Royal River, Yarmouth, Maine Section 206, Aquatic Ecosystem Restoration

Appendix E: Cost Engineering



October 2024



US Army Corps of Engineers. New England District



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1.0 FOREWORD

The cost estimate is based on the site plans and quantities jointly developed with the Civil Engineering Section. The tentatively selected plan (TSP) involves Alternative 2 which is based on the following measures studied:

Measure 2: Remove both dam and fish ladder at Bridge Street Dam
Measure 4: Remove the lower section of the Elm Street Dam and Fish ladder.
Measure 5: Middle Falls: Utilize stone blocks recovered from the dam removals to divert flow from the main channel to the by-pass to facilitate fish passage.

Each of these measures were initially treated separately to develop costs specific to their location and outcome. Their costs were then added together to make one project. This was a simplified conservative approach. Actual costs will vary with potential activities occurring in parallel that might reduce schedule and overhead. Details on how each estimate was developed is discussed under **Section 2.0** *Basis of Estimate*. It will describe proposed scope details, access and staging, equipment and materials used, and specific parameters used to obtain the costs generated.

Tables are provided in **Section 3.0** First and Fully Funded Costs, to present a breakdown of how this numbers were calculated. First Costs are based on data collected and base-lined to October 1st, 2023, the beginning of FY24. The actual estimates were first developed a little later at the end of February 2024, but the base-lining actually makes the numbers a little more conservative to the costs in constant current dollars. Fully funded costs escalate funded items to the mid-point of execution to factor in inflation. These numbers represent Total Project Costs for the delivered project and the basis for cost-sharing.

Section 4.0 shows Total Project Cost Summary spreadsheets. These are worksheets used to develop First costs and Fully Funded Costs from Base Estimates done in MCACES MII and adjusted with contingencies developed during an Abbreviated Risk Analysis (ARA) conducted in March 2024. The ARA risk registers and back-up documents for each site can be found in **Section 5.0**. **Section 6.0** has the base costs estimates Summaries printed out from MCACES MII.

2.0 BASIS OF ESTIMATE

2.1 MEASURE 2: BRIDGE STREET DAM AND FISH LADDER-COMPLETE REMOVAL

This measure removes the existing Bridge Street Dam and fish ladder in its entirety. The site will be accessed from the south side of Bridge Street Bridge at a driveway providing access to the pump station and shed. Some area will be set aside for contractor staging and mobilization.

About a ½ acre of clearing will be necessary to establish the site and provide access for heavy equipment. It will be necessary to bring in fill material and possibly blast matts first, to build a ramp to allow heavy equipment on to the site to remove the existing fish ladder on the down-stream side of the existing reinforced concrete dam. Before any of the dam components can be removed, access to the dam with heavy equipment must be established and removal of any built-up sediments on the upstream side of the dam removed. Our estimate assumes dredging behind the dam as much as possible while constructing a temporary rip rap causeway built against the upstream side of the dam. This would start at the temporary access road location and work north to the norther bank of the river. An excavator could load trucks as it worked its way across. No extra allowance was included in the estimate for added disposal costs if the dredge material proved to be unsuitable.

Because the metal pipe penstock is believed to be held in private ownership at this writing, it is not part of this project. It was decided in PDT discussions the associated concrete intake structure that serve the penstock would remain intact. We assumed demolition would start at the low-flow weir and gradually work its way back southward removing the 150' long masonry dam spillway from the rip rap working surface. As the dam was removed, so would the rip rap working surface be removed as necessary. It was assumed that no extra rock excavation is necessary within the footprint of the dam down to its base elevation. Only the stone blocks making up the dam will be removed.

The estimate also include removal of the 100' long reinforced concrete dam in a likewise fashion with an excavator working its way southward taking up rip rap causeway working surface as it goes. The estimate includes some time/equipment for debris removal, landscaping & native plantings, and erosion control along the north and south banks, upstream and downstream of the existing dam. Broken concrete demolished is assumed to be removed from the site and assumed some beneficial disposal with local sand/gravel yards. The site entrance will receive a new vehicle gate.

2.2 MEASURE 4: EAST ELM STREET DAM FISHWAY AND DAM (SOUTHERN PORTION) REMOVAL

This alternative removes the existing Elm Street Dam fish ladder in its entirety and approximately 110 LF of the stacked stone spillway on the southern half of the river. This alternative assumes the northern section of the dam connected to a residential property foundation will remain intact as-is. Bank stabilization and native planting restoration will occur in disturbed areas upstream and downstream of the dam at both locations. Construction to take place is intended to minimize any impacts to property owners.

The site will be accessed from a local park located at the south-east side of Elm Street Bridge, just north of the Yarmouth Historical Center. The area will be set aside for contractor staging and mobilization. Access will require temporarily removing existing wood guardrail and about a ¹/₂ acre of clearing to establish the site and provide access for heavy equipment.

It is assumed it will be necessary to bring in fill material and blast matts to build a temporary access road and ramp to fully allow heavy equipment on to the site to remove the existing fish ladder. Starting at the existing fish ladder top location, we assumed placing super sacks of sand along the upstream length of existing stacked stone spillway to provide a water diversion that can be taken up later once deconstruction is complete. As the intent is to remove the existing fish ladder and the dams, some dredging on the upstream side is included in the estimate presuming a 1:4 prism along the spillway face. Broken concrete demolished and cut stone are assumed to be removed from the site and assumed beneficial disposal with local sand/gravel yards.

We assumed a contractor may utilize two heavy hydraulic crawling excavators equipped with concrete breaker hammers and grapples/buckets. A forklift and crane with operators will be needed to install and later take up super sacks used for water diversion. Three 36" diameter temporary culverts will be placed in the breach under the supersacks to allow minimal stream flow while work proceeds to remove stone and rock from the dam. Crushed stone and rubber-tired blast matts will cover the end of the culverts to allow heavy equipment to traverse the area behind the dam while natural flow continues downstream. Because some river flow may be diverted partly to the north channel while the demolition goes on, the estimate includes several months of operator & by-pass diversion pump time in case of high-flow emergency.

Once the original fish ladder and stone spillway are removed, the estimate assumes the contractor will includes some time/equipment/material for debris removal, landscaping, native plantings and erosion control along the north and south banks downstream of the existing Elm Street bridge to the existing spillway location. We also assumed new guardrail, permanent fencing and gates will be added to the site.

2.3 MEASURE 5: ESTABLISH A NATURAL FISH PASSAGE AROUND MIDDLE FALLS USING THE BY-PASS CHANNEL

This alternative seeks to encourage greater fish passage of the natural By-Pass Channel at Middle Falls by diverting flows from the main channel using stone blocks recovered from the Bridge Street and Elm Street dams. We assumed the site will be accessed from Royal River Park parking lot off the East Elm Street bridge location. From there, it is envisioned a contractor will establish a crane for staging area directly across from the entrance channel of the Middle Falls by-pass to be able to construct diversion.

Once the desired flows have been diverted away from the main channel into the by-pass channel, it is anticipated increased flows will encourage more effective fish passage. After constructing the stone diversion, the contractor will demobilize.

No extra time/equipment/materials for landscaping, native plantings, and erosion control along the north and south banks of the by-Pass and Main Channels were included in the estimate for this measure.

2.4 GENERAL ASSUMPTIONS

It must be noted that able contractors might employ other effective means and methods. Our goal for alternative comparison was to be as consistent as possible in approaches for cost comparison and understanding of risks and level of effort, as well as reasonable cost. The estimates also utilized current Cumberland County, Maine prevailing wages. Major risks include: project schedule slippage, material cost inflation, skilled labor availability, unrecognized latent hazardous/toxic material, high water events, worker and public safety.

2.5 COST DATA SOURCES

2022 Cost Data Book used, Davis-Bacon Prevailing Rate labor rates for Cumberland County, Maine, 2022 New England Region 1 Equipment Cost Book. All the estimates were base-lined to October 2023 and escalated using March 2024 CWICCS tables.

2.6 CONTRACTOR MARK-UP

PRIME –JOOH 25%, HOOH 10%, Profit 10%, Bond & Insurance =2% SUBCONTRACTOR – JOOH 8%, HOOH 10%, Profit 10%

3.0 PROJECT FIRST AND FULLY FUNDED COSTS

	The First Cost for Royal River Alternative 2	, (Baselined, FY2	24/ October 2023	dollars)	
Feature Account	Description	Subtotal	Contingency %	Contingency \$	Total Cost
06	Total Fish & Wildlife Facilities	2,583,808.45	28.00%	\$723,466.37	\$3,307,274.82
18	Total Cultural Resources Preservation	335 000 00	28 00%	\$93,800,00	\$428 800 00
			20.00 /0		<u> 120,000.00</u>
01	Total Lands and Damages	68,000.00	15.00%	\$10,200.00	\$78,200.00
20	Total Diagona Environmina & Douting	045 400 50	20.00%	\$100.007.00	\$1.014 F07 10
30	Total Planning, Engineering & Design	845,489.50	20.00%	\$169,097.90	\$1,014,587.40
31	Total Construction Management	234,000.00	16.00%	\$37,440.00	\$271,440.00
	Total, Alternative 2	4,066,297.95	25.43%	\$1,034,004.27	\$5,100,302.22

Table 1: First Cost for Royal River Alternative 2

	Total Project Cost for Royal River A	lternative 2,	Fully Funded			
Feature		Mid-Point	Project First Cost			
Account	Description	Date	FY2024 Baseline	Escalation %	Escalation \$	Fully Funded Total Cost
06	Total Fish & Wildlife Facilities	2028Q1	\$3,307,274.82	11.11%	\$367,478.19	\$3,674,753.00
18	Total Cultural Resources Preservation	2028Q1	\$428,800.00	11.11%	\$47,644.86	\$476,444.86
01	Total Lands and Damages	2027Q1	\$78,200.00	8.15%	\$6,372.20	\$84,572.20
30	Total Planning, Engineering & Design	varies	\$1,014,587.40	15.87%	\$161,015.47	\$1,175,602.87
31	Total Construction Management	2028Q1	\$271,440.00	13.09%	\$35,541.00	\$306,981.00
	Total, Alternative 2		\$5,100,302.22	12.12%	\$618,051.71	\$5,718,353.93

Table 2: Fully Funded Total Project Cost for Royal River Alternative 2

4.0 TOTAL PROJECT COST SUMMARY (TPCS) SPREADSHEETS

The Total Project Cost Summary Spreadsheets for the Royal River Aquatic Ecosystem Restoiration study are provided below.

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

Printed:9/3/2024 Page 1 of 2 PREPARED: 8/29/2024

Updated:

PROJECT: Royal River, Section 206 Ecosystem Restoration PROJECT NO: 476044

Alternative 2 - Bridge Street & Elm St. Dam- Fish Ladder and Dam Removals & Middle Falls Bypass

This Estimate reflects the scope and schedule in report;

LOCATION: Yarmouth, Maine

Royal River Abbreviated Risk Analysis, 2/7/2024

POC: ACTING CHIEF, COST ENGINEERING, Christopher Tilley

DISTRICT: New England

Ci	vil Works Work Breakdown Structure		ESTIMAT	ED COST				PRO. (Cons	JECT FIRST stant Dollar	COST Basis)			TOTAL	PROJECT COST FUNDED)	(FULLY
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST _(\$K)	CNTG (\$K)	CNTG _(%)_	TOTAL _(\$K)	ESC (%)	Progr Effe COST _(\$K)_	ram Year (B ctive Price I CNTG _(\$K)_	udget EC): .evel Date: REMAININ G COST _(\$K)_	2024 1-Oct- 23 Spent Thru: 14-Dec-23 _(\$K)	TOTAL FIRST COST _(\$K)_	ESC _(%)	COST (\$K)	СNTG _(\$K)	FULL _(\$K)_
06	FISH & WILDLIFE FACILITIES	\$2,584	\$723	28%	\$3,307		\$2,584	\$723	\$ 3,307		\$3,307	11.1%	\$2,871	\$804	\$3,675
18	CULTURAL RESOURCE PRESERVATION	\$335	\$94	28%	\$429		\$335	\$ 94	\$429		\$429	11.1%	\$372	\$104	\$476
	CONSTRUCTION ESTIMATE TOTALS:	\$2,919	\$817		\$3,736		\$2,919	\$817	\$3,736		\$3,736	- 11.1%	\$3,243	\$908	\$4,151
01	LANDS AND DAMAGES	\$68	\$10	15%	\$78		\$68	\$10	\$78		\$78	8.1%	\$74	\$11	\$85
30	PLANNING, ENGINEERING & DESIGN	\$846	\$168	20%	\$1,015		\$846	\$168	\$1,015		\$1,015	15.9%	\$980	\$195	\$1,176
31	CONSTRUCTION MANAGEMENT	\$234	\$37	16%	\$271		\$234	\$37	\$271		\$271	13.3%	\$265	\$42	\$307
	PROJECT COST TOTALS:	\$4,067	\$1,033	25%	\$5,100		\$4,067	\$1,033	\$5,100		\$5,100	12.1%	\$4,562	\$1,157	\$5,718
		ACTING CH	IEF, COST E		NG, Christopher	Tilley									
				In set Cate						E	STIMATED TO	TAL PROJE	CT COST:	CEN	\$5,718
		PROJECTI	ANAGER,	Janet Cote							ESTIMATED	NON-FEDER	RAL COST:	35%	\$2,001
		CHIEF, REA	L ESTATE,	Timothy Shi	ugert										
		CHIEF PLA	NNING We	ndv Gendror						22 -	FEASIBILITY S	TED FEDER	P studies):	50%	\$560
				ley centrol							ESTIMATED	NON-FEDE	RAL COST:	50%	\$280
		CHIEF, ENG	SINEERING,	David Marg	polis					Сети		L COST OF	PRO IECT		64 007
		CHIEF, OPE	ERATIONS, E	Eric Penders	sen					ESTIMATED	NON-FEDERA	L COST OF	PROJECT		\$4,097
		CHIEF, CON	ISTRUCTIO	N, Ray Goff											

CHIEF, CONTRACTING, Sheila Winston-Vincuilia

CHIEF, PM-PB, Janet Harrington

CHIEF, DPM, Scott Acone

Filename: CAP 208-Royal River TPCS Summary 16AUG24.xlsx TPCS

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

DISTRICT: New England

POC: ACTING CHIEF, COST ENGINEERING, Christopher Tilley

**** CONTRACT COST SUMMARY ****

PROJECT: Royal River, Section 206 Ecosystem Restoration LOCATION: Yarmouth, Maine

This Estimate reflects the scope and schedule in report; Royal River Abbreviated Risk Analysis, 2/7/2024

	WBS Structure		ESTIMAT	ED COST			PROJECT FI (Constant De	RST COST ollar Basis)			TOTAL PRO	JECT COST (FULL	Y FUNDED)	
		Esti Estin	mate Prepare nate Price Lev	d: vel:	14-Dec-23 1-Oct-23	Progra Effect	im Year (Budg ive Price Level	et EC): I Date:	2024 1 -Oct-23					
WDC	Coll Wester	COST	CNITC	RISK BASED	TOTAL	500	COST	CNITC	TOTAL	Mid Date	500	0007	ONTO	5.0.0
NUMBER	Elvir Works Feature & Sub-Feature Description	(SK)	(SK)	(%)	(SK)	(%)	(\$K)	(SK)	(SK)	Date Mid-Point	(%)	(SK)	(SK)	(SK)
A	B	C	D	E	F	G	н	1	J	P	L	M	N	0
	CONTRACT 1													
06	FISH & WILDLIFE FACILITIES	\$2,584	\$723	28.0%	\$3,307		\$2,584	\$723	\$3,307	2028Q1	11.1%	\$2,871	\$804	\$3,675
18	CULTURAL RESOURCE PRESERVATION	\$335	\$94	28.0%	\$429		\$335	\$94	\$429	2028Q1	11.1%	\$372	\$104	\$476
								K						
	CONSTRUCTION ESTIMATE TOTALS:	\$2,919	\$817	28.0%	\$3,736		\$2,919	\$817	\$3,736	-		\$3,243	\$908	\$4,151
~								-						
01	LANDS AND DAMAGES	\$68	\$10	15.0%	\$78		\$68	\$10	\$78	2027Q1	8.1%	\$74	\$11	\$85
30	PLANNING ENGINEERING & DESIGN													
1.0%	Project Management	\$29	\$6	20.0%	\$35		\$29	\$6	\$35	2027Q1	9,9%	\$32	\$6	\$39
1.0%	Planning & Environmental Compliance	\$29	\$6	20.0%	\$35		\$29	\$6	\$35	2027Q1	9.9%	\$32	\$6	\$39
12.1%	Engineering & Design	\$353	\$71	20.0%	\$424		\$353	\$71	\$424	2027Q1	9.9%	\$388	\$78	\$466
1.0%	Reviews, ATRs, IEPRs, VE	\$29	\$6	20.0%	\$35		\$29	\$6	\$35	2027Q1	9.9%	\$32	\$6	\$39
1.0%	Life Cycle Updates (cost, schedule, risks)	\$29	\$6	20.0%	\$35		\$29	\$6	\$35	2027Q1	9.9%	\$32	\$6	\$39
1.0%	Contracting & Reprographics	\$29	\$6	20.0%	\$35		\$29	\$6	\$35	2028Q1	13.3%	\$33	\$7	\$40
1.0%	Real Estate Administration	\$29	30	20.0%	330 \$21		\$29 \$19	\$0 \$2	\$30 \$21	2028Q1	13.3%	\$33 \$20	\$/ #3	\$40
0.078	Adaptive Management & Monitoring	\$300	\$60	20.0%	\$360		\$300	\$60	\$360	203103	26.0%	\$378	\$76	\$454
	Project Operations			20.0%						2001.40	20.070			4 .2.
31	CONSTRUCTION MANAGEMENT													
7.0%	Construction Management	\$204	\$33	16.0%	\$237		\$204	\$33	\$237	2028Q1	13.3%	\$232	\$37	\$269
	Project Operation:			16.0%										
1.0%	Project Management	\$29	\$5	16.0%	\$34		\$29	\$5	\$34	2028Q1	13.3%	\$33	\$5	\$38
	CONTRACT COST TOTAL S:	\$4.087	\$1.022		\$5,100		\$4.087	\$1.032	\$5 100			\$4.582	\$1.157	\$5.718
	contrator oper remize.	41,007	÷1,000		40,100			41,000	40,100			Q-1,002		40,710

Filename: CAP 206-Royal River TPCS Summary 16AUG24.xlsx TPCS

Royal River, Yarmouth ME Section 206, Feasibility Study Appendix E Cost Engineering

8/29/2024

PREPARED:

5.0 ABBREVIATED RISK ANALYSIS (ARA)

Abbreviated Risk Analysis

Royal River Section 206 -Yarmouth, Maine

Feasibility (Recommended Plan)

Measure 2- Bridge Street - Complete Fish Ladder and Dam Removal

Meeting Date: 7-Feb-24

PDT Members

Note: PDT involvement is commensurate with project size and involvement.

Represents	Name
Project Management:	Janet Cote
Planner:	Janet Cote
Study Manager:	NAME
Contracting:	Tyler Maryak
Real Estate:	William Mehr
Relocations:	NAME
OTHER:	NAME
Engineering & Design:	NAME
Technical Lead:	NAME
Geotech:	NAME
H&H	Thomas Mihlbachler, Patrick Blumeris
Civil:	Kevin Hebard
Structural:	Michael Andryuk
Mechanical:	NAME
Electrical:	NAME
Cost Engineering:	Chris Tilley
Construction:	Nick Skianes
Operations:	NAME
Environmental:	Don Faughnan
VE	NAME
DOT & PF Sponsor	NAME
DOT & PF Sponsor	NAME
Other:	NAME
Other:	NAME
Other:	NAME
	NAME

	Iam	Definition
Albo	Risk Analysis ER 1110-2-1302, 15 Sep 08, page 19	 a. Cost risk analysis is the process of identifying and measuring the cost impact of project uncertainties on the estimated TPC. It shall be accomplished as a joint analysis between the cost engineer and the designers or appropriate PDT members that have specific knowledge and expertise on all possible project risks. (1) PDTs are required to prepare a formal cost risk analysis for all decision documents requiring Congressional authorization for projects exceeding \$40 million (TPC)(see appendix B). Where cost risk analysis is required, it is anticipated that the cost risk analysis will be performed once the recommended plan is identified prior to the alternative formulation briefing milestone.
Terminol	Typical Risk Elements	Factors that can introduce risk to items listed in the Selected Work Breakdown Structure Items. The ones listed are the most typical for Civil Works Projects. These Risk Elements should be reviewed and established for each project.
	Potential Risk Areas	These are items from the estimate's Work Breakdown Structure, either broad or detailed, that are believed to contain some risk. The cost estimator defines the Work Breakdown Structure. It is recommended that the PDT select the appropriate Selected Work Breakdown Structure items and considers all Features. Focus should be placed on the items with the significant risks. Appropriately identifying the Selected Work Breakdown Structure items will lead to a more confident development of contingency.

	Risk Element	Typical Concerns	Max Potential Cost Growth
	Project Management & Scope Growth	Potential for scope growth, added features? Project accomplishes intent? Funding Difficulties? Sufficent Staffing/Support?	40%
	Acquisition Strategy	Contracting plan firmly established? Sa or small business likely? Requirement for subcontracting? Accelerated schedule or hamb weather schedule? High-risk acquisition limits competition, design/build? Limited bid competition anticipated? Bid schedule developed to reduce quantity risks?	30%
4	Construction Elements	Accelerated schedule or harsh weather schedule? High risk or complex construction elements, site access, in-water? Water care and diversion plan? Unique construction methods? Special mobilization? Special equipment or subcontractors needed? Potential for construction modification and claims?	15%
Typical Rink Elimor	Specially Construction or Fabrication	Atypical construction elements, unusual material or equipment manufactured or installed? Confidence in constructibility or methodology? Cone of a kind and confidence in fabrication and installation? Ability to reasonably transport? Risk of specialty equipment functioning first time? Testing?	50%
	Technical Design & Quantities	Level of confidence based on design and assumptions? Possibility for increased quantities due to loss, waste, or subsidence? Appropriate methods applied to calculate quantities? Sufficient investigations to develop quantities? Quality control check applied?	20%
	Cost Estimate Assumptions	Reliability and number of key quotes? Assumptions related to prime and subcontractor markups/assignments? Assumptions regarding crew, productivity, overtime? Site accessibility, transport delays, congestion? Overuse of Cost Book, lump sum, allowances? Lack confidence on critical cost items?	25%
	External Project Risks	Potential for severe adverse weather? Political influences, lack of support, obstacles? Unanticipated inflations in fuel, key materials? Potential for market volatility impacting competition, pricing? Funding Constraints	20%

Т

	terver. Feasibility (recommended Plant) tegory: Low Risk: Typical Construction, Simple			Meeting Date:	2/7/202	Selected Pla	-
	Total Estimated Construction Contract Cos	st = \$	2,583,808	Updated	8/29/20	24	
CWWBS	Feature of Work	Estin	nated Cost	% Contingency	\$ Conting	ency	<u>Total</u>
01 LANDS AND DAMAGES	Real Estate	•	68,000	15%	s	10,200 \$	78,200
1 06 01 FISH FACILITIES AT DAMS	Mobilization / Demobiliztion	•	225,387	29%	w	65,370 \$	290,756
2 06 01 FISH FACILITIES AT DAMS	Land Clearing & Debris Removal	•	136,630	23%	⁶⁷	31,183 \$	167,813
3 06 01 FISH FACILITIES AT DAMS	Access Roads and Ramps	*	215,593	19%	\$	41,476 \$	257,069
1 05 01 FISH FACILITIES AT DAMS	Water Diversion Structures	•	310,817	18%	69	57,498 \$	368,315
0 06 01 FISH FACILITIES AT DAMS	Stone Causeway		503,949	47%	\$ 2	38,049 \$	741,998
06 01 FISH FACILITIES AT DAMS	Demo and Remove Fish Ladders	\$	265,665	21%	ŝ	56,898 \$	322,562
06 01 FISH FACILITIES AT DAMS	Demo and Remove Masonry or Stone Block Dam	•	369,131	24%	63	89,962 \$	459,093.63
06 01 FISH FACILITIES AT DAMS	Demo and Remove Reinforced Concrete Dam	*	266,812	24%	69	65,026 \$	331,838.12
9 06 01 FISH FACILITIES AT DAMS	Allowance for Sediment Dredging	**	66,848	19%	69	12,710 \$	79,557.80
0 06 01 FISH FACILITIES AT DAMS	Restorative Vegetative Planting	-	180,092	26%	\$	48,055 \$	226,147.03
1 06 01 FISH FACILITIES AT DAMS	Vehicle Gates, Fencing and Guardrail	*	42,885	18%	\$	6,732 \$	49,817.50
2 AI Other	Remaining Construction Items	37	960:0	960	cs.	69 30	1
3 30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	*	401,971	20%	s	80,684 \$	482,854
4 31 CONSTRUCTION MANAGEMENT	Construction Management	*	205,154	18%	59	32,206 \$	237,361
X FIXED DOLLAR RISK ADD (EQUALLY DISPERSED TO	ALL, MUST INCLUDE JUSTIFICATION SEE BELOW)				\$	•	
	Totals						
	Real Fo	state S	68 000	1596		10.200 \$	78 200 00
	Total Construction Estin	imate \$	2,583,808	28%	2 2	10,958 \$	3,294,767
	Total Planning, Engineering & De Total Construction Managem	esign \$	401,971 205 154	20%	<i>w w</i>	30,684 \$	482,654
					,		
	Total Excluding Real Es	istate \$	3,190,934	26%	\$ 8	23,848 \$	4,014,782
	Confid	idence Level	Range Estimate (\$000's)	Base \$3,191k		\$3.685k	80% \$4,015k
					and red have and and a	- M K S M CL	

595 197	Line Item Magnitude (\$000)		\$225k	\$137k	\$216k	\$311k	\$504k	\$266k	\$369k	\$267k	567k	\$180k	\$43k	- 24	\$402k	\$205k
	Risk Level	40%	2	+	0	0	0	0	0	0	0	2	0	0	2	0
ster	Likelihood	ct Growth	Ukey	Possible	Unlikely	Unlikely	Unikely	Unlikely	Unlikely	Unlikely	Unlikely	Possible	Unikely	Unikely	Possible	Unlikely
Risk Regi	Impact	Maximum Proje	lengreM	Marginal	Negligble	Negigble	Negligble	Negligble	Negrigble	Negligble	Negligible	Moderate	Negligble	Negrigible	Moderate	Negligble
Risk Lavel 2 4 5 5 4 5 1 2 3 4 5 0 1 2 3 4 Waghal Moderate Significant Critical	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)		Trying to do two projects at once at two different locations. Will we do separate contracts? When can a contractor moo?	The project may be 'on-the-hook' in some soft of renoval of the Pennstook under some droumstances. Also pain for 6 months real estate acquisition, various easements from multiple property owners.								If we have to tring in outside consultants, the project may experience time delays, i.e. working with FBWLS or Consultants outside the Corps in design	54 54		Something we need to think about. Concerns with stakeholder communication, marina, environmental groups, conflicting interests. If we have to bring in outside	
entatively Selected Plan Very Likely 1 Possible 0 Unlikely Negrgpie	Concerns		Project competing with other projects or resources.	tEAL Estate.Concern : Ownerchip of Pensicoti being worked out.								Possible need for outside recourses for designiconsultation may stall project progress			Coordination communication officialities with team. Architect, Engineer, Consultant or Contractor deals	
Section 206 -Yarmouth, Maine Te mmended Plan) 7-Feb-24	Feature of Work	anagement & Scope Growth	Mobilization / Demobilizion	Land Clearing & Debris Removal	Access Roads and Ramps	Water Diversion Structures	Stone Causeway	Demo and Remove Fish Ladders	Demo and Remove Masonry or Stone Block Dam	Demo and Remove Reinforced Concrete Dam	Allowance for Sediment Dredging	Restorative Vegetative Planting	Vehicle Gates, Fencing and Guardrall	Remaining Construction Items	Planning, Engineering, & Design	Construction Management
Royal River Feasibility (Reco Abbreviated Ris) Meeting Date:	Risk Element	Project Ma	P.9-1	P5-2	P6-3	PS-4	P9-5	PS-6	PS-7	PG-8	6-5d	PS-10	PS-11	PS-12	PS-13	5-14
	Use/ View		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

×	Acquisiti	on Strategy			Aaximum Projec	t Growth	30%	
Yes	AS-1	Mobilization / Demobilization	The contract could go 8A	rvor mery, our more mery year enter outemess set across. Soin a concern local small burness might not be sulled for this type of work in the river.	Moderate	Possible	2	\$225k
Yes	AS-2	Land Clearing & Debris Removal	Small Business contractor's might not have adequate industrial capacity to complete project. Maybe less competition.		Marginal	Possible	1	\$137k
Yes	AS-3	Access Roads and Ramps	Smail Business contractor's might not have adequate industrial capacity to complete project. Wayoe less competition.		Marginal	Possible	٢	\$216k
Yes	AS-4	Water Diversion Structures	Small Business contractor's might not have adequate industrial capacity to complete project. Mayoe less competition.		Negrapie	Unikely	0	Śałik
Yes	AS-5	Stone Causeway	We mght not get adquate competition to bid the project.	Contractor might need specialized equipment. Might negate small business from attempting.	Moderate	Possible	2	\$504k
Yes	AS-6	Demo and Remove Fish Ladders	We might not get adquate competition to bid the project	Contractor might need specialized equipment. Might negate small business from attempting.	Moderate	Possible	2	\$266k
Yes	AS-7	Demo and Remove Masonry or Stone Block Dam	Is there reasonable industrial capacity? Writin 75 m1es?	Ukey NE contractor with per diem for people.	Moderate	Possible	2	\$369k
Yes	A5-8	Demo and Remove Reinforced Concrete Dam	Is there reasonable industrial capacity? Within 75 milles?	Likely NE contractor with per diam for people.	Moderate	Possible	2	\$267k
Yes	AS-9	Allowance for Sediment Dredging	Small Business contractor's might not have adequate industrial capacity to complete project. Mayoe less competition.		Marginal	Possible	-	\$671k
Yes	AS-10	Restorative Vegetative Planting	Smail Business contractor's might not have adequate industrial capacity to complete project. Mayoe less competition.		Marginal	Possible	+	\$180k
Yes	AS-11	Vehicle Gates, Fencing and Guardral	Smail Business contractor's might not have adequate industrial capacity to complete project. Mayoe less competition.		Marghal	Possible	-	\$43K
Yes	AS-12	Remaining Construction Items	Smail Business contractor's might not have adequate industrial capacity to complete project. Maybe less competition.		Marghal	Possible	-	
Yes	AS-13	Planing, Engineering, & Design	Small Business contractor's might not have adequate industrial capacity to complete project. Mayoe less competition.		Narginal	Possible	-	\$402k
Yes	AS-14	Construction Management			Marginal	Possible	-	\$205k

	\$225k	ALELS	\$216k	\$11E	Souk	\$266k	\$369k	\$267k	\$67k	\$180k	\$43k		\$402k	\$205k
15%	-	-	-	2	2	0	2	2	0	0	0	0	0	0
ct Growth	Possible	Possible	Possible	Possible	Possible	Unlikely	Possible	Possible	Unlikely	Unikely	Unlikely	Unlikely	Unlikely	Unlikely
Aaximum Proje	Marginal	Ingra	Narginal	Moderate	Noderate	Negligble	Moderate	Moderate	Negigble	Negigble	Negligble	Negrgole	Neglgble	Negligble
	The group dokinomedie toomdate incuroer included in dial dearing but access might still be tight for large construction vehicles.	The group dominancempter resummer incurren inc. date un units clearing but access might still be fight for large construction vehicles.	THE YOUND DATION DATE ADMINIST INVOLVED IN SAFE VI AND Clearing but access might still be fight for large construction vehicles.		PDT feit there might be opportunity possibility for less expensive alternatives. It was acknowledged light for less work needs to be accomplished in the river and work needs to be accomplished in the river but possible during tow flow events where a contractor might only need to rane mals to traverse the river bed. Follow-on discussions led to pricing a causeway-approach on the upsitteam side of the dam as an economical preference over a trestle approach.		Prethy similator to Bridge street. May utilitize eroston controls, le. Rip rajo. Goali is to leave a staolitized struation.							
	Umited lay-down Area.	Limited lay-cown Area.	Limited lay-down Area.	Concerns for possible storm events, maintaining diversion structures, and worker safety.	Convertile the cost of contruction access to remove the dam may negate the alternative because of cost		Concerns for possible storm events, maintaining diversion structures, and worker safety.Unique features for partial removal	Connerns for possible storm events, maintaining diversion structures, and worker safety.						
ion Elements	Mobilization / Demobilizion	Land Clearing & Debris Removal	Access Roads and Ramps	Water Diversion Structures	Stone Causeway	Demo and Remove Fish Ladders	Demo and Remove Masonry or Stone Block Dam	Demo and Remove Reinforced Concrete Dam	Allowance for Sediment Dreoging	Restorative Vegetative Planting	Vehicle Gates, Fencing and Guardrali	Remaining Construction Items	Planning, Engineering, & Design	Construction Management
Construct	CON-1	CE-2	CE-3	CE-4	CE-5	CE-6	CE-7	CE-8	CE-9	CE-10	CE-11	CE-12	CE-13	CE-14
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Technical	Design & Quantities			Maximum Projec	ct Growth	20%	
Yes	E	Mcbilization / Demobilization	As most field investigations have taken place during writter months, it is known better survey/bathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Lkely	2	\$225k
Yes	12	Land Clearing & Debris Removal	As most field investigations have taken place during whiter months, it is known better sunveyloathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Ukey	2	\$137k
Yes	2	Access Roads and Ramps	As most field investigations have taken place during whiler months, it is known better survey/bathymetho information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Possible	Ŧ	\$216k
Yes	Z	Water Diversion Structures	As most field investigators have taken place during whiler months, it is known better survey/bathymetric information will be needed if the project enters into deson.	Changes in design may impact cost estimate assumptions.	Marghal	Possible	-	Satik
Yes	۶ĩ	Stone Causeway	As most fixed investigations have taken place during whiter months, it is known better surveyubathymetics information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marghal	Possible	-	\$504k
Yes	92	Demo and Remove Fish Ladders	As most field investigations have laten place during whiler months, it is known better survey/bathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Possible	١	\$266k
Yes	1-1	Demo and Remove Masonry or Stone Block Dam	As most field investigations have taken place during whiler months, it is known better survey/bathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Possible	1	\$369k
Yes	7-8	Demo and Remove Reinforced Concrete Dam	As most field investigations have taken place during whiler months, it is known better survey/bathymetho information will be needed if the project enters into design.	Changes in dissign may impact cost estimate assumptions.	Marginal	Possible	ł	\$267k
Yes	51	Allowance for Sedment Dredging	As most field investigations have taken place during winter months, it is known better survey/bathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Narginal	ukey	2	\$67k
Yes	1-10	Restorative Vegetative Planting	As most field investigations have taken place during whiter months, it is known better surrey/bathymetric information will be needed if the project enters into design.	Changes in design may impact cost estimate assumptions.	Marginal	Ukey	2	ŝisok
Yes	Η	Vehicle Gates, Fencing and Guardrall			Neglgble	Unlikely	0	\$43k
Yes	T-12	Remaining Construction Items			Negrgble	Unikely	0	
Yes	T-13	Planning, Engineering, & Design			Negligble	Unlikely	0	\$402k
Yes	T-14	Construction Management			Negligble	Unlikely	0	\$205k

	Part Dation	and damage of the				4	AE0/	
	LOST ESUL	nate Assumptions			Maximum Project	CLOWIN	0/.07	
Yes	E51-1	Mobilization / Demobiliziton	Does the estimates other capture score for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on parelo 80.20 rule that 80% costs will be from top 20% prominent project features.	Marginal	Possible	,	\$225k
Yes	EST-2	Land Clearing & Debris Removal	Does the estimates otherule capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on parelo 80.20 rule that 80% costs will be from top 20% prominent project features.	Marghai	Possible	-	\$137k
Yes	EST-3	Access Roads and Ramps	Does the estimates other use and constructable approach to complete It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80.20 rule that 80% costs will be from top 20% prominent project features.	Narginal	Possible	Ļ	\$216k
Yes	EST-4	Water Diversion Structures	Does the estimate softwalke capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on parelo 80/20 rule that 80% costs will be from top 20% prominent project features.	Marghai	Possible	-	Saltk
Yes	EST-5	Stone Causeway	Does the estimate softwate copure scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80.20 rule that 80% costs will be trom top 20% prominent project features.	Narghai	Possible	-	\$504k
Yes	EST-6	Demo and Remove Fish Ladders	Does the estimates otherule capture scope for all project features? Does It represent a complete usable and constructive approach to complete the project?	Estimate based on pareto 80.20 rule that 80% costs will be from top 20% prominent project features.	Marginal	Possible	-	\$266k
Yes	1-193	Demo and Remove Masonry or Stone Block Dam	Does the estimate softward exapture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 60.20 rule that 60% costs will be from top 20% prominent project features.	Marginal	Possible	-	\$369k
Yes	EST-8	Demo and Remove Reinforced Concrete Dam	Does the estimate softwate capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on parelo 60/20 rule that 60% costs will be from top 20% prominent project features.	Narginal	Possible	-	\$267k
Yes	EST-9	Allowance for Sedment Dredging	Does the estimate softwork capture scope for all project features? Dows It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80.20 rule that 80% costs will be from top 20% prominent project features.	Narghai	Possible	-	\$67k
Yes	EST-10	Restorative Vegetative Planting	Does the estimates othedule capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the ordex1?	Estimate based on parelo 60.20 rule that 60% costs will be from top 20% prominent project features.	Marginal	Possible	-	\$180k
Yes	11-153	Vehicle Gates, Fencing and Guardrall	Does the estimate softwork capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on parelo 80.20 rule that 80% costs will be trom top 20% prominent project features.	Marginal	Possible		\$43K
Yes	EST-12	Remaining Construction Items	Does the estimates other use and constructable approach to complete It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80/20 rule that 80% costs will be from top 20% prominent project features.	Marghal	Possible	-	
Yes	EST-13	Plaming, Engineering, & Design	Does the estimate softedue capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80/20 rule that 80% costs will be from top 20% prominent project features.	Narginal	Possible	-	\$402k
Yes	55T-14	Construction Management	Does the estimate/schedule capture scope for all project features? Does It represent a complete , usable and constructable approach to complete the project?	Estimate based on pareto 80/20 rule that 80% costs will be from top 20% prominent project features.	Narginal	Possible	-	\$205k

Exist Mundative Tange	External F	Project Risks		W	aximum Projec	t Growth	20%	
Qi Langtage Langtage <thlangtage< th=""> <thlangtage< th=""> <thlang< td=""><td>EX-1</td><td>Mobilization / Demobilization</td><td>Funding Concerns, schedule delays, lack of market competiton, inflation, fuel increases, labor shortages.</td><td>Any or all of these concerns could affect the outcome of the project.</td><td>Marginai</td><td>Possible</td><td>-</td><td>\$225k</td></thlang<></thlangtage<></thlangtage<>	EX-1	Mobilization / Demobilization	Funding Concerns, schedule delays, lack of market competiton, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginai	Possible	-	\$225k
B01 Manual Random Evolution Contents: Notify Conten	EK-2	Land Clearing & Debris Removal	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible		\$137k
Ext Mare Diverses standards Fording Concents, storked le elegis, lad of market. May or al of these concents could affect the langeral Langeral <thlangeral< th=""> <thlangeral< th=""> Lan</thlangeral<></thlangeral<>	EX3	Access Roads and Ramps	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$216k
Exist Image Participation Paritot Paritot Parti	EX-4	Water Diversion Structures	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	Satik
Exist Rescate the Ladeet Funding Concerns: schedule delays, lak of malest. Any or all of freese oncenns could affect the Wagnal Rescale 1 23 Exist Events Events Interfaction, rial intereases, lucy schedule delays, lak of malest. Interplacet may as the schedule delays. Interplacet may as the schedule	EX-5	Stone Causeway	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$504k
But The project may be when work in terms and in terms and intermed at the monthly intermed at the second membrane. As promised and the second membrane. As promised and the second membrane. As promised and the second membrane. As provided at the project. Image at the second membrane. As provided at the second membrane. As provided at the project. Image at the second membrane. As provided at the second membrane. As provided at the project. Image at the second membrane. As provided at the project. Image at the second membrane. As provided at the project. Image at the project.	EX-6	Demo and Remove Fish Ladders	Funding Concerns, schedule delays, lack of market competiton, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$266k
ExdIndiring Concerns: schedule delays, lask of marketInvo rai of these concerns: ould affect theMarynalPreastee12ExdRemove frammer formore frammer (minitation, fuel increases, abor sthrages, a moment frammer frammer (market)Mary or al of these concerns: ould affect theMarynalPreastee154ExdRelatative Vegetative PanningEnroling Concerns, schedule delays, lask of marketMary or al of these concerns ould affect theMarynalPreastee154ExuRelatative Vegetative PanningEnroling Concerns, schedule delays, lask of marketAny or al of these concerns ould affect theMarynalPreastee154Exu:Relatative Vegetative PanningEnroling Concerns, schedule delays, lask of marketAny or al of these concerns ould affect theMarynalPreastee154Exu:Relatative Vegetative PanningEnroling Concerns, schedule delays, lask of marketAny or al of these concerns ould affect theMarynalPreastee154Exu:Remaining Concerns, schedule delays, lask of marketAny or al of these concerns ould affect theMarynalPreastee154Exu:Remaining Concerns, schedule delays, lask of marketAny or al of these concerns could affect theMarynalPreastee154Exu:Remaining Concerns, schedule delays, lask of marketAny or al of these concerns could affect theMarynalPreastee154Exu:Remaining Concerns, schedule delays, lask of marketAny or al of these concerns could affect theMary	EX-1	Demo and Remove Masonry or Stone Block Dam	REAL Estate Concern : Ownership of Penetock being worked out. Work may also be required to mtgate impacts to private property at Erm St Dam	The project may be 'on-the-hook' in some sort of removal of the Pennstock under some circumstances. Also plan for 6 months rear estate acquisiton, various easements from mutple property owners. Project may also be 'on-the-hook' for some mitigation involvment at Emistreet dam's connection to a private property owner's outlong foundation.	Marginal	Possible	-	\$369k
ExpNamone for SectionFunding Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginalPossible156EX(0)Exercisive Vegetative ParitingEnroling Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginalPossible150EX(1)Exercisive Vegetative ParitingEnroling Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginalPossible150EX(1)Vencie Gates, Feoring and GuardalFornding Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginalPossible150EX(1)Vencie Gates, Feoring and GuardalEnroling Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginal150EX(2)Barning Construction termsEnroling Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginal150EX(2)Barning ExercisionFornding Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginal150EX(2)Barning Exprending & DesignFornding Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginal150EX(2)Barning Exprending & DesignFornding Concerns, schedule delays, lack of marketMay or all of these concerns could affect theNarginal150EX(3)Barning Exprending & DesignFornding Concerns, schedul	EX-8	Demo and Remove Reinforced Concrete Dam	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$267k
EX.10Restarative Marginary Equilibrium (and the indication) (indiction), fuel indicated (edgay, lack of market)Any or all of these concerns could affect theNarginalPessible131EX.11Venice Gates, Frencing and GuardralFunding Concerns, schedule delays, lack of market)Any or all of these concerns could affect theNarginalPessible124EX.12Remaining Concerns, schedule delays, lack of market)Any or all of these concerns could affect theNarginalPossible124EX.13Remaining Concerns, schedule delays, lack of market)Any or all of these concerns could affect theNarginalPossible124EX.13Remaining Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Remaining Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Remaining Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible124EX.14Concerns, schedule delays,	EX-9	Allowance for Sediment Dredging	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$67k
EX.IIVentole Gates, Feoring and GuardalFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I2Remaining Construction themsFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I3Panning ExritaRemaining Construction themsFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I3Planning ExritaRemaining Construction themsFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I3Planning ExritaRemaining ExritaNarginalPossible154EX.I4Construction MaragementFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I4Construction MaragementFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I4Construction MaragementFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154EX.I4Construction MaragementFunding Concerns, schedule delays, lack of marketAny or all of these concerns could affect theNarginalPossible154	EX-10	Restorative Vegetative Planting	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$180k
EX-13 Panding Construction thems Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Possible 1 2 EX-13 Planning Engineering, & Design Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Narginal Possible 1 5a EX-14 Construction Maragement Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Narginal Possible 1 5a EX-14 Construction Maragement Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Narginal Possible 1 5a EX-14 Construction Maragement Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Possible 1 5a	EX-11	Vehicle Gates, Fencing and Guardrali	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	L.	\$43k
EX-13 Panning Engineering, & Design Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Narginal Possible 1 54 EX-14 Construction Management Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Narginal Possible 1 52 EX-14 Construction Management Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Narginal Possible 1 52	EX-12	Remaining Construction Items	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	-
EX-14 Construction Management Funding Concerns, schedule delays, lack of market Any or all of these concerns could affect the Marginal Possible 1 52 composition, inflation, fuel increases, labor shortages, outcome of the project.	EX-13	Planning, Engineering, & Design	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	Marginal	Possible	-	\$402k
	EX-14	Construction Management	Funding Concerns, schedule delays, lack of market competition, inflation, fuel increases, labor shortages.	Any or all of these concerns could affect the outcome of the project.	IENDER	Possible	-	\$205k

Royal River Section 206 -Yarmouth, Maine Tentatively Selected Plan Feasibility (Recommended Plan)

Abbreviated Risk Analysis

Risk Evaluation

It LANOS AND DAMAGES Real Estate Iteration It	201	Potential Risk Areas	Project Management & Scope Growth	Acquisition Strategy	Construction Elements	Specialty Construction or Fabrication	Technical Design & Quantities	Cost Estimate Assumptions	External Project Risks	Cost in Thousands
6 OT FISH FACUTTES AT AMSMobilization (Demobilitetion211021AMSLand Clearing & Demobilitetion11110216 OT FISH FACUTTES AT DAMSLand Clearing & Demobilitetion0110206 OT FISH FACUTTES AT DAMSAccest bases and Famps01102116 OT FISH FACUTTES AT DAMSAccest bases and Famps02011116 OT FISH FACUTTES AT DAMSSone Cureney0202011<	11 LANDS AND DAMAGES	Real Estate								\$68.000
G0 FISH FACUTIES AT DAMS Land Clearing & Debria Remotal 1 1 0 2 1 6 01 FISH FACUTIES AT DAMS Access & Debrained Remotal 0 1 1 0 1 1 6 01 FISH FACUTIES AT DAMS Access & Debrained Remotal 0 2 0 1 1 6 01 FISH FACUTIES AT DAMS Sone Causeway 0 2 2 2 4 1	6 01 FISH FACILITIES AT AMS	Mobilization / Demobiliztion	2	2	Ŧ	0	2	1	-	\$225
Ot FISH FACULITIES AT DAMS Acces floads and Ramps O 1 0 1 0 1 1 601 FISH FACULITIES AT DAMS Warer Diversion Structures 0 0 2 0 1 1 601 FISH FACULITIES AT DAMS Sone Cauceway 0 2 0 1 1 601 FISH FACULITIES AT DAMS Sone Cauceway 0 2 2 4 1 1 601 FISH FACULITIES AT Demo and Remove Masonny or Sone Blook Dam 0 2 2 0 1 </td <td>6 01 FISH FACIUTIES AT DAMS</td> <td>Land Clearing & Debris Removal</td> <td>ł</td> <td>1</td> <td>F</td> <td>0</td> <td>2</td> <td>-</td> <td>÷</td> <td>\$137</td>	6 01 FISH FACIUTIES AT DAMS	Land Clearing & Debris Removal	ł	1	F	0	2	-	÷	\$137
60 FISH FACUTIES AT DAMS Vater Diversion Structures 0 0 1 1 60 FISH FACUTIES AT DAMS Sone Cauceway 0 2 4 1 1 60 FISH FACUTIES AT DAMS Sone Cauceway 0 2 2 4 1 1 60 FISH FACUTIES AT DAMS Demo and Remove Masonry or Stone Block Dam 0 2 2 0 1 <t< td=""><td>6 01 FISH FACIUTIES AT DAMS</td><td>Access Roads and Ramps</td><td>0</td><td>Ŧ</td><td>-</td><td>0</td><td>æ</td><td>·-</td><td>÷</td><td>\$216</td></t<>	6 01 FISH FACIUTIES AT DAMS	Access Roads and Ramps	0	Ŧ	-	0	æ	·-	÷	\$216
OD FISH FACUTIES AT DAMS Sone Cureway 0 2 4 1 60 FISH FACUTIES AT DAMS Demo and Remove Fish Ladders 0 0 1 1 60 FISH FACUTIES AT Demo and Remove Fish Ladders 0 2 0 1 1 60 FISH FACUTIES AT Demo and Remove Fish Ladders 0 2 0 1 1 60 FISH FACUTIES AT Demo and Remove Reinforced 0 2 0 1 1 1 60 FISH FACUTIES AT Demo and Remove Reinforced 0 2 2 0 1	6 OI FISH FACIUTIES AT DAMS	Water Diversion Structures	0	0	2	0	-	-	÷	\$311
601 FISH FACUTIES AT DAMSDemo and Remove Finh Ladders02011601 FISH FACUTIES ATDemo and Remove Masonty or022011AMSStone Block Dam0222011601 FISH FACUTIES ATDemo and Remove Reinforced0220111601 FISH FACUTIES ATDemo and Remove Reinforced02201011AMSConcrete Dam01010101211AMSRestorative Vegetative2101012112112112111	6 01 FISH FACIUTIES AT DAMS	Stone Causeway	0	2	2	4	1	1	1	\$504
601 FISH FACLITIES ATDemo and Remove Masonry of AMS02011AMSStone Block DamAMSE01 FISH FACLITIES ATDemo and Remove Reinforced02011AMSConcrete DamConcrete Dam010010601 FISH FACLITIES ATAllowance for Sediment0100100601 FISH FACLITIES ATAllowance for Sediment0100100210601 FISH FACLITIES ATRestorative Vegetative2101000 </td <td>6 OI FISH FACIUTIES AT DAMS</td> <td>Demo and Remove Fish Ladders</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> <td>÷</td> <td>-</td> <td>÷</td> <td>\$266</td>	6 OI FISH FACIUTIES AT DAMS	Demo and Remove Fish Ladders	0	2	0	0	÷	-	÷	\$266
B OT FISH FACLITIES AT Demo and Remove Reinforced 0 2 0 1 AMS Concrete Dam Concrete Dam 0 1 0 2 1 AMS Allowance for Sediment 0 1 0 0 2 1 2 1 AMS Allowance for Sediment 0 1 0 0 2 1 1 2 1 1 2 1 1 2 1 1 1	6 01 FISH FACILITIES AT AMS	Demo and Remove Masonry or Stone Block Dam	0	2	2	0	æ	×	÷	6965
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BOT FISH FACLITIES AT AMS Restorative Vegetative Planting 2 1 0 1 2 AMS Vehicle Gates, Fencing and Guardrail 0 1 0 0 0 0 S OT FISH FACLITIES AT AMS Vehicle Gates, Fencing and Guardrail 0 1 0 0 0 0 I Other Remaining Construction Items 0 1 0 0 0 0 I Other Planning, Engineering, & Design 2 1 0 0 0 0 ESIGN CONSTRUCTION MANAGEMENT Construction Management 0 1 0 0 0 0	6 01 FISH FACILITIES AT AMS	Allowance for Sediment Dredging	0	1	0	0	2	-	·	287
B OT FISH FACLITIES AT AMS Vehicle Gates, Fencing and Guardrail 0 0 0 0 AMS Guardrail Guardrail Benaining Construction Items 0 1 0 0 0 0 IObher Remaining Construction Items 0 1 0 0 0 0 0 IObher Planning, Engineering, & Design 2 1 0 0 0 0 0 ESIGN Construction Management 0 1 0 <td>8 01 FISH FACILITIES AT AMS</td> <td>Restorative Vegetative Planting</td> <td>2</td> <td>1</td> <td>0</td> <td>۰</td> <td>2</td> <td>-</td> <td>÷</td> <td>\$180</td>	8 01 FISH FACILITIES AT AMS	Restorative Vegetative Planting	2	1	0	۰	2	-	÷	\$180
Other Remaining Construction Items 0 1 0 <	S 01 FISH FACILITIES AT AMS	Vehicle Gates, Fencing and Guardrail	0	1	0	0	0	5	ł	\$43
PLANNING, ENGINEERING, AND ESIGN CONSTRUCTION MANAGEMENT CONSTRUCTION MANAGEMENT CONSTRUCTION CONSTRUCTION MANAGEMENT CONSTRUCTION MANAGEMENT CONSTRUC	1 Other	Remaining Construction Items	0	Ŧ	0	0	0	t	÷	20
I CONSTRUCTION MANAGEMENT Construction Management 0 0 0 0 0 0	D PLANNING, ENGINEERING, AND ESIGN	Planning, Engineering, & Design	2	1	0	0	0	1	Ŧ	\$402
	L CONSTRUCTION MANAGEMENT	Construction Management	0	1	0	0	0	٢	-	\$205
										\$3,191
Risk \$ 38 \$ 280 \$ 212 \$ 119 \$ 55 \$	Risk		\$ 38	\$ 280	\$ 212	\$ 119	\$ 55	S 61	<mark>\$</mark> 58	\$824
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6.0 MCACES MII SUMMARY REPORTS

The MCACES MII Summary Reports for the Royal River Aquatic Ecosystem Restoration study are provided below.

Print Date Thu 29 August 2024 Eff. Date 7/17/2024 This information system is approved for Controlled Unclassified Information (CUI) U.S. Army Corps of Engineers Project : Royal River Dam Removal Project New Report

Time 15:55:54

Title Page

Royal River Dam Removal Project

Bridge Street Dam Complete Removal.

Main Point of Action: This alternative removes the existing Bridge Street Dam and fish ladder in its entirety. Access and Staging: The site will be accessed from the south side of Bridge Street Bridge at a driveway providing access to the pump station and shed. Some area will be set aside for contractor staging and mobilization. About a ½ acre of clearing will be necessary to establish the site and provide access for heavy equipment. Overall Constructability: It will be necessary to bring in fill material and matts to allow heavy equipment on to the site to remove the existing fish ladder. Before the dam components can be removed, access to the dam with heavy equipment must be established and removal of any built-up sediments on the upstream side of the dam. This would start at the temporary access road location and work north to the norther bank of the river. An excavator could load trucks as it worked its way across. Because the metal pipe penstock is held in private ownership, it is not part of this project. It was decided in PDT discussions the associated concrete intake structure and catwalk that serve the penstock would remain intact as well. We assumed demolition would start at the low-flow weir and gradually work it's way south removing the 150' long masonry dam spillway from the causeway. As the dam was removed, so would the causeway as necessary. It was assumed that no extra rock excavation is necessary within the footprint of the dam down to it's base elevation. Only the stone blocks making up the dam will be removed. The estimate also include removal of the 100' long reinforced concrete dam in a likewise fashion with an excavator working it's way southward taking up concrete and riprap causeway as it goes. The estimate includes some time/equipment for debris removal, landscaping, restorative plantings and erosion control along the banks of the existing dam. Broken concrete demolished is assumed to be removed from the site and assumed beneficial disposal with local sand/gravel yards. Preliminary Work

East Elm Street Dam Fishway and Dam Removal.

Main Point of Action: This alternative removes the existing Elm Street Dam fish ladder in its entirety and approximately 120 LF of the stacked stone spillway on the southern half of the river. Stones will be reused at Middle Falls. Access and Staging: The site will be accessed from a local park located at the south-east side of Elm Street Bridge, just north of the Yarmouth Historical Center. The area will be set aside for contractor staging and mobilization. Access will require temporarily removing existing wood guardrail and about a ½ acre of clearing to establish the site and provide access for heavy equipment. Overall Constructability: It will be necessary to bring in fill material and matts to allow heavy equipment on to the site to remove the existing fish ladder. First, an access road will be constructed to allow equipment to approach the fish-ladder. A heavy excavator will remove a portion of the stone dam to lower the water level behind the dam. Once the backwater is drained to low-flow conditions, the contractor will install 3-36" culverts to allow flow through and then construct a supersack diversion over it on the upstream side of the dam. Then, the contractor will use crushed stone and rubber tire blast matts to bridge over the culverts and access the rest of the dam to be removed. A water diversion is assumed using sand-filled super-sacks. Starting at the existing fish ladder top location, we assumed placing super sacks of sand along the upstream length of existing stacked stone spillway to provide a water diversion that can be taken up later once deconstruction is complete. As the intent is to remove the existing fish ladder and the dams, some dredging on the upstream side is included in the estimate presuming a 1:4 prism along the spillway face. Broken concrete demolished and cut stone are assumed to be removed from the site and assumed beneficial disposal with local sand/gravel yards. Preliminary Work: Staging Area, Access Road, Debris Removal, temporary fence/gates/signs/security Equipment: Likely two heavy hydraulic crawling excavators equipped with concrete breaker hammers and grapples/buckets. A fork lift and crane with operators will be needed to install and later take up super sacks used for water diversion. Because river flow will be diverted mainly to the north channel for some time, the estimate includes several months of operator & by-pass diversion pump time in case of high-flow emergency. New Construction: Once the original fish ladder and stone spillway are removed, the estimate assumes the contractor will includes some time/equipment/material for debris removal, landscaping, restorative plantings and erosion control along the north and south banks downstream of the existing Elm Street bridge to the existing spillway location.

Measure 5: Middle Falls-Enhance the Natural By-Pass Fish Passage with Diversion Weir Across the Main Channel. Main Point of Action: This alternative seeks to take advantage of the natural By-Pass Channel at Middle Falls by diverting a portion of main channel flows to promote a better natural fish passage. Access and Staging: The site will be accessed from Riverside Suite entrance off of Forest Falls Drive. Right-of-entry and construction easements will need to be put in place to provide access down close to the waterline. It is assumed the contractor will utilize existing stone blocks recover from the Elm Street Dam demolition occurring prior. Estimate assumes contractor will stage a crane from the south river bank to place stone blocks in form of a weir that will divert more flow from the central channel into the by-pass. The estimate assume a boulder weir 40' long approximately 4' high and 4' at the top with 3:1 side slopes.

Estimated by NAE Cost Engineering Section Designed by NAE Civil Design Section-Kevin Hebard Prepared by Christopher Tilley

Preparation Date 7/17/2024 Effective Date of Pricing 7/17/2024 Estimated Construction Time Days

Labor ID: EQ ID: EP22R01

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TRACES MII Version 4.4

Print Date Thu 29 August 2 Eff. Date 7/17/2024	024	This info	rmation system is app U.S. Project : Ro	roved for Controlled Army Corps of Engir yal River Dam Remo New Report	Unclassified Information neers oval Project	on (CUI)	Marku	Time 15:55:54 p Properties Page iii
Direct Cost Markups Productivity Material Escalation Curren <i>MatlCost</i> <i>SubBidCost</i>	t		Category Productivity MiscDirect			Method Productivity Running % or	n Selected Costs	
Overtime Standard Actual		Days/Week 5.00 5.00	Overtime Hours/Shift 8.00 8.00	Shifts/I 1 1	Day 1.00 1.00	Overtime 1st Shift 8.00 8.00	2nd Shift 0.00 0.00	3rd Shift 0.00 0.00
Day Monday Tuesday Wednesday Thursday Friday Saturday Sunday		OT Factor 1.50 1.50 1.50 1.50 1.50 1.50 2.00		Working Yes Yes Yes Yes No No			OT Percent 0.00	FCCM Percent 0.00
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Contractor Markups JOOH_Calc (Small Tools) JOOH_Calc JOOH (Small Tools) JOOH HOOH Profit Bond Excise Tax			Category JOOH JOOH Allowance JOOH HOOH Profit Bond Excise	24		Method % of Labor JOOH (Calcu % of Labor JOOH (Calcu Running % Running % Running %	lated) lated)	
Owner Markups Escalation	StartDate 1/1/2021		Category Escalation StartIndex 3,794.00	٤	EndDate 5/20/2024	Method Escalation	EndIndex 6,250.47	Escalation 64.75
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			New	Report					Project Cost Su	mmary Page 1
Description	UOM	Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Project Cost Summary			159,993	315,853	207,513	98,986	782,345	886,309	2,583,808	2,583,808
Project Summary	EA	1.00	159,993	315,853	207,513	98,986	782,345	886,309	2,583,808	2,583,808
Mobilization / Demobilization	EA	1.00	15,814	25,036	21,306	0	62,157	81,491	225,387	225,387
Bridge Street Dam	EA	1.00	7,722	12,287	10,640	0	30,649	40,159	140,303	140,303
Mob/Demob	EA	1.00	7,722	12,287	10,640	0	30,649	40,159	140,303	140,303
Middle Falls	EA	1.00	1,331	2,388	27	0	3,746	4,083	8,808	8,808
Mob/Demob	EA	1.00	1,331	2,388	27	0	3,746	4,083	8,808	8,808
Elm Street Dam	EA	1.00	6,761	10,361	10,640	0	27,762	37,250	76,275	76,275
Mob/Demob	EA	1.00	6,761	10,361	10,640	0	27,762	37,250	76,275	76,275
Land Clearing and Debris Removal	EA	1.00	17,455	23,346	3,150	0	43,951	49,845	136,630	136,630
Bridge Street Dam	EA	1.00	8,425	11,402	1,260	0	21,086	23,739	82,939	82,939
Land Clearing & Debris Removal	EA	1.00	8,425	11,402	1,260	0	21,086	23,739	82,939	82,939
Middle Falls	EA	1.00	474	489	630	0	1,593	2,154	4,648	4,648
Land Clearing and Debris Removal	EA	1.00	474	489	630	0	1,593	2,154	4,648	4,648
Tree Clearing	EA	1.00	474	489	630	0	1,593	2,154	4,648	4,648
Elm Street Dam	EA	1.00	8,556	11,455	1,260	0	21,272	23,951	49,043	49,043
Land Clearing and Debris Removal	EA	1.00	8,556	11,455	1,260	0	21,272	23,951	49,043	49,043
Tree Clearing	EA	1.00	8,425	11,402	1,260	0	21,086	23,739	48,610	48,610
Access Roads and Ramps	EA	1.00	3,726	14,332	33,465	2,668	54,191	81,464	215,593	215,593
Bridge Street Dam	EA	1.00	1,992	8,203	12,394	336	22,925	32,719	114,311	114,311
Access Road Connection to Causeway and Ramp Down to Denil	LF	35.00	1,671	7,588	11,055	0	20,315	28,834	100,738	100,738
Remvoe Temporary Access Connector to Causeway.	EA	1.00	320	615	1,339	336	2,610	3,885	13,573	13,573
Middle Falls	EA	1.00	52	1	5,951	1,800	7,804	13,374	28,853	28,853
Access for Crew and Equipment	LF	225.00	52	1	5,951	1,800	7,804	13,374	28,853	28,853
Construct Temporary Ladder Access	EA	1.00	52	1	5,951	1,800	7,804	13,374	28,853	28,853
Elm Street Dam	EA	1.00	1,682	6,128	15,121	532	23,463	35,372	72,429	72,429
Access Road & Ramps for Heavy Equipment	LF	165.00	1,168	5,149	12,903	0	19,220	29,023	59,430	59,430
Remove Temporary Access Road and Ramp	EA	1.00	514	979	2,218	532	4,242	6,348	12,999	12,999

Labor ID: EQ ID: EP22R01 Currency in US dollars This information system is approved for Controlled Unclassified Information (CUI)

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This Print Date Thu 29 August 2024 Eff. Date 7/17/2024	informatio	on system is I Project	approved for U.S. Army Co t : Royal River	r Controlled rps of Eng r Dam Ren	d Unclassifie ineers noval Projec	d Information (t	CUI)			Time 15:55:54
			New	Report					Project Cost Su	mmary Page 2
Description		Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Water Diversion Structures	EA	1.00	20,988	20,506	60,786	0	102,281	151,513	310,817	310,817
Middle Falls	EA	1.00	1,103	3,822	0	0	4,925	5,191	11,200	11,200
Permanent Main Channel Boulder Diversion Weir	EA	1.00	1,103	3,822	0	0	4,925	5,191	11,200	11,200
Elm Street Dam	EA	1.00	19,885	16,684	60,786	0	97,356	146,322	299,617	299,617
Upstream Dewatering	LF	123.00	19,885	16,684	60,786	0	97,356	146,322	299,617	299,617
Water Diversion Structure (To Erect and Dismantle)	LF	123.00	8,190	16,577	26,570	0	51,337	72,687	148,837	148,837
Emergency By-Pass Pump	EA	1.00	11,190	0	24,639	0	35,830	56,273	115,228	115,228
Temporay Culvert, Stone, and blast-matt bridging	EA	1.00	505	107	9,577	0	10,190	17,362	35,552	35,552
Stone Causeway	EA	1.00	12,759	45,258	52,500	28,125	138,641	144,244	503,949	503,949
Bridge Street Dam	EA	1.00	12,759	45,258	52,500	28,125	138,641	144,244	503,949	503,949
Importing riprap and spreading to creat causeway	HR	62.00	6,572	17,541	52,500	28,125	104,738	108,988	380,775	380,775
Remove Riprap Causeway after Dam Removal	EA	1.00	6,187	27,717	0	0	33,904	35,256	123,174	123,174
Demo and Remove Fish Ladders	EA	1.00	19,947	38,471	2,347	18,351	79,117	97,355	265,665	265,665
Bridge Street Dam	EA	1.00	9,038	18,584	978	8,848	37,447	45,859	160,220	160,220
Demo and Remove Existing Fishladder	EA	1.00	9,038	18,584	978	0	28,599	31,282	109,292	109,292
Concrete Disposal Fee	EA	1.00	0	0	0	8,848	8,848	14,577	50,928	50,928
Elm Street Dam	EA	1.00	10,910	19,887	1,369	9,503	41,669	51,495	105,444	105,444
Demo and Remove Existing Fishladder	EA	1.00	10,910	19,887	1,369	0	32,166	35,839	73,385	73,385
Concrete Disposal Fee	EA	1.00	0	0	0	9,503	9,503	15,657	32,059	32,059
Demo and Remove Masonry or Stone Block Dam	EA	1.00	32,662	88,359	0	0	121,021	128,551	369,131	369,131
Bridge Street Dam	EA	1.00	18,664	50,491	0	0	69,155	73,235	255,863	255,863
Remove 150' Long, 10' High Masonry/Granite Block Dam Spillway	EA	1.00	18,664	50,491	0	0	69,155	73,235	255,863	255,863
Elm Street Dam	EA	1.00	13,998	37,868	0	0	51,866	55,316	113,268	113,268
Remove 123' Long, 10' High Masonry/Granite Block Dam Spillway	EA	1.00	13,998	37,868	0	0	51,866	55,316	113,268	113,268
Demo and Remove Reinforced Concrete Dam	EA	1.00	13,998	37,868	0	45,472	97,338	54,926	266,812	266,812

Labor ID: EQ ID: EP22R01

Currency in US dollars This information system is approved for Controlled Unclassified Information (CUI) TRACES MII Version 4.4

This Print Date Thu 29 August 2024	informati	on system is	s approved for U.S. Army Co	r Controllee	d Unclassifie ineers	ed Information (CUI)			Time 15:55:54
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Description		Quantity	LaborCost	EQCost	MatlCost	SubBidCost	BareCost	CostToPrime	ContractCost	ProjectCost
Bridge Street Dam	EA	1.00	13,998	37,868	0	0	51,866	54,926	191,897	191,897
Remove 100' Long, 10' High, Reinforced Concrete Dam	EA	1.00	13,998	37,868	0	0	51,866	54,926	191,897	191,897
Concrete Disposal Fee	EA	1.00	0	0	0	45,472	45,472	0	74,915	74,915
Allowance for Sediment Dredging	EA	1.00	6,033	17,288	0	0	23,321	24,736	66,848	66,848
Bridge Street Dam	EA	1.00	2,742	7,858	0	0	10,600	11,201	39,135	39,135
Allowance for Dredging Sediment Behind Dams	EA	1.00	2,742	7,858	0	0	10,600	11,201	39,135	39,135
Elm Street Dam	EA	1.00	3,291	9,430	0	0	12,721	13,534	27,713	27,713
Allowance for Dredging Sediment Behind Dams	EA	1.00	3,291	9,430	0	0	12,721	13,534	27,713	27,713
Restorative Vegetative Plantings	EA	1.00	15,118	4,747	24,380	4,370	48,615	53,106	180,092	180,092
Bridge Street Dam	EA	1.00	9,954	3,452	18,970	3,622	35,998	39,119	136,670	136,670
Planting Restoration Up & Down Stream of Dam	SF	25,984.00	9,954	3,452	18,970	3,622	35,998	39,119	136,670	136,670
Plantings	SF	25,984.00	8,585	1,823	4,670	255	15,333	17,379	60,716	60,716
trees	SF	25,984.00	2,572	536	2,097	255	5,460	6,108	21,341	21,341
shrubs and flowers	SF	25,984.00	6,013	1,287	2,573	0	9,873	11,270	39,375	39,375
Elm Street Dam	EA	1.00	5,163	1,296	5,410	748	12,617	13,988	43,422	43,422
Planting Restoration Stream Banks	SF	14,574.00	5,163	1,296	5,410	748	12,617	13,988	43,422	43,422
Plantings	SF	16,430.00	4,925	1,012	2,933	165	9,036	10,221	35,708	35,708
trees	SF	16,430.00	1,627	338	1,309	165	3,439	3,848	13,443	13,443
shrubs and flowers	SF	16,430.00	3,298	675	1,625	0	5,597	6,373	22,265	22,265
Vehicle Gates, Fencing, and guard rail	EA	1.00	1,493	642	9,578	0	11,712	19,078	42,885	42,885
Bridge Street Dam	EA	1.00	172	0	1,400	0	1,572	2,641	9,228	9,228
Permanent Gate	EA	1.00	172	0	1,400	0	1,572	2,641	9,228	9,228
Elm Street Dam	EA	1.00	1,321	642	8,178	0	10,140	16,437	33,657	33,657
Permanent Fencing	EA	1.00	1,321	642	8,178	0	10,140	16,437	33,657	33,657