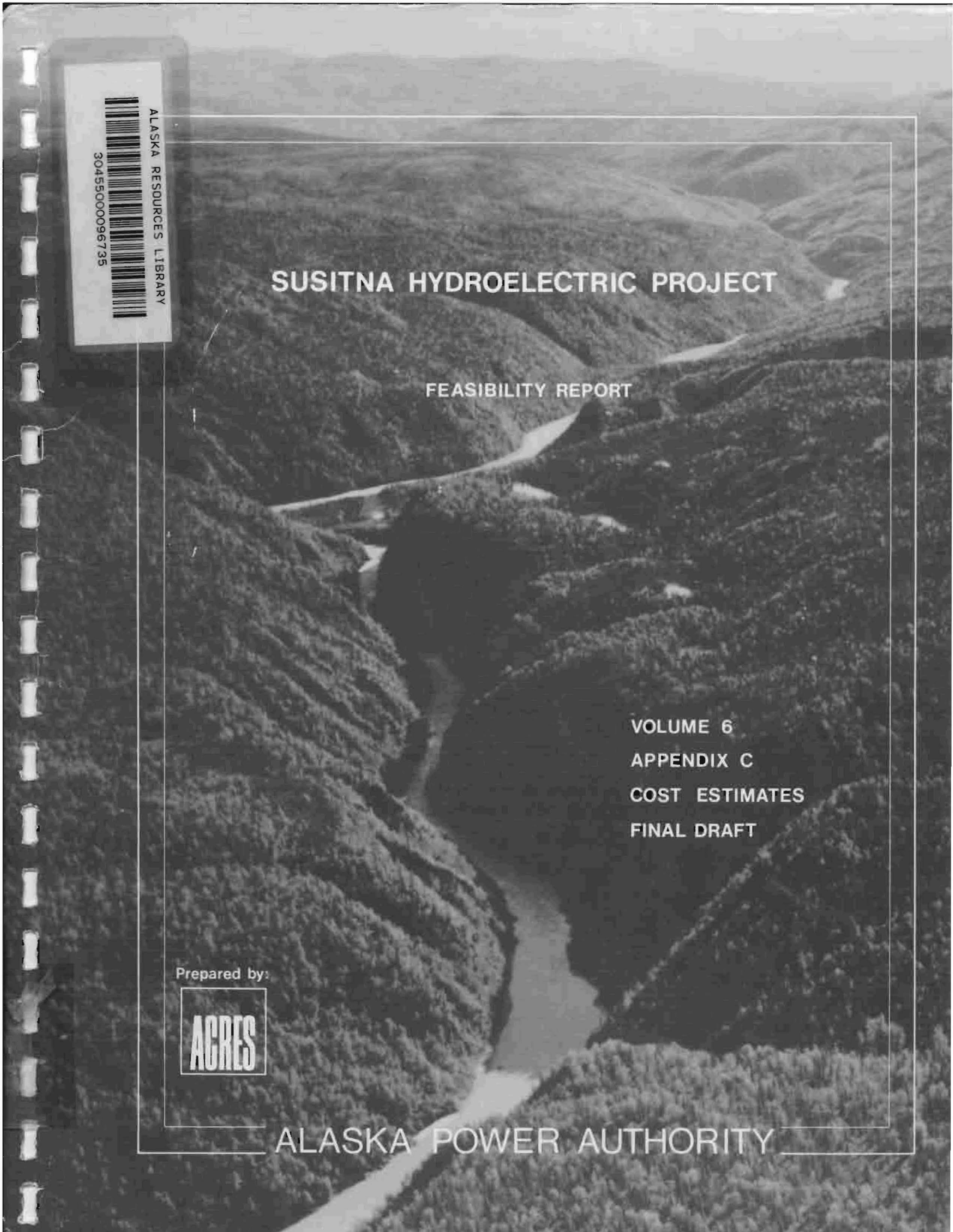

SUSITNA HYDROELECTRIC PROJECT

FEASIBILITY REPORT

VOLUME 6
APPENDIX C
COST ESTIMATES
FINAL DRAFT

Prepared by:
ACRES

ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT

FEASIBILITY REPORT

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APPENDIX C

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APPENDIX C1

WATANA HYDROELECTRIC DEVELOPMENT - ESTIMATE OF COST

The attached sheets provide a detailed breakdown of the Watana Hydroelectric Development estimate of cost. The following explanatory notes apply to the attached sheets:

- The estimate includes all costs related to the power development. In addition to power facilities, the estimate includes costs for access, site facilities, transmission facilities, engineering, and owner's costs;

- All costs are in January 1982 dollars;

- The estimate follows the Federal Energy Regulatory Commission's (FERC) format. All FERC accounts applicable to hydroelectric developments are listed. Notes have been included throughout the estimate to indicate wherever costs have been included in other accounts. Major accounts are divided into subaccounts. In general, structures are designated by subaccounts with a further breakdown by type of work;

- Accounts 330 through 339 cover Production Plant and Transmission Plant. These are the estimated costs for the construction work and include contractor's direct and indirect costs;

- Accounts 389 through 339 cover General Plant. The estimated costs of this plant have been shown under Account 399;

- Accounts 61 through 69 cover Indirect Costs. These accounts generally include costs which are not attributable to any specific structure or item of work. For this estimate, only Account 63, Camp and Commissary, has been used. Other indirect costs have been included in the appropriate costs for Production and Transmission Plant;

- In Account 63, the following major costs have generally been included:

  . Construction of camps and villages;
  . Operation and maintenance of camps and village;
  . Electric power; and
  . Construction heating and ventilating.

  The one exception to the above is Transmission Plant where the costs of camp have been included in the costs;

- A contingency has been added to the subtotal of costs included under Production Plant, Transmission Plant, General Plant, and Indirect Costs to give a total construction cost; and

- Accounts 71 through 80 cover Overhead Construction costs. For this estimate, the engineering and owner's costs have been shown as a percentage under Account 71.

The preparation of the cost estimate included the following steps:

- Preparation of a detailed analysis of labor, material, and equipment costs for each item of work;

- Summarizing of the above data for labor, material, and equipment for input into the computer program for each item of work; and

- Production of a computer summary of the cost estimate in the format as attached. As a result of this procedure, unit prices have not been rounded, but in general, the accuracy should be considered reliable to three significant figures.

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
PRODUCTION PLANT							
330	LAND & LAND RIGHTS						
.1	LAND						
	LAND	1	LS	51,000,000.00	51,000		
.2	LAND RIGHTS						
	LAND RIGHTS - IN ABOVE	0	LS	0.00	0		
.3	MISC CHARGES & CREDITS						
	MISC CHARGES/CREDIT-IN ABOVE	0	LS	0.00	0		
						51,000	
331	POWERPLANT STRUCTURE IMPROVEMENTS						
.1	POWERHOUSE						
.11	POWERHOUSE & DRAFT TUBE						
.111	EXCAVATION						
	POWERHOUSE VAULT ROCK	122,500	CY	45.47	5,570		
	DRAFT TUBE ROCK	25,200	CY	45.47	1,146		
					6,716		
.113	SURFACE PREPARATION/GROUTING						
	POWERHOUSE						
	SURFACE PREPARATION	99,000	SF	1.48	147		
	DRAFT TUBE						
	SURFACE PREPARATION	76,500	SF	1.48	113		
	GROUT CURTAIN (U/S OF P-H)						
	DRILL HOLES	43,800	LF	12.72	557		
	CEMENT	17,500	CF	37.34	653		
					1,470		
.114	CONCRETE & SHOTCRETE						
	POWERHOUSE						
	CONCRETE	32,600	CY	319.00	10,399		
	CONC OVERBREAK 12"H/6"V	2,400	CY	205.90	494		
	REINFORCING STEEL	1,630	TON	1,328.20	2,165		
	4" SHOTCRETE	41,000	SF	4.67	191		
	DRAFT TUBE						
	CONCRETE	12,000	CY	319.00	3,828		
	CONCRETE OVERBREAK 6"	2,500	CY	205.90	515		
	REINFORCING STEEL	990	TON	1,328.20	1,315		
	2" SHOTCRETE	6,100	SF	2.42	15		
					18,922		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.115	SUPPORT & ANCHORS						
	POWERHOUSE						
	ROCKBOLTS 1" @ 25' HY	970	EACH	573.82	557		
	ROCKBOLTS 1" @ 15'	1,970	EACH	341.92	674		
	STEEL MESH	44,600	SF	2.70	120		
	STEEL SUPPORT	137	TON	5,888.45	807		
	DRAFT TUBE						
	ROCKBOLTS 1" @ 25' HY	150	EACH	573.82	86		
	ROCKBOLTS 1" @ 12'	390	EACH	245.51	96		
	ROCKBOLTS 1" @ 9'	190	EACH	200.80	38		
	STEEL MESH	18,900	SF	2.91	55		
					2,432		
.117	DRAINAGE						
	HOLES (U/S OF POWERHOUSE)	15,000	LF	22.79	342		
	HOLES (POWERHOUSE CROWN)	28,500	LF	22.79	650		
					991		
.118	STRUCTURAL - MISC STEELWORK						
	POWERHOUSE & DRAFT TUBE						
	STRUCTURAL STEEL/CRANE RAILS	1	LS	3,049,350.00	3,049		
					3,049		
.119	ARCHITECTURAL						
	POWERHOUSE						
	ARCHITECTURAL	1	LS	1,235,400.00	1,235		
					1,235		
.11C	MECHANICAL						
	DRAFT TUBE GATES	4	SETS	190,000.00	760		
	DRAFT TUBE GATE GUIDES	6	SETS	90,000.00	540		
	DRAFT TUBE CRANE	1	LS	600,000.00	600		
					1,900		
					36,717		
.12	ACCESS TUNNELS & PORTALS						
.121	EXCAVATION						
	TUNNELS - ROCK						
	MAIN TUNNEL	50,250	CY	49.17	2,471		
	TRANSFORMER GALLERY TUNNEL	17,750	CY	49.17	873		
	GROUTING GALLERY TUNNEL	1,900	CY	199.82	380		
	SURGE CHAMBER ACCESS TUNNEL	7,250	CY	73.27	531		
	PENSTOCK ACCESS TUNNEL	61,500	CY	73.27	4,506		
	PENSTOCK ELBOW ACCESS TUNNEL	15,000	CY	73.27	1,099		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	ACCESS SHAFT TUNNEL	1,300	CY	73.27	95		
	CONNECTOR TUNNEL	1,900	CY	191.36	364		
	PORTALS						
	OVERBURDEN	6,000	CY	8.66	52		
	ROCK	3,000	CY	24.88	75		
					10,445		
.123	SURFACE PREPARATION						
	TUNNELS						
	MAIN TUNNEL SLAB	53,100	SF	1.02	54		
	PENSTOCK ACCESS TUNNEL SLAB	65,200	SF	1.02	67		
	MAIN PORTAL						
	HORIZONTAL	200	SF	1.02	0		
	INCLINED	2,100	SF	1.48	3		
					124		
.124	CONCRETE & SHOTCRETE						
	MAIN PORTAL						
	CONCRETE SLAB	30	CY	187.05	6		
	CONCRETE WALLS	570	CY	187.05	107		
	CONCRETE OVERBREAK 12'H/9"V	50	CY	169.65	8		
	REINFORCING STEEL	40	TON	1,328.20	53		
	TUNNELS						
	CONCRETE SLAB MAIN TUNNEL	1,950	CY	232.00	452		
	CONC PLUGS PENST ELBOW ACC	15,000	CY	348.00	5,220		
	CONC OVERBREAK MAIN TUN 6"	1,000	CY	159.50	160		
	REINFORCING STEEL	70	TON	1,328.20	93		
	2" SHOTCRETE MAIN TUNNEL	20,100	SF	2.42	49		
	2" SHOTCRETE TRANSFORMER GAL	7,100	SF	2.42	17		
	2" SHOTCRETE SURGE CHAMB ACC	3,900	SF	2.42	9		
	2" SHOTCRETE PENSTOCK ACCESS	24,700	SF	2.42	60		
	2" SHOTCRETE PENST ELBOW ACC	7,100	SF	2.42	17		
	2" SHOTCRETE ACCESS SHAFT	300	SF	2.42	1		
	2" SHOTCRETE GROUT GALLERY	800	SF	2.42	2		
	2" SHOTCRETE CONNECTOR TUN	800	SF	2.42	2		
					6,256		
.125	SUPPORT & ANCHORS						
	MAIN TUNNEL						
	ROCKBOLTS 1" @ 12'	1,200	EACH	245.51	295		
	ROCKBOLTS 1" @ 9'	250	EACH	200.80	50		
	STEEL MESH	63,000	SF	2.93	185		
	STEEL SUPPORT	66	TON	5,888.45	389		
	MAIN TUNNEL PORTAL						
	ROCKBOLTS 1" @ 15'	50	EACH	341.92	17		
	TRANSFORMER GALLERY TUNNEL						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	ROCKBOLTS 1" @ 12'	410	EACH	245.51	101		
	ROCKBOLTS 1" @ 9'	70	EACH	200.80	14		
	STEEL MESH	22,500	SF	2.70	61		
	STEEL SUPPORT	24	TON	5,888.45	141		
	GROUTING GALLERY TUNNEL						
	ROCKBOLTS 3/4" @ 6'	160	EACH	152.02	24		
	STEEL MESH	160	SF	2.93	0		
	STEEL SUPPORT	2	TON	5,888.45	12		
	SURGE CHAMBER TUNNEL						
	ROCKBOLTS 1" @ 12'	230	EACH	245.51	56		
	ROCKBOLTS 1" @ 9'	50	EACH	200.80	10		
	STEEL MESH	12,050	SF	2.93	35		
	STEEL SUPPORT	14	TON	5,888.45	82		
	PENSTOCK ACCESS TUNNEL						
	ROCKBOLTS 1" @ 12'	1,430	EACH	245.51	351		
	ROCKBOLTS 1" @ 9'	240	EACH	200.80	48		
	STEEL MESH	77,500	SF	2.93	227		
	STEEL SUPPORT	58	TON	5,888.45	342		
	PENSTOCK ELBOW ACCESS TUNNEL						
	ROCKBOLTS 1" @ 12'	420	EACH	245.51	103		
	ROCKBOLTS 1" @ 9'	120	EACH	200.80	24		
	STEEL MESH	22,500	SF	2.93	66		
	STEEL SUPPORT	30	TON	5,888.45	177		
	ACCESS SHAFT TUNNEL						
	ROCKBOLTS 1" @ 12'	20	EACH	245.51	5		
	ROCKBOLTS 1" @ 9'	20	EACH	200.80	4		
	STEEL MESH	930	SF	2.93	3		
	STEEL SUPPORT	8	TON	5,888.45	47		
	CONNECTOR TUNNEL						
	ROCKBOLTS 3/4" @ 6'	160	EACH	152.02	24		
	STEEL MESH	160	SF	2.93	0		
	STEEL SUPPORT	2	TON	5,888.45	12		
					2,906		
.129	ARCHITECTURAL						
	MAIN PORTAL DOORS	2	SETS	70,325.00	141		
					141		
.12C	MECHANICAL						
	VENTILATING SYSTEM						
	(INCL IN 63.81 & 63.82)						
					0		
					19,871		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.13	ACCESS SHAFT						
.131	EXCAVATION						
	ROCK	13,700	CY	114.87	1,574		
					1,574		
.133	SURFACE PREPARATION						
	SHAFT	64,000	SF	1.48	95		
					95		
.134	CONCRETE & SHOTCRETE						
	CONCRETE LINING	3,350	CY	435.00	1,457		
	CONCRETE OVERBREAK 6"	1,220	CY	253.75	310		
					1,767		
.135	SUPPORT & ANCHORS						
	ROCKBOLTS 3/4" @ 6'	1,050	EACH	152.02	160		
					160		
.138	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	50	TON	3,436.50	172		
					172		
.139	ARCHITECTURAL						
	CONTROL BUILDING						
	(INCL IN 331.2 CONT BLDG)						
					0		
.13C	MECHANICAL						
	ELEVATORS	1	LS	999,500.00	1,000		
					1,000		
					4,766		
.14	FIRE PROTECTION HEADTANK						
.141	EXCAVATION						
	ROCK	1,150	CY	279.85	322		
					322		
.143	SURFACE PREPARATION						
	HEADTANK	2,800	SF	1.02	3		
					3		
.144	CONCRETE & SHOTCRETE						
	CONCRETE	250	CY	443.70	111		
	CONC OVERBREAK 6"	45	CY	187.05	8		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	REINFORCING STEEL	10	TON	1,328.20	13		
					133		
.145	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 12'	25	EACH	245.51	6		
	ROCKBOLTS 1" @ 9'	10	EACH	200.80	2		
	STEEL MESH	1,200	SF	2.93	4		
	STEEL SUPPORT	2	TON	5,888.45	12		
					23		
.148	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	1	LS	21,750.00	22		
					22		
.14C	MECHANICAL PIPING/VALVES - (INCL IN 335.12)						
					0		
					502		
.15	BUS TUNNELS (TOTALS FOR 3 BUS TUNNELS)						
.151	EXCAVATION						
	ROCK HORIZONTAL	2,700	CY	107.82	291		
	ROCK INCLINED	1,300	CY	303.24	394		
					685		
.153	SURFACE PREPARATION						
	TUNNELS	7,100	SF	1.48	11		
					11		
.154	CONCRETE & SHOTCRETE						
	CONCRETE SLAB	350	CY	377.00	132		
	CONCRETE OVERBREAK 12"	250	CY	217.50	54		
	REINFORCING STEEL	18	TON	1,328.20	24		
	2" SHOTCRETE	2,200	SF	2.42	5		
					216		
.155	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25'	60	EACH	573.82	34		
	ROCKBOLTS 1" @ 12'	140	EACH	245.51	34		
	ROCKBOLTS 1" @ 9'	50	EACH	200.80	10		
	STEEL MESH	6,800	SF	2.93	20		
	STEEL SUPPORT	11	TON	5,888.45	65		
					164		
					1,075		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.16	TRANSFORMER GALLERY						
.161	EXCAVATION						
	ROCK	26,800	CY	41.56	1,114		
					1,114		
.163	SURFACE PREPARATION						
	TRANSFORMER GALLERY	24,600	SF	1.02	25		
					25		
.164	CONCRETE & SHOTCRETE						
	CONCRETE BASE SLAB	2,400	CY	565.50	1,357		
	CONC OVERBREAK 12"H/6"V	770	CY	174.00	134		
	REINFORCING STEEL	120	TON	1,328.20	159		
					1,651		
.165	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25′ HY	600	EACH	573.82	344		
	ROCKBOLTS 1" @ 15′	270	EACH	341.92	92		
	STEEL MESH	20,700	SF	2.70	56		
	STEEL SUPPORT	29	TON	5,888.45	171		
					663		
.167	DRAINAGE						
	HOLES (IN GALLERY CROWN)	8,300	LF	22.79	189		
					189		
					3,642		
.17	CABLE SHAFTS						
	(TOTALS FOR 2 SHAFTS)						
.171	EXCAVATION						
	ROCK	3,400	CY	303.24	1,031		
					1,031		
.173	SURFACE PREPARATION						
	SHAFTS	41,400	SF	1.48	61		
					61		
.174	CONCRETE & SHOTCRETE						
	CONCRETE LINING	1,040	CY	812.00	844		
	CONCRETE OVERBREAK 6"	800	CY	406.00	325		
					1,169		
.175	SUPPORT & ANCHORS						
	ROCKBOLTS 3/4" @ 6′	650	EACH	152.02	99		
					99		

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				$	$ 000	$ 000	
.178	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	18	TON	7,250.00	131		
					131		
.179	ARCHITECTURAL						
	ENCLOSURES	1	LS	84,100.00	84		
					84		
.17C	MECHANICAL						
	MANHOIST	2	EACH	220,000.00	440		
					440		
					3,015		
.18	DEWATERING (DURING CONSTRUCT.)						
.181	DEWATERING (POWER FACILITIES)						
	DEWATERING	1	LS	564,050.00	564		
					564		
					564		
.19	INSTRUMENTATION						
.191	INSTRUMENTATION						
	INSTRUMENTATION	1	LS	723,550.00	724		
					724		
					724		
.2	MISC. BUILDINGS & STRUCTURES						
	CONTROL BUILDING	1	LS	1,870,500.00	1,871		
					1,871		
.3	PERMANENT TOWN						
	(INCLUDED IN 63.5)						
					0		
						72,747	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
332	RESERVOIR, DAMS & WATERWAYS						
	.1 RESERVOIR						
	.11 CLEARING						
	CLEARING	37,500	ACRE	1,450.00	54,375		
					54,375		
	.2 DIVERSION TUNNELS/COFFERDAMS						
	.21 DIVERSION TUNNELS/PORTALS - (INCL COMBINED TAILRACE/DIVERSION TUNNEL & PORTAL - SEE 332.9)						
	.211 EXCAVATION						
	UPPER TUNNEL						
	ROCK	221,000	CY	46.73	10,327		
	LOWER TUNNEL						
	ROCK	208,000	CY	46.73	9,720		
	EXCAVATE CONCRETE FOR PLUG	700	CY	46.73	33		
	UPSTREAM UPPER PORTAL						
	ROCK USEABLE (FACE ONLY)	11,200	CY	24.88	279		
	UPSTREAM LOWER PORTAL (INCL MOST EXC FOR UPPER PORTAL)						
	ROCK USEABLE	108,000	CY	24.88	2,687		
	ROCK WASTE	21,750	CY	24.88	541		
	DOWNSTREAM PORTALS						
	OVERBURDEN	17,000	CY	8.66	147		
	ROCK USEABLE	120,000	CY	24.88	2,986		
	ROCK WASTE	28,000	CY	24.88	697		
	EMERGENCY RELEASE CHAMBERS						
	EXCAVATE CONCRETE FOR PLUGS	1,800	CY	49.17	89		
	GATE CHAMBER	4,700	CY	49.17	231		
	ACCESS TUNNEL TO GATE CHAMBER						
	ROCK	19,100	CY	49.17	939		
					28,675		
	.212 FILL						
	TEMPORARY COFFERDAM TO CONSTRUCT UPSTREAM PORTALS	23,000	CY	5.18	119		
					119		
	.213 SURFACE PREP/GROUTING						
	UPSTREAM UPPER PORTAL						
	HORIZONTAL	3,200	SF	1.02	3		
	INCLINED	8,600	SF	1.48	13		
	UPSTREAM LOWER PORTAL						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	HORIZONTAL	1,300	SF	1.02	1		
	INCLINED	14,900	SF	1.48	22		
	DOWNSTREAM UPPER PORTAL						
	HORIZONTAL	6,100	SF	1.02	6		
	INCLINED	20,500	SF	1.48	30		
	DOWNSTREAM LOWER PORTAL						
	HORIZONTAL	600	SF	1.02	1		
	INCLINED	5,600	SF	1.48	8		
	GROUT UPPER TUNNEL PLUGS						
	DRILL HOLES	4,100	LF	12.72	52		
	CEMENT	820	CF	37.34	31		
	GROUT LOWER TUN PERM PLUG						
	DRILL HOLES	2,050	LF	12.72	26		
	CEMENT	410	CF	37.34	15		
					209		
.214	CONCRETE & SHOTCRETE						
	UPPER TUNNEL						
	CONCRETE LINING	42,400	CY	261.00	11,066		
	CONC LINING OVERBREAK 6"	10,200	CY	145.00	1,479		
	REINFORCING STEEL	24	TON	1,328.20	32		
	2" SHOTCRETE	56,000	SF	2.42	136		
	LOWER TUNNEL						
	CONCRETE LINING	37,600	CY	261.00	9,814		
	CONCRETE FOR PLUG	6,200	CY	197.20	1,223		
	CONC LINING OVERBREAK 6"	10,000	CY	145.00	1,450		
	REINFORCING STEEL	24	TON	1,328.20	32		
	2" SHOTCRETE	57,900	SF	2.42	140		
	UPSTREAM UPPER PORTAL						
	CONCRETE HEADWALL	3,200	CY	300.15	960		
	CONCRETE LINING	1,300	CY	300.15	390		
	CONCRETE SLAB	750	CY	300.15	225		
	CONCRETE PIERS	800	CY	300.15	240		
	CONCRETE OVERBREAK 12"H/6"V	300	CY	217.50	65		
	REINFORCING STEEL	400	TON	1,328.20	531		
	UPSTREAM LOWER PORTAL						
	CONCRETE HEADWALL	4,500	CY	300.15	1,351		
	CONCRETE LINING	3,000	CY	300.15	900		
	CONCRETE SLAB	300	CY	300.15	90		
	CONCRETE PIERS	700	CY	300.15	210		
	CONCRETE OVERBREAK 12"H/6"V	350	CY	217.50	76		
	REINFORCING STEEL	600	TON	1,328.20	797		
	DOWNSTREAM UPPER PORTAL						
	CONCRETE HEADWALL	500	CY	300.15	150		
	CONCRETE SLAB	100	CY	300.15	30		
	CONCRETE OVERBREAK 12"H/6"V	100	CY	217.50	22		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	REINFORCING STEEL	40	TON	1,328.20	53		
	DOWNSTREAM LOWER PORTAL						
	CONCRETE HEADWALL	2,500	CY	300.15	750		
	CONCRETE SLAB	100	CY	300.15	30		
	CONCRETE OVERBREAK 12"H/6"V	150	CY	217.50	33		
	REINFORCING STEEL	170	TON	1,328.20	226		
	DOWNSTREAM FLIP BUCKET						
	CONCRETE SLAB	800	CY	300.15	240		
	CONCRETE WALLS	2,300	CY	300.15	690		
	CONCRETE INVERT	1,200	CY	300.15	360		
	CONCRETE OVERBREAK 12"H/6"V	410	CY	217.50	89		
	REINFORCING STEEL	280	TON	1,328.20	372		
	DOWNSTREAM RETAINING WALL						
	CONCRETE SLAB	200	CY	300.15	60		
	CONCRETE WALLS	2,000	CY	300.15	600		
	CONCRETE OVERBREAK 12"H/6"V	110	CY	217.50	24		
	REINFORCING STEEL	90	TON	1,328.20	120		
	EMERGENCY RELEASE CHAMBERS						
	CONCRETE PLUG	15,300	CY	348.00	5,324		
	4" SHOTCRETE	2,790	SF	4.67	13		
	ACCESS TUNNEL TO GATE CHAMBER						
	2" SHOTCRETE	12,800	SF	2.42	31		
					40,425		
.215	SUPPORT & ANCHORS						
	LOWER TUNNEL						
	ROCKBOLTS 1" @ 12'	3,650	EACH	245.51	896		
	ROCKBOLTS 1" @ 9'	620	EACH	200.80	124		
	STEEL MESH	217,100	SF	2.93	636		
	STEEL SUPPORT	220	TON	5,888.45	1,295		
	UPPER TUNNEL						
	ROCKBOLTS 1" @ 12'	3,530	EACH	245.51	867		
	ROCKBOLTS 1" @ 9'	600	EACH	200.80	120		
	STEEL MESH	210,200	SF	2.93	616		
	STEEL SUPPORT	213	TON	5,888.45	1,254		
	UPSTREAM LOWER PORTAL						
	ROCKBOLTS 1" @ 15'	240	EACH	341.92	82		
	ANCHORS 1" @ 25'	290	EACH	573.82	166		
	UPSTREAM UPPER PORTAL						
	ROCKBOLTS 1" @ 15' (INCL IN LOWER PORTAL)						
	ANCHORS 1" @ 25'	130	EACH	573.82	75		
	DOWNSTREAM LOWER PORTAL						
	ROCKBOLTS 1" @ 15'	200	EACH	341.92	68		
	DOWNSTREAM UPPER PORTAL						
	ROCKBOLTS 1" @ 15'	100	EACH	341.92	34		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	RETAINING WALL -						
	ANCHORS - 1" @ 25'	100	EACH	573.82	57		
	EMERGENCY RELEASE CHAMBERS						
	ROCKBOLTS 1" @ 25' HY	100	EACH	573.82	57		
	ROCKBOLTS 1" @ 15' HY	125	EACH	341.90	43		
	STEEL MESH	3,600	SF	2.93	11		
	STEEL SUPPORT	14	TON	5,888.45	82		
	METAL ROOF ANCHORS 3/4" @ 6'	20	EACH	152.02	3		
	ACCESS TUNNEL TO GATE CHAMBER						
	ROCKBOLTS 1" @ 12'	775	EACH	245.51	190		
	ROCKBOLTS 1" @ 9'	240	EACH	200.80	48		
	STEEL MESH	39,900	SF	2.93	117		
	STEEL SUPPORT	55	TON	5,888.45	324		
					7,168		
.218	STRUCTURAL - MISC STEELWORK						
	SUSPENDED METAL ROOF						
	EMERGENCY RELEASE CHAMBERS	2,775	SF	43.50	121		
					121		
.21C	MECHANICAL						
	UPSTREAM LOWER GATES						
	GATE EQUIPMENT	2	EACH	2,340,000.00	4,680		
	UPSTREAM UPPER GATES						
	GATE EQUIPMENT	2	EACH	1,310,000.00	2,620		
	TRASHRACKS	1	LS	750,000.00	750		
	DOWNSTREAM LOWER OUTLET						
	STOPLOG GUIDES	1	LS	60,000.00	60		
	STOPLOGS INCLUDES FOLLOWER	1	LS	830,000.00	830		
	DOWNSTREAM UPPER OUTLET						
	STOPLOG GUIDES	1	LS	35,000.00	35		
	LOW LEVEL RELEASE						
	SLIDE GATES INCL STEEL LINER	9	EACH	1,530,000.00	13,770		
					22,745		
					99,462		
.22	UPSTREAM COFFERDAM						
.221	EXCAVATION						
	OVERBURDEN REMOVAL	1,000	CY	5.83	6		
					6		
.222	FILL						
	ROCK FILL	38,400	CY	5.18	199		
	FINE FILTER	16,600	CY	16.36	272		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	COARSE FILTER	15,900	CY	14.28	227		
	ROCK SHELL	196,500	CY	4.99	981		
	CLOSURE DIKE	58,500	CY	5.18	303		
	RIP RAP	21,200	CY	11.53	244		
					2,226		
.223	CUTOFF						
	SLURRY WALL						
	EXCAVATION	4,850	CY	2.32	11		
	SLURRY WALL	43,600	SF	33.35	1,454		
					1,465		
.22D	DEWATERING						
	INITIAL DEWATERING	1	LS	2,450,500.00	2,451		
	DEWATERING MAINTENANCE	1	LS	9,442,190.00	9,442		
					11,893		
					15,589		
.23	DOWNSTREAM COFFERDAM						
.231	EXCAVATION						
	OVERBURDEN	5,000	CY	5.83	29		
	ROCK	500	CY	4.99	2		
	REMOVAL OF COFFERDAM	14,500	CY	6.79	98		
					130		
.232	FILL						
	RIP RAP	1,800	CY	11.53	21		
	CLOSURE DIKE	15,200	CY	5.18	79		
					99		
.233	CUTOFF						
	SLURRY WALL						
	EXCAVATION	1,830	CY	2.32	4		
	SLURRY WALL	16,500	SF	33.35	550		
					555		
					784		
.3	MAIN DAM						
.31	MAIN DAM						
.311	EXCAVATION						
	OVERBURDEN - ABOVE EL 1470	2,026,000	CY	5.83	11,812		
	OVRBRDN-ALLUV-BELOW EL 1470	5,320,000	CY	5.58	29,686		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	ROCK USEABLE-ABOVE EL 1470	1,289,000	CY	21.71	27,984		
	ROCK USEABLE-BELOW EL 1470	478,000	CY	22.05	10,540		
	ROCK WASTE - ABOVE EL 1470	1,950,000	CY	21.71	42,335		
	ROCK WASTE - BELOW EL 1470	869,500	CY	25.32	22,016		
					144,372		
.312	FILL						
	RIP RAP (UPSTREAM)	1,547,000	CY	11.53	17,837		
	GRAVEL (UPSTREAM)	25,194,000	CY	9.92	249,924		
	COARSE FILTER (UPSTREAM)	1,646,000	CY	14.28	23,505		
	FINE FILTER (UPSTREAM)	2,011,000	CY	16.36	32,900		
	CORE (IMPERVIOUS)	8,254,000	CY	12.24	101,029		
	FINE FILTER (DOWNSTREAM)	2,253,000	CY	16.36	36,859		
	COARSE FILTER (DOWNSTREAM)	1,910,000	CY	14.28	27,275		
	SHELL - ROCK & GRAVEL (D/S)	11,342,000	CY	9.25	104,914		
	SHELL-ROCK FR OTHER SOURCES	5,418,000	CY	4.99	27,036		
	COBBLES (DOWNSTREAM FACE)	2,003,000	CY	8.09	16,204		
	ROAD BASE	12,000	CY	16.36	196		
	FROST PROTECTION						
	PROCESS PROTECTION	960,000	CY	4.58	4,397		
	PLACE PROTECTION	960,000	CY	1.46	1,402		
	REMOVE 1' PROTECT & WASTE	93,000	CY	3.20	298		
	SCARIFY CORE SURFACE	193	ACRE	408.16	79		
	FILTER FABRIC						
	FILTER FABRIC	740,000	SF	0.39	289		
					644,142		
.313	SURFACE PREP/GROUTING						
	SURFACE PREPARATION						
	UNDER CORE/FILTERS						
	ABOVE ELEVATION 1500	1,675,000	SF	1.48	2,479		
	BELOW ELEVATION 1500	613,000	SF	1.48	907		
	UNDER SHELL						
	ABOVE ELEVATION 1500	5,186,000	SF	1.02	5,290		
	BELOW ELEVATION 1500	2,584,000	SF	1.02	2,636		
	CONSOLIDATION GROUT						
	DRILL HOLES	687,000	LF	5.66	3,888		
	CEMENT	687,000	CF	31.22	21,448		
	GROUT CURTAIN						
	DRILL HOLES	465,000	LF	12.72	5,915		
	CEMENT	186,000	CF	37.34	6,945		
	DENTAL CONCRETE						
	DENTAL CONCRETE	85,000	CY	168.20	14,297		
					63,805		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.317	DRAINAGE						
	HOLES	136,000	LF	22.79	3,099		
					3,099		
					855,419		
.32	GROUT GALLERIES/PORTALS						
.321	EXCAVATION						
	TUNNELS/SHAFTS - CORE AREA						
	ROCK HORIZONTAL	10,100	CY	199.82	2,018		
	ROCK INCLINED	11,300	CY	279.85	3,162		
	ROCK VERTICAL	2,000	CY	271.38	543		
	TUNNELS/SHAFTS - ACCESS						
	ROCK HORIZONTAL	13,000	CY	199.82	2,598		
	ROCK INCLINED	2,000	CY	279.85	560		
	PORTALS						
	OVERBURDEN	3,600	CY	8.66	31		
	ROCK	1,000	CY	24.88	25		
					8,937		
.323	SURFACE PREPARATION						
	PORTALS						
	HORIZONTAL	30	SF	1.02	0		
	INCLINED	200	SF	1.48	0		
					0		
.324	CONCRETE & SHOTCRETE						
	TUNNELS - CORE AREA						
	CONCRETE PLUGS	1,000	CY	197.20	197		
	CONCRETE SLAB	2,300	CY	435.00	1,001		
	CONCRETE OVERBREAK 6"	1,150	CY	348.00	400		
	REINFORCING STEEL	80	TON	1,328.20	106		
	2" SHOTCRETE	15,000	SF	2.42	36		
	TUNNELS - ACCESS						
	CONCRETE SLAB	1,600	CY	435.00	696		
	CONCRETE OVERBREAK 6"	800	CY	348.00	278		
	REINFORCING STEEL	60	TON	1,328.20	80		
	2" SHOTCRETE	5,400	SF	2.42	13		
	SHAFTS - CORE AREA						
	2" SHOTCRETE	5,000	SF	2.42	12		
	PORTALS (2 PORTALS)						
	CONCRETE	20	CY	187.05	4		
	REINFORCING STEEL	2	TON	1,328.20	3		
					2,826		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.325	SUPPORT & ANCHORS						
	TUNNELS - CORE AREA						
	ROCKBOLTS 3/4" @ 6'	1,800	EACH	152.02	274		
	STEEL MESH	3,000	SF	2.47	7		
	STEEL SUPPORT	20	TON	5,888.45	118		
	TUNNELS - ACCESS						
	ROCKBOLTS 3/4" @ 6'	1,200	EACH	152.02	182		
	STEEL MESH	1,100	SF	2.47	3		
	STEEL SUPPORT	20	TON	5,888.45	118		
	SHAFTS - CORE AREA						
	ROCKBOLTS 3/4" @ 6'	350	EACH	152.02	53		
	STEEL MESH	1,000	SF	2.47	2		
	PORTALS						
	ROCKBOLTS 1" @ 15'	30	EACH	341.92	10		
					768		
.329	ARCHITECTURAL						
	PORTAL DOORS	2	EACH	18,705.00	37		
	VENT SYS (INCL w/ 331.12C)						
					37		
					12,568		
.33	INSTRUMENTATION						
.331	INSTRUMENTATION (DAM)						
	INSTRUMENTATION	1	LS	9,132,100.00	9,132		
					9,132		
					9,132		
.4	RELICT CHANNEL						
.41	SHORE PROTECTION						
.411	EXCAVATION						
	OVERBURDEN STRIPPING-2' THK	2,200	CY	5.83	13		
					13		
.412	FILL						
	DUMP & SPREAD						
	FILTER MATERIAL - 2' LAYER	2,200	CY	14.18	31		
	ROCK SPALLS/RIP RAP-3' AVE	3,300	CY	4.99	16		
	SHORE PROTECTION						
	RIP RAP	24,000	CY	11.53	277		
	WASTE ROCK	24,000	CY	11.53	277		
					601		
					614		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.44	CHANNEL FILTER BLANKET						
.442	FILL						
	COARSE FILTER	2,900,000	CY	16.75	48,575		
	FINE FILTER	2,180,000	CY	18.84	41,071		
	RIP RAP	182,000	CY	11.53	2,098		
					91,745		
.443	SURFACE PREPARATION						
	FOUNDATION PREP						
	CLEARING & GRUBBING	460	ACRE	1,999.55	920		
	EXCAVATION	2,236,000	CY	7.53	16,837		
					17,757		
					109,502		
.5	OUTLET FACILITIES						
.51	OUTLET FACILITIES - (INTAKE CIVIL WORK INCL IN POWER INTAKE - SEE 332.61 DISCHARGE CIVIL WORK - SEE 332.52)						
.511	EXCAVATION						
	INLET (SEE 332.611)						
	OUTLET (SEE 332.521)						
	TUNNELS						
	ROCK HORIZONTAL	83,000	CY	52.13	4,327		
	ROCK INCLINED	9,000	CY	92.87	836		
					5,163		
.513	SURFACE PREP/GROUTING						
	SURFACE PREPARATION						
	INLET (SEE 332.613)						
	OUTLET (SEE 332.523)						
	TUNNELS	323,500	SF	1.02	330		
	CONTACT GROUTING	1	LS	240,265.00	240		
					570		
.514	CONCRETE & SHOTCRETE						
	INLET (SEE 332.614)						
	OUTLET (SEE 332.524)						
	TUNNELS						
	CONCRETE LINING	27,200	CY	435.00	11,832		
	CONCRETE OVERBREAK 6"	6,200	CY	203.00	1,259		
	2" SHOTCRETE	12,000	SF	2.42	29		
	3" SHOTCRETE	19,400	SF	3.54	69		
					13,188		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.515	SUPPORT & ANCHORS						
	INLET (SEE 332.615)						
	OUTLET (SEE 332.525)						
	TUNNELS						
	ROCKBOLTS 1" @ 6'	2,400	EACH	152.02	365		
	STEEL MESH	94,500	SF	2.93	277		
					642		
.51C	MECHANICAL						
	INLET						
	TRASH RACKS/GUIDES	1	LS	650,000.00	650		
	GATE EQUIPMENT	2	EACH	1,530,000.00	3,060		
	STOPLOG GUIDES	2	SETS	95,000.00	190		
	OUTLET						
	FIXED CONE VALVES-6+1SPARE	1	LS	1,899,000.00	1,899		
	RING FOLLOWER GATES	6	EACH	859,900.00	5,159		
	STEEL MANIFOLD LINER	1,950	TON	4,118.00	8,030		
	MISC MECHANICAL EQUIPMENT	1	LS	400,000.00	400		
	MISC ELECTRICAL SYSTEMS	1	LS	100,000.00	100		
					19,489		
					39,051		
.52	MAIN (CHUTE) SPILLWAY (INCLUDES CIVIL WORKS FOR OUTLET FACILITIES - SEE 332.51)						
.521	EXCAVATION						
	APPROACH						
	OVERBURDEN	64,000	CY	7.51	481		
	ROCK USEABLE	318,500	CY	18.17	5,787		
	ROCK WASTE	64,000	CY	18.17	1,163		
	CONTROL STRUCTURE (TO END OF ROLLWAY)						
	OVERBURDEN	8,500	CY	7.51	64		
	ROCK WASTE	18,500	CY	16.76	310		
	ROCK USEABLE (INCLINED)	37,500	CY	18.75	703		
	ROCK USEABLE (VERTICAL)	76,500	CY	18.75	1,434		
	UPPER CHUTE (END ROLLWAY TO STA 11+00)						
	OVERBURDEN	104,500	CY	7.51	785		
	ROCK WASTE	77,500	CY	18.17	1,408		
	ROCK USEABLE (INCLINED)	215,000	CY	23.20	4,988		
	ROCK USEABLE (VERTICAL)	134,000	CY	23.20	3,109		
	LOWER CHUTE (STATION 11+00 TO 17+00)						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	OVERBURDEN	79,500	CY	7.51	597		
	ROCK WASTE	43,500	CY	14.95	650		
	ROCK USEABLE (INCLINED)	107,500	CY	20.00	2,150		
	ROCK USEABLE (VERTICAL)	45,000	CY	20.00	900		
	VALVE BLOCK/FLIP & OUTFALL						
	(FROM STA 17+00 TO END FLIP)						
	OVERBURDEN	52,000	CY	7.51	391		
	ROCK WASTE	71,000	CY	14.95	1,061		
	ROCK USEABLE (INCLINED)	316,000	CY	20.00	6,320		
	ROCK USEABLE (VERTICAL)	58,000	CY	20.00	1,160		
	DRAIN TUNNEL						
	ROCK HORIZONTAL	4,500	CY	199.82	899		
	ROCK INCLINED	3,000	CY	279.85	840		
	RIVER CHANNEL						
	ALLUVIUM EXCAVATION	1,060,000	CY	6.06	6,424		
					41,624		
.522	FILL						
	GRANULAR BACKFILL	5,000	CY	9.25	46		
	IMPERVIOUS	1,000	CY	12.24	12		
					58		
.523	SURFACE PREP/GROUTING						
	FOUNDATION PREP						
	SPILLWAY						
	ROCK HORIZONTAL	240,000	SF	1.02	245		
	ROCK INCLINED	166,000	SF	1.48	246		
	CONSOLIDATION GROUTING						
	DRILL HOLES	54,000	LF	5.66	306		
	CEMENT	54,000	CF	31.22	1,686		
	GROUT CURTAIN(SEE 332.313)						
					2,482		
.524	CONCRETE & SHOTCRETE						
	CONCRETE APPROACH & STRUCTURE						
	CONCRETE OUTERWALLS	20,500	CY	203.00	4,162		
	CONCRETE PIERS (FULL LENGTH)	8,000	CY	203.00	1,624		
	CONCRETE DECK	1,600	CY	203.00	325		
	CONCRETE ROLLWAY SLABS	19,500	CY	203.00	3,959		
	CONCRETE OVERBREAK 12"H/6"V	1,300	CY	159.50	207		
	REINFORCING STEEL	2,700	TON	1,328.20	3,586		
	CONCRETE CHUTE						
	(INCL BOX DRAIN GALLERIES)						
	(FROM END OF ROLLWAY)						
	CONCRETE SLAB	22,000	CY	203.00	4,466		
	CONCRETE WALLS	10,500	CY	217.50	2,284		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	CONC OVERBREAK 18"H/6"V	11,000	CY	145.00	1,595		
	REINFORCING STEEL	1,300	TON	1,328.20	1,727		
	CONCRETE VALVE BLOCK/FLIP - & OUTFALL						
	CONCRETE BLOCK/BUCKET	29,500	CY	203.00	5,989		
	CONCRETE OUTFALL LINING	2,500	CY	203.00	508		
	CONC OVERBREAK 12"H/6"V	2,400	CY	145.00	348		
	REINFORCING STEEL	1,300	TON	1,328.20	1,727		
	CONCRETE DRAIN GALLERY						
	CONCRETE SLAB	1,000	CY	435.00	435		
	REINFORCING STEEL	30	TON	1,328.20	40		
	CONCRETE OVERBREAK 6"	500	CY	261.00	131		
	2" SHOTCRETE DOME	5,000	SF	2.42	12		
					33,122		
.525	SUPPORT & ANCHORS						
	DRAINAGE TUNNEL						
	STEEL SUPPORT	7	TON	5,888.45	41		
	STEEL MESH	1,000	SF	2.70	3		
	ROCKBOLTS DRAINAGE GALLERY 3/4" @ 6'	576	EACH	152.02	88		
	ROCKBOLTS APPROACH 1" @ 15'	275	EACH	341.92	94		
	ROCKBOLTS CHUTE & STRUCTURE 1" @ 15'	112	EACH	341.92	38		
	ROCKBOLTS VALVE BLOCK/BUCKET 1" @ 15'	46	EACH	341.92	16		
	SLAB/WALL ANCHORS 1" @ 10'	9,300	EACH	218.66	2,034		
					2,313		
.527	DRAINAGE						
	DRILL HOLES						
	BOX DRAINS (TO DRAIN TUNNEL)	54,000	LF	22.79	1,231		
	3" RELIEF	640	LF	22.79	15		
					1,245		
.52C	MECHANICAL						
	GATE EQUIPMENT	3	EACH	1,960,000.00	5,880		
	STOPLOG GUIDES	3	SETS	40,940.00	123		
	STOPLOGS INCLUDES FOLLOWER	1	SET	420,000.00	420		
	MISC ELECTRICAL	1	LS	100,000.00	100		
					6,523		
					87,367		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.53	EMERGENCY SPILLWAY						
.531	EXCAVATION						
	(INCLUDING BRIDGE & FUSE PLUG)						
	OVERBURDEN	4,440,000	CY	3.32	14,741		
	ROCK USEABLE	2,893,000	CY	18.85	54,533		
	ROCK WASTE	543,000	CY	18.49	10,040		
					79,314		
.532	FILL						
	FUSE PLUG	29,400	CY	9.25	272		
					272		
.533	SURFACE PREP/GROUTING						
	SURFACE PREPARATION						
	(UNDER FUSE PLUG)						
	INCLINED	5,200	SF	1.48	8		
	HORIZONTAL	46,100	SF	1.02	47		
	CONSOLIDATION GROUTING						
	DRILL HOLES	15,400	LF	5.66	87		
	CEMENT	15,400	CF	31.22	481		
					623		
.535	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 15'	730	EACH	341.92	250		
					250		
.53B	BRIDGE						
	BRIDGE	1	LS	1,812,500.00	1,813		
					1,813		
					82,271		
.6	POWER INTAKE (INCL INLET EXC & INLET STRUCT CIVIL WORKS FOR OUTLET FACILITIES-SEE 332.51)						
.61	INTAKE STRUCT & APPROACH						
.611	EXCAVATION						
	OVERBURDEN	524,000	CY	7.51	3,935		
	ROCK USEABLE	1,306,000	CY	20.33	26,551		
	ROCK WASTE	138,000	CY	20.33	2,806		
					33,292		
.613	SURFACE PREPARATION						
	HORIZONTAL	25,600	SF	1.02	26		
	INCLINED	88,300	SF	1.48	131		
					157		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.614	CONCRETE & SHOTCRETE						
	STRUCTURE						
	CONCRETE STRUCTURE	121,000	CY	250.85	30,353		
	CONCRETE OVERBREAK 12"H/6"V	2,600	CY	155.15	403		
	REINFORCING STEEL	7,870	TON	1,328.20	10,453		
					41,209		
.615	SUPPORT & ANCHORS						
	STRUCTURE						
	ROCKBOLTS 1" @ 15'	400	EACH	341.92	137		
					137		
.61C	MECHANICAL						
	TRASHRACKS/GUIDES	6	SETS	480,000.00	2,880		
	GATE EQUIPMENT	6	EACH	960,000.00	5,760		
	BULKHEAD GATE GUIDES	6	SETS	100,000.00	600		
	BULKHEAD GATES INCL FOLLOWER	1	SET	310,000.00	310		
	SHUTTER WITH GUIDES	6	SETS	320,000.00	1,920		
	ICE BOOM WITH HOIST	6	SETS	550,000.00	3,300		
	ICE BOOM GUIDES	6	SETS	250,000.00	1,500		
	INTAKE SERVICE CRANE	1	EACH	350,000.00	350		
	BUBBLER SYSTEM	1	LS	400,000.00	400		
	MISCELLANEOUS ELECTRICAL	1	LS	100,000.00	100		
					17,120		
.61D	INTAKE BUILDING						
	INTAKE BUILDING	1	LS	100,000.00	100		
					100		
					92,014		
.7	SURGE CHAMBER						
.71	SURGE CHAMBER						
.711	EXCAVATION						
	CHAMBER ROCK	101,000	CY	45.47	4,592		
	VENT SHAFT ROCK	2,200	CY	303.24	667		
					5,260		
.713	SURFACE PREPARATION						
	SURFACE PREPARATION	29,700	SF	1.02	30		
					30		
.714	CONCRETE & SHOTCRETE						
	CHAMBER						
	CONCRETE	6,000	CY	236.35	1,418		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	CONCRETE OVERBREAK	1,000	CY	203.00	203		
	REINFORCING STEEL	300	TON	1,328.20	398		
	4" SHOTCRETE	38,400	SF	4.67	179		
	VENT SHAFT						
	2" SHOTCRETE	5,900	SF	2.42	14		
					2,213		
	.715 SUPPORT & ANCHORS						
	CHAMBER						
	ROCKBOLTS 1" @ 25' HY	570	EACH	573.82	327		
	ROCKBOLTS 1" @ 15'	2,110	EACH	341.92	721		
	STEEL MESH	28,900	SF	2.70	78		
	STEEL SUPPORT	66	TON	5,888.45	389		
	VENT SHAFT						
	ROCKBOLTS 3/4" @ 6'	370	EACH	152.02	56		
	STEEL MESH	1,200	SF	2.93	4		
					1,575		
	.717 DRAINAGE						
	HOLES (IN CHAMBER CROWN)	15,500	LF	22.79	353		
					353		
	.71C MECHANICAL						
	STOPLOG GUIDES	2	SETS	315,000.00	630		
	STOPLOG INCLUDES FOLLOWER	1	SET	1,580,000.00	1,580		
					2,210		
					11,641		
	.8 PENSTOCKS						
	.81 PENSTOCKS						
	.811 EXCAVATION						
	TUNNELS						
	ROCK HORIZONTAL	53,400	CY	73.27	3,913		
	ROCK INCLINED	54,000	CY	144.83	7,821		
					11,733		
	.813 SURFACE PREP/GROUTING						
	SURFACE PREPARATION						
	TUNNELS	378,000	SF	1.48	559		
	CONTACT GROUTING						
	CONTACT GROUTING	1	LS	242,440.00	242		
	CONSOLIDATION GROUTING						
	CONSOLIDATION GROUTING	1	LS	336,400.00	336		
					1,138		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.814	CONCRETE & SHOTCRETE						
	CONCRETE LINER	37,200	CY	446.60	16,614		
	CONCRETE OVERBREAK 6"	10,600	CY	319.00	3,381		
	REINFORCING STEEL	27	TON	1,328.20	36		
	3" SHOTCRETE	34,000	SF	3.54	120		
	2" SHOTCRETE	20,800	SF	2.42	50		
					20,201		
.815	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25'	150	EACH	573.82	86		
	ROCKBOLTS 1" @ 6'	4,200	EACH	152.02	638		
	STEEL MESH	193,000	SF	2.96	571		
					1,296		
.818	STRUCTURAL - MISC STEELWORK						
	STEEL LINER	2,400	TON	4,495.00	10,788		
					10,788		
					45,157		
.9	TAILRACE WORKS (1 PORTAL WITH COMBINED TAILRACE/DIVERSION TUNNEL INCLUDED IN DIVERSION WORKS 332.21)						
.91	TAILRACE TUNNELS/PORTALS						
.911	EXCAVATION						
	TUNNELS						
	ROCK	135,000	CY	52.13	7,038		
	PORTALS						
	OVERBURDEN	3,200	CY	8.66	28		
	ROCK USEABLE	46,000	CY	24.88	1,144		
	ROCK WASTE	14,500	CY	24.88	361		
					8,571		
.913	SURFACE PREPARATION						
	TUNNELS						
	TUNNELS	266,000	SF	1.48	394		
	PORTALS						
	HORIZONTAL	600	SF	1.02	1		
	INCLINED	6,000	SF	1.48	9		
					403		
.914	CONCRETE & SHOTCRETE						
	TUNNELS						
	CONCRETE LINING	14,500	CY	203.00	2,944		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	CONCRETE OVERBREAK 6"	7,500	CY	145.00	1,088		
	2" SHOTCRETE	45,600	SF	2.42	110		
	REINFORCING STEEL	22	TON	1,328.20	29		
	PORTALS						
	CONCRETE BASE SLAB	100	CY	300.15	30		
	CONCRETE WALLS	2,900	CY	300.15	870		
	CONCRETE OVERBREAK 12"H/6"V	110	CY	217.50	24		
	REINFORCING STEEL	195	TON	1,328.20	259		

					5,354		
.915	SUPPORT & ANCHORS						
	TUNNELS						
	ROCKBOLTS 1" @ 12'	2,750	EACH	245.51	675		
	ROCKBOLTS 1" @ 9'	480	EACH	200.80	96		
	STEEL SUPPORT	132	TONS	5,888.45	777		
	STEEL MESH	133,000	SF	2.93	390		
	PORTALS						
	ROCKBOLTS 1" @ 15'	110	EACH	341.92	38		

					1,976		
.91C	MECHANICAL						
	STOPLOG GUIDES	1	SET	50,000.00	50		
	STOPLOGS INCLUDES FOLLOWER	1	SET	600,000.00	600		

					650		
					=========		
					16,954		
						1,531,901	
333	WATERWHEELS, TURBINES & GENERATORS						
.11	TURBINES & GOVERNORS						
.111	SUPPLY	6	EACH	3,900,000.00	23,400		
.112	INSTALL	6	EACH	1,199,700.00	7,198		
.2	GENERATORS & EXCITERS						
.21	GENERATORS & EXCITERS (SUPPLY & INSTALL)						
.211	GENERATORS & EXCITERS	6	EACH	5,719,950.00	34,320		
					=========		
					34,320		
						64,918	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
334	ACCESSORY ELECTRICAL EQUIPMENT						
.1	CONNECTIONS, SUPPORTS & STRUCT.						
.11	STRUCTURES						
.111	STRUCT (INCL BELOW)						
.12	CONDUCTORS & INSULATORS						
.121	GEN ISOLATED PHASE BUS	1	LS	3,200,000.00	3,200		
.122	HV POWER CABLES & ACCESS.	1	LS	1,300,000.00	1,300		
.123	LV POWER CABLES & ACCESS.	1	LS	600,000.00	600		
.124	CONTROL CABLES & ACCESS.	1	LS	1,100,000.00	1,100		
.125	GROUNDING SYSTEM	1	LS	150,000.00	150		
.13	CONDUITS & FITTINGS						
.131	CONDUITS & FITTINGS	1	LS	400,000.00	400		
					=========		
					6,750		
.2	SWITCHGEAR & CONTROL EQUIPMENT						
.21	AUXILIARY TRANSFORMERS						
.211	AUXILIARY TRANSFORMERS	4	EACH	39,000.00	156		
.22	CIRCUIT BREAKERS GEN						
.221	CIRCUIT BREAKERS GEN	6	EACH	700,000.00	4,200		
.23	SURGE PROT & GEN CUBICLES						
.231	SURGE PROT & GEN CUBICLES	1	LS	460,000.00	460		
.24	SWITCHBOARDS						
.241	SWITCHBOARDS	1	LS	780,000.00	780		
.25	AUX. POWER EQPT-INCL BAT						
.251	AUX. POWER EQUIPMENT	1	LS	220,000.00	220		
					=========		
					5,816		
.3	CUBICLES & APPURTENENCES						
.31	CONTROL,RELAY & METER BRDS						
.311	CONTROL,RELAY & METER BOARDS	1	LS	900,000.00	900		
.32	COMPUTER CONTROL SYSTEM						
.321	COMPUTER CONTROL SYSTEM (INCLUDED IN TRANS-EMS)						
.33	SUPERVIS. & TELEMETER SYS						
.331	SUPERVIS & TELEMETER SYS (INCLUDED IN TRANS-EMS)						
					=========		
					900		
.4	POWER TRANSFORMERS						
.41	POWER TRANSFORMERS						
.411	POWER TRANSFORMERS	10	EACH	490,000.00	4,900		
					=========		
					4,900		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	.5 LIGHTING SYSTEM						
	.51 POWERHOUSE & TRANS. GALLERY						
	.511 POWERHOUSE & TRANS. GALLERY	1	LS	770,000.00	770		
	.52 ACCESS TUNNELS & ROADS						
	.521 ACCESS TUNNELS & ROADS	1	LS	170,000.00	170		
					=========		
					940		
	.6 MISC. ELECTRICAL EQUIPMENT						
	.61 MISC. ELECTRICAL EQUIPMENT						
	.611 MISC. ELECTRICAL EQUIPMENT	1	LS	330,000.00	330		
					=========		
					330		
	.7 SURFACE ACCESSORY ELEC EQPT						
	.71 34.5 KV & LV EQUIPMENT						
	.711 SWITCHBOARD	1	LS	90,000.00	90		
	.712 CABLES	1	LS	190,000.00	190		
	.713 AUX TRANSFORMERS	1	LS	120,000.00	120		
	.73 DIESEL GENERATORS - STANDBY						
	.731 DIESEL GENERATORS - STANDBY	2	EACH	150,000.00	300		
	.74 EXTERIOR LIGHTING						
	.741 EXTERIOR LIGHTING	1	LS	150,000.00	150		
	.75 MIMIC BOARD - CONTROL BLDG						
	.751 MIMIC BOARD - CONTROL BLDG	1	LS	500,000.00	500		
					=========		
					1,350		
						20,986	
335	MISCS. POWERPLANT EQUIPMENT						
	.1 AUXILIARY SYSTEMS - UNDERGROUND						
	.11 STATION WATER SYSTEMS						
	.111 STATION WATER SYSTEMS	1	LS	2,100,000.00	2,100		
	.12 FIRE PROTECTION SYSTEMS						
	.121 FIRE PROTECTION SYSTEMS	1	LS	1,200,000.00	1,200		
	.13 COMPRESSED AIR SYSTEMS						
	.131 COMPRESSED AIR SYSTEMS	1	LS	1,500,000.00	1,500		
	.14 OIL HANDLING SYSTEMS						
	.141 OIL HANDLING SYSTEMS	1	LS	1,000,000.00	1,000		
	.15 DRAINAGE & DEWATERING						
	.151 DRAINAGE & DEWATERING	1	LS	2,200,000.00	2,200		
	.16 HEAT., VENT. & COOLING SYS.						
	.161 HEAT., VENT. & COOLING SYS.	1	LS	1,500,000.00	1,500		
	.17 MISCELLANEOUS						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.171	MISCELLANEOUS	1	LS	1,000,000.00	1,000		
					=========		
					10,500		
.2	AUXILIARY SYS - SURFACE FACS						
.21	AUX SYS - SURFACE FACS						
.211	AUX SYS - SURFACE FACS	1	LS	300,000.00	300		
					=========		
					300		
.3	AUXILIARY EQUIPMENT						
.31	POWERHOUSE CRANES						
.311	POWERHOUSE CRANES	2	EACH	900,000.00	1,800		
.32	ELEVATORS						
.321	ELEVATORS	1	LS	230,000.00	230		
.33	MISC. CRANES & HOIST						
.331	MISC. CRANES & HOIST	1	LS	150,000.00	150		
.34	MACHINE SHOP EQUIPMENT						
.341	MACHINE SHOP EQUIPMENT	1	LS	600,000.00	600		
					=========		
					2,780		
.4	GENERAL STATION EQUIPMENT (INCLUDED IN MECHANICAL & ELECTRICAL SYSTEMS)						
	GENERAL STATION EQUIPMENT	1	LS	0.00	0		
					=========		
					0		
.5	COMMUNICATIONS EQUIPMENT						
	COMMUNICATIONS EQUIPMENT	1	LS	90,000.00	90		
					=========		
					90		
						13,670	
336	ROADS, RAIL & AIR FACILITIES						
.1	ROADS						
.11	PIONEER ROADS & BRIDGES						

					0		
.111	GOLD CREEK-DEVIL CANYON ROAD (12.31 MILES)						
	CLEARING	113	ACRE	5,760.16	651		
	WASTE EXCAVATION	324,998	CY	4.81	1,563		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	COMMON EXCAVATION	291,163	CY	4.20	1,223		
	18" CULVERTS	3,460	LF	28.80	100		
	36" CULVERTS	1	LS	13,823.20	14		
	D-1 BASE MATERIAL	66,444	TON	21.61	1,436		
	FABRIC	3,192	SY	2.99	10		
					4,996		
	MAINTENANCE						
	MAINTENANCE	25	MI/YRS	4,000.44	100		
					100		
.112	DEVIL CANYON-WATANA ROAD (41.25 MILES)						
	CLEARING	369	ACRE	5,760.16	2,125		
	WASTE EXCAVATION	855,321	CY	4.81	4,114		
	COMMON EXCAVATION	619,500	CY	4.20	2,602		
	18" CULVERTS	9,200	LF	28.80	265		
	36" CULVERTS	1	LS	14,958.36	15		
	D-1 BASE MATERIAL	222,640	TON	21.61	4,811		
	FABRIC	14,946	SY	2.99	45		
					13,977		
	MAINTENANCE						
	MAINTENANCE	83	MI/YRS	4,000.44	332		
					332		
.113	DEVIL CANYON LOW LEVEL CROSS-CROSSING (7.88 MILES)						
	CLEARING	170	ACRE	5,760.16	979		
	WASTE EXCAVATION	498,845	CY	4.81	2,399		
	COMMON EXCAVATION	549,417	CY	4.20	2,308		
	ROCK EXCAVATION	749,641	CY	14.40	10,795		
	18" CULVERTS	5,100	LF	28.80	147		
	BRIDGE	1	LS	2,246,400.00	2,246		
	D-1 BASE MATERIAL	36,966	TON	21.61	799		
					19,673		
	MAINTENANCE						
	MAINTENANCE	118	MI/YRS	4,999.44	590		
					590		
					39,668		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.12	PERMANENT ROADS & BRIDGES						
.121	PARKS HWY-GOLD CREEK						
	(13.26 MILE)						
	CLEARING	210	ACRE	5,760.16	1,210		
	WASTE EXCAVATION	575,480	CY	4.81	2,768		
	COMMON EXCAVATION	570,180	CY	4.20	2,395		
	ROCK EXCAVATION	35,850	CY	14.40	516		
	BORROW	126,600	CY	6.01	761		
	NFS SUBBASE MATERIAL	136,500	CY	8.41	1,148		
	GRADE "A" BASE MATERIAL	74,480	CY	16.80	1,251		
	D-1 BASE MATERIAL	31,080	TON	21.61	672		
	A. C. SURFACING	28,462	TON	79.21	2,254		
	GUARDRAIL	9,800	LF	43.20	423		
	18" CULVERTS	7,055	LF	28.80	203		
	36" + CULVERTS	1	LS	50,320.00	50		
	FABRIC	18,844	SY	2.99	56		
	THAW PIPES	7,555	LF	43.19	326		
	TOPSOIL & SEED	130	ACRE	3,599.36	468		
	TRAFFIC CONTROL DEVICES	13.3	MILE	17,998.28	239		
	BRIDGES	90,440	SF	180.00	16,279		
					31,021		
	MAINTENANCE						
	MAINTENANCE	13.3	MI/YRS	10,000.36	133		
					133		
.122	GOLD CREEK -DEVIL CANYON						
	(12.31 MILE)						
	MAIN ROAD						
	CLEARING	28	ACRE	5,760.16	161		
	WASTE EXCAVATION	97,892	CY	4.81	471		
	COMMON EXCAVATION	44,772	CY	4.20	188		
	ROCK EXCAVATION	23,625	CY	14.40	340		
	BORROW	416,311	CY	6.01	2,502		
	NFS SUBBASE MATERIAL	126,750	CY	8.41	1,066		
	GRADE "A" BASE MATERIAL	69,160	CY	16.80	1,162		
	D-1 BASE MATERIAL	28,860	TON	21.61	624		
	A. C. SURFACING	26,429	TON	79.21	2,093		
	GUARDRAIL	6,700	LF	43.20	289		
	18" CULVERTS	4,950	LF	28.80	143		
	36" + CULVERTS	1	LS	32,258.08	32		
	FABRIC	5,585	SY	2.99	17		
	THAW PIPES	8,845	LF	43.19	382		
	TOPSOIL & SEED	86	ACRE	3,599.36	310		
	TRAFFIC CONTROL DEVICES	12	MILE	17,998.28	216		
					9,996		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	MAINTENANCE						
	MAINTENANCE	160	MI/YRS	11,999.84	1,920		
					1,920		
.123	DEVIL CANYON - WATANA (41.25 MILE)						
	MAIN ROAD						
	CLEARING	207	ACRE	5,760.16	1,192		
	WASTE EXCAVATION	681,179	CY	4.81	3,276		
	COMMON EXCAVATION	984,473	CY	4.20	4,135		
	ROCK EXCAVATION	146,527	CY	14.40	2,110		
	BORROW	73,145	CY	6.01	440		
	NFS SUBBASE MATERIAL	424,710	CY	8.41	3,572		
	GRADE 'A' BASE MATERIAL	231,739	CY	16.80	3,893		
	D-1 BASE MATERIAL	96,704	TON	21.61	2,090		
	A. C. SURFACING	88,557	TON	79.21	7,015		
	GUARDRAIL	6,050	LF	43.20	261		
	18" CULVERTS	13,840	LF	28.80	399		
	36" + CULVERTS	1	LS	179,040.00	179		
	FABRIC	34,874	SY	2.99	104		
	THAW PIPES	24,335	LF	43.19	1,051		
	TOPSOIL & SEED	326	ACRE	3,599.36	1,173		
	TRAFFIC CONTROL DEVICES	41	MILE	17,998.28	738		
					31,628		
	MAINTENANCE						
	MAINTENANCE	248	MI/YRS	10,000.36	2,480		
					2,480		
					77,178		
.13	SITE ROADS						
.131	CONSTRUCTION ROADS						
	SITE ROADS	20	MILE	4,234,279.00	84,686		
	MAINTENANCE	141	MI/YRS	90,284.44	12,730		
					97,416		
.132	PERMANENT ROADS						
	PERMANENT ROADS	6	MILE	499,999.00	3,000		
					3,000		
					100,416		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.2	RAIL FACILITIES						
.21	RAILHEAD-GOLD CREEK						
	RAILHEAD						
	CLEARING	25	ACRE	5,760.16	144		
	WASTE EXCAVATION	78,000	CY	4.81	375		
	COMMON EXCAVATION	505,000	CY	4.20	2,121		
	GRADE "A" BASE MATERIAL	4,900	CY	16.80	82		
	D-1 BASE MATERIAL	2,400	TON	21.61	52		
	A.C. SURFACING	2,200	TON	79.21	174		
	TOPSOIL & SEED	15	ACRE	3,599.36	54		
	RAILYARD CONTROL DEVICES	1	LS	720.01	1		
	SUBBALLAST	25,800	CY	8.60	222		
	TRACKAGE	19,700	LF	139.98	2,758		
	DOCK LUMBER	16	MBF	580.00	9		
					5,992		
	MAINTENANCE						
	MAINTENANCE	15	YEARS	28,599.52	429		
					429		
					6,421		
.3	AIRSTRIP						
.31	AIRSTRIP						
	PERMANENT AIRSTRIP	1	LS	5,400,000.00	5,400		
	TEMPORARY AIRSTRIP	1	LS	900,000.00	900		
					6,300		
					6,300		
						229,983	
	TRANSMISSION PLANT						
350	LAND & LAND RIGHTS						
	LAND & LAND RIGHTS						
	TRANSMISSION	179	MILE	40,000.00	7,160		
	SUBSTATIONS (4 SITES)	1	LS	1,100,000.00	1,100		
					8,260		
						8,260	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
352	SUBSTATION & SWITCHING STATION						
	SUBSTATION & SWITCHING STATION						
	STRUCTURES & IMPROVEMENTS						
	.1 SWITCHYARD						
	.11 SWITCHYARD	1	LS	11,550,000.00	11,550		
					11,550		
					11,550		
						11,550	
353	SUBSTATION/SWITCHING STATION EQPT						
	SUBSTATION/SWITCHING STATION EQPT						
	ESTER	1	LS	24,440,000.00	24,440		
	WILLOW	1	LS	15,246,000.00	15,246		
	KNIK ARM	1	LS	12,590,000.00	12,590		
	UNIVERSITY	1	LS	37,420,000.00	37,420		
	DEVIL CANYON	1	LS	15,015,000.00	15,015		
					104,711		
	WILLOW ENERGY MNGMT SYS (EMS)						
	EQUIPMENT & SYSTEM COSTS	1	LS	11,530,000.00	11,530		
	MICROWAVE COMMUNICATION EQPT	1	LS	4,920,000.00	4,920		
	EMS CONTROL CENTER BUILDING	1	LS	3,860,000.00	3,860		
	WATANA & DEVIL CAN IN-PLANT MONITOR & CONTROL EQPT	1	LS	3,637,000.00	3,637		
					23,947		
						128,658	
354	STEEL TOWERS & FIXTURES						
	STEEL TOWERS & FIXTURES						
	TOWERS (INCLUDING FOUNDATION & HARDWARE)	2,447	EACH	53,123.00	129,992		
					129,992		
						129,992	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
356	CONDUCTORS & DEVICES						
	CONDUCTORS & DEVICES						
	CONDUCTORS	556	MILE	100,175.00	55,697		
	SUBMARINE CABLES	6	EACH	7,291,670.00	43,750		
					=========		
					99,447		
						99,447	
359	ROADS & TRAILS						
	ROADS & TRAILS						
	ROADS & TRAILS	200	MILE	36,000.00	7,200		
	CLEARING & ROADS	340	MILE	18,000.00	6,120		
					=========		
					13,320		
						13,320	
	GENERAL PLANT						
389	LAND & LAND RIGHTS						
	LAND & LAND RIGHTS						
	(INCLUDED IN 330)						
					=========		
					0		
						0	
390	STRUCTURES & IMPROVEMENTS						
	STRUCTURES & IMPROVEMENTS						
	(INCLUDED IN 331.2)						
					=========		
					0		
						0	
391	OFFICE FURNITURE/EQUIPMENT						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	OFFICE FURNITURE/EQUIPMENT						
	(INCLUDED IN 399)						
					==========		
					0		
						0	
392	TRANSPORTATION EQUIPMENT						
	TRANSPORTATION EQUIPMENT						
	(INCLUDED IN 399)						
					==========		
					0		
						0	
393	STORES EQUIPMENT						
	STORES EQUIPMENT						
	(INCLUDED IN 399)						
					==========		
					0		
						0	
394	TOOLS SHOP & GARAGE EQUIPMENT						
	TOOLS SHOP & GARAGE EQUIPMENT						
	(INCLUDED IN 399)						
					==========		
					0		
						0	
395	LABORATORY EQUIPMENT						
	LABORATORY EQUIPMENT						
	(INCLUDED IN 399)						
					==========		
					0		
						0	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
396	POWER OPERATED EQUIPMENT						
	POWER OPERATED EQUIPMENT						
	(INCLUDED IN 399)						
					=========		
					0		
						0	
397	COMMUNICATIONS EQUIPMENT						
	COMMUNICATIONS EQUIPMENT						
	(INCLUDED IN 399)						
					=========		
					0		
						0	
398	MISCELLANEOUS EQUIPMENT						
	MISCELLANEOUS EQUIPMENT						
	(INCLUDED IN 399)						
					=========		
					0		
						0	
399	OTHER TANGIBLE PROPERTY						
	OTHER TANGIBLE PROPERTY						
	OTHER TANGIBLE PROPERTY	1	LS	5,000,000.00	5,000		
					=========		
					5,000		
						5,000	
	INDIRECT COSTS						
61	TEMPORARY CONSTRUCTION FACILITIES						
	TEMPORARY CONSTRUCTION FACILITIES						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
62	CONSTRUCTION EQUIPMENT						
	CONSTRUCTION EQUIPMENT						
	(INCLUDED IN DIRECT COSTS)						
					0		
63	MAIN CONSTRUCTION CAMP						
	.1 MAIN CONSTRUCTION CAMP						
	.11 SITE PREPARATION						
	CLEARING						
	CLEARING	145	ACRE	4,502.16	653		
	INSTALL GRANULAR PAD						
	INSTALL GRANULAR PAD	788,000	CY	4.72	3,719		
	SITE REHABILITATION						
	SITE REHABILITATION	145	ACRE	8,641.72	1,253		
	CONSTRUCT ROADWAYS						
	MAIN ROADS IN CAMP [34']	9,100	LF	20.59	187		
	CONNECT. RD. TO ACCESS RD.	1,800	LF	87.76	158		
	DRAINAGE						
	DITCHING	24,800	LF	4.87	121		
	CULVERTS	1,200	LF	30.10	36		
	PERIMETER FENCING						
	PERIMETER FENCING	9,900	LF	17.01	168		
	PARKING AREAS						
	PARKING AREAS-INSIDE CAMP	1	LS	62,044.57	62		
	PARK.LOT-OUT CAMP(500 CARS)	4	ACRE	12,158.20	49		
	ELECTRICAL PLUG-INS	500	EACH	97.68	49		
					6,455		
	.12 BUILDINGS						
	BACHLR DORMS-108 MAN CMPLX	24	EACH	421,130.00	10,107		
	BACHELOR DORMS-MGMNT-TYPE A	8	EACH	134,485.00	1,076		
	BACHELOR DORMS-MGMNT-TYPE B	9	EACH	115,569.00	1,040		
	GUEST HSS-1 EA OWN/MGR/CON	3	EACH	142,591.00	428		
	CAMP MANAGER'S OFFICES	3	EACH	50,893.40	153		
	STAFF CLUBHOUSE	1	EACH	322,199.00	322		
	DINING HALL	1	EACH	1,849,060.00	1,849		
	DINING HALL	1	EACH	1,849,060.00	1,849		
	RECREATION BLDG.	1	EACH	1,074,980.00	1,075		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	RECREATION BLDG.	1	EACH	1,074,980.00	1,075		
	GYMNASIUM	1	EACH	2,807,970.00	2,808		
	SECURITY OFFICE	1	EACH	281,312.00	281		
	SOILS/MATERIALS LAB.	1	EACH	695,960.00	696		
	MAINTENANCE BLDG.	1	EACH	668,782.00	669		
	WAREHOUSE - MANAGERS	1	EACH	901,065.00	901		
	WAREHOUSE - FOOD SERVICE	1	EACH	1,216,406.00	1,216		
	COMMUNICATION BLDG.	1	EACH	106,837.00	107		
	HOSPITAL	1	EACH	2,703,026.00	2,703		
	ICE RINK	1	EACH	1,945,132.00	1,945		
	BANK	1	EACH	303,484.00	303		
	STORE	1	EACH	157,695.00	158		
	LAUNDRY	1	EACH	67,779.20	68		
	PERMAWALK						
	6 FEET WIDE	670	LF	88.83	60		
	10 FEET WIDE	2,170	LF	138.17	300		
	16 FEET WIDE	730	LF	236.87	173		
	RELOCATE 160 MAN CAMP						
	RELOCATE 160 MAN CAMP	1	LS	226,432.00	226		
					31,588		
	.13 UTILITIES						
	.131 WATER						
	SUPPLY SYSTEM						
	INTAKE						
	3.4 MG POND	1	LS	343,603.00	344		
	PUMP STATION						
	600 GPM	1	LS	155,961.00	156		
	BOOSTER PUMP STATION						
	600 GPM	1	LS	151,040.00	151		
	SUPPLY LINE						
	6" DI PIPE	10,000	LF	42.79	428		
	4" DI PIPE	10,000	LF	37.96	380		
	HEAT TRACING & INSULAT						
	6" PIPE	10,000	LF	30.58	306		
	4" PIPE	10,000	LF	27.65	277		
	UTILIDOR						
	UTILIDOR	10,000	LF	85.01	850		
	TREATMENT PLANT						
	0.9 MGD	1	LS	2,307,320.00	2,307		
	BACK-UP WELLS						
	BACK-UP WELLS	1	LS	296,040.00	296		
	DISTRIBUTION MAIN TO CAMP						
	6" DI PIPE	3,500	LF	42.79	150		
	4" DI PIPE	3,500	LF	37.96	133		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	HEAT TRACING & INSULAT						
	6" PIPE	3,500	LF	30.58	107		
	4" PIPE	3,500	LF	27.65	97		
	UTILIDORS						
	UTILIDORS	3,500	LF	85.01	298		
	RESERVOIRS						
	1 EA @ 0.8 MG & 1.2 MG	1	LS	279,720.00	280		
	PUMP STATION						
	4750 GPM	1	LS	93,041.68	93		
	CAMP DISTRIBUTION SYSTEM						
	DISTRIB LINES-BURIED						
	12"	2,130	LF	95.46	203		
	6"	300	LF	60.96	18		
	DISTRIB LINE UTILIDOR						
	PIPING						
	12" DIAMETER	2,530	LF	82.35	208		
	6" DIAMETER	3,470	LF	42.79	148		
	4" DIAMETER	605	LF	37.96	23		
	HEAT TRACING & INSULAT						
	12" PIPE	4,660	LF	54.18	252		
	6" PIPE	3,770	LF	30.58	115		
	4" PIPE	605	LF	27.65	17		
	HYDRANTS						
	HYDRANTS	12	EACH	1,614.68	19		
	VALVES						
	VALVES	1	LS	13,556.80	14		
	UTILIDORS						
	UTILIDORS	7,500	LF	80.11	601		
.132	SEWAGE						
	COLLECTION SYSTEM						
	PIPING						
	16" PIPE	650	LF	113.09	74		
	12" PIPE	1,850	LF	82.35	152		
	8" PIPE	2,950	LF	53.59	158		
	6" PIPE	1,600	LF	42.79	68		
	4" PIPE	1,200	LF	37.96	46		
	HEAT TRACING & INSULAT						
	16"	605	LF	73.63	45		
	12"	1,850	LF	54.18	100		
	8"	2,950	LF	34.71	102		
	6"	1,600	LF	30.58	49		
	4"	1,200	LF	27.65	33		
	UTILIDORS						
	UTILIDORS	1,200	LF	85.01	102		
	TREATMENT PLANT						
	SKIMMING TANK	1	EACH	25,066.76	25		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	LAGOONS - [1 @ 385' x 205' & 2 @ 280' x 155']	3	EACH	135,766.00	407		
	ROTATING BIO CONTACTORS	6	EACH	201,350.00	1,208		
	PHYS/CHEM UNIT	1	EACH	133,601.00	134		
	CLARIFIER	1	EACH	248,850.00	249		
	DISINFECTION	1	EACH	133,601.00	134		
	HEAT PUMP	1	EACH	11,840.00	12		
	THICKENER	1	EACH	147,415.00	147		
	FILTER PRESS	1	EACH	144,060.00	144		
	DRYING BEDS	2	EACH	66,949.28	134		
	BUILDING	1	EACH	403,560.00	404		
	CONTROLS/INSTRUMENTATION	1	LS	168,720.00	169		
	PIPING, VALVES, FITTINGS	1	LS	479,520.00	480		
	LABORATORY	1	EACH	74,010.36	74		
	OUTFALL						
	OUTFALL LINE (8")	2,000	LF	74.52	149		
	OUTFALL STRUCTURE	1	EACH	78,959.49	79		
.133	ELECTRICAL						
	GENERATING STATION						
	BUILDING	1	EACH	41,960.80	42		
	GENERATORS (850 KW)	3	EACH	282,292.00	847		
	DAY TANK	1	EACH	4,935.80	5		
	FUEL STORAGE TANK	1	EACH	173,850.00	174		
	SUBSTATION	1	EACH	98,699.72	99		
	DISTRIBUTION SYSTEM						
	DISTRIBUTION SYSTEM	1	LS	197,361.00	197		
	LIGHTING						
	POLE MOUNTED LUMINAIRS	60	EACH	1,990.60	119		
	FLOOD LIGHTS	25	EACH	740.00	19		
.134	CAMP HEATING						
	FUEL OIL DISTRIBUTION	1	LS	158,360.00	158		
.135	FIRE PROTECTION						
	FIRE HOUSE						
	FIRE HOUSE	1	LS	502,016.00	502		
	ALARM SYSTEM						
	ALARM SYSTEM	1	LS	257,520.00	258		
	SPRINKLER SYSTEM						
	MESS HALLS	1	LS	53,280.00	53		
	REC HALLS	1	LS	44,400.00	44		
	HOSPITAL	1	LS	23,680.00	24		
	SCHOOL	1	LS	35,520.00	36		
.136	TELEPHONE SYSTEM						
	TELEPHONE SYSTEM CAMP (WIRE)	1	LS	651,422.00	651		
	MICROWAVE	1	LS	3,156,840.00	3,157		
.137	TV/RADIO STATION						
	TV/RADIO STATION	1	LS	246,752.00	247		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	.138 SOLID WASTE FACILITY						
	SOLID WASTE FACILITY	1	LS	148,638.00	149		
	.139 PETROLEUM STORAGE FACILITY						
	GARAGE/MAINTENANCE BLDG						
	GARAGE/MAINTENANCE BUILDING	1	EACH	223,520.00	224		
	TANKS						
	50,000 GAL	4	EACH	25,000.16	100		
	100,000 GAL	36	EACH	44,999.40	1,620		
	EARTHWORK						
	CLEARING & GRUBBING	14	ACRE	13,140.92	184		
	BERMS	45,000	CY	30.31	1,364		
	PIPING						
	PIPING	1	LS	222,568.00	223		
	FUEL STATION						
	FUEL STATION	1	LS	383,697.00	384		
					24,025		
					62,068		
	.2 MAIN CONSTRUCTION VILLAGE						
	.21 SITE PREPARATION						
	CLEARING						
	CLEARING	116	ACRE	4,502.16	522		
	INSTALL GRANULAR PAD						
	INSTALL GRANULAR PAD	743,000	CY	5.73	4,257		
	SITE REHABILITATION						
	SITE REHABILITATION	116	ACRE	8,681.68	1,007		
	CONSTRUCT ROADWAYS						
	MAIN ROAD 34' WIDE	2,200	LF	25.71	57		
	SECONDARY ROADS 24' WIDE	17,600	LF	21.37	376		
	CONNECTION TO ACC RD 34'	1,600	LF	98.51	158		
	DRAINAGE						
	DITCHING	42,800	LF	3.71	159		
	CULVERTS - 360 LOTS	8,500	LF	29.88	254		
	PERIMETER FENCING						
	PERIMETER FENCING	10,700	LF	17.01	182		
	PARKING AREAS						
	PARKING AREAS	36,000	SF	0.36	13		
	ELECTRICAL PLUG-INS	25	EACH	97.68	2		
					6,987		
	.22 BUILDINGS						
	SINGLE FAMILY UNIT - 2 BDRM	74	EACH	39,718.80	2,939		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	SINGLE FAMILY UNIT - 3 BDRM	188	EACH	41,701.20	7,840		
	SINGLE FAMILY UNIT - 2 BDRM	16	EACH	61,041.40	977		
	SINGLE FAMILY UNIT - 3 BDRM	16	EACH	63,873.40	1,022		
	SINGLE FAMILY UNIT - 4 BDRM	16	EACH	75,826.80	1,213		
	SCHOOL	1	LS	1,619,196.00	1,619		
	GYMNASIUM	1	LS	982,980.00	983		
	SWIMMING POOL	1	LS	698,500.00	699		
	RECREATION CENTER	1	LS	852,786.00	853		
	STORE	1	LS	1,212,332.00	1,212		
	GAS STATION	1	LS	216,751.00	217		

					19,573		
.23	UTILITIES						
.231	WATER						
	SUPPLY LINE						
	4"	8,300	FT	37.56	312		
	PUMP STATION - 160 GPM	1	LS	108,731.00	109		
	WATER STORAGE TANK - 1.0 MG	1	EACH	143,560.00	144		
	DISTRIBUTION SYSTEM						
	PIPING						
	12" DI	1,300	LF	82.35	107		
	10" DI	1,000	LF	64.56	65		
	8" DI	1,500	LF	53.59	80		
	6" DI	8,500	LF	42.79	364		
	HEAT TRACING & INSULAT						
	12" PIPE	1,300	LF	54.18	70		
	10" PIPE	1,000	LF	47.14	47		
	8" PIPE	1,500	LF	34.71	52		
	6" PIPE	8,500	LF	30.58	260		
	4" PIPE	8,300	LF	27.65	229		
	VALVES						
	12"	2	EACH	1,823.36	4		
	10"	2	EACH	1,332.00	3		
	8"	2	EACH	1,050.80	2		
	6"	17	EACH	710.40	12		
	HYDRANTS						
	HYDRANTS	18	EACH	1,614.68	29		
.232	SEWAGE						
	COLLECTION SYSTEM						
	PIPING						
	14" PIPE	700	LF	96.20	67		
	12" PIPE	800	LF	82.35	66		
	10" PIPE	1,100	LF	64.56	71		
	8" PIPE	4,500	LF	53.59	241		
	6" PIPE	5,100	LF	42.79	218		
	HEAT TRACING & INSULAT						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	14" PIPE	700	LF	65.49	46		
	12" PIPE	800	LF	54.18	43		
	10" PIPE	1,100	LF	47.14	52		
	8" PIPE	4,500	LF	34.71	156		
	6" PIPE	18,900	LF	30.58	578		
	PUMPING SYSTEM						
	PUMP STATION	1	LS	139,187.00	139		
	BOOSTER PUMP STATION						
	BOOSTER PUMP STATION	1	LS	139,184.00	139		
	6" FORCE MAIN	13,800	LF	42.79	591		
	UTILIDORS						
	MAIN RUNS IN VILLAGE	12,200	LF	80.67	984		
	STREET CROSSING 50 LF EA	1,000	LF	80.67	81		
	PUMP STA TO TREATMT PLANT	8,300	LF	84.36	700		
	STUBS TO HSE 360 LOTS @ 20'	7,200	LF	80.67	581		
	STUBS TO BLDGS - 10 @ 25'	250	LF	80.67	20		
.233	INTEGRATED OFC AREA						
	OWNER/MGRS OFFICE	1	EACH	892,646.00	893		
.234	ELECTRICAL						
	GENERATING STATIONS						
	BUILDING	1	EACH	38,987.20	39		
	GENERATORS - 850 KW	4	EACH	282,177.00	1,129		
	DAY TANKS	1	EACH	4,935.80	5		
	FUEL STORAGE TANKS	1	EACH	173,850.00	174		
	SUBSTATIONS WITH WIRING	1	EACH	98,698.24	99		
	DISTRIBUTION						
	DISTRIBUTION	1	LS	246,747.00	247		
.235	FIRE ALARM SYSTEM						
	FIRE ALARM SYSTEM	1	LS	18,258.76	18		
.236	TELEPHONE SYSTEM						
	TELEPHONE SYSTEM	1	LS	434,232.00	434		
					9,699		
					36,260		
.3	ACCESS ROAD CAMPS						
.31	PIONEER ROAD CAMP						
	FACS, CATERING & OPER SUPT	21,100	MANDAY	84.00	1,772		
					1,772		
.32	ACCESS ROAD/RAILHEAD CAMP						
	FACS, CATERING & OPER SUPT	70,900	MANDAY	84.00	5,956		
					5,956		
					7,728		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.4	CAMP CREDIT						
	SALVAGE VALUE FOR BUILDINGS, EQUIPMENT & UTILITIES	1	LS	-9,000,000.00	-9,000		
					=========		
					-9,000		
.5	PERMANENT TOWN						
	PERMANENT TOWN	1	LS	16,524,200.00	16,524		
					=========		
					16,524		
.6	MAIN CONSTR CATERING & SUPPORT						
	CATERING & SUPPORT	3,710,000	MANDAY	61.98	229,946		
					=========		
					229,946		
.7	ELECTRIC POWER						
	.71 34.5 KV SYSTEM						
	.711 TRANSFORMER STATION	1	LS	699,996.00	700		
	.712 DISTRIBUTION SYSTEM (9 MI)	1	LS	1,299,988.00	1,300		
					2,000		
	.72 CONSTRUCTION CAMP						
	.721 DIESEL GENERATION	7,645	MWhr	240.00	1,835		
	.722 INTERTIE POWER	97,251	MWhr	100.00	9,725		
					11,560		
	.73 CONSTRUCTION POWER						
	.731 DIESEL GENERATION						
	(INCL IN CONSTRUCTION COSTS)						
	.732 INTERTIE POWER	81,000	MWhr	100.00	8,100		
					8,100		
					=========		
					21,660		
.8	CONSTRUCTION HEATING & VENTIL.						
	.81 HEATING & VENTILATION PLANT						
	.811 HEATING & VENTIL. PLANT	1	LS	2,305,500.00	2,306		
					2,306		
	.82 HEATING & VENTIL. OPERATION						
	.821 HEATING & VENTILATION OPER	2,700	DAY	3,794.65	10,246		
					10,246		
					=========		
					12,551		
						377,737	

$

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
64	LABOR EXPENSE						
	LABOR EXPENSE						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	
65	SUPERINTENDENCE						
	SUPERINTENDENCE						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	
66	INSURANCE						
	INSURANCE						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	
69	FEES						
	FEES						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	

SUBTOTAL						2,759,170	
	CONTINGENCY	17.5	%		482,855		

SUBTOTAL						482,855	
71	ENGINEERING	12.5	%		405,253		

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
72	LEGAL EXPENSES	0.0	%		0		INCLUDED IN 71
75	TAXES	0.0	%		0		NOT APPLICABLE
76	ADMINISTRATIVE & GEN. EXPENSES	0.0	%		0		INCLUDED IN 71
77	INTEREST	0.0	%		0		NOT INCLUDED
80	EARNINGS/EXPENSES DURING CONSTR.	0.0	%		0		NOT INCLUDED
TOTAL PROJECT COST						3,647,277	

APPENDIX C2

DEVIL CANYON HYDROELECTRIC DEVELOPMENT - ESTIMATE OF COST

The attached sheets provide a detailed breakdown of the Devil Canyon Hydroelectric Development estimate of cost.

Please refer to the explanatory notes given in the front of Appendix C2.

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	PRODUCTION PLANT						
330	LAND & LAND RIGHTS						
.1	LAND						
	LAND	1	LS	22,050,000.00	22,050		
.2	LAND RIGHTS						
	LAND RIGHTS - IN ABOVE	1	LS	0.00	0		
.3	MISC CHARGES & CREDITS						
	MISC CHARGES/CREDIT-IN ABOVE	1	LS	0.00	0		
						22,050	
331	POWERPLANT STRUCTURE IMPROVEMENTS						
.1	POWERHOUSE						
.11	POWERHOUSE & DRAFT TUBE						
.111	EXCAVATION						
	POWERHOUSE VAULT ROCK	95,800	CY	48.61	4,657		
	DRAFT TUBE ROCK	16,800	CY	48.61	817		
					5,473		
.113	SURFACE PREPARATION/GROUTING						
	POWERHOUSE						
	SURFACE PREPARATION	88,700	SF	1.58	140		
	DRAFT TUBE						
	SURFACE PREPARATION	51,300	SF	1.58	81		
	GROUT CURTAIN-(U/S OF P-H)						
	DRILL HOLES	43,800	LF	13.59	595		
	CEMENT	17,500	CF	39.91	698		
					1,515		
.114	CONCRETE & SHOTCRETE						
	POWERHOUSE						
	CONCRETE	23,800	CY	341.00	8,116		
	CONCRETE OVERBREAK 12"H/6"V	1,800	CY	220.10	396		
	REINFORCING STEEL	1,200	TON	1,419.80	1,704		
	2" SHOTCRETE	1,900	SF	2.59	5		
	3" SHOTCRETE	3,400	SF	3.78	13		
	DRAFT TUBE						
	CONCRETE	8,000	CY	341.00	2,728		
	CONCRETE OVERBREAK 6"	1,650	CY	220.10	363		
	REINFORCING STEEL	660	TON	1,419.80	937		
	2" SHOTCRETE	800	SF	2.59	2		
					14,264		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.115	SUPPORT & ANCHORS						
	POWERHOUSE						
	ROCKBOLTS 1" @ 25' HY	780	EACH	613.40	478		
	ROCKBOLTS 1" @ 15'	500	EACH	365.51	183		
	STEEL MESH	31,000	SF	2.88	89		
	STEEL SUPPORT	105	TON	6,294.55	661		
	DRAFT TUBE						
	ROCKBOLTS 1" @ 25' HY	100	EACH	613.40	61		
	ROCKBOLTS 1" @ 12'	140	EACH	262.45	37		
	ROCKBOLTS 1" @ 9'	70	EACH	214.64	15		
	STEEL MESH	12,600	SF	2.88	36		
					1,561		
.117	DRAINAGE						
	HOLES (U/S OF POWERHOUSE)	15,000	LF	24.37	366		
	HOLES (POWERHOUSE CROWN)	21,960	LF	24.37	535		
					901		
.118	STRUCTURAL - MISC STEELWORK						
	POWERHOUSE & DRAFT TUBE						
	STRUCTURAL STEEL/CRANE RAILS	1	LS	1,498,695.00	1,499		
	STEEL COMP. WATER PIPE(8')	1	LS	1,976,250.00	1,976		
					3,475		
.119	ARCHITECTURAL						
	POWERHOUSE						
	ARCHITECTURAL	1	LS	750,200.00	750		
					750		
.11C	MECHANICAL						
	DRAFT TUBE GATES	2	SETS	270,000.00	540		
	DRAFT TUBE GATE GUIDES	4	SETS	110,000.00	440		
	DRAFT TUBE CRANE	1	EACH	450,000.00	450		
	PUMP INTAKE TRSHRKS & GUIDES	1	LS	160,000.00	160		
	PUMP OUTLET STOPLOGS/GUIDES	1	LS	70,000.00	70		
					1,660		
					29,599		
.12	ACCESS TUNNELS & PORTALS						
.121	EXCAVATION						
	TUNNELS - ROCK						
	MAIN TUNNEL	106,000	CY	52.56	5,571		
	TRANSFORMER GALLERY TUNNEL	17,000	CY	44.42	755		
	GROUTING GALLERY TUNNEL	2,300	CY	213.61	491		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	SURGE CHAMBER ACCESS TUNNEL	7,800	CY	73.98	577		
	PENSTOCK ACCESS TUNNEL	50,000	CY	78.32	3,916		
	PENSTOCK ELBOW ACCESS TUNNEL	10,000	CY	78.32	783		
	ACCESS SHAFT TUNNEL	3,300	CY	204.55	675		
	CONNECTOR TUNNEL	1,600	CY	204.55	327		
	COMP. WATER TUNNEL 10'D	2,200	CY	204.55	450		
	COMP. WATER TUNNEL 35'D	27,000	CY	51.85	1,400		
	MAIN PORTAL						
	ROCK	5,000	CY	26.60	133		
	COMP. WATER PORTAL						
	ROCK	300	CY	26.60	8		
					15,087		
.123	SURFACE PREPARATION						
	TUNNELS						
	MAIN TUNNEL SLAB	112,000	SF	1.09	122		
	COMP. WATER TUNNEL 35'D SLAB	28,400	SF	1.09	31		
	PENSTOCK ACC TUNNEL SLAB	52,560	SF	1.09	57		
	MAIN PORTAL						
	HORIZONTAL	200	SF	1.09	0		
	INCLINED	2,100	SF	1.58	3		
	COMP. WATER PORTAL						
	HORIZONTAL	200	SF	1.09	0		
	INCLINED	2,100	SF	1.58	3		
					217		
.124	CONCRETE & SHOTCRETE						
	MAIN PORTALS						
	CONCRETE SLAB	30	CY	199.95	6		
	CONCRETE WALLS	570	CY	199.95	114		
	CONCRETE OVERBREAK 12'H/6"V	40	CY	181.35	7		
	REINFORCING STEEL	40	TON	1,419.80	57		
	COMP. WATER PORTAL						
	CONCRETE SLAB	30	CY	199.95	6		
	CONCRETE WALLS	570	CY	199.95	114		
	CONCRETE OVERBREAK 12"H/6"V	40	CY	186.00	7		
	REINFORCING STEEL	40	TON	1,419.80	57		
	TUNNELS						
	CONCRETE SLAB MAIN TUNNEL	4,030	CY	248.00	999		
	CONC PLUGS PENS ELBOW ACCESS	10,000	CY	372.00	3,720		
	CONC COMP WATER SLAB 35'D	1,030	CY	403.00	415		
	CONC OVERBREAK MAIN TUN 6"	2,130	CY	170.50	363		
	CONC COMP WATER SLAB 6"O/B	540	CY	237.15	128		
	REINFORCING STEEL MAIN TUN	140	TON	1,419.80	199		
	REINF STEEL COMP WATER SLAB	40	TON	1,419.80	57		
	2" SHOTCRETE MAIN TUNNEL	7,950	SF	2.59	21		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	2" SHOTCRETE TRANSFORMER GAL	1,260	SF	2.59	3		
	2" SHOTCRETE SURGE CHAMB ACC	800	SF	2.59	2		
	2" SHOTCRETE PENSTOCK ACCESS	3,750	SF	2.59	10		
	2" SHOTCRETE PENST ELBOW ACC	3,750	SF	2.59	10		
	2" SHOTCRETE ACCESS SHAFT	750	SF	2.59	2		
	2" SHOTCRETE GROUT GALLERY	470	SF	2.59	1		
	2" SHOTCRETE CONNECTOR TUN	330	SF	2.59	1		
	2" SHOTCRETE COMP WATER 35'D	2,050	SF	2.59	5		
	2" SHOTCRETE COMP WATER 10'D	450	SF	2.59	1		
					6,305		
.125	SUPPORT & ANCHORS						
	MAIN TUNNEL						
	ROCKBOLTS 1" @ 12'	1,440	EACH	262.45	378		
	ROCKBOLTS 1" @ 9'	190	EACH	214.64	41		
	STEEL MESH	132,500	SF	3.16	419		
	STEEL SUPPORT	120	TON	6,294.55	755		
	MAIN TUNNEL PORTAL						
	ROCKBOLTS 1" @ 15'	50	EACH	365.51	18		
	TRANSFORMER GALLERY TUNNEL						
	ROCKBOLTS 1" @ 12'	230	EACH	262.45	60		
	ROCKBOLTS 1" @ 9'	30	EACH	214.64	6		
	STEEL MESH	20,940	SF	3.16	66		
	STEEL SUPPORT	20	TON	6,294.55	126		
	GROUTING GALLERY TUNNEL						
	ROCKBOLTS 3/4" @ 6'	220	EACH	162.50	36		
	SUPPORT STEEL	3	TON	6,294.55	19		
	STEEL MESH	100	SF	3.16	0		
	SURGE CHAMBER TUNNEL						
	ROCKBOLTS 1" @ 12'	150	EACH	262.45	39		
	ROCKBOLTS 1" @ 9'	30	EACH	214.64	6		
	STEEL SUPPORT	13	TON	6,294.55	82		
	STEEL MESH	13,200	SF	3.16	42		
	PENSTOCK ACCESS TUNNEL						
	ROCKBOLTS 1" @ 12'	680	EACH	262.45	178		
	ROCKBOLTS 1" @ 9'	90	EACH	214.64	19		
	STEEL SUPPORT	60	TON	6,294.55	378		
	STEEL MESH	62,150	SF	3.16	196		
	PENSTOCK ELBOW ACCESS TUNNEL						
	ROCKBOLTS 1" @ 12'	280	EACH	262.45	73		
	ROCKBOLTS 1" @ 9'	80	EACH	214.64	17		
	STEEL SUPPORT	20	TON	6,294.55	126		
	STEEL MESH	14,760	SF	3.16	47		
	ACCESS SHAFT TUNNEL						
	ROCKBOLTS 1" @ 12'	50	EACH	262.45	13		
	ROCKBOLTS 1" @ 9'	50	EACH	214.64	11		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	STEEL SUPPORT	20	TON	6,294.55	126		
	STEEL MESH	2,500	SF	3.16	8		
	CONNECTOR TUNNEL						
	ROCKBOLTS 3/4' @ 6'	160	EACH	162.50	26		
	STEEL SUPPORT	2	TON	6,294.55	13		
	STEEL MESH	70	SF	3.16	0		
	COMP. WATER TUNNEL 35' D						
	ROCKBOLTS 1" @ 12'	370	EACH	262.45	97		
	ROCKBOLTS 1" @ 9'	50	EACH	214.64	11		
	STEEL SUPPORT	30	TON	6,294.55	189		
	STEEL MESH	33,600	SF	3.16	106		
	COMP. WATER TUNNEL PORTAL						
	ROCKBOLTS 1" @ 15'	40	EACH	365.51	15		
	COMP. WATER TUNNEL 10' D						
	ROCKBOLTS 3/4" @ 6'	210	EACH	162.50	34		
	STEEL SUPPORT	3	TON	6,294.55	19		
	STEEL MESH	90	SF	3.16	0		
					3,796		
.129	ARCHITECTURAL						
	MAIN PORTAL DOORS	2	SETS	75,175.00	150		
	COMP. WATER PORTAL DOOR	1	LS	24,800.00	25		
					175		
.12C	MECHANICAL						
	VENTILATING SYSTEM (INCL IN 63.71 & 63.72)						
					0		
					25,582		
.13	ACCESS SHAFT						
.131	EXCAVATION						
	ROCK	14,500	CY	122.79	1,780		
					1,780		
.133	SURFACE PREPARATION						
	SHAFT	70,200	SF	1.58	111		
					111		
.134	CONCRETE & SHOTCRETE						
	CONCRETE LINING	3,600	CY	465.00	1,674		
	CONCRETE OVERBREAK 6"	1,300	CY	271.25	353		
					2,027		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.135	SUPPORT & ANCHORS						
	ROCKBOLTS 3/4" @ 6'	1,120	EACH	162.50	182		
					182		
.138	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	50	TON	3,673.50	184		
					184		
.139	ARCHITECTURAL						
	(INCL IN 331.2 CNTRL BLDG)						
					0		
.13C	MECHANICAL						
	ELEVATORS	1	LS	1,000,000.00	1,000		
					1,000		
					5,284		
.14	FIRE PROTECTION HEADTANK						
.141	EXCAVATION						
	ROCK	1,150	CY	299.15	344		
					344		
.143	SURFACE PREPARATION						
	HEAD TANK	2,800	SF	1.09	3		
					3		
.144	CONCRETE & SHOTCRETE						
	CONCRETE	250	CY	474.30	119		
	CONC. OVERBREAK 6"	45	CY	199.95	9		
	REINFORCING STEEL	10	TON	1,419.80	14		
					142		
.145	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 12'	25	EACH	262.45	7		
	ROCKBOLTS 1" @ 9'	10	EACH	214.64	2		
	STEEL MESH	1,200	SF	3.16	4		
	STEEL SUPPORT	2	TON	6,294.55	13		
					25		
.148	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	1	LS	23,250.00	23		
					23		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.14C	MECHANICAL						
	PIPING/VALVES -						
	(INCLUDED IN 335.12)						
					0		
					537		
.15	BUS TUNNELS						
	(TOTALS FOR 4 BUS TUNNELS)						
.151	EXCAVATION						
	ROCK HORIZONTAL	3,200	CY	115.26	369		
	ROCK INCLINED	2,000	CY	324.15	648		
					1,017		
.153	SURFACE PREPARATION						
	TUNNEL	11,300	SF	1.09	12		
					12		
.154	CONCRETE & SHOTCRETE						
	CONCRETE SLAB	800	CY	403.00	322		
	CONCRETE OVERBREAK 12"	360	CY	232.50	84		
	REINFORCING STEEL	40	TON	1,419.80	57		
	2" SHOTCRETE	520	SF	2.59	1		
					464		
.155	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25'	80	EACH	613.40	49		
	ROCKBOLTS 1" @ 12'	110	EACH	262.45	29		
	ROCKBOLTS 1" @ 9'	30	EACH	214.64	6		
	STEEL MESH	8,600	SF	3.16	27		
	STEEL SUPPORT	14	TON	6,294.55	88		
					200		
					1,693		
.16	TRANSFORMER GALLERY						
.161	EXCAVATION						
	ROCK	28,800	CY	44.42	1,279		
					1,279		
.163	SURFACE PREPARATION						
	TRANSFORMER GALLERY	26,500	SF	1.09	29		
					29		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.164	CONCRETE & SHOTCRETE						
	CONCRETE BASE SLAB	2,810	CY	604.50	1,699		
	CONCRETE OVERBREAK 12"H/6"V	820	CY	186.00	153		
	REINFORCING STEEL	140	TON	1,419.80	199		
	3" SHOTCRETE	1,100	SF	3.78	4		
					2,054		
.165	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25' HY	170	EACH	613.40	104		
	ROCKBOLTS 1" @ 15'	90	EACH	365.51	33		
	STEEL MESH	22,200	SF	2.88	64		
	STEEL SUPPORT	17	TON	6,294.55	107		
					308		
.167	DRAINAGE						
	HOLES (IN GALLERY CROWN)	8,900	LF	24.37	217		
					217		
					3,887		
.17	CABLE SHAFTS						
	(TOTALS FOR 2 SHAFTS)						
.171	EXCAVATION						
	ROCK	3,000	CY	324.15	972		
					972		
.173	SURFACE PREPARATION						
	SHAFTS	36,000	SF	1.58	57		
					57		
.174	CONCRETE & SHOTCRETE						
	CONCRETE LINING	920	CY	868.00	799		
	CONCRETE OVERBREAK 6"	670	CY	434.00	291		
					1,089		
.175	SUPPORT & ANCHORS						
	ROCKBOLTS 3/4" @ 6'	570	EACH	162.50	93		
					93		
.178	STRUCTURAL - MISC STEELWORK						
	MISCELLANEOUS STEELWORK	13	TON	7,750.00	101		
					101		
.179	ARCHITECTURAL						
	ENCLOSURES	1	LS	89,900.00	90		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.17C	MECHANICAL						
	MANHOIST	2	EACH	230,000.00	460		
					460		
					2,862		
.18	DEWATERING (DURING CONSTRUCT)						
.181	DEWATERING (POWER FACS)						
	DEWATERING	1	LS	697,500.00	698		
					698		
					698		
.19	INSTRUMENTATION						
.191	INSTRUMENTATION						
	INSTRUMENTATION	1	LS	773,450.00	773		
					773		
					773		
.2	MISC. BUILDINGS & STRUCTURES						
	MISC. BUILDINGS & STRUCTURES	1	LS	199,950.00	200		
					200		
						71,115	
332	RESERVOIR, DAMS & WATERWAYS						
.1	RESERVOIR						
.11	CLEARING						
	CLEARING	6,350	ACRE	1,550.00	9,843		
					9,843		
.2	DIVERSION TUNNELS/COFFERDAMS						
.21	DIVERSION TUNNELS/PORTALS						
.211	EXCAVATION						
	TUNNEL						
	ROCK	48,300	CY	59.12	2,855		
	EXCAVATE CONCRETE FOR PLUG	450	CY	59.12	27		
	UPSTREAM PORTAL						
	OVERBURDEN	1,950	CY	9.25	18		

SUSITNA HYDROELECTRIC PROJECT
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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	ROCK	50,200	CY	26.60	1,335		
	DOWNSTREAM PORTAL						
	OVERBURDEN	6,600	CY	9.25	61		
	ROCK	54,000	CY	26.60	1,436		
					5,733		
.213	SURFACE PREPARATION/GROUTING						
	UPSTREAM PORTAL						
	HORIZONTAL	4,400	SF	1.09	5		
	INCLINED	15,300	SF	1.58	24		
	DOWNSTREAM PORTAL						
	HORIZONTAL	1,300	SF	1.09	1		
	INCLINED	2,900	SF	1.58	5		
	GROUT TUNNEL PLUG						
	DRILL HOLES	2,050	LF	6.05	12		
	CEMENT	410	CF	33.37	14		
					61		
.214	CONCRETE & SHOTCRETE						
	TUNNEL						
	CONCRETE LINING	8,100	CY	279.00	2,260		
	CONCRETE PLUG	3,000	CY	210.80	632		
	CONCRETE OVERBREAK 6"	3,200	CY	155.00	496		
	REINFORCING STEEL	15	TON	1,419.80	21		
	2" SHOTCRETE	4,400	SF	2.59	11		
	UPSTREAM PORTAL						
	CONCRETE HEADWALL	2,800	CY	320.85	898		
	CONCRETE LINING	1,550	CY	279.00	432		
	CONCRETE PIER	400	CY	279.00	112		
	OVERBREAK 12"H/6"V	500	CY	232.50	116		
	REINFORCING STEEL	310	TON	1,419.80	440		
	DOWNSTREAM PORTAL						
	CONCRETE HEADWALL	1,000	CY	320.85	321		
	OVERBREAK 12"H/6"V	100	CY	232.50	23		
	REINFORCING STEEL	65	TON	1,419.80	92		
					5,856		
.215	SUPPORT & ANCHORS						
	TUNNEL						
	ROCKBOLTS 1" @ 12'	800	EACH	262.45	210		
	ROCKBOLTS 1" @ 9'	90	EACH	214.64	19		
	STEEL MESH	76,900	SF	3.16	243		
	STEEL SUPPORT	90	TON	6,294.55	567		
	UPSTREAM PORTAL						
	ROCKBOLTS 1" @ 15'	80	EACH	365.51	29		
	ROCK ANCHORS 1" @ 25'	40	EACH	613.40	25		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	ROCK DOWELS	60	EACH	233.74	14		
	DOWNSTREAM PORTAL						
	ROCKBOLTS 1" @ 15'	120	EACH	365.51	44		
	ROCK ANCHORS 1" @ 25'	30	EACH	613.40	18		
					1,169		
.21C	MECHANICAL						
	UPSTREAM GATE						
	GATE EQUIPMENT	2	EACH	1,280,000.00	2,560		
	DOWNSTREAM OUTLET						
	STOPLOG GUIDES	1	SET	35,000.00	35		
	STOPLOGS INCL FOLLOWERS	1	LS	0.00	0		
					2,595		
					15,414		
.22	UPSTREAM COFFERDAM						
.222	FILL						
	CORE	4,600	CY	5.53	25		
	FINE/FILTER	2,800	CY	17.48	49		
	COARSE FILTER	2,700	CY	15.27	41		
	ROCK SHELL	19,800	CY	5.33	106		
	CLOSURE DIKE	41,900	CY	5.53	232		
	RIP RAP	7,000	CY	12.32	86		
					539		
.223	SURFACE PREPARATION/GROUTING						
	CUTOFF & GROUT						
	HOLES	1,600	LF	13.59	22		
	GROUT	256,000	CF	39.91	10,217		
					10,239		
.22D	DEWATERING						
	INITIAL DEWATERING	1	LS	758,105.00	758		
	DEWATERING MAINTENANCE	1	LS	3,870,040.00	3,870		
					4,628		
					15,406		
.23	DOWNSTREAM COFFERDAM						
.231	EXCAVATION						
	REMOVAL OF COFFERDAM	42,000	CY	7.25	305		
					305		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.232	FILL						
	RIP RAP	1,650	CY	12.32	20		
	CLOSURE DIKE	47,000	CY	5.53	260		
					280		
.233	SURFACE PREP/GROUTING						
	CUTOFF & GROUT						
	HOLES	2,300	LF	13.59	31		
	CEMENT	368,000	CF	39.91	14,687		
					14,718		
					15,303		
.3	MAIN DAM						
.31	MAIN DAM						
.311	EXCAVATION						
	OVERBURDEN	35,600	CY	6.23	222		
	ROCK	320,700	CY	27.06	8,678		
					8,900		
.313	SURFACE PREPARATION/GROUTING						
	SURFACE PREPARATION						
	UNDER DAM/THRUST BLOCKS	171,000	SF	1.58	270		
	CONSOLIDATION GROUT						
	DRILL HOLES	176,900	LF	6.05	1,070		
	CEMENT	176,900	CF	33.37	5,903		
	GROUT CURTAIN						
	DRILL HOLES	259,000	LF	13.59	3,520		
	CEMENT	103,600	CF	39.91	4,135		
					14,898		
.314	CONCRETE & SHOTCRETE						
	DAM						
	CONCRETE	1,281,000	CY	201.50	258,122		
	CONCRETE OVERBREAK	10,400	CY	201.50	2,096		
	REINFORCING STEEL	4,500	TON	1,419.80	6,389		
	THRUSTBLOCKS						
	CONCRETE	105,500	CY	201.50	21,258		
	CONCRETE OVERBREAK	1,100	CY	201.50	222		
	REINFORCING STEEL	375	TON	1,419.80	532		
	JOINT GROUTING						
	GROUTING	1	LS	2,542,000.00	2,542		
					291,161		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.315	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25'	580	EACH	613.40	356		
	STEEL MESH (ON SLOPES)	275,000	SF	2.43	668		
					1,024		
.317	DRAINAGE						
	HOLES	65,800	LF	24.37	1,604		
					1,604		
					317,586		
.32	GROUT GALLERIES/PORTALS						
.321	EXCAVATION						
	TUNNELS/SHAFTS - CORE AREA						
	ROCK HORIZONTAL	13,100	CY	213.61	2,798		
	ROCK INCLINED	5,300	CY	299.15	1,585		
	ROCK VERTICAL	3,400	CY	290.10	986		
	TUNNELS/SHAFTS ACCESS`						
	ROCK HORIZONTAL	12,400	CY	213.61	2,649		
	PORTALS						
	OVERBURDEN	28,700	CY	9.25	265		
	ROCK	16,500	CY	26.60	439		
					8,723		
.323	SURFACE PREPARATION						
	PORTALS						
	HORIZONTAL	50	SF	1.09	0		
	INCLINED	410	SF	1.58	1		
					1		
.324	CONCRETE & SHOTCRETE						
	TUNNELS - CORE AREA						
	CONCRETE SLAB	1,800	CY	465.00	837		
	CONCRETE OVERBREAK 6"	900	CY	372.00	335		
	REINFORCING STEEL	62	TON	1,419.80	88		
	2" SHOTCRETE	3,300	SF	2.59	9		
	TUNNELS - ACCESS						
	CONCRETE SLAB	1,400	CY	465.00	651		
	CONCRETE OVERBREAK 6"	700	CY	372.00	260		
	REINFORCING STEEL	50	TON	1,419.80	71		
	2" SHOTCRETE	2,500	SF	2.59	6		
	SHAFTS - CORE AREA						
	2" SHOTCRETE	6,500	SF	2.59	17		
	PORTALS (4 PORTALS)						
	CONCRETE	40	CY	199.95	8		

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				$	$ 000	$ 000	
	REINFORCING STEEL	3	TON	1,419.80	4		
					2,286		
.325	SUPPORT & ANCHORS						
	TUNNELS - CORE AREA						
	ROCKBOLTS 1" @ 12'	150	EACH	262.45	39		
	ROCKBOLTS 1" @ 9'	30	EACH	214.64	6		
	ROCKBOLTS 3/4" @ 6'	1,250	EACH	162.50	203		
	STEEL MESH	12,200	SF	3.24	40		
	STEEL SUPPORT	27	TON	6,294.55	170		
	TUNNELS ACCESS						
	ROCKBOLTS 3/4" @ 6'	1,200	EACH	162.50	195		
	STEEL MESH	500	SF	3.24	2		
	STEEL SUPPORT	12	TON	6,294.55	76		
	SHAFTS - CORE AREA						
	ROCKBOLTS 3/4" @ 6'	300	EACH	162.50	49		
	STEEL MESH	1,300	SF	3.24	4		
	PORTALS						
	ROCKBOLTS 1" @ 15'	150	EACH	365.51	55		
					838		
.328	STRUCTURAL - MISC STEELWORK						
	STEEL/GUIDES SHAFT	50	TON	3,673.50	184		
	STEEL STAIRWAY	1	LS	93,775.00	94		
					277		
.329	ARCHITECTURAL						
	PORTAL DOORS	4	EACH	19,995.00	80		
	HEADSHAFT STRUCTURE	1	LS	434,000.00	434		
					514		
.32C	MECHANICAL						
	ELEVATOR	1	LS	750,000.00	750		
	OVERHEAD CRANE	1	LS	430,000.00	430		
	MISC MECHANICAL EQUIPMENT	1	LS	120,000.00	120		
					1,300		
					13,940		
.33	INSTRUMENTATION						
.331	INSTRUMENTATION (DAM)						
	INSTRUMENTATION	1	LS	3,906,000.00	3,906		
					3,906		
					3,906		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.4	SADDLE DAM						
.41	MAIN SADDLE DAM						
.411	EXCAVATION						
	OVERBURDEN	1,145,000	CY	5.63	6,446		
	ROCK	301,000	CY	19.42	5,845		
					12,292		
.412	FILL						
	IMPERVIOUS CORE	313,500	CY	50.95	15,973		
	FINE FILTER	231,000	CY	20.13	4,650		
	COARSE FILTER	193,000	CY	17.90	3,455		
	ROCK SHELL (UPSTREAM)	534,000	CY	4.82	2,574		
	RIP RAP	174,500	CY	12.32	2,150		
	ROCK SHELL (DOWNSTREAM)	345,000	CY	4.82	1,663		
	ROCKFILL	127,000	CY	4.82	612		
	FILTER FABRIC						
	FILTER FABRIC	190,000	SF	0.84	160		
					31,236		
.413	SURFACE PREPARATION/GROUTING						
	SURFACE PREPARATION						
	UNDER DAM CORE	191,500	SF	1.58	303		
	UNDER DAM SHELL	432,500	SF	1.09	471		
	DENTAL CONCRETE						
	DENTAL CONCRETE	7,100	CY	179.80	1,277		
	CONSOLIDATION GROUT						
	DRILL HOLES	57,500	LF	6.05	348		
	CEMENT	57,500	CF	33.37	1,919		
	GROUT CURTAIN (SEE 332.313)						
					4,317		
.417	DRAINAGE (SEE 332.317)						
					0		
					47,845		
.5	OUTLET FACILITIY VALVES (IN DAM)						
.51	OUTLET FACILITY VALVES						
.51C	MECHANICAL						
	TRASHRACKS/GUIDES	1	LS	1,850,000.00	1,850		
	BULKHEAD GATE GUIDES	1	LS	1,220,000.00	1,220		
	BULKHEAD GATES & FOLLOWERS	2	EACH	220,000.00	440		
	GANTRY CRANE	1	LS	700,000.00	700		
	FIXED CONE VALVES (7 PLUS 2 SPARE)	1	LS	3,200,000.00	3,200		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	RING FOLLOWER GATES (7)	1	LS	6,300,000.00	6,300		
	MISC. MECHANICAL EQUIPMENT	1	LS	800,000.00	800		
	MISC. ELECTRICAL SYSTEMS	1	LS	100,000.00	100		
					14,610		
					14,610		
.52	MAIN (CHUTE) SPILLWAY						
.521	EXCAVATION						
	APPROACH						
	OVERBURDEN	44,000	CY	8.03	353		
	ROCK USEABLE	80,000	CY	19.42	1,554		
	ROCK WASTE	17,000	CY	19.42	330		
	CONTROL STRUCTURE (TO END OF ROLLWAY)						
	OVERBURDEN	21,500	CY	8.03	173		
	ROCK USEABLE	87,000	CY	20.04	1,743		
	ROCK WASTE	15,000	CY	17.92	269		
	CHUTE & FLIP (END ROLLWAY TO END FLIP)						
	OVERBURDEN	128,500	CY	8.03	1,032		
	ROCK USEABLE (INCLINED)	38,000	CY	24.80	942		
	ROCK USEABLE (VERTICAL)	401,000	CY	24.80	9,945		
	ROCK WASTE	93,500	CY	19.42	1,816		
	OUTFALL (FROM END OF BASIN)						
	OVERBURDEN	44,500	CY	8.03	357		
	ROCK USEABLE	141,500	CY	21.37	3,024		
	ROCK WASTE	41,500	CY	15.98	663		
	DRAIN TUNNEL						
	ROCK HORIZONTAL	1,500	CY	213.61	320		
	ROCK INCLINED	2,300	CY	299.15	688		
	RIVER CHANNEL						
	ALLUVIUM EXCAVATION	67,000	CY	6.48	434		
					23,644		
.523	SURFACE PREPARATION/GROUTING						
	SURFACE PREPARATION						
	SPILLWAY						
	ROCK HORIZONTAL	108,000	SF	1.09	118		
	ROCK INCLINED	41,500	SF	1.58	66		
	CONSOLIDATION GROUT						
	DRILL HOLES	22,000	LF	6.05	133		
	CEMENT	22,000	CF	33.37	734		
	GROUT CURTAIN (SEE 332.313)						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.524	CONCRETE & SHOTCRETE						
	CONCRETE STRUCTURE						
	(TO END OF ROLLWAY)						
	(INCLUDING STORAGE AREAS)						
	CONCRETE OUTER WALLS	15,500	CY	217.00	3,364		
	CONCRETE PIERS (FULL LENGTH)	7,700	CY	217.00	1,671		
	CONCRETE DECK	1,600	CY	217.00	347		
	CONCRETE ROLLWAY SLAB	33,000	CY	217.00	7,161		
	CONCRETE OVERBREAK 12"H/6"V	1,400	CY	170.50	239		
	REINFORCING STEEL	2,300	TON	1,419.80	3,266		
	CONCRETE CHUTE & FLIP						
	(END ROLLWAY TO END FLIP)						
	(INCL BOX DRAIN GALLERIES)						
	CONCRETE SLAB	13,000	CY	221.65	2,881		
	CONCRETE WALLS	20,500	CY	235.60	4,830		
	CONCRETE OVERBREAK 18"H/6"V	6,300	CY	155.00	977		
	REINFORCING STEEL	1,300	TON	1,419.80	1,846		
	CONCRETE DRAIN GALLERY						
	CONCRETE SLAB	400	CY	465.00	186		
	CONCRETE OVERBREAK 6"	200	CY	279.00	56		
	REINFORCING STEEL	14	TON	1,419.80	20		
	2" SHOTCRETE DOME	2,500	SF	2.59	6		
					26,848		
.525	SUPPORT & ANCHORS						
	DRAINAGE TUNNEL						
	STEEL SUPPORT	4	TON	6,294.55	25		
	STEEL MESH	500	SF	3.24	2		
	ROCKBOLTS DRAINAGE GALLERY						
	3/4" @ 6'	400	EACH	162.50	65		
	ROCKBOLTS APPROACH						
	1" @ 15'	140	EACH	365.51	51		
	ROCKBOLTS CHUTE & STRUCTURE						
	1" @ 15'	85	EACH	365.51	31		
	SLAB/WALL ANCHORS						
	1"@ 10'	3,700	EACH	233.74	865		
					1,039		
.527	DRAINAGE						
	DRILL HOLES						
	BOX DRAINS (TO DRAIN TUNNEL)	28,000	LF	24.37	682		
	3" RELIEF	500	LF	24.37	12		
					695		
.52C	MECHANICAL						
	GATE EQUIPMENT	3	EACH	1,850,000.00	5,550		

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				$	$ 000	$ 000	
	STOPLOG GUIDES	3	SETS	45,000.00	135		
	STOPLOGS INCLUDING FOLLOWERS	1	SET	480,000.00	480		
	MISCELLANEOUS ELECTRICAL	1	LS	100,000.00	100		
					6,265		
					59,541		
.53	EMERGENCY SPILLWAY						
.531	EXCAVATION (INCLUDING - BRIDGE & FUSE PLUG)						
	OVERBURDEN	281,500	CY	3.55	999		
	ROCK USEABLE	1,019,000	CY	20.15	20,533		
	ROCK WASTE	215,500	CY	19.76	4,258		
					25,790		
.532	FILL						
	FUSE PLUG	26,000	CY	9.89	257		
					257		
.533	SURFACE PREPARATION/GROUTING						
	SURFACE PREP (UNDER FUSE PLUG)						
	HORIZONTAL	75,500	SF	1.09	82		
	INCLINED	2,500	SF	1.58	4		
	CONSOLIDATION GROUTING						
	DRILL HOLES	23,000	LF	6.05	139		
	CEMENT	23,000	CF	33.37	768		
	GROUT CURTAIN (SEE 332.313)						
					993		
.534	CONCRETE						
	GROUND SLAB	6,000	CY	170.50	1,023		
	CONCRETE OVERBREAK 12"H/12"V	3,000	CY	170.50	512		
	REINFORCING STEEL	210	TON	1,419.80	298		
					1,833		
.535	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 15′	300	EACH	365.51	110		
	ROCK ANCHORS 1" @ 25′	760	EACH	613.40	466		
					576		
.53B	BRIDGE						
	BRIDGE	1	LS	1,250,075.00	1,250		
					1,250		
					30,699		

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				$	$ 000	$ 000	
.6	POWER INTAKES						
.61	POWER INTAKE STRUCT & APP						
.611	EXCAVATION						
	OVERBURDEN	99,000	CY	8.03	795		
	ROCK	201,600	CY	20.04	4,040		
					4,835		
.613	SURFACE PREPARATION						
	HORIZONTAL	12,100	SF	1.09	13		
	INCLINED	58,000	SF	1.58	92		
					105		
.614	CONCRETE & SHOTCRETE						
	STRUCTURE						
	CONCRETE STRUCTURE	14,500	CY	268.15	3,888		
	CONCRETE OVERBREAK 12"H/6"V	1,530	CY	165.85	254		
	REINFORCING STEEL	940	TON	1,419.80	1,335		
					5,477		
.615	SUPPORT & ANCHORS						
	APPROACH						
	ROCKBOLTS 1" @ 15'	140	EACH	365.51	51		
					51		
.61C	MECHANICAL						
	TRASHRACKS/GUIDES	4	SETS	170,000.00	680		
	BULKHEAD GATE GUIDES	4	SETS	75,000.00	300		
	BULKHEAD GATES & FOLLOWERS	1	SET	275,000.00	275		
	INTAKE GANTRY CRANE	1	EACH	1,250,000.00	1,250		
	INTAKE GATE EQUIPMENT	4	EACH	910,000.00	3,640		
	MISCELLANEOUS ELECTRICAL	1	LS	100,000.00	100		
					6,245		
.61D	INTAKE BUILDING						
	INTAKE BUILDING	1	LS	199,950.00	200		
					200		
					16,913		
.7	SURGE CHAMBER						
.71	SURGE CHAMBER						
.711	EXCAVATION						
	CHAMBER ROCK	153,800	CY	48.61	7,476		
	VENT SHAFT ROCK	2,300	CY	324.15	746		
					8,222		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.713	SURFACE PREPARATION						
	SURFACE PREP	6,100	SF	1.09	7		
					7		
.714	CONCRETE & SHOTCRETE						
	CHAMBER						
	CONCRETE CHAMBER	1,300	CY	252.65	328		
	CONCRETE OVERBREAK	140	CY	217.00	30		
	REINFORCING STEEL	65	TON	1,419.80	92		
	3" SHOTCRETE	3,200	SF	3.78	12		
	2" SHOTCRETE	2,300	SF	2.59	6		
	VENT SHAFT						
	2" SHOTCRETE	6,300	SF	2.59	16		
					485		
.715	SUPPORT & ANCHORS						
	CHAMBER						
	ROCKBOLTS 1" @ 25' HY	725	EACH	613.40	445		
	ROCKBOLTS 1" @ 15'	600	EACH	365.51	219		
	STEEL MESH	29,400	SF	2.88	85		
	STEEL SUPPORT	70	TON	6,294.55	441		
	VENT SHAFT						
	ROCKBOLTS 3/4" @ 6'	400	EACH	162.50	65		
	STEEL MESH	1,300	SF	3.13	4		
					1,258		
.717	DRAINAGE						
	HOLES (IN CHAMBER CROWN)	13,650	LF	24.37	333		
					333		
					10,305		
.8	PENSTOCKS						
.81	PENSTOCKS						
.811	EXCAVATION						
	TUNNELS						
	ROCK HORIZONTAL	10,500	CY	78.32	822		
	ROCK INCLINED	44,600	CY	154.81	6,905		
					7,727		
.813	SURFACE PREPARATION/GROUTING						
	SURFACE PREPARATION						
	TUNNELS	173,500	SF	1.09	189		
	CONTACT GROUTING						
	CONTACT GROUTING	1	LS	80,600.00	81		

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				$	$ 000	$ 000	
	CONSOLIDATION GROUTING						
	CONSOLIDATION GROUTING	1	LS	221,650.00	222		
					491		
.814	CONCRETE & SHOTCRETE						
	CONCRETE LINER	17,600	CY	477.40	8,402		
	CONCRETE PLUG	10,000	CY	372.00	3,720		
	CONCRETE OVERBREAK 6"	4,700	CY	341.00	1,603		
	CONCRETE OVERBREAK PLUG	860	CY	341.00	293		
	REINFORCING STEEL	18	TON	1,419.80	26		
	2" SHOTCRETE	19,100	SF	2.59	49		
					14,093		
.815	SUPPORT & ANCHORS						
	ROCKBOLTS 1" @ 25'	100	EACH	613.40	61		
	ROCKBOLTS 1" @ 6'	1,350	EACH	162.50	219		
	STEEL MESH	86,800	SF	3.16	274		
					555		
.818	STRUCTURAL - MISC STEELWORK						
	STEEL LINER	2,000	TON	4,805.00	9,610		
					9,610		
					32,476		
.9	TAILRACE WORKS						
.91	TAILRACE TUNNELS/PORTALS						
.911	EXCAVATION						
	TUNNELS						
	ROCK	329,300	CY	50.11	16,501		
	PORTAL						
	OVERBURDEN	40,000	CY	9.25	370		
	ROCK	21,000	CY	26.60	559		
					17,430		
.913	SURFACE PREPARATION						
	TUNNELS						
	TUNNEL	582,000	SF	1.58	920		
	PORTAL						
	HORIZONTAL	400	SF	1.09	0		
	INCLINED	2,700	SF	1.58	4		
					924		
.914	CONCRETE & SHOTCRETE						
	TUNNELS						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	CONCRETE LINING	31,700	CY	217.00	6,879		
	CONC OVERBREAK 6"	16,200	CY	155.00	2,511		
	REINFORCING STEEL	13	TON	1,419.80	18		
	2 " SHOTCRETE	17,500	SF	2.59	45		
	PORTAL						
	CONCRETE BASE SLAB	100	CY	320.85	32		
	CONCRETE WALLS	650	CY	320.85	209		
	CONC OVERBREAK 12"H/6"V	50	CY	232.50	12		
	REINFORCING STEEL	50	TON	1,419.80	71		
					9,777		
.915	SUPPORT & ANCHORS						
	TUNNELS						
	ROCKBOLTS 1" @ 12'	3,160	EACH	262.45	829		
	ROCKBOLTS 1" @ 9'	490	EACH	214.64	105		
	STEEL MESH	291,000	SF	3.16	920		
	STEEL SUPPORT	232	TON	6,294.55	1,460		
	PORTAL						
	ROCKBOLTS 1" @ 15'	100	EACH	365.51	37		
					3,351		
.91C	MECHANICAL						
	STOPLOG GUIDES	1	LS	41,000.00	41		
					41		
					31,523		
						635,310	
333	WATERWHEELS, TURBINES & GENERATORS						
.1	TURBINES & GOVERNORS						
.11	TURBINES & GOVERNORS						
.111	SUPPLY	4	EACH	3,850,000.00	15,400		
.112	INSTALL	4	EACH	1,150,000.00	4,600		
					20,000		
.2	GENERATORS & EXCITERS						
.21	GENERATORS & EXCITERS (SUPPLY & INSTALL)						
.211	GENERATORS & EXCITERS	4	EACH	5,500,000.00	22,000		
					22,000		
						42,000	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
334	ACCESSORY ELECTRICAL EQUIPMENT						
.1	CONNECTIONS, SUPPORTS & STRUCT.						
.11	STRUCTURES						
.111	STRUCT (INCL BELOW)						
.12	CONDUCTORS & INSULATORS						
.121	GENERATOR ISOLATED PHASE BUS	1	LS	2,000,000.00	2,000		
.122	HV POWER CABLES & ACCESS.	1	LS	1,200,000.00	1,200		
.123	LV POWER CABLES & ACCESS.	1	LS	400,000.00	400		
.124	CONTROL CABLES & ACCESSORIES	1	LS	600,000.00	600		
.125	GROUNDING SYSTEM	1	LS	150,000.00	150		
.13	CONDUITS & FITTINGS						
.131	CONDUITS & FITTINGS	1	LS	300,000.00	300		
					4,650		
.2	SWITCHGEAR & CONTROL EQUIPMENT						
.21	AUXILIARY TRANSFORMERS						
.211	AUXILIARY TRANSFORMERS	4	EACH	30,000.00	120		
.22	CIRCUIT BREAKERS						
.221	CIR BRKRS (NOT REQ'D)						
.23	SURGE PROT & GEN CUBICLES						
.231	SURGE PROT & GEN CUBICLES	1	LS	310,000.00	310		
.24	SWITCHBOARDS						
.241	SWITCHBOARDS	1	LS	720,000.00	720		
.25	AUX. POWER EQPT-INCL BAT						
.251	AUX. POWER EQUIPMENT	1	LS	220,000.00	220		
					1,370		
.3	CUBICLES & APPURTENENCES						
.31	CONTROL,RELAY & METER BRDS						
.311	CONTROL,RELAY & METER BOARD	1	LS	700,000.00	700		
.32	COMPUTER CONTROL SYSTEM						
.321	COMPUTER CONTROL SYS (INCL IN 353)						
.33	SUPERVIS. & TELEMETER. SYS						
.331	SUPERV & TELEMETER SYS (INCL IN 353)						
					700		
.4	POWER TRANSFORMERS						
.41	POWER TRANSFORMERS						
.411	POWER TRANSFORMERS	13	EACH	380,000.00	4,940		
					4,940		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.5	LIGHTING SYSTEM						
.51	POWERHOUSE & TRANS GALLERY						
.511	POWERHOUSE & TRANS GALLERY	1	LS	660,000.00	660		
.52	ACCESS TUNNELS & ROADS						
.521	ACCESS TUNNELS & ROADS	1	LS	170,000.00	170		
					830		
.6	MISC. ELECTRICAL EQUIPMENT						
.61	MISC. ELECTRICAL EQUIPMENT						
.611	MISC. ELECTRICAL EQUIPMENT	1	LS	220,000.00	220		
					220		
.7	SURFACE ACCESSORY ELEC EQUIPMENT						
.71	4.16 KV & LV EQUIPMENT						
.711	SWITCHBOARD	1	LS	70,000.00	70		
.712	CABLES	1	LS	220,000.00	220		
.713	AUX TRANSFORMERS	1	LS	120,000.00	120		
.73	DIESEL GENERATORS - STANDBY						
.731	DIESEL GENERATORS - STANDBY	2	EACH	150,000.00	300		
.74	EXTERIOR LIGHTING						
.741	EXTERIOR LIGHTING	1	LS	250,000.00	250		
					960		
						13,670	
335	MISC. POWERPLANT EQUIPMENT						
.1	AUXILIARY SYSTEMS - UNDERGROUND						
.11	STATION WATER SYSTEMS						
.111	STATION WATER SYSTEMS	1	LS	1,300,000.00	1,300		
.12	FIRE PROTECTION SYSTEMS						
.121	FIRE PROTECTION SYSTEMS	1	LS	1,000,000.00	1,000		
.13	COMPRESSED AIR SYSTEMS						
.131	COMPRESSED AIR SYSTEMS	1	LS	1,400,000.00	1,400		
.14	OIL HANDLING SYSTEMS						
.141	OIL HANDLING SYSTEMS	1	LS	1,000,000.00	1,000		
.15	DRAINAGE & DEWATERING						
.151	DRAINAGE & DEWATERING	1	LS	1,500,000.00	1,500		
.16	HEAT, VENT & COOLING SYS						
.161	HEAT, VENT & COOLING SYS	1	LS	1,200,000.00	1,200		
.17	MISCELLANEOUS						
.171	MISCELLANEOUS	1	LS	900,000.00	900		
					8,300		

SUSITNA HYDROELECTRIC PROJECT
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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.2	AUXILIARY SYS - SURFACE FACS						
.21	AUX SYS - SURFACE FACS						
.211	AUX SYS - SURFACE FACS	1	LS	150,000.00	150		
					=========		
					150		
.3	AUXILIARY EQUIPMENT						
.31	POWERHOUSE CRANES						
.311	POWERHOUSE CRANES	2	EACH	900,000.00	1,800		
.32	ELEVATORS						
.321	ELEVATORS	1	LS	230,000.00	230		
.33	MISC. CRANES & HOIST						
.331	MISC. CRANES & HOIST	1	LS	150,000.00	150		
.34	COMPENSATION PUMPS						
.341	PUMPS AND MOTORS	2	EACH	600,000.00	1,200		
.342	VALVES	4	EACH	70,000.00	280		
.35	MACHINE SHOP EQUIPMENT						
.351	MACHINE SHOP EQUIPMENT	1	LS	200,000.00	200		
					=========		
					3,860		
.4	GENERAL STATION EQUIPMENT (INCLUDED IN MECHANICAL & ELECTRICAL SYSTEMS)						
					=========		
					0		
.5	COMMUNICATIONS EQUIPMENT						
	COMMUNICATIONS EQUIPMENT	1	LS	90,000.00	90		
					=========		
					90		
						12,400	
336	ROADS						
.1	ROADS						
.12	SITE ROADS						
	SITE ROADS	7	MILE	3,960,700.00	27,725		
	MAINTENANCE	60	MI/YRS	91,247.77	5,475		
					=========		
					33,200		
.13	TRANS DAM CROSSING						
	TRANS DAM CROSSING (7.26 MILES)						
	CLEARING	45	ACRE	5,526.64	249		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	WASTE EXCAVATION	132,300	CY	4.61	610		
	COMMON EXCAVATION	114,500	CY	4.03	461		
	ROCK EXCAVATION	12,200	CY	13.82	169		
	BORROW	90,200	CY	5.77	520		
	NFS SUBBASE MATERIAL	27,960	CY	8.07	226		
	GRADE "A" BASE MATERIAL	15,260	CY	16.12	246		
	D-1 BASE MATERIAL	6,370	TON	20.73	132		
	A. C. SURFACING	5,830	TON	76.00	443		
	GUARDRAIL	2,640	LF	41.45	109		
	18" CULVERTS	1,785	LF	27.63	49		
	THAW PIPES	1,785	LF	41.44	74		
	TOPSOIL & SEED	29	ACRE	3,453.44	100		
	TRAFFIC CONTROL DEVICES	3	MILE	17,268.62	52		
	MAINTENANCE						
	MAINTENANCE	7	MI/YRS	13,000.10	91		
					91		
					3,532		
.14	PARKS HWY - DEVIL CANYON						
	MAINTENANCE	212	MI/YRS	11,000.74	2,332		
					2,332		
						39,063	
	TRANSMISSION PLANT						
350	LAND & LAND RIGHTS						
	LAND & LAND RIGHTS						
	(INCLUDED IN WATANA)						
					0		
						0	
352	SUBSTATION & SWITCHING STATION						
	SUBSTATION & SWITCHING STATION						
	STRUCTURES & IMPROVEMENTS						
.1	SWITCHYARD						
.11	SWITCHYARD	1	LS	6,930,000.00	6,930		
					6,930		
						6,930	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
353	SUBSTATION/SWITCHING STATION EQPT						
	SUBSTATION/SWITCHING STATION EQPT						
	ESTER	1	LS	2,890,000.00	2,890		
	WILLOW	1	LS	7,050,000.00	7,050		
	KNIK ARM	1	LS	1,155,000.00	1,155		
	UNIVERSITY	1	LS	8,900,000.00	8,900		
					==========		
					19,995		
	WILLOW ENERGY MANAGE SYS (EMS)						
	WATANA & DEVIL CANYON IN-PLANT MONITOR & CONTROL EQPT	1	LS	1,213,000.00	1,213		
					==========		
					1,213		
						21,208	
354	STEEL TOWERS & FIXTURES						
	STEEL TOWERS & FIXTURES						
	TOWERS (INCLUDING FOUND-ATION & HARDWARE)	546	EACH	53,123.00	29,005		
					==========		
					29,005		
						29,005	
356	CONDUCTORS & DEVICES						
	CONDUCTORS & DEVICES						
	CONDUCTORS	124	MILE	100,175.00	12,422		
	SUBMARINE CABLES	3	EACH	7,291,700.00	21,875		
					==========		
					34,297		
						34,297	
359	ROADS & TRAILS						
	ROADS & TRAILS						
	(INCLUDED IN WATANA)						
					==========		
					0		
						0	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	GENERAL PLANT						
389	LAND & LAND RIGHTS						
	LAND & LAND RIGHTS (INCLUDED IN 330)						
					========= 0		
						0	
390	STRUCTURES & IMPROVEMENTS						
	STRUCTURES & IMPROVEMENTS (INCLUDED IN 331.2)						
					========= 0		
						0	
391	OFFICE FURNITURE/EQUIPMENT						
	OFFICE FURNITURE/EQUIPMENT (INCLUDED IN 399)						
					========= 0		
						0	
392	TRANSPORTATION EQUIPMENT						
	TRANSPORTATION EQUIPMENT (INCLUDED IN 399)						
					========= 0		
						0	
393	STORES EQUIPMENT						
	STORES EQUIPMENT (INCLUDED IN 399)						
					========= 0		
						0	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
394	TOOLS SHOP & GARAGE EQUIPMENT						
	TOOLS SHOP & GARAGE EQUIPMENT (INCLUDED IN 399)						
					=========		
					0		
						0	
395	LABORATORY EQUIPMENT						
	LABORATORY EQUIPMENT (INCLUDED IN 399)						
					=========		
					0		
						0	
396	POWER OPERATED EQUIPMENT						
	POWER OPERATED EQUIPMENT (INCLUDED IN 399)						
					=========		
					0		
						0	
397	COMMUNICATIONS EQUIPMENT						
	COMMUNICATIONS EQUIPMENT (INCLUDED IN 399)						
					=========		
					0		
						0	
398	MISCELLANEOUS EQUIPMENT						
	MISCELLANEOUS EQUIPMENT (INCLUDED IN 399)						
					=========		
					0		
						0	

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ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
399	OTHER TANGIBLE PROPERTY						
	OTHER TANGIBLE PROPERTY						
	OTHER TANGIBLE PROPERTY	1	LS	5,000,000.00	5,000		
					=========		
					5,000		
						5,000	
	INDIRECT COSTS						
61	TEMPORARY CONSTRUCTION FACILITIES						
	TEMPORARY CONSTRUCTION FACILITIES						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	
62	CONSTRUCTION EQUIPMENT						
	CONSTRUCTION EQUIPMENT						
	(INCLUDED IN DIRECT COSTS)						
					=========		
					0		
						0	
63	MAIN CONSTRUCTION CAMP						
	.1 MAIN CONSTRUCTION CAMP						
	.11 SITE PREPARATION						
	CLEARING						
	CLEARING	57	ACRE	11,786.00	672		
	INSTALL GRANULAR PAD						
	INSTALL GRANULAR PAD	301,800	CY	7.23	2,182		
	CONSTRUCT ROADWAYS						
	MAIN ROADS IN CAMP [34']	3,950	LF	28.53	113		
	CONNECT. RD. TO ACCESS RD.	7,200	LF	203.76	1,467		
	SECONDARY RD [24']	300	LF	26.92	8		
	DRAINAGE						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	DITCHING	26,900	LF	2.91	78		
	CULVERTS	640	LF	28.85	18		
	PERIMETER FENCING						
	PERIMETER FENCING	6,200	LF	16.32	101		
	PARKING AREAS						
	INSIDE CAMP	18,500	SF	0.50	9		
	PARKING LOT - OUTSIDE CAMP	2	ACRE	11,665.30	23		
	ELECTRIC PLUG-INS - IN CAMP	250	EACH	93.72	23		
	SITE REHABILITATION						
	SITE REHABILITATION	57	ACRE	8,257.30	471		
					5,166		
	.12 BUILDINGS						
	BACHLR DORMS-108 MAN CMPLX	13	EACH	244,415.00	3,177		
	BACHLR DORMS-MGMNT-TYPE A	4	EACH	80,910.40	324		
	BACHLR DORMS-MGMNT-TYPE B	5	EACH	69,954.81	350		
	GUEST HSES-1 EA OWN/MGR/CON	2	EACH	86,986.00	174		
	CAMP MANAGER'S OFFICES	2	EACH	36,478.00	73		
	STAFF CLUBHOUSE	1	EACH	185,640.00	186		
	DINING HALL	1	EACH	1,686,040.00	1,686		
	RECREATION BUILDING	1	EACH	680,720.00	681		
	GYMNASIUM	1	EACH	1,548,360.00	1,548		
	SECURITY OFFICE	1	EACH	203,864.00	204		
	SOILS/MATERIALS LABORATORY	1	EACH	450,160.00	450		
	MAINTENANCE BUILDING	1	EACH	402,560.00	403		
	WAREHOUSE - MANAGERS	1	EACH	964,920.00	965		
	WAREHOUSE - FOOD SERVICE	1	EACH	650,760.00	651		
	COMMUNICATION BUILDING	1	EACH	37,454.40	37		
	HOSPITAL	1	EACH	1,293,932.00	1,294		
	ICE RINK	1	EACH	2,039,456.00	2,039		
	BANK	1	EACH	158,692.00	159		
	STORE	1	EACH	94,184.00	94		
	LAUNDRY	1	EACH	64,721.00	65		
	PERMAWALK						
	6 FEET WIDE	300	LF	51.13	15		
	10 FEET WIDE	1,420	LF	79.55	113		
					14,688		
	.13 UTILITIES						
	.131 WATER						
	SUPPLY SYSTEM						
	INTAKE POOL & CRIB						
	IN SUSITNA RIVER	1	LS	26,515.66	27		
	PUMP STATION						
	400 GPM	1	LS	163,300.00	163		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	BOOSTER PUMP STATION						
	400 GPM	1	LS	81,224.00	81		
	SUPPLY LINE						
	4"	9,000	LF	36.04	324		
	HEAT TRACING & INSULAT						
	4"	9,000	LF	26.53	239		
	UTILIDORS						
	UTILIDORS	4,500	LF	76.86	346		
	TREATMENT PLANT						
	.8 MGD	1	LS	896,801.00	897		
	RESERVOIRS						
	900,000 GALLONS	1	EACH	212,010.00	212		
	500,000 GALLONS	1	EACH	117,789.00	118		
	PUMP STATION						
	4000 GPM	1	LS	48,760.63	49		
	CAMP DISTRIBUTION SYSTEM						
	DISTRIB LINES - BURIED						
	10"	800	LF	77.01	62		
	8"	240	LF	67.61	16		
	6"	100	LF	58.48	6		
	DISTRIB LINE UTILDOR						
	PIPING						
	10" DI	1,800	LF	61.94	111		
	8" DI	2,300	LF	52.55	121		
	6" DI	1,300	LF	41.05	53		
	4" DI	1,380	LF	35.71	49		
	HEAT TRACING & INSUL						
	10" PIPE	2,600	LF	45.23	118		
	8" PIPE	2,540	LF	33.30	85		
	6" PIPE	1,400	LF	29.34	41		
	4" PIPE	1,380	LF	26.53	37		
	PIPE FITTINGS						
	HYDRANTS	12	EA	1,550.64	19		
	VALVES	1	LS	8,520.00	9		
	UTILIDORS						
	UTILIDORS	6,780	LF	76.86	521		
.132	SEWAGE						
	COLLECTION SYS-UTILIDOR						
	PIPING						
	12" PIPE	2,800	LF	101.39	284		
	10" PIPE	400	LF	79.01	32		
	8" PIPE	2,200	LF	51.45	113		
	6" PIPE	2,300	LF	41.05	94		
	4" PIPE	1,580	LF	36.42	58		
	HEAT TRACING & INSUL						
	12"	2,800	LF	51.99	146		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	10"	400	LF	45.23	18		
	8"	2,200	LF	33.30	73		
	6"	2,300	LF	29.34	67		
	4"	1,580	LF	26.53	42		
	TREATMENT PLANT						
	SKIMMING TANK	1	EACH	29,233.10	29		
	LAGOONS (1 @ 385' x 205' & 1 @ 280' x 155')	2	EACH	208,898.00	418		
	ROTATING BIO CONTACTORS	3	EACH	98,268.19	295		
	PHYS/CHEM UNIT	1	EACH	77,603.89	78		
	CLARIFIER	1	EACH	146,920.00	147		
	DISINFECTION	1	EACH	77,603.89	78		
	HEAT PUMP	1	EACH	11,300.00	11		
	THICKENER	1	EACH	86,720.72	87		
	FILTER PRESS	1	EACH	85,590.72	86		
	DRYING BEDS	1	EACH	73,022.86	73		
	BUILDING	1	EACH	232,365.00	232		
	CONTROLS/INSTRUMENTATION	1	LS	101,511.00	102		
	PIPING, VALVES, & FITTINGS	1	LS	287,133.00	287		
	LABORATORY	1	EACH	31,075.00	31		
	OUTFALL						
	OUTFALL LINE (10")	4,200	LF	84.87	356		
	OUTFALL STRUCTURE	1	EACH	162,303.00	162		
	UTILIDORS						
	UTILIDORS	1,100	LF	64.41	71		
.133	ELECTRICAL						
	GENERATING STATIONS						
	BUILDING	1	EACH	44,934.40	45		
	GENERATORS (850 KW)	2	EACH	178,274.00	357		
	DAY TANK	1	EACH	3,668.50	4		
	FUEL STORAGE TANK	1	EACH	173,189.00	173		
	SUBSTATION	1	EACH	97,933.71	98		
	DISTRIBUTION						
	DISTRIBUTION	1	LS	219,052.00	219		
	LIGHTING						
	POLE MOUNTED LUMINAIRS	24	EACH	1,507.42	36		
	FLOOD LIGHTS	15	EACH	565.00	8		
.134	CAMP HEATING						
	FUEL OIL DISTRIBUTION	1	LS	240,096.00	240		
.135	FIRE PROTECTION						
	FIRE HOUSE						
	FIRE HOUSE	1	LS	286,960.00	287		
	FIRE ALARM SYSTEM						
	FIRE ALARM SYSTEM	1	LS	192,453.00	192		
	SPRINKLER SYSTEM						
	MESS HALL	1	LS	13,542.00	14		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	RECREATION HALL	1	LS	27,084.00	27		
	HOSPITAL	1	LS	7,583.52	8		
	SCHOOL	1	LS	10,289.48	10		
.136	TELEPHONE SYSTEM						
	TELEPHONE SYSTEM CAMP (WIRE)	1	LS	363,548.00	364		
	MICROWAVE	1	LS	684,254.00	684		
.137	TV/RADIO STATION						
	TV/RADIO STATION	1	LS	155,833.00	156		
.138	SOLID WASTE FACILITY						
	SOLID WASTE FACILITY	1	LS	78,859.70	79		
.139	PETROLEUM STORAGE FACILITY						
	GARAGE/MAINTENANCE BLDG						
	GARAGE/MAINTENANCE BUILDING	1	EACH	239,360.00	239		
	TANKS						
	50,000 GAL	4	EACH	23,667.14	95		
	100,000 GAL	10	EACH	42,600.00	426		
	EARTHWORK						
	CLEARING & GRUBBING	6	ACRE	20,041.88	120		
	BERMS	20,000	CY	27.59	552		
	PIPING						
	PIPING	1	LS	154,767.00	155		
	FUEL STATION						
	FUEL STATION	1	LS	307,519.00	308		
					12,066		
					31,920		
.2	MAIN CONSTRUCTION VILLAGE						
.21	SITE PREPARATION						
	CLEARING						
	CLEARING	62	ACRE	11,926.58	739		
	INSTALL GRANULAR PAD						
	INSTALL GRANULAR PAD	300,000	CY	7.17	2,151		
	SITE REHABILITATION						
	SITE REHABILITATION	62	ACRE	8,358.12	518		
	CONSTRUCT ROADWAYS						
	MAIN ROAD 34' WIDE	2,300	LF	28.33	65		
	SECONDARY ROADS 24' WIDE	12,600	LF	27.11	342		
	CONNECTION TO ACCESS RD 34'	4,000	LF	223.56	894		
	DRAINAGE						
	DITCHING	37,600	LF	2.95	111		
	CULVERTS - 170 LOTS	3,950	LF	28.76	114		
	PERIMETER FENCING						
	PERIMETER FENCING	7,100	LF	16.32	116		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	PARKING AREAS						
	PARKING AREAS	37,500	SF	0.50	19		
	ELECTRICAL PLUG-INS	25	EACH	93.72	2		
					5,071		
.22	BUILDINGS						
	SINGLE FAMILY UNIT - 2 BDRM	36	EACH	22,826.20	822		
	SINGLE FAMILY UNIT - 3 BDRM	92	EACH	23,338.60	2,147		
	SINGLE FAMILY UNIT - 2 BDRM	9	EACH	35,550.80	320		
	SINGLE FAMILY UNIT - 3 BDRM	9	EACH	36,282.80	327		
	SINGLE FAMILY UNIT - 4 BDRM	9	EACH	40,638.20	366		
	SCHOOL	1	LS	584,040.00	584		
	GYMNASIUM	1	LS	452,880.00	453		
	SWIMMING POOL	1	LS	748,000.00	748		
	RECREATION CENTER	1	LS	651,712.00	652		
	STORE	1	LS	587,520.00	588		
	GAS STATION	1	LS	232,084.00	232		
					7,237		
.23	UTILITIES						
.231	WATER						
	SUPPLY LINE						
	6"	4,900	FT	38.33	188		
	PUMP STATION 3500 GPM	1	EACH	86,194.00	86		
	RESERVOIR (800,000 GAL)	1	EACH	181,767.00	182		
	DISTRIBUTION SYSTEM						
	DISTRIBUT LINES-BURIED						
	10" DI	553	LF	77.01	43		
	8" DI	198	LF	67.38	13		
	6" DI	169	LF	58.49	10		
	DISTRIBUT LINES-UTILIDOR						
	10"	3,650	LF	60.80	222		
	8"	2,250	LF	52.55	118		
	6"	1,850	LF	41.05	76		
	HEAT TRACING & INSULAT						
	10" PIPE	4,230	LF	45.23	191		
	8" PIPE	2,448	LF	33.44	82		
	6" PIPE	2,019	LF	29.34	59		
	VALVES						
	10", 8", & 6"	1	LS	13,177.60	13		
	HYDRANTS						
	HYDRANTS	21	EACH	1,549.22	33		
.232	SEWAGE						
	COLLECTION SYSTEM						

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
	PIPING						
	12" PIPE	100	LF	79.01	8		
	10" PIPE	450	LF	61.83	28		
	8" PIPE	2,200	LF	51.42	113		
	6" PIPE	3,950	LF	41.05	162		
	HEAT TRACING & INSULAT						
	12" PIPE	100	LF	51.99	5		
	10" PIPE	450	LF	45.23	20		
	8" PIPE	2,200	LF	33.30	73		
	6" PIPE	3,950	LF	29.34	116		
	PUMPING SYSTEM						
	PUMP STATION	1	LS	81,792.00	82		
	6" FORCE MAIN	10,050	LF	41.05	413		
	UTILIDORS						
	MAIN RUNS IN VILLAGE	6,800	LF	77.40	526		
	STREET CROSSING 50 LF EA	900	LF	77.40	70		
	PUMP STA TO TREATMENT PLANT	5,500	LF	80.94	445		
	STUBS TO HOUSE LOTS	3,400	LF	77.40	263		
	STUBS TO BUILDINGS	150	LF	77.40	12		
.233	INTEGRATED OFIFCE AREA						
	OWNER/MGRS OFFICE	1	LS	426,683.00	427		
.234	ELECTRICAL						
	GENERATING STATIONS						
	BUILDING	1	EACH	44,934.40	45		
	GENERATORS 850 KW	2	EACH	178,274.00	357		
	DAY TANKS	1	EACH	3,116.30	3		
	FUEL STORAGE TANKS	1	EACH	173,615.00	174		
	SUBSTATIONS WITH WIRING	1	EACH	97,921.28	98		
	DISTRIBUTION						
	DISTRIBUTION	1	LS	125,660.00	126		
.235	FIRE ALARM SYSTEM						
	FIRE ALARM SYSTEM	1	LS	17,303.26	17		
.236	TELEPHONE SYSTEM						
	TELEPHONE SYSTEM	1	LS	169,580.00	170		
					5,067		
					17,376		
.3	CAMP CREDIT						
	SALVAGE VALUE FOR BUILDINGS						
	EQUIPMENT, & UTILITIES	1	LS	-2,500,000.00	-2,500		
					-2,500		

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
.4	PERMANENT TOWN						
	PERMANENT TOWN	1	LS	2,139,997.00	2,140		
					2,140		
.5	CATERING & SUPPORT						
	CATERING & SUPPORT	1,690,000	MANDAY	67.00	113,230		
					113,230		
.6	ELECTRIC POWER						
	.61 34.5 KV SYSTEM						
	.611 TRANSFORMER STATION	1	LS	733,104.00	733		
	.612 DISTRIBUTION SYSTEM	1	LS	1,367,100.00	1,367		
					2,100		
	.62 CONSTRUCTION CAMP POWER						
	.621 CONSTRUCTION CAMP POWER	140,300	MWH	70.00	9,821		
					9,821		
	.63 CONSTRUCTION POWER						
	.631 CONSTRUCTION POWER	50,000	MWH	70.00	3,500		
					3,500		
					15,421		
.7	CONSTRUCTION HEATING & VENTIL						
	.71 HEATING & VENTILATION PLANT						
	.711 HEATING & VENTILATION PLANT	1	LS	2,464,500.00	2,465		
					2,465		
	.72 HEATING & VENTIL OPERATION						
	.721 HEATING & VENTIL OPERATION	1,870	DAY	4,056.35	7,585		
					7,585		
					10,050		
						187,637	
64	LABOR EXPENSE						
	LABOR EXPENSE (INCLUDED IN DIRECT COSTS)						
					0		
						0	

ITEM	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	AMOUNT	TOTAL	REMARKS
				$	$ 000	$ 000	
65	SUPERINTENDENCE						
	SUPERINTENDENCE (INCLUDED IN DIRECT COSTS)						
					0		
						0	
66	INSURANCE						
	INSURANCE (INCLUDED IN DIRECT COSTS)						
					0		
						0	
69	FEES						
	FEES (INCLUDED IN DIRECT COSTS)						
					0		
						0	
SUBTOTAL						1,119,686	
	CONTINGENCY	17.5	%		195,945		
SUBTOTAL						195,945	
71	ENGINEERING	12.5	%		164,454		
72	LEGAL EXPENSES	0.0	%		0		INCLUDED IN 71
75	TAXES	0.0	%		0		NOT APPLICABLE
76	ADMINISTRATIVE & GEN. EXPENSES	0.0	%		0		INCLUDED IN 71
77	INTEREST	0.0	%		0		NOT INCLUDED
80	EARNINGS/EXPENSES DURING CONSTR.	0.0	%		0		NOT INCLUDED
TOTAL PROJECT COST						1,480,085	

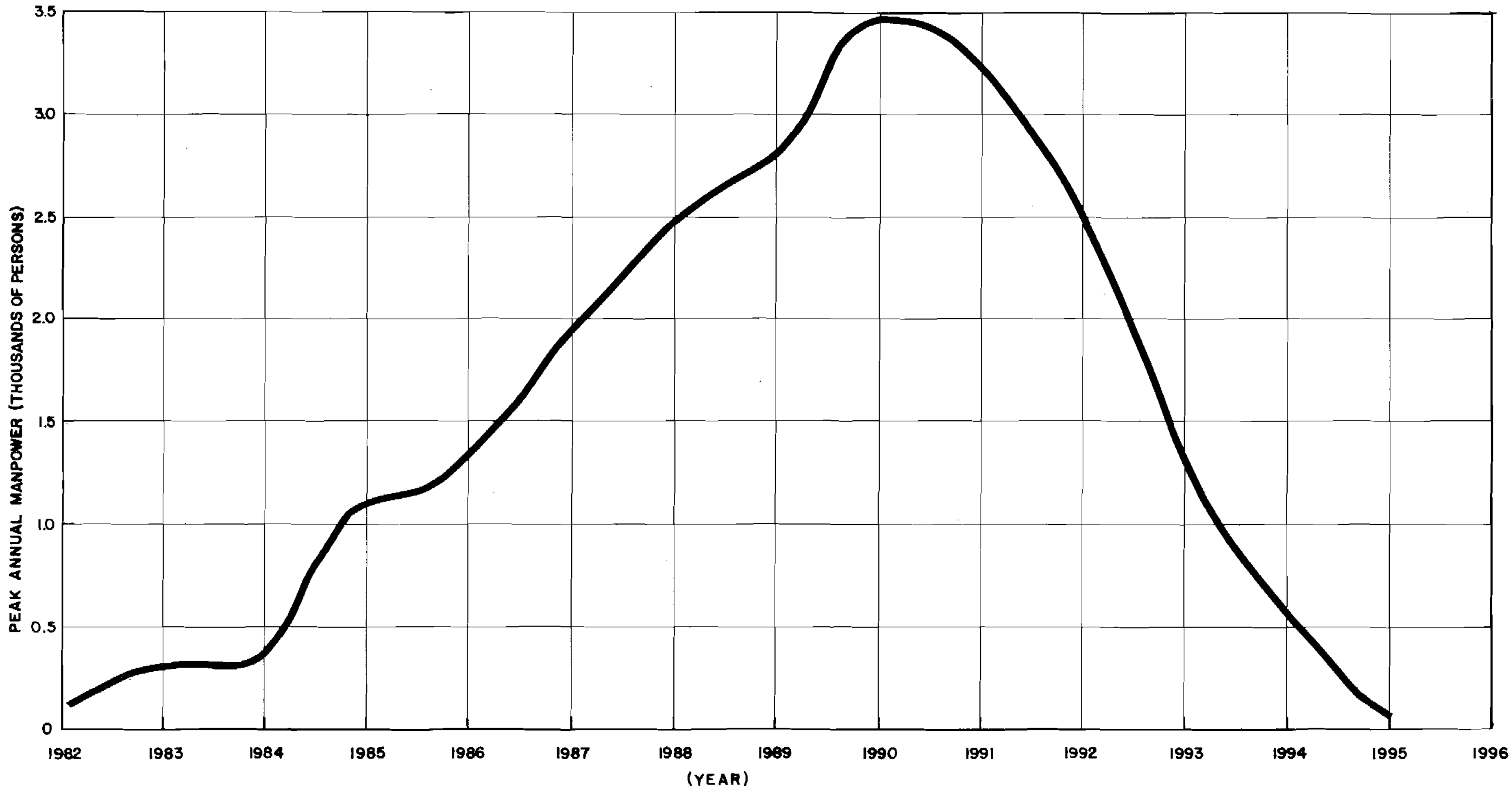
APPENDIX C3

CONSTRUCTION MANPOWER FORECASTS

Manpower forecasts for both Watana and Devil Canyon Developments have been included in the following attached formats:

- Figure C3.1 - Watana Manpower Loading Curve;
- Figure C3.2 - Devil Canyon Manpower Loading Curve; and
- Table C3.1 - Watana and Devil Canyon Construction Manpower Forecasts.

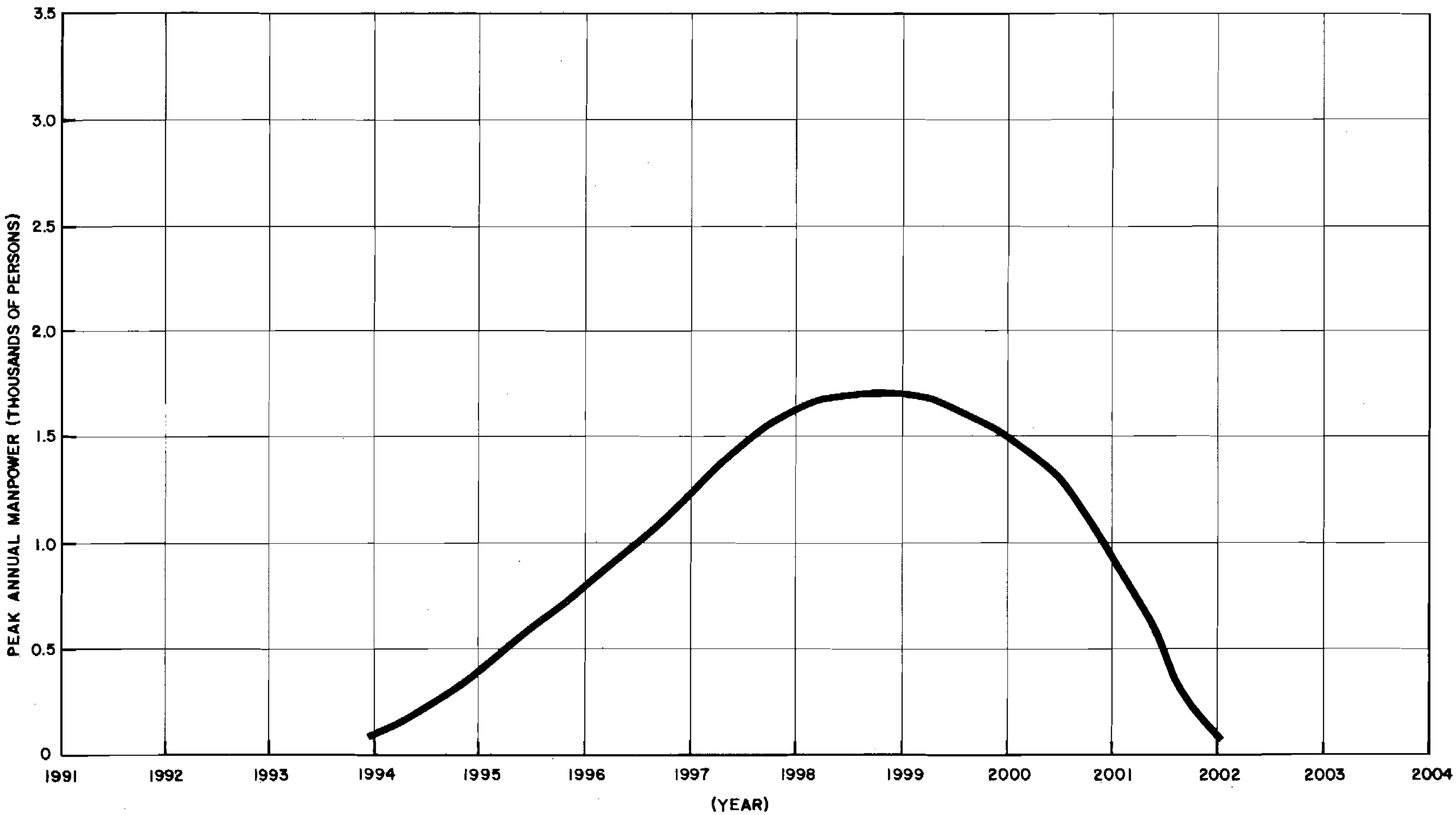
The curves for manpower loading were developed from the cash flow estimates. The curves include all manpower forecasted for the construction phase. All management, camp, and construction manpower required for access, camps, power facilities, and transmission facilities work is included. Manpower for offsite activities such as engineering, procurement, manufacturing, and shipping to Gold Creek are not included.



WATANA
MANPOWER LOADING CURVE

FIGURE C3.1

ACRES



DEVIL CANYON
MANPOWER LOADING CURVE

ACRES

FIGURE C3.2

TABLE C3.1: CONSTRUCTION MANPOWER FORECASTS

	Watana		Devil Canyon	
MANAGEMENT:				
- Construction Manager	250		120	
- Owner	30		20	
- Other Agencies	30		10	
		310		150
CAMP OPERATIONS:				
- Catering and Housekeeping	180		100	
- Maintenance	130		90	
- Transport	30		10	
- Other Services	190		130	
		530		330
CONSTRUCTION:				
- Trades	2,090		990	
- Supervision/Administration	550		260	
		2,640		1,250
		3,480		1,730