TOTAL PROJECT COST SUMMARY

BASED ON 35% DESIGN DATED 14 JULY 1997

PROJECT: HOWARD HANSON DAM FISH PASSAGE
LOCATION: HOWARD HANSON DAM, WASHINGTON

DISTRICT: SEATTLE
POC: OLTON SWANSON, CHIEF, COST ENGINEERING

	CURRENT MCACES ESTIMATE PREPARED: 26 Jan 98					AUTHORIZED/BUDGET YEAR:			FULLY FUNDED ESTIMATE		
	EFFECTIVE PRICING LEVEL: Oct 1997					EFFECTIVE PRICING LEVEL:					
ACCOUNT NUMBER	FEATURE DESCRIPTION	COST ($K)	CNTG ($K)	CNTC (%)	TOTAL ($K)	COST ($K)	CNTG ($K)	TOTAL ($K)	COST ($K)	CNTG ($K)	FULL ($K)
04	DAMS	37,810	7,562	20.0%	45,372				42,990	8,598	51,588
06	FISH AND WILDLIFE FACILITIES	5,581	1,117	20.0%	6,698				6,346	1,270	7,616
	TOTAL CONSTRUCTION COST	$43,391	$8,679	20.0%	$52,070				$49,336	$9,868	$59,204
01	LANDS AND DAMAGES	3,290	658	20.0%	3,948				3,815	763	4,578
30	PLANNING, ENGINEERING AND DESIGN	6,950	1,390	20.0%	8,340				7,450	1,490	8,940
31	CONSTRUCTION MANAGEMENT	3,471	694	20.0%	4,165				4,245	849	5,094
	TOTAL PROJECT COSTS	$57,102	$11,421	20.0%	$68,523				$64,846	$12,970	$77,816
	MONITORING	5,153	1,031	20.0%	6,184						
	TOTAL PROJECT COSTS PLUS MONITORING	62,255	12,452	20.0%	74,707						

THIS TPCS REFLECTS A PROJECT COST CHANGE OF _____

TOTAL FEDERAL COSTS _____

TOTAL NON-FEDERAL COSTS _____

THE MAXIMUM PROJECT COST IS _____

DISTRICT APPROVED:

Olton Swanson CHIEF, COST ENGINEERING

_____ CHIEF, REAL ESTATE

_____ CHIEF, PLANNING

_____ CHIEF, ENGINEERING

_____ CHIEF, CONSTRUCTION

_____ CHIEF, OPERATIONS

_____ CHIEF, PROGRAMS MANAGEMENT

_____ PROJECT MANAGER

_____ DDE (PM)

DIVISION APPROVED:

_____ CHIEF, COST ENGINEERING

_____ DIRECTOR, REAL ESTATE

_____ CHIEF, PROGAMS MANAGEMENT

_____ DIRECTOR OF PPMD

APPROVED DATE: _____

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TOTAL CONTRACT COST SUMMARY

BASED ON 35% DESIGN DATED 14 JULY 1997

PROJECT: HOWARD HANSON DAM FISH PASSAGE
LOCATION: HOWARD HANSON DAM, WASHINGTON

DISTRICT: SEATTLE
POC: OLTON SWANSON, CHIEF, COST ENGINEERING

		CURRENT MCACES ESTIMATE PREPARED: 26 Jan 98				AUTHORIZED/BUDGET YEAR:				FULLY FUNDED ESTIMATE				
		EFFECTIVE PRICING LEVEL: Oct 1997				EFFECTIVE PRICING LEVEL:								
ACCOUNT NUMBER	FEATURE DESCRIPTION	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	COST ($K)	CNTG ($K)	TOTAL ($K)	FEATURE MIDPT	OMB (%)	COST ($K)	CNTG ($K)	FULL ($K)
04	DAMS												
04.03	OUTLET WORKS	37,810	7,562	20.0%	45,372				OCT 02	13.7%	42,990	8,598	51,588
06	FISH AND WILDLIFE FACILITIES												
06.03	WILDLIFE FACILITIES AND SANCTUARY	5,581	1,117	20.0%	6,698				OCT 02	13.7%	6,346	1,270	7,616
	TOTAL CONSTRUCTION COST	$43,391	$8,679	20.0%	$52,070						$49,336	$9,868	$59,204
01	LANDS AND DAMAGES												
	PHASE I	1,381	276	20.0%	1,657				APR 99	7.2%	1,480	296	1,776
	PHASE II	1,909	382	20.0%	2,291				OCT 02	22.3%	2,335	467	2,802
30	PLANNING, ENGINEERING AND DESIGN	6,950	1,390	20.0%	8,340				APR 99	7.2%	7,450	1,490	8,940
31	CONSTRUCTION MANAGEMENT	3,471	694	20.0%	4,165				OCT 02	22.3%	4,245	849	5,094
	TOTAL PROJECT COSTS	$57,102	$11,421	20.0%	$68,523						$64,846	$12,970	$77,816
	MONITORING	5,153	1,031	20.0%	6,184								
	TOTAL PROJECT COSTS PLUS MONITORING	62,255	12,452	0	74,707								

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BASED ON 35% DESIGN DATED 14 JULY 1997

PROJECT: HOWARD HANSON DAM FISH PASSAGE
LOCATION: HOWARD HANSON DAM, WASHINGTON

DISTRICT: SEATTLE
POC: OLTON SWANSON, CHIEF, COST ENGINEERING

		CURRENT MCACES ESTIMATE PREPARED: 26 Jan 98				AUTHORIZED/BUDGET YEAR:			FULLY FUNDED ESTIMATE				
		EFFECTIVE PRICING LEVEL: Oct 1997				EFFECTIVE PRICING LEVEL:							
ACCOUNT NUMBER	FEATURE DESCRIPTION	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	COST ($K)	CNTG ($K)	TOTAL ($K)	FEATURE MIDPT	OMB (%)	COST ($K)	CNTG ($K)	FULL ($K)
04	DAMS												
04.03	OUTLET WORKS												
04.03.01	MOB, DEMOB & PREPARATORY WORK	820	164	20.0%	984								
04.03.03	CARE AND DIVERSION OF WATER												
04.03.01.02	COFFER DAM	3,503	701	20.0%	4,204								
04.03.03	PERMANENT ACCESS ROADS AND PARKING	2,002	400	20.0%	2,402								
04.03.05	BRIDGE	220	44	20.0%	264								
04.03.09	BUILDINGS	1,856	371	20.0%	2,227								
04.03.10	EARTHWORK FOR STRUCTURES	2,666	533	20.0%	3,199								
04.03.11	FOUNDATION WORK	2,010	402	20.0%	2,412								
04.03.12	SEEPAGE CONTROL												
04.03.12.1	CONSOLIDATION GROUTING	3,035	607	20.0%	3,642								
04.03.12.2	ADIT EXTENSION	724	145	20.0%	869								
04.03.12.3	FEEDER WELLS	249	50	20.1%	[illegible]								
04.03.12.4	HORIZONTAL DRAINS	375	75	20.0%	450								
04.03.12.5	PRESSURE GAGE	2	0	0.0%	2								
04.03.12.6	RE-PERFORATE FEEDER WELLS	21	4	19.0%	25								
04.03.12.7	ROCK BLANKET	2,500	500	20.0%	3,000								
04.03.29	APPROACH AND OUTLET CHANNELS	1,413	283	20.0%	1,696								
04.03.54	OUTLET PORTAL AND STILLING BASIN	75	15	20.0%	90								
04.03.55	TUNNEL AND CONDUIT	1,518	304	20.0%	1,822								
04.03.56	INTAKE STRUCTURE	6,846	1,369	20.0%	8,215								
04.03.57	INTAKE GATES AND EQUIPMENT	3,400	680	20.0%	4,080								
04.03.99	ELECTRICAL	1,314	263	20.0%	1,577								
04.03.99	CRANE	3,261	652	20.0%	3,913								
		37,810	7,562		45,372								
06	FISH AND WILDLIFE FACILITIES												
06.03	WILDLIFE FACILITIES AND SANCTUARY												
06.03.99	WILDLIFE HABITAT MITIGATION												
	PHASE 1	1,154	231	20.0%	1,385								
	PHASE 2	828	166	20.0%	994								
06.03.99	FISH HABITAT MITIGATION												
	PHASE 1	779	156	20.0%	935								
	PHASE 2	1,603	321	20.0%	1,924								
	FISH HABITAT RESTORATION PHASE 1	1,217	243	20.0%	1,460								
		5,581	1,117		6,698								
	TOTAL CONSTRUCTION COST	$43,391	$8,679	20.0%	$52,070								

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HOWARD HANSON DAM
ADDITIONAL WATER STORAGE FEASIBILITY STUDY
NARRATIVE

1. To accommodate a future increase in reservoir level at Howard Hanson Dam several safety and environmental measures must be implemented. A fish passage facility will be built next to the existing intake tower with a new tunnel constructed to tie into the existing tunnel. This structure will facilitate smolt travel downstream through a larger, less navigable reservoir. A consolidation grouting program will be initiated at the right bank to address potential reservoir seepage problems associated with the pool raise. Habitat loss will be mitigated by the enhancement of existing upland areas. Environmental restoration measures will be implemented as well. The need for additional right bank seepage repairs will be determined after construction is completed and the pool is raised.

2. The basis of the estimate is the feasibility level designs dated July 1997 and December 1996.

3a. The general construction schedule is attached.

3b. The need for overtime for any construction activities has not yet been determined.

3c. The fish window for the working in the reservoir for environmental restoration and mitigation is late July through the end of October. The construction window for working on the cofferdam is October through February when the pool is drawn down.

4. Subcontractors identified at this time for the fish collector tower include those for cofferdam, mining, reinforcing steel, structural steel, mechanical, electrical and service crane. Consolidation grouting will be a separate contract with no potential subcontractors foreseen at this time. The environmental work will consist of several contracts with no potential subcontractors identified at this time.

5a. Entrance to the Howard Hanson Dam Project site is controlled by the city of Tacoma. The site access roads will be established before cofferdam or intake tower is started. Access will be from crest of dam to existing upper left bank road or new lower left bank road (Fish Collector Bypass Road.) Access to dewatered reservoir area via the Forebay Access Road will be limited to track vehicle due to extreme grade. Access to tower area is also possible by using the existing tower access road or access bridge.

5b. The nearest borrow areas are located 10 miles away in Enumclaw, WA.

5c. Rock excavation for the access roads, collector foundation and discharge conduit will be accomplished by drilling and blasting. Off road trucks will haul away excavated materials.

7/21/97

Consolidation grouting is the only necessary reservoir seepage repair at this time. The need for additional measures will be determined after the pool is raised.

The fish collector will be constructed of normal weight reinforced concrete placed in lifts. Then structural, mechanical and electrical equipment will be installed. After the service crane is set up then the reservoir will be dewatered and the cofferdam removed.

Construction of the administration and support buildings will begin with time to allow for completion by the time the fish collector is fully functional.

5d. Unusual conditions encountered will involve soils and weather. All excavated rock will be limited in use as it will deteriorate rapidly after being mined. Work in the existing tunnel during the months of October through January may be interrupted by flood water releases.

5e. There are no unique techniques of construction currently being considered at this time. All methods are estimated as conventional practices at this level of design.

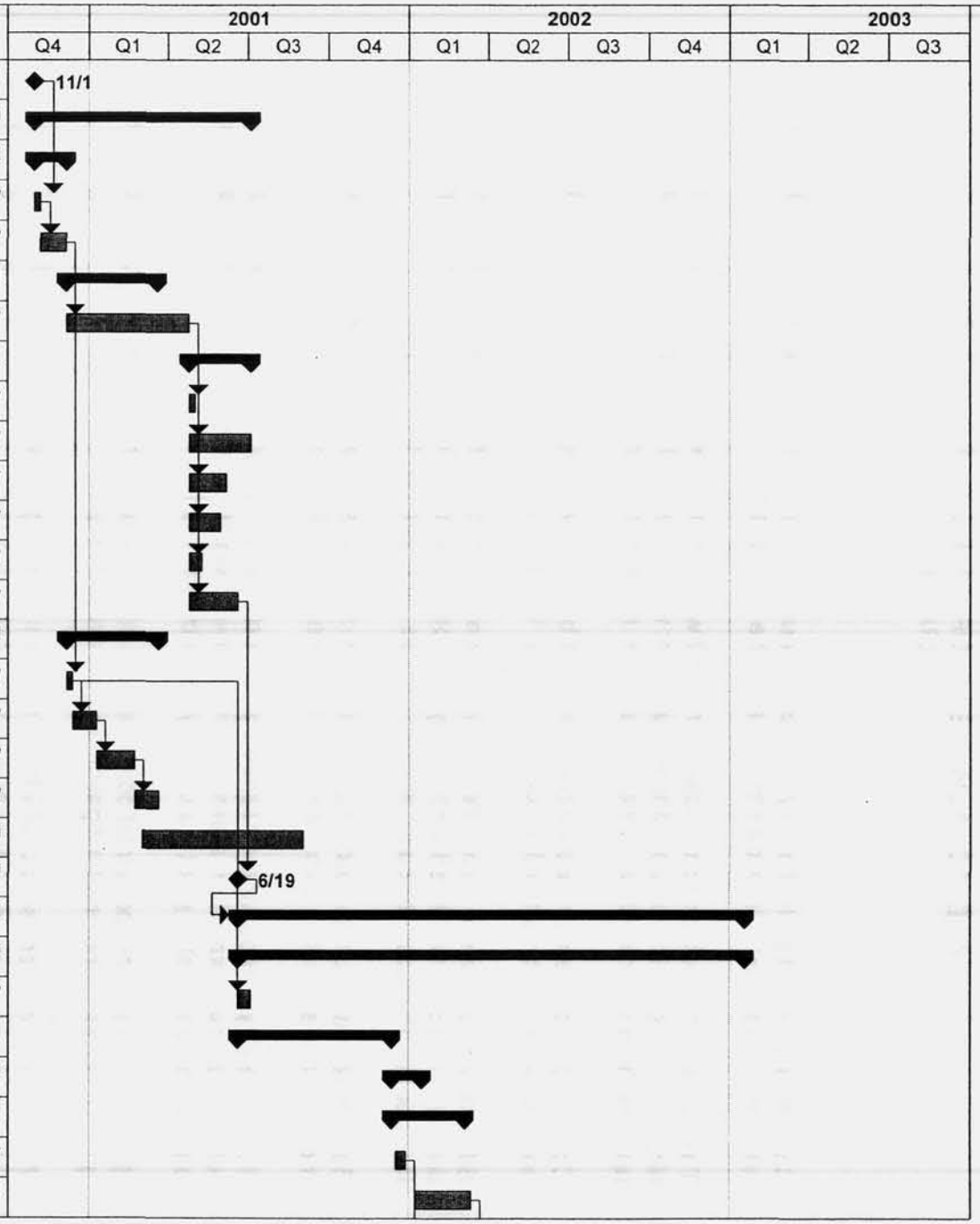
5f. Availability of labor and equipment is not foreseen as a problem. The project site is located within one hour from urban areas. There are two concrete plants located in Enumclaw, but an on-site concrete batch plant would likely be utilized instead.

6. There are no environmental concerns with construction of the fish collector, consolidation grouting, or environmental mitigation and restoration projects

7. Contingencies are set at 20% for all features including construction and in-house labor. Inflation factors used in full funded summary according to EC 1-2-169 dated March 31, 1996.

8. Labor rates are based on October 1997 King County union wages. Equipment rates and material prices are effective October 1995.

ID	Task Name	Duration
1	PROJECT START	0d
2	**PHASE I**	**175d**
3	**Project Office**	**25d**
4	Mobilization	1w
5	Construction	4w
6	**Access Road**	**74d**
15	Consolidation Grouting	20w
16	**ADD'L RIGHT BANK SEEPAGE REPAIRS (OPTIONA**	**50d**
17	Pressure Gage	1w
18	Adit Extension	10w
19	Seepage Adit Feeder Wells	6w
20	Horizontal Drains	5w
21	Re-perforate Feeder Wells	2w
22	Rock Blanket	8w
23	**Cofferdam**	**75d**
24	Mobilization of Floating Plant	1w
25	Rock Excavation	4w
26	Concrete Walls	6w
27	Steel Wall	4w
28	Habitat Restoration, 1169' Pool	131d
29	*End Phase I*	0d
30	**PHASE II**	**413d**
31	**Fish Collector**	**413d**
32	Mobilization	2w
33	**Foundation Excavation**	**125d**
36	**Foundation Prep**	**25d**
41	**TUNNELS**	**60d**
49	Foundation Construction	2w
50	Dewater Cofferdam	45d



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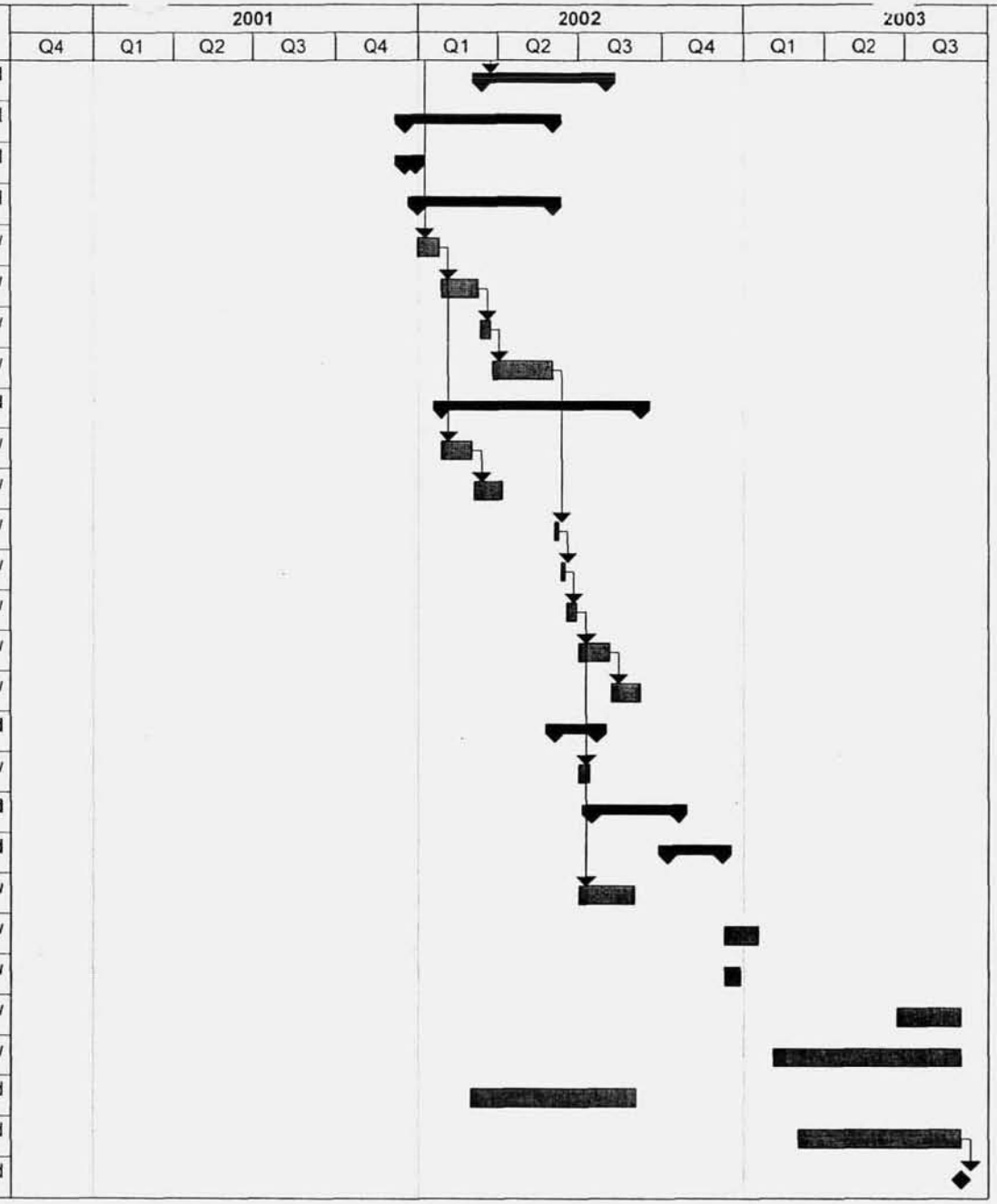
ID	Task Name	Duration
51	Channel Excavation	100d
55	Fish Collector Structural	120d
56	Existing Tower Mods	10d
59	Concrete, in Place	110d
60	Portal & Gate Room	4w
61	Fish Lock	6w
62	Fish Lock Regulation Well	2w
63	Wet Well Structure	10w
64	Mechanical Equipment	160d
65	Gate Guides	5w
66	Radial Gates	5w
67	Trash Rack	1w
68	Intake Horn	1w
69	Stoplogs	2w
70	Emergency Gates	5w
71	Gate Operating Machinery (hydraulics)	5w
72	COFFERDAM REMOVAL	35d
76	Access Deck	2w
77	Access/Ventilation Tower	70d
84	Access Bridge	45d
90	Sitework Electrical	9w
91	Tower Electrical	6w
92	Remote Controls	3w
93	Maintenance Building	10w
94	Administration Building	30w
95	Habitat Restoration, 1169' Pool	131d
96	Habitat Restoration	131d
97	PROJECT COMPLETION	0d



Howard Hanson Dam Additional Water Storage
Feasibility Report

Feature Description	Reconnaissance Report Oct 89	Feasibility Report Jan 98	Difference (Feasibility-Recon.)	Comments
Reservoir Clearing	$4,674	$0	-4,674	The current design specifies that this work is to be done by City of Tacoma at no cost to the project.
04 Dams	8,273	42,706	34,433	The fish passage structure is now a separate tower with a tunnel that ties into the existing tunnel. The structure selected in the reconnaissance report was for a fish collection structure attached to the existing tower.
08 Roads, Railroads and Bridges	2,073	2,666	593	The current design provides for a fish collector bypass road and a tower access road. The previous design was similar. Feature 08 is considered incidental in the Dam.
06 Fish & Wildlife Facilities	4,199	6,698	2,499	The new design includes multiple sites for restoration and mitigation.
31 Planning, Engineering & Design	1,811	8,340	6,529	Feature 30 is supported by estimates of labor. Also included is exploration, modeling and surveying.
30 Construction Management	905	4,165	3,260	Construction supervision and inspection is estimated at 16% of the total construction cost for the current design.
Monitoring	0	6,184		
01 Lands and Damages	0	3,948	3,948	A detailed cost breakdown has been calculated for the current design, while the previous design did not address this issue.
TOTAL PROJECT COSTS	$21,935	$74,707	$46,588	

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Fish Tower/Seepage Cntrl/Environ
Howard Hanson Dam Additional
Water Storage Feasibility Study
Green River, Washington

Designed By: U.S. Army Corps of Engineers
Estimated By: Seattle District

Prepared By: Cost Engineering Branch
William B. Garrott/Pierce

Preparation Date: 01/26/98
Effective Date of Pricing: 10/01/97
Est Construction Time: 1100 Days

Sales Tax: 8.60%

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No Backup Reports...

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04 DAMS									
04.03 OUTLET WORKS (FISH COLLECTOR)									
04.03.01 MOB, DEMOB & PREPARATORY WORK		666,823	62,313	29,165	45,498	12,057	4,079	819,936	
TOTAL MOB, DEMOB & PREPARATORY WORK		666,823	62,313	29,165	45,498	12,057	4,079	819,936	
04.03.03 CARE AND DIVERSION OF WATER									
04.03.03.01 Site Work		2,621,039	244,929	114,639	178,836	47,392	16,034	3,222,869	
04.03.03.15 Mechanical		226,935	21,206	9,926	15,484	4,103	1,388	279,043	
04.03.03.16 Power for Unwatering Pumps		733	69	32	50	13	4	901	
TOTAL CARE AND DIVERSION OF WATER		2,848,707	266,204	124,596	194,370	51,508	17,427	3,502,814	
04.03.04 PERMANENT ACCESS ROADS & PARKING									
04.03.04.02 Site Work		1,628,185	152,150	71,213	111,093	29,440	9,960	2,002,041	
TOTAL PERMANENT ACCESS ROADS & PARKING		1,628,185	152,150	71,213	111,093	29,440	9,960	2,002,041	
04.03.05 BRIDGE									
04.03.05.05 BRIDGES, FOUNDATIONS		11,477	1,072	502	783	208	70	14,112	
04.03.05.06 BRIDGES, ABUTMENTS AND PIERS		14,235	1,330	623	971	257	87	17,504	
04.03.05.07 BRIDGES, SUPERSTRUCTURE AND DECK		117,307	10,962	5,131	8,004	2,121	718	144,243	
04.03.05.08 BRIDGES, ASSOCIATED GENERAL ITEM		35,731	3,339	1,563	2,438	646	219	43,935	
TOTAL BRIDGE	125.00 LF	178,750	16,704	7,818	12,196	3,232	1,094	219,794	1758.35
04.03.09 BUILDINGS									
04.03.09.10 Site Prep		29,479	2,755	1,289	2,011	533	180	36,247	
04.03.09.20 Utilities		70,749	6,611	3,094	4,827	1,279	433	86,994	
04.03.09.25 Generator Building	900.00 SF	103,419	9,664	4,523	7,056	1,870	633	127,166	141.30
04.03.09.55 Fish Evaluation Facility	2500.00 SF	324,736	30,346	14,203	22,157	5,872	1,987	399,301	159.72
04.03.09.65 Resident Engineer Bldg	1.00 JOB	117,393	10,970	5,135	8,010	2,123	718	144,348	144348.48
04.03.09.95 Demolition		10,259	959	449	700	185	63	12,614	
TOTAL BUILDINGS		656,035	61,305	28,694	44,762	11,862	4,013	806,670	
04.03.10 EARTHWORK FOR STRUCTURES									

	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	INS/BOND	B&O TAX	TOTAL COST	UNIT COST
04.03.10.02 Site Work		2,168,262	202,620	94,836	147,944	39,205	13,264	2,666,153	
TOTAL EARTHWORK FOR STRUCTURES	38250.00 CY	2,168,262	202,620	94,836	147,944	39,205	13,264	2,666,153	69.70
04.03.11 FOUNDATION WORK									
04.03.11.00 Drainage Provisions	9500.00 LF	158,054	14,770	6,913	10,784	2,858	967	194,346	20.46
04.03.11.01 Foundation Preparation	5778.00 SY	107,033	10,002	4,681	7,303	1,935	655	131,609	22.78
04.03.11.02 Rock Anchors	1500.00 LF	34,955	3,266	1,529	2,385	632	214	42,981	28.65
04.03.11.03 Concrete	200.00 CY	186,631	17,440	8,163	12,734	3,375	1,142	229,484	1147.42
04.03.11.08 Fencing, construction safety	500.00 LF	6,388	597	279	436	116	39	7,855	15.71
04.03.11.10 Dewatering	3.00 MO	457,740	42,775	20,021	31,232	8,277	2,800	562,844	187614.66
04.03.11.11 Foundation Backfill	16000.00 CY	683,729	63,893	29,905	46,652	12,363	4,183	840,723	52.55
TOTAL FOUNDATION WORK	20000.00 SF	1,634,529	152,743	71,491	111,526	29,554	9,999	2,009,842	100.49
04.03.29 APPROACH AND OUTLET CHANNEL									
04.03.29.02 Site Work		1,149,290	107,398	50,268	78,417	20,781	7,031	1,413,184	
TOTAL APPROACH AND OUTLET CHANNEL	36000.00 CY	1,149,290	107,398	50,268	78,417	20,781	7,031	1,413,184	39.26
04.03.54 OUTLET PORTAL AND STILLING BASIN									
04.03.54.03 Metals		16,191	1,513	708	1,105	293	99	19,909	
04.03.54.20 Fish Monitoring Facilities		44,984	4,204	1,968	3,069	813	275	55,313	
TOTAL OUTLET PORTAL AND STILLING BASIN		61,176	5,717	2,676	4,174	1,106	374	75,223	
04.03.55 TUNNEL AND CONDUIT									
04.03.55.02 Site Work for All New Tunnels		312,486	29,201	13,667	21,321	5,650	1,912	384,238	
04.03.55.90 Tunnel Construction, 7'H X 8'W	150.00 LF	301,068	28,134	13,168	20,542	5,444	1,842	370,198	2467.98
04.03.55.91 Tunnel Extention, new Tower Site	25.00 LF	50,000	4,672	2,187	3,412	904	306	61,481	2459.23
04.03.55.97 24" Dia. Fish Pipe (from Tower	50.00 LF	12,183	1,138	533	831	220	75	14,980	299.61
04.03.55.98 48" Bypass (from Tower to Exist.	210.00 LF	129,734	12,123	5,674	8,852	2,346	794	159,523	759.63
04.03.55.99 Existing Tunnel Work	900.00 LF	429,324	40,119	18,778	29,293	7,763	2,626	527,904	586.56
TOTAL TUNNEL AND CONDUIT		1,234,795	115,388	54,007	84,251	22,327	7,554	1,518,323	
04.03.56 INTAKE STRUCTURE									
04.03.56.03 Concrete	12750.00 CY	4,951,353	462,691	216,562	337,836	89,527	30,290	6,088,259	477.51
04.03.56.05 Metals		537,145	50,195	23,494	36,650	9,712	3,286	660,482	
04.03.56.15 Mechanical (from MMD)		79,003	7,383	3,455	5,390	1,428	483	97,143	

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	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	INS/BOND	B&O TAX	TOTAL COST	UNIT COST
TOTAL INTAKE STRUCTURE	219.00 VLF	5,567,501	520,269	243,511	379,877	100,667	34,059	6,845,884	31259.74
04.03.57 INTAKE GATES AND EQUIPMENT									
04.03.57.05 Metals		2,169,192	202,705	94,876	148,006	39,222	13,270	2,667,272	
04.03.57.15 Mechanical		595,834	55,679	26,061	40,654	10,773	3,645	732,647	
TOTAL INTAKE GATES AND EQUIPMENT		2,765,027	258,385	120,936	188,661	49,995	16,915	3,399,919	
04.03.98 ELECTRICAL									
04.03.98.1 Demolition		28,423	2,656	1,243	1,939	514	174	34,950	
04.03.98.2 Lighting		74,501	6,962	3,259	5,083	1,347	456	91,607	
04.03.98.3 Electric Power and Lighting		269,424	25,177	11,784	18,383	4,872	1,648	331,287	
04.03.98.4 Standby Power Equipment		332,143	31,038	14,527	22,662	6,006	2,032	408,408	
04.03.98.5 Controls & Instrumentation		346,138	32,346	15,139	23,617	6,259	2,117	425,616	
04.03.98.6 Telephone		17,687	1,653	774	1,207	320	108	21,748	
TOTAL ELECTRICAL		1,068,315	99,831	46,726	72,892	19,316	6,535	1,313,617	
04.03.99 CRANE									
04.03.99.14 Permanent Operating Equipment		2,652,144	247,836	115,999	180,959	47,954	16,224	3,261,117	
TOTAL CRANE		2,652,144	247,836	115,999	180,959	47,954	16,224	3,261,117	
TOTAL OUTLET WORKS (FISH COLLECTOR)	219.00 VLF	24,279,560	2,268,862	1,061,937	1,656,622	439,005	148,530	29,854,515	136321.99
04.12 SEEPAGE CONTROL									
04.12.04 CONSOLIDATION GROUTING									
04.12.04.02 Site Work		2,498,724	199,898	107,945	168,394	44,624	15,098	3,034,683	
TOTAL CONSOLIDATION GROUTING	25510.00 LF	2,498,724	199,898	107,945	168,394	44,624	15,098	3,034,683	118.96
04.12.06 ADIT EXTENSION									
04.12.06.02 Site Work		595,862	47,671	25,741	40,156	10,641	3,600	723,673	
TOTAL ADIT EXTENSION	200.00 LF	595,862	47,671	25,741	40,156	10,641	3,600	723,673	3618.36
04.12.08 FEEDER WELLS									

	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	INS/BOND	B&O TAX	TOTAL COST	UNIT COST
04.12.08.02 Site Work		205,465	16,437	8,876	13,847	3,669	1,241	249,535	
TOTAL FEEDER WELLS	5.00 EA	205,465	16,437	8,876	13,847	3,669	1,241	249,535	49907.10
04.12.10 HORIZONTAL DRAINS FOR EXISTING									
04.12.10.02 Site Work		308,539	24,683	13,329	20,793	5,510	1,864	374,719	
TOTAL HORIZONTAL DRAINS FOR EXISTING	4500.00 LF	308,539	24,683	13,329	20,793	5,510	1,864	374,719	83.27
04.12.12 PRESSURE GAGE									
04.12.12.02 Site Work		1,624	130	70	109	29	10	1,972	
TOTAL PRESSURE GAGE	1.00 EA	1,624	130	70	109	29	10	1,972	1972.16
04.12.14 RE-PERFORATE FEEDER WELLS									
04.12.14.02 Site Work		17,129	1,370	740	1,154	306	103	20,803	
TOTAL RE-PERFORATE FEEDER WELLS	10.00 EA	17,129	1,370	740	1,154	306	103	20,803	2080.31
04.12.16 ROCK BLANKET									
04.12.16.02 Site Work		2,059,013	164,721	88,949	138,761	36,772	12,441	2,500,657	
TOTAL ROCK BLANKET	69000.00 CY	2,059,013	164,721	88,949	138,761	36,772	12,441	2,500,657	36.24
TOTAL SEEPAGE CONTROL		5,686,356	454,911	245,651	383,215	101,552	34,358	6,906,043	
TOTAL DAMS		29,965,916	2,722,773	1,307,588	2,039,837	540,557	182,888	36,760,557	
06 FISH AND WILDLIFE FACILITIES									
06.03 Wildlife Facilities & Sanctuary									
06.03.9A Wildlife Habitat									
06.03.9A.01 Wildlife Habitat Mitigation Ph 1		961,462	79,417	31,226	58,966	16,966	5,740	1,153,777	
06.03.9A.05 Wildlife Habitat Mitigation Ph 2		690,501	57,035	22,426	42,348	12,185	4,122	828,618	
TOTAL Wildlife Habitat		1,651,963	136,452	53,652	101,314	29,151	9,863	1,982,395	
06.03.9B Fish Habitat									

	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	INS/BOND	B&O TAX	TOTAL COST	UNIT COST
06.03.9B.01 Fish Habitat Mitigation Ph 1		649,170	53,621	21,084	39,813	11,455	3,876	779,019	
06.03.9B.02 Fish Habitat Mitigation Ph 2		1,014,002	83,757	32,933	62,188	17,893	6,054	1,216,826	
06.03.9B.05 Fish Habitat Mitigation Ph 2		1,336,016	110,355	43,391	81,937	23,575	7,976	1,603,251	
TOTAL Fish Habitat		2,999,188	247,733	97,408	183,938	52,924	17,906	3,599,097	
TOTAL Wildlife Facilities & Sanctuary		4,651,151	384,185	151,060	285,252	82,075	27,769	5,581,491	
TOTAL FISH AND WILDLIFE FACILITIES		4,651,151	384,185	151,060	285,252	82,075	27,769	5,581,491	
19 BUILINDGS, GROUNDS, & UTILITIES									
19.00 Maintenance Shop									
19.00.01 Substructure	2400.00 SF	73,957	6,109	2,402	4,536	1,305	442	88,750	36.98
19.00.02 Structural Frame	2400.00 SF	40,690	3,361	1,322	2,495	718	243	48,829	20.35
19.00.03 Roofing	2400.00 SF	15,295	1,263	497	938	270	91	18,354	7.65
19.00.04 Exterior Closure	2400.00 SF	58,728	4,851	1,907	3,602	1,036	351	70,475	29.36
19.00.05 Interior Construction	2400.00 SF	12,466	1,030	405	765	220	74	14,960	6.23
19.00.06 Interior Finishes	2400.00 SF	3,856	319	125	237	68	23	4,628	1.93
19.00.07 Specialties	2400.00 SF	33,250	2,746	1,080	2,039	587	199	39,901	16.63
19.00.08 Plumbing	2400.00 SF	12,547	1,036	408	770	221	75	15,057	6.27
19.00.09 Heating,Ventilation & Air Condit	2400.00 SF	15,851	1,309	515	972	280	95	19,022	7.93
19.00.10 Special Mechanical Systems	2400.00 SF	1,722	142	56	106	30	10	2,067	0.86
19.00.11 Interior Electrical	2400.00 SF	24,996	2,065	812	1,533	441	149	29,996	12.50
19.00.12 Special Interior Electrical Syst	2400.00 SF	867	72	28	53	15	5	1,041	0.43
TOTAL Maintenance Shop	2400.00 SF	294,227	24,303	9,556	18,045	5,192	1,757	353,080	147.12
19.10 Administration Building, Single									
19.10.01 Substructure	3500.00 SF	43,293	3,576	1,406	2,655	764	258	51,952	14.84
19.10.02 Structural Frame	3500.00 SF	33,164	2,739	1,077	2,034	585	198	39,798	11.37
19.10.03 Roofing	3500.00 SF	24,000	1,982	779	1,472	424	143	28,800	8.23
19.10.04 Exterior Closure	3500.00 SF	85,415	7,055	2,774	5,238	1,507	510	102,501	29.29
19.10.05 Interior Construction	3500.00 SF	41,259	3,408	1,340	2,530	728	246	49,511	14.15
19.10.06 Interior Finishes	3500.00 SF	29,728	2,456	965	1,823	525	177	35,674	10.19
19.10.07 Specialties	3500.00 SF	2,616	216	85	160	46	16	3,140	0.90
19.10.08 Plumbing	3500.00 SF	25,799	2,131	838	1,582	455	154	30,959	8.85
19.10.09 Heating,Ventilation & Air Condit	3500.00 SF	111,625	9,220	3,625	6,846	1,970	666	133,952	38.27
19.10.11 Interior Electrical	3500.00 SF	24,781	2,047	805	1,520	437	148	29,738	8.50
19.10.12 Special Interior Electrical Syst	3500.00 SF	1,674	138	54	103	30	10	2,008	0.57
TOTAL Administration Building, Single	3500.00 SF	423,353	34,969	13,750	25,964	7,471	2,528	508,033	145.15
19.98 Maint. Bldg. Support Facilities									
19.98.18 Utility Lines & Service									

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	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	INS/BOND	B&O TAX	TOTAL COST	UNIT COST
19.98.18.01 Utilities		39,745	3,283	1,291	2,438	701	237	47,695	
TOTAL Utility Lines & Service		39,745	3,283	1,291	2,438	701	237	47,695	
19.98.22 Parking Lots and Service Roads									
19.98.22 Site Work		15,189	1,255	493	932	268	91	18,227	
TOTAL Parking Lots and Service Roads		15,189	1,255	493	932	268	91	18,227	
TOTAL Main Bldg. Suppo. Facilities		54,934	4,538	1,784	3,369	969	328	65,922	
19.99 Admin. Bldg. Support Facilities									
19.99.18 Utility Lines & Service									
19.99.18.01 Utilities		73,812	6,097	2,397	4,527	1,303	441	88,577	
TOTAL Utility Lines & Service		73,812	6,097	2,397	4,527	1,303	441	88,577	
19.99.22 Parking Lots and Service Roads									
19.99.22.02 Site Work		28,591	2,362	929	1,753	505	171	34,310	
TOTAL Parking Lots and Service Roads		28,591	2,362	929	1,753	505	171	34,310	
TOTAL Admin. Bldg. Support Facilities		102,404	8,459	3,326	6,280	1,807	611	122,887	
TOTAL BUILINDGS, GROUNDS, & UTILITIES	2.00 EA	874,918	72,268	28,416	53,658	15,439	5,223	1,049,922	524961.02
TOTAL Fish Tower/Seepage Cntrl/Environ	1.00 EA	35,491,984	3,180,226	1,487,063	2,378,746	638,070	215,880	43,391,971	43391971