capability of a small busness to perform the work and have the correct equipment was also discussed. Should the award be to a new, inexperienced contractor, the level of oversight required in construction management could vary greatly. It is likely the work will be small business set aside, and the impact would be moderate for Construction Management. Some of this has been mitigated in the estimate by assuming HOOH and bond typicallly attributed to small business set-aside.	Marginal	Likely	**2**
Construction Elements				**Maximum Project Growth**		**15%**
CON-1	Mobilization/Demobilization	Properly mob and demob from site with equipment ID'd I the proposal.	PDT discussed changes that could happen as a result of the incorrect equipment being mobilized to the site. While this is possible, the impacts would be negligible.	Negligible	Possible	**0**

CE-2	10' Channel Dredge	1. Construction window (limits to season), 2. Traffic Control, 3. Unrippable material (rock), 4. Unsuitable material (contamination), 5. Haul Route.	1. The PDT discussed the construction window with limits to the dredging season due to fish or eel grass, and traffic flow in the summer. While this is very likely to occur, the impact would be moderate. 2. Traffic control within the dredge area is also a very likely event as Chebeague is an island which is dependent on the ferry system. This is very likely to occur, however, with proper controls in place, the impact would be moderate. 3. Unrippable material: there are probes throughout the area to be dredged. 10' deep in the channel and 8' deep in the turn-around. Because the probes extend to the depths to be dredged, the PDT felt that encountering rock in the area of concern is unlikely, however, if encountered the impact would be significant. Mobilization would also be affected as the ct to mob/demob a drill rig is costly. 5. Unsuitable material: Probes have been taken and tested in the area of the dredge and no unsuitable materials were enncountered. The PDT felt that while it was unlikely to occur, the impact would be significant if they were to be identified. 5. Haul Route. The estimate was based on an assumed haul route of 14 NM 1-way. Because this is one of the few disposal sites in the area, the PDT felt that while it was possible that the haul route could change, the impacts would be marginal. Overall the construction elements for all 5 of these items	Moderate	Likely	**3**

CE-3	8' Turn Around Dredge	1. Construction window (limits to season), 2. Traffic Control, 3. Unrippable material (rock), 4. Unsuitable material (contamination), 5. Haul Route.	1. The PDT discussed the construction window with limits to the dredging season due to fish or eel grass, and traffic flow in the summer. While this is very likely to occur, the impact would be moderate. 2. Traffic control within the dredge area is also a very likely event as Chebeague is an island which is dependent on the ferry system. This is very likely to occur, however, with proper controls in place, the impact would be moderate. 3. Unrippable material: there are probes throughout the area to be dredged. 10' deep in the channel and 8' deep in the turn-around. Because the probes extend to the depths to be dredged, the PDT felt that encountering rock in the area of concern is unlikely, however, if encountered the impact would be significant. 4. Unsuitable material: Probes have been taken and tested in the area of the dredge and no unsuitable materials were enncountered. The PDT felt that while it was unlikely to occur, the impact would be significant if they were to be identified. 5. Haul Route. The estimate was based on an assumed haul route of 14 NM 1-way. Because this is one of the few disposal sites in the area, the PDT felt that while it was possible that the haul route could change, the impacts would be marginal. Overall the construction elements for all 5 of these items are Likely and Moderate.	Moderate	Likely	3
CE-13	Planning, Engineering, & Design	1. Construction window (limits to season), 2. Traffic Control, 3. Unrippable material (rock), 4. Unsuitable material (contamination), 5. Haul Route.	While all of these items are important, the impact on PED costs will be negligible as additional testing is plannes as part of the design process the design will have been completed.	Negligible	Possible	0
CE-14	Construction Management	Construction Window/Time of Year Restrictions	Time of year could effect the contractor's ability to productively get the work done on time. The PDT decided that while this is likely to occur, the impact would be marginal.	Marginal	Likely	2
Specialty Construction or Fabrication				**Maximum Project Growth**		**50%**
SC-1	Mobilization/Demobilization	N/A		Negligible	Unlikely	0
SC-2	10' Channel Dredge	N/A		Negligible	Unlikely	0

SC-3	8' Turn Around Dredge	N/A		Negligible	Unlikely	0
SC-13	Planning, Engineering, & Design	N/A		Negligible	Unlikely	0
SC-14	Construction Management	N/A		Negligible	Unlikely	0
Technical Design & Quantities				**Maximum Project Growth**		**20%**
T-1	Mobilization/Demobilization	N/A		Negligible	Unlikely	0
T-2	10' Channel Dredge	Survey information was last obtained in 2012 and there may be more dredging than in the draft plans.	The PDT discussed the impacts to additional survey quantities due to old survey data. The team felt as though a new survey would very likely change the quantities, the impact would be negligible to the cost.	Negligible	Very LIKELY	2
T-3	8' Turn Around Dredge	Survey information was last obtained in 2012 and there may be more dredging than in the draft plans.	The PDT discussed the impacts to additional survey quantities due to old survey data. The team felt as though a new survey would very likely change the quantities, the impact would be negligible to the cost.	Negligible	Very LIKELY	2
T-13	Planning, Engineering, & Design	Survey information was last obtained in 2012 and there may be more dredging than in the draft plans.	Since no survey has been performed on the area of concern, and very little engineering has been completed on this project, there is little to no impact on the design itself.	Negligible	Possible	0
T-14	Construction Management	Survey information was last obtained in 2012 and there may be more dredging than in the draft plans.	Since no survey has been performed on the area of concern, and very little engineering has been completed on this project, there is little to no impact on construction management.	Negligible	Possible	0
Cost Estimate Assumptions				**Maximum Project Growth**		**25%**
EST-1	Mobilization/Demobilization	No Concerns	Discussions with the PM indicate that there are a few small business dredging outfits within the 200 miles assumed in the estimate.	Negligible	Possible	0

EST-2	10' Channel Dredge	No formal design.	Because there is no current survey, probes, testing and design, there is a possibility that these items would affect the quantities and disposal of the material. The cost estimate assumed no rock excavation or unsuitalbe/contaminated material as part of the cost. The lack of a current survey, while likely, would have minimal impact on the estimate. The identification of either rock or unsuitable material, while unlikely would have a significant impact to the cost.	Moderate	Possible	2
EST-3	8' Turn Around Dredge	No formal design.	Because there is no current survey, probes, testing and design, there is a possibility that these items would affect the quantities and disposal of the material. The cost estimate assumed no rock excavation or unsuitalbe/contaminated material as part of the cost. The lack of a current survey, while likely, would have minimal impact on the estimate. The identification of either rock or unsuitable material, while unlikely would have a significant impact to the cost.	Moderate	Possible	2
EST-4	Eel Grass Mitigation	No formal design. Cross section was not matched with site but came from another site	While quantities were calculated based on the cross section provided, they contain a lot of assumptions and likely will change once completed. The assumptions in the estimate were based on the cross section provided, and while they are likely to change, the impact to the estimate is negligable.	Negligible	Unlikely	0
EST-5	0	No formal design. Cross section was not matched with site but came from another site. Availability of rock from local sources needs to be confirmed.	While quantities were calculated based on the cross section provided, they contain a lot of assumptions and likely will change once completed. The assumptions in the estimate were based on the cross section provided, and while they are likely to change, the impact to the estimate is negligable.	Negligible	Unlikely	0
EST-6	0			Negligible	Unlikely	0
EST-7	0			Negligible	Unlikely	0
EST-8	0			Negligible	Unlikely	0
EST-9	0			Negligible	Unlikely	0
EST-10	0			Negligible	Unlikely	0
EST-11	0			Negligible	Unlikely	0
EST-12	Remaining Construction Items			Negligible	Unlikely	0
EST-13	Planning, Engineering, & Design	There is no formal design as yet on this site.	The district has a great deal in experience designing dredging so any changes to the over-all scope would have a negligible effect on the pricing and is unlikely to occur.	Negligible	Unlikely	0

EST-14	Construction Management	There is no formal design as yet on this site.	The district has a great deal in experience working on dredging contracts The main impact should the design change would be the construction performance time, which while possible to occur, would have a marginal impact to the pricing.	Negligible	Possible	0
External Project Risks					**Maximum Project Growth**	**20%**
EX-1	Mobilization/Demobilization	No concerns	The group felt as though there were no external concerns with mobilization demobiliztion.	Negligible	Unlikely	0
EX-2	10' Channel Dredge	Permitting	Thr PDT discussed the possibility of changes to the mitigation requirements for eel grass. While this is a possibility, the impacts would be marginal. There was also discussion regarding fuel costs. If this project is not funded in a reasonable amout of time, the cost of fuel could increase significantly.	Marginal	Possible	1
EX-3	8' Turn Around Dredge	Permitting	Thr PDT discussed the possibility of changes to the mitigation requirements for eel grass. While this is a possibility, the impacts would be marginal. There was also discussion regarding fuel costs. If this project is not funded in a reasonable amout of time, the cost of fuel could increase significantly.	Marginal	Possible	1
EX-13	Planning, Engineering, & Design	No concerns	The group felt as though there were no external concerns with the design process.	Negligible	Unlikely	0
EX-14	Construction Management	No concerns	The group felt as though there were no external concerns with the design process.	Negligible	Unlikely	0

PLAN C – 10' Channel and 8' Turnaround. Located in Great Chebeague, ME. This estimate is completed for an FID report. Seven dredge depths were estimated for the Channel and the Turn Around. Depths ranged from 6' to 12'. The following is assumed: Quantities were provided by Engineering based on a survey completed in 2012. Disposal site is approximately 14 NM from the dredge site. Mobilization from 200 miles away. All dredging estimates were done in CEDEP for mechanical dredging.

Labor rates are most current for dredging (1/20) CEDEP pricing is escalated from 3Q2019 to 4Q2020 using 12, Navigation Ports and Harbors = 1.91%. HOOH assumed at 8%. JOOH is calculated. Because of weather and location, productivity was reduced to 75% in the CEDEP calculation. Because of shallow depths, fill rate on scow assumed at 60%.

Estimated by	NAE-EDT
Designed by	Lauren Jacobs
Prepared by	Pat Devine
Preparation Date	8/6/2020
Effective Date of Pricing	10/15/2019
Estimated Construction Time	30 Days

Currency in US dollars

Description	UOM	Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Project Cost Summary			47,737	1,148	4,851	689,882	743,618	752,934	887,004	901,899
Chebeague Island Dredge - 11-ft Channel, 9-ft Turnaround	CY	41,300.00	47,737	1,148	4,851	689,882	743,618	752,934	887,004	901,899
Chebeague Island Dredge - 11-ft Channel, 9-ft Turnaround	CY	41,300.00	47,737	1,148	4,851	689,882	743,618	752,934	887,004	901,899
Mobilization and Demobilization for Dredging and Disposal	JOB	1.00	47,737	1,148	4,851	357,916	411,652	420,968	495,927	503,353
General Conditions	EA	1.00	47,737	1,148	4,851	27,900	81,636	90,952	107,148	107,148
Personnel	WK	2.50	0	0	0	24,500	24,500	24,500	28,863	28,863
Facilities	EA	1.00	897	0	3,851	0	4,748	4,914	5,789	5,789
Transportation Vehicles	MO	0.32	0	777	0	0	777	777	915	915
Engineering and Shop Drawings	LS	1.00	14,067	0	0	0	14,067	16,886	19,892	19,892
Pre-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Post-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Documentation	EA	1.00	0	0	0	3,400	3,400	3,400	4,005	4,005
Maintenance Dredging and Disposal - 11-foot dredge	CY	41,300.00	0	0	0	331,966	331,966	331,966	391,077	398,546
Channel - 10 foot dredge	CY	22,200.00	0	0	0	219,114	219,114	219,114	258,130	263,061
Turn-around - 8 foot dredge	CY	11,980.00	0	0	0	112,852	112,852	112,852	132,946	135,486

Currency in US dollars

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Cost Estimates for Additional Alternatives

Plan A-1 – 8-Foot Channel with 6-Foot Turning Basin

Plan A-2 - 9-Foot Channel with 7-Foot Turning Basin

Plan A-4 – 11-Foot Channel with 9-Foot Turning Basin

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

PROJECT: **Great Chebeague Dredge**
PROJECT NO: **XXXXXX**
LOCATION: **Maine**

DISTRICT: **NAE**
PREPARED: **8/6/2020**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Report Name and date

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2021									
						Effective Price Level Date: 1-Oct- 20									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	REMAINING COST ($K)	Spent Thru: 1-Oct-18 ($K)	TOTAL FIRST COST ($K)	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
12	NAVIGATION PORTS & HARBORS	$498	$100	20%	$597	3.0%	$512	$102	$615		$615	3.6%	$531	$106	$637
12	NAVIGATION PORTS & HARBORS	$157	$61	39%	$219	3.0%	$162	$63	$225		$225	3.6%	$168	$65	$233
12	NAVIGATION PORTS & HARBORS	$103	$34	33%	$137	3.0%	$106	$35	$141		$141	3.6%	$110	$36	$146
12	NAVIGATION PORTS & HARBORS	$271	$27	10%	$298	3.0%	$279	$28	$307		$307	3.6%	$289	$29	$318
	CONSTRUCTION ESTIMATE TOTALS:	$1,028	$222		$1,250	3.0%	$1,059	$228	$1,287		$1,287	3.6%	$1,097	$237	$1,334
01	LANDS AND DAMAGES		-			-						-			
30	PLANNING, ENGINEERING & DESIGN	$259	$31	12%	$290	4.6%	$270	$32	$303		$303	3.0%	$278	$33	$312
31	CONSTRUCTION MANAGEMENT	$53	$12	23%	$66	4.6%	$56	$13	$69		$69	5.0%	$59	$14	$72
	PROJECT COST TOTALS:	$1,340	$265	20%	$1,606		$1,385	$274	$1,659		**$1,659**	3.5%	$1,434	$284	$1,718

C-19

CHIEF, COST ENGINEERING, Jeffrey Gaeta

Project Manager, Mark Habel

CHIEF, REAL ESTATE, Gaelen Daly

CHIEF, PLANNING, John Kennelly

CHIEF, ENGINEERING, David Margolis

CHIEF, OPERATIONS, Eric Pedersen

CHIEF, CONSTRUCTION, Sean Dolan

CHIEF, CONTRACTING, Sheila Winston-Vincuilla

CHIEF, PM-PB, Janet Harrington

CHIEF, DPM, Scott Acone

ESTIMATED TOTAL PROJECT COST:		**$1,718**
ESTIMATED FEDERAL COST:	**65%**	$1,117
ESTIMATED NON-FEDERAL COST:	**35%**	$601
22 - FEASIBILITY STUDY (CAP studies):		**$525**
ESTIMATED FEDERAL COST:	50%	$313
ESTIMATED NON-FEDERAL COST:	50%	$213
ESTIMATED FEDERAL COST OF PROJECT		**$1,429**

Plan A-1 – 8-Foot Channel with 6-Foot Turning Basin

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

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

PROJECT: Great Chebeague Dredge
LOCATION: Maine
This Estimate reflects the scope and schedule in report; Report Name and date

DISTRICT: NAE
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta
PREPARED: 8/6/2020

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Aug-20 Estimate Price Level: 1-Oct-19				Program Year (Budget EC): 2021 Effective Price Level Date: 1 -Oct-20								
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	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 or CONTRACT 1													
12	NAVIGATION PORTS & HARBORS	$498	$100	20.0%	$597	3.0%	$512	$102	$615	2022Q2	3.6%	$531	$106	$637
12	NAVIGATION PORTS & HARBORS	$157	$61	39.0%	$219	3.0%	$162	$63	$225	2022Q2	3.6%	$168	$65	$233
12	NAVIGATION PORTS & HARBORS	$103	$34	33.0%	$137	3.0%	$106	$35	$141	2022Q2	3.6%	$110	$36	$146
12	NAVIGATION PORTS & HARBORS	$271	$27	10.0%	$298	3.0%	$279	$28	$307	2022Q2	3.6%	$289	$29	$318
	CONSTRUCTION ESTIMATE TOTALS:	$1,028	$222	21.6%	$1,250		$1,059	$228	$1,287			$1,097	$237	$1,334
01	LANDS AND DAMAGES			25.0%										
30	PLANNING, ENGINEERING & DESIGN													
	Project Management	$45	$5	12.0%	$50	4.6%	$47	$6	$52	2021Q3	2.1%	$48	$6	$53
	Planning & Environmental Compliance	$17	$2	12.0%	$19	4.6%	$18	$2	$20	2021Q3	2.1%	$18	$2	$20
	Engineering & Design	$117	$14	12.0%	$130	4.6%	$122	$15	$136	2021Q3	2.1%	$124	$15	$139
	Reviews, ATRs, IEPRs, VE			12.0%										
	Life Cycle Updates (cost, schedule, risks)			12.0%										
	Contracting & Reprographics	$10	$1	12.0%	$11	4.6%	$11	$1	$12	2022Q2	5.0%	$11	$1	$12
	Engineering During Construction	$70	$8	12.0%	$79	4.6%	$74	$9	$82	2022Q2	5.0%	$77	$9	$87
	Planning During Construction			12.0%										
	Adaptive Management & Monitoring			12.0%										
	Project Operations			12.0%										
31	CONSTRUCTION MANAGEMENT													
	Construction Management	$53	$12	23.0%	$66	4.6%	$56	$13	$69	2022Q2	5.0%	$59	$14	$72
	Project Operation:			23.0%										
	Project Management			23.0%										
	CONTRACT COST TOTALS:	$1,340	$265		$1,606		$1,385	$274	**$1,659**			$1,434	$284	**$1,718**

Filename: Plan A - 8-6' CAP G Chebeague TPCS 02SEP2020.xlsx
TPCS

PLAN A – 8' Channel and 6' Turnaround. Located in Great Chebeague, ME. This estimate is completed for an FID report. Seven dredge depths were estimated for the Channel and the Turn Around. Depths ranged from 6' to 12'. The following is assumed: Quantities were provided by Engineering based on a survey completed in 2012. Disposal site is approximately 14 NM from the dredge site. Mobilization from 200 miles away. All dredging estimates were done in CEDEP for mechanical dredging. Eel Grass Mitigation cost from M. Habel.

Labor rates are most current for dredging (1/20) CEDEP pricing is escalated from 3Q2019 to 4Q2020 using 12, Navigation Ports and Harbors = 1.91%. HOOH assumed at 8%. JOOH is calculated. Because of weather and location, productivity was reduced to 75% in the CEDEP calculation. Because of shallow depths, fill rate on scow assumed at 60%.

Estimated by	NAE-EDT
Designed by	Lauren Jacobs
Prepared by	Pat Devine
Preparation Date	9/6/2020
Effective Date of Pricing	1/1/2020
Estimated Construction Time	30 Days

Currency in US dollars

Description	UOM	Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Project Cost Summary			47,737	1,148	4,851	570,490	624,226	633,542	746,353	758,672
Navigation Ports & Harbors	CY	21,200.00	47,737	1,148	4,851	570,490	624,226	633,542	746,353	758,672
Base Bid Items	CY	21,200.00	47,737	1,148	4,851	570,490	624,226	633,542	746,353	758,672
Mobilization and Demobilization for Dredging and Disposal	JOB	1.00	47,737	1,148	4,851	353,016	406,752	416,068	490,155	497,581
General Conditions	EA	1.00	47,737	1,148	4,851	23,000	76,736	86,052	101,375	101,375
Personnel	WK	2.00	0	0	0	19,600	19,600	19,600	23,090	23,090
Facilities	EA	1.00	897	0	3,851	0	4,748	4,914	5,789	5,789
Transportation Vehicles	MO	0.32	0	777	0	0	777	777	915	915
Engineering and Shop Drawings	LS	1.00	14,067	0	0	0	14,067	16,886	19,892	19,892
Pre-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Post-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Documentation	EA	1.00	0	0	0	3,400	3,400	3,400	4,005	4,005
Maintenance Dredging and Disposal - 8-foot dredge	CY	21,200.00	0	0	0	217,474	217,474	217,474	256,198	261,092
Channel - 8 foot dredge	CY	12,300.00	0	0	0	131,856	131,856	131,856	155,335	158,302
Turn-around - 6 foot dredge	CY	8,900.00	0	0	0	85,618	85,618	85,618	100,863	102,790

Currency in US dollars

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

PROJECT: **Great Chebeague Dredge**
PROJECT NO: **XXXXXX**
LOCATION: **Maine**

DISTRICT: **NAE**
PREPARED: **8/6/2020**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Report Name and date

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2021									
						Effective Price Level Date: 1-Oct- 20									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	REMAINING COST ($K)	Spent Thru: 1-Oct-18 ($K)	TOTAL FIRST COST ($K)	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
12	NAVIGATION PORTS & HARBORS	$498	$100	20%	$597	3.0%	$512	$102	$615		$615	3.6%	$531	$106	$637
12	NAVIGATION PORTS & HARBORS	$194	$76	39%	$270	3.0%	$200	$78	$278		$278	3.6%	$207	$81	$288
12	NAVIGATION PORTS & HARBORS	$126	$42	33%	$167	3.0%	$130	$43	$172		$172	3.6%	$134	$44	$179
12	NAVIGATION PORTS & HARBORS	$286	$29	10%	$314	3.0%	$294	$29	$324		$324	3.6%	$305	$30	$335
	CONSTRUCTION ESTIMATE TOTALS:	$1,103	$245		$1,349	3.0%	$1,136	$253	$1,389		$1,389	3.6%	$1,177	$262	$1,439
01	LANDS AND DAMAGES		-			-						-			
30	PLANNING, ENGINEERING & DESIGN	$259	$31	12%	$290	4.6%	$270	$32	$303		$303	3.0%	$278	$33	$312
31	CONSTRUCTION MANAGEMENT	$53	$12	23%	$66	4.6%	$56	$13	$69		$69	5.0%	$59	$14	$72
	PROJECT COST TOTALS:	$1,415	$289	20%	$1,704		$1,463	$298	$1,761		**$1,761**	3.5%	$1,514	$309	$1,823

C-23

_____ CHIEF, COST ENGINEERING, Jeffrey Gaeta

_____ Project Manager, Mark Habel

_____ CHIEF, REAL ESTATE, Gaelen Daly

_____ CHIEF, PLANNING, John Kennelly

_____ CHIEF, ENGINEERING, David Margolis

_____ CHIEF, OPERATIONS, Eric Pedersen

_____ CHIEF, CONSTRUCTION, Sean Dolan

_____ CHIEF, CONTRACTING, Sheila Winston-Vincuilla

_____ CHIEF, PM-PB, Janet Harrington

_____ CHIEF, DPM, Scott Acone

ESTIMATED TOTAL PROJECT COST:		**$1,823**
ESTIMATED FEDERAL COST:	**90%**	$1,641
ESTIMATED NON-FEDERAL COST:	**10%**	$182
22 - FEASIBILITY STUDY (CAP studies):		**$525**
ESTIMATED FEDERAL COST:	50%	$313
ESTIMATED NON-FEDERAL COST:	50%	$213
ESTIMATED FEDERAL COST OF PROJECT		**$1,953**

Plan A-2 - 9-Foot Channel with 7-Foot Turning Basin

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

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

PROJECT: Great Chebeague Dredge
LOCATION: Maine
This Estimate reflects the scope and schedule in report; Report Name and date

DISTRICT: NAE
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta
PREPARED: 8/6/2020

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Aug-20 Estimate Price Level: 1-Oct-19				Program Year (Budget EC): 2021 Effective Price Level Date: 1 -Oct-20								
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	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 or CONTRACT 1													
12	NAVIGATION PORTS & HARBORS	$498	$100	20.0%	$597	3.0%	$512	$102	$615	2022Q2	3.6%	$531	$106	$637
12	NAVIGATION PORTS & HARBORS	$194	$76	39.0%	$270	3.0%	$200	$78	$278	2022Q2	3.6%	$207	$81	$288
12	NAVIGATION PORTS & HARBORS	$126	$42	33.0%	$167	3.0%	$130	$43	$172	2022Q2	3.6%	$134	$44	$179
12	NAVIGATION PORTS & HARBORS	$286	$29	10.0%	$314	3.0%	$294	$29	$324	2022Q2	3.6%	$305	$30	$335
	CONSTRUCTION ESTIMATE TOTALS:	$1,103	$245	22.2%	$1,349		$1,136	$253	$1,389			$1,177	$262	$1,439
01	LANDS AND DAMAGES			25.0%										
30	PLANNING, ENGINEERING & DESIGN													
	Project Management	$45	$5	12.0%	$50	4.6%	$47	$6	$52	2021Q3	2.1%	$48	$6	$53
	Planning & Environmental Compliance	$17	$2	12.0%	$19	4.6%	$18	$2	$20	2021Q3	2.1%	$18	$2	$20
	Engineering & Design	$117	$14	12.0%	$130	4.6%	$122	$15	$136	2021Q3	2.1%	$124	$15	$139
	Reviews, ATRs, IEPRs, VE			12.0%										
	Life Cycle Updates (cost, schedule, risks)			12.0%										
	Contracting & Reprographics	$10	$1	12.0%	$11	4.6%	$11	$1	$12	2022Q2	5.0%	$11	$1	$12
	Engineering During Construction	$70	$8	12.0%	$79	4.6%	$74	$9	$82	2022Q2	5.0%	$77	$9	$87
	Planning During Construction			12.0%										
	Adaptive Management & Monitoring			12.0%										
	Project Operations			12.0%										
31	CONSTRUCTION MANAGEMENT													
	Construction Management	$53	$12	23.0%	$66	4.6%	$56	$13	$69	2022Q2	5.0%	$59	$14	$72
	Project Operation:			23.0%										
	Project Management			23.0%										
	CONTRACT COST TOTALS:	$1,415	$289		$1,704		$1,463	$298	**$1,761**			$1,514	$309	**$1,823**

Filename: Plan B - 9-7' CAP G Chebeague TPCS 08SEP2020.xlsx
TPCS

PLAN B – 9' Channel and 7' Turnaround. Located in Great Chebeague, ME. This estimate is completed for an FID report. Seven dredge depths were estimated for the Channel and the Turn Around. Depths ranged from 6' to 12'. The following is assumed: Quantities were provided by Engineering based on a survey completed in 2012. Disposal site is approximately 14 NM from the dredge site. Mobilization from 200 miles away. All dredging estimates were done in CEDEP for mechanical dredging.

Labor rates are most current for dredging (1/20) CEDEP pricing is escalated from 3Q2019 to 4Q2020 using 12, Navigation Ports and Harbors = 1.91%. HOOH assumed at 8%. JOOH is calculated. Because of weather and location, productivity was reduced to 75% in the CEDEP calculation. Because of shallow depths, fill rate on scow assumed at 60%.

Estimated by	NAE-EDT
Designed by	Lauren Jacobs
Prepared by	Pat Devine
Preparation Date	8/6/2020
Effective Date of Pricing	8/6/2020
Estimated Construction Time	30 Days

Currency in US dollars

Description	UOM	Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Project Cost Summary			47,737	1,148	4,851	619,698	673,434	682,750	804,323	817,750
Chebeague Island Dredge - Plan A - 9ft Channel, 7-ft Turnaround	CY	27,000.00	47,737	1,148	4,851	619,698	673,434	682,750	804,323	817,750
Chebeague Island Dredge - Plan A - 9ft Channel, 7-ft Turnaround	CY	27,000.00	47,737	1,148	4,851	619,698	673,434	682,750	804,323	817,750
Mobilization and Demobilization for Dredging and Disposal	JOB	1.00	47,737	1,148	4,851	353,016	406,752	416,068	490,155	497,581
General Conditions	EA	1.00	47,737	1,148	4,851	23,000	76,736	86,052	101,375	101,375
Personnel	WK	2.00	0	0	0	19,600	19,600	19,600	23,090	23,090
Facilities	EA	1.00	897	0	3,851	0	4,748	4,914	5,789	5,789
Transportation Vehicles	MO	0.32	0	777	0	0	777	777	915	915
Engineering and Shop Drawings	LS	1.00	14,067	0	0	0	14,067	16,886	19,892	19,892
Pre-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Post-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Documentation	EA	1.00	0	0	0	3,400	3,400	3,400	4,005	4,005
Maintenance Dredging and Disposal - 9-foot dredge	CY	27,000.00	0	0	0	266,682	266,682	266,682	314,168	320,169
Channel - 9 foot dredge	CY	16,600.00	0	0	0	161,850	161,850	161,850	190,670	194,311
Turn-around - 7 foot dredge	CY	10,400.00	0	0	0	104,832	104,832	104,832	123,499	125,858

Currency in US dollars

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

PROJECT: **Great Chebeague Dredge**
PROJECT NO: **Plan D 11' - 9'**
LOCATION: **Maine**

DISTRICT: **NAE**
PREPARED: **9/3/2020**
POC: **CHIEF, COST ENGINEERING, Jeffrey Gaeta**

This Estimate reflects the scope and schedule in report; Report Name and date

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2021									
						Effective Price Level Date: 1-Oct- 20									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	REMAINING COST ($K)	Spent Thru: 1-Oct-18 ($K)	TOTAL FIRST COST ($K)	ESC (%)	COST ($K)	CNTG ($K)	FULL ($K)
12	NAVIGATION PORTS & HARBORS	$509	$102	20%	$611	3.0%	$524	$105	$629		$629	3.6%	$543	$109	$652
12	NAVIGATION PORTS & HARBORS	$337	$132	39%	$469	3.0%	$347	$135	$483		$483	3.6%	$360	$140	$500
12	NAVIGATION PORTS & HARBORS	$167	$55	33%	$222	3.0%	$172	$57	$228		$228	3.6%	$178	$59	$237
12	NAVIGATION PORTS & HARBORS	$318	$32	10%	$350	3.0%	$327	$33	$360		$360	3.6%	$339	$34	$373
	CONSTRUCTION ESTIMATE TOTALS:	$1,331	$320		$1,651	3.0%	$1,371	$330	$1,701		$1,701	3.6%	$1,420	$342	$1,762
01	LANDS AND DAMAGES		-			-						-			
30	PLANNING, ENGINEERING & DESIGN	$259	$31	12%	$290	4.6%	$270	$32	$303		$303	3.0%	$278	$33	$312
31	CONSTRUCTION MANAGEMENT	$53	$12	23%	$66	4.6%	$56	$13	$69		$69	5.0%	$59	$14	$72
	PROJECT COST TOTALS:	$1,643	$364	22%	$2,007		$1,697	$375	$2,072		**$2,072**	3.6%	$1,757	$389	$2,146

C-27

CHIEF, COST ENGINEERING, Jeffrey Gaeta

Project Manager, Mark Habel

CHIEF, REAL ESTATE, Gaelen Daly

CHIEF, PLANNING, John Kennelly

CHIEF, ENGINEERING, David Margolis

CHIEF, OPERATIONS, Eric Pedersen

CHIEF, CONSTRUCTION, Sean Dolan

CHIEF, CONTRACTING, Sheila Winston-Vincuilla

CHIEF, PM-PB, Janet Harrington

CHIEF, DPM, Scott Acone

ESTIMATED TOTAL PROJECT COST:		**$2,146**
ESTIMATED FEDERAL COST:	**90%**	$1,931
ESTIMATED NON-FEDERAL COST:	**10%**	$215
22 - FEASIBILITY STUDY (CAP studies):		**$525**
ESTIMATED FEDERAL COST:	50%	$313
ESTIMATED NON-FEDERAL COST:	50%	$213
ESTIMATED FEDERAL COST OF PROJECT		**$2,244**

Plan A-4 – 11-Foot Channel with 9-Foot Turning Basin

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

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

PROJECT: Great Chebeague Dredge
LOCATION: Maine
This Estimate reflects the scope and schedule in report; Report Name and date

DISTRICT: NAE
POC: CHIEF, COST ENGINEERING, Jeffrey Gaeta
PREPARED: 9/3/2020

WBS Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 6-Aug-20 Estimate Price Level: 1-Oct-19				Program Year (Budget EC): 2021 Effective Price Level Date: 1 -Oct-20								
				RISK BASED										
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	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 or CONTRACT 1													
12	NAVIGATION PORTS & HARBORS	$509	$102	20.0%	$611	3.0%	$524	$105	$629	2022Q2	3.6%	$543	$109	$652
12	NAVIGATION PORTS & HARBORS	$337	$132	39.0%	$469	3.0%	$347	$135	$483	2022Q2	3.6%	$360	$140	$500
12	NAVIGATION PORTS & HARBORS	$167	$55	33.0%	$222	3.0%	$172	$57	$228	2022Q2	3.6%	$178	$59	$237
12	NAVIGATION PORTS & HARBORS	$318	$32	10.0%	$350	3.0%	$327	$33	$360	2022Q2	3.6%	$339	$34	$373
	CONSTRUCTION ESTIMATE TOTALS:	$1,331	$320	24.1%	$1,651		$1,371	$330	$1,701			$1,420	$342	$1,762
01	LANDS AND DAMAGES			25.0%										
30	PLANNING, ENGINEERING & DESIGN													
	Project Management	$45	$5	12.0%	$50	4.6%	$47	$6	$52	2021Q3	2.1%	$48	$6	$53
	Planning & Environmental Compliance	$17	$2	12.0%	$19	4.6%	$18	$2	$20	2021Q3	2.1%	$18	$2	$20
	Engineering & Design	$117	$14	12.0%	$130	4.6%	$122	$15	$136	2021Q3	2.1%	$124	$15	$139
	Reviews, ATRs, IEPRs, VE			12.0%										
	Life Cycle Updates (cost, schedule, risks)			12.0%										
	Contracting & Reprographics	$10	$1	12.0%	$11	4.6%	$11	$1	$12	2022Q2	5.0%	$11	$1	$12
	Engineering During Construction	$70	$8	12.0%	$79	4.6%	$74	$9	$82	2022Q2	5.0%	$77	$9	$87
	Planning During Construction			12.0%										
	Adaptive Management & Monitoring			12.0%										
	Project Operations			12.0%										
31	CONSTRUCTION MANAGEMENT													
	Construction Management	$53	$12	23.0%	$66	4.6%	$56	$13	$69	2022Q2	5.0%	$59	$14	$72
	Project Operation:			23.0%										
	Project Management			23.0%										
	CONTRACT COST TOTALS:	$1,643	$364		$2,007		$1,697	$375	**$2,072**			$1,757	$389	**$2,146**

Filename: Plan D - 11'-9' CAP G Chebeague TPCS 02SEP2020.xlsx
TPCS

PLAN D – 11' Channel and 7' Turnaround. Located in Great Chebeague, ME. This estimate is completed for an FID report. Seven dredge depths were estimated for the Channel and the Turn Around. Depths ranged from 6' to 12'. The following is assumed: Quantities were provided by Engineering based on a survey completed in 2012. Disposal site is approximately 14 NM from the dredge site. Mobilization from 200 miles away. All dredging estimates were done in CEDEP for mechanical dredging.

Labor rates are most current for dredging (1/20) CEDEP pricing is escalated from 3Q2019 to 4Q2020 using 12, Navigation Ports and Harbors = 1.91%. HOOH assumed at 8%. JOOH is calculated. Because of weather and location, productivity was reduced to 75% in the CEDEP calculation. Because of shallow depths, fill rate on scow assumed at 60%.

Estimated by NAE-EDT
Designed by Lauren Jacobs
Prepared by Pat Devine
Preparation Date 8/6/2020
Effective Date of Pricing 10/15/2019
Estimated Construction Time 30 Days

Description	UOM	Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Project Cost Summary			47,737	1,148	4,851	782,702	836,438	845,754	996,353	1,013,226
Chebeague Island Dredge - 11-ft Channel, 9-ft Turnaround	CY	41,300.00	47,737	1,148	4,851	782,702	836,438	845,754	996,353	1,013,226
Chebeague Island Dredge - 11-ft Channel, 9-ft Turnaround	CY	41,300.00	47,737	1,148	4,851	782,702	836,438	845,754	996,353	1,013,226
Mobilization and Demobilization for Dredging and Disposal	JOB	1.00	47,737	1,148	4,851	362,816	416,552	425,868	501,700	509,126
General Conditions	EA	1.00	47,737	1,148	4,851	32,800	86,536	95,852	112,920	112,920
Personnel	WK	3.00	0	0	0	29,400	29,400	29,400	34,635	34,635
Facilities	EA	1.00	897	0	3,851	0	4,748	4,914	5,789	5,789
Transportation Vehicles	MO	0.32	0	777	0	0	777	777	915	915
Engineering and Shop Drawings	LS	1.00	14,067	0	0	0	14,067	16,886	19,892	19,892
Pre-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Post-Dredge Survey	EA	1.00	16,387	186	500	0	17,072	20,238	23,841	23,841
Documentation	EA	1.00	0	0	0	3,400	3,400	3,400	4,005	4,005
Maintenance Dredging and Disposal - 11-foot dredge	CY	41,300.00	0	0	0	419,886	419,886	419,886	494,653	504,100
Channel - 11 foot dredge	CY	27,600.00	0	0	0	280,968	280,968	280,968	330,998	337,320
Turn-around - 9 foot dredge	CY	13,700.00	0	0	0	138,918	138,918	138,918	163,654	166,780

Currency in US dollars