

TABLE I

LEVEE 29, BORROW CANAL ENLARGEMENT
DESIGN WATER SURFACE PROFILE

SAJMH W403

FLOW LINE COMPUTATIONS

STATION	LENGTH OF REACH (FT)	CANAL BOTTOM EL.	SECTION WIDTH	SIDE SLOPE	N	DISCHARGE (CFS)	DEPTH OF FLOW			AREA	SLOPE OF EG FT/FT	FRICTION LOSS IMF4	VEL. V (W)	ENERGY HEAD (FT)	WATER SURFACE ELEV (FT)
							CRIT (DC)	NORM (DN)	ACTUAL (D)						
0+00		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	11.70	976.	0.000049	1.3	0.025	4.72	4.70
3+00	300.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	11.71	977.	0.000049	1.3	0.025	4.74	4.71
3+00		-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	15.72	1044.	0.000036	1.2	0.022	4.74	4.72
4+50	150.	-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	15.72	1045.	0.000036	1.2	0.022	4.74	4.72
4+50		-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	19.72	975.	0.000041	1.3	0.025	4.75	4.72
12+00	750.	-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	19.75	978.	0.000041	1.3	0.025	4.78	4.75
12+00		-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	15.76	1048.	0.000036	1.2	0.021	4.78	4.76
14+00	200.	-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	15.76	1049.	0.000036	1.2	0.021	4.78	4.76
14+00		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	11.76	982.	0.000048	1.3	0.024	4.79	4.76
15+00	100.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	11.77	983.	0.000048	1.3	0.024	4.79	4.77
S-334															
															TW= 4.77 HW= 5.07
15+00		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.07	1015.	0.000044	1.2	0.023	5.00	5.07
144+81	12981.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.60	1073.	0.000038	1.1	0.020	5.00	5.50
144+81		-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	16.60	1132.	0.000029	1.1	0.018	5.62	5.60
146+81	200.	-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	16.60	1133.	0.000029	1.1	0.018	5.62	5.60
146+81		-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.60	1055.	0.000033	1.2	0.021	5.62	5.60
157+20	1039.	-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.64	1058.	0.000033	1.2	0.021	5.66	5.64
		-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.64	1058.	0.000033	1.2	0.021	5.66	5.64
BRIDGE AT STATION 137+20															
															NET AREA= 1005. 1058. NET V= 1.2 PIER LOSS=0.002
		-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.64	1058.	0.000033	1.2	0.021	5.66	5.64
157+20		-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.64	1058.	0.000033	1.2	0.021	5.66	5.64
157+81	61.	-15.0	10.	2.0	0.035	1230.0	5.47	UNDEF.	20.64	1059.	0.000033	1.2	0.021	5.66	5.64
157+81		-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	16.64	1137.	0.000029	1.1	0.018	5.66	5.64
159+81	200.	-11.0	35.	2.0	0.035	1230.0	3.17	UNDEF.	16.65	1137.	0.000029	1.1	0.018	5.67	5.65
159+81		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.65	1079.	0.000037	1.1	0.020	5.67	5.65
207+50	469.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.82	1098.	0.000035	1.1	0.019	5.84	5.82
		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.82	1098.	0.000035	1.1	0.019	5.84	5.82
BRIDGE AT STATION 207+50															
															NET AREA= 1043. 1098. NET V= 1.2 PIER LOSS=0.002
		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.82	1098.	0.000035	1.1	0.019	5.84	5.82
207+50		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	12.82	1098.	0.000035	1.1	0.019	5.84	5.82
266+33	5883.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	13.03	1121.	0.000033	1.1	0.019	6.04	6.03
266+33		-4.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	10.02	802.	0.000087	1.5	0.037	6.05	6.02
271+33	500.	-4.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	10.06	806.	0.000085	1.5	0.036	6.10	6.06
271+33		-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	13.08	1127.	0.000033	1.1	0.019	6.10	6.08
294+00	2267.	-7.0	60.	2.0	0.035	1230.0	2.29	UNDEF.	13.15	1135.	0.000032	1.1	0.018	6.17	6.15
294+00		-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.16	1492.	0.000017	0.9	0.012	6.17	6.16
351+00	5700.	-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.25	1503.	0.000016	0.9	0.012	6.26	6.25
		-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.25	1503.	0.000016	0.9	0.012	6.26	6.25
BRIDGE AT STATION 351+00															
															NET AREA= 1428. 1503. NET V= 0.9 PIER LOSS=0.001
		-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.25	1503.	0.000016	0.9	0.012	6.26	6.25
351+00		-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.25	1503.	0.000016	0.9	0.012	6.26	6.25
424+15	7315.	-10.0	60.	2.0	0.035	1300.0	2.38	UNDEF.	16.37	1518.	0.000016	0.9	0.011	6.38	6.37
424+15		-10.0	48.	2.0	0.035	1350.0	2.79	UNDEF.	16.37	1321.	0.000024	1.0	0.016	6.38	6.37
425+15	100.	-10.0	48.	2.0	0.035	1350.0	2.79	UNDEF.	16.37	1322.	0.000024	1.0	0.016	6.39	6.37
425+15		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.37	1109.	0.000037	1.2	0.023	6.39	6.37
427+50	235.	-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.38	1109.	0.000037	1.2	0.023	6.40	6.38
		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.38	1109.	0.000037	1.2	0.023	6.40	6.38
BRIDGE AT STATION 427+50															
															NET AREA= 1054. 1110. NET V= 1.2 PIER LOSS=0.002
		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.38	1110.	0.000037	1.2	0.023	6.40	6.38
427+50		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.38	1110.	0.000037	1.2	0.023	6.40	6.38
572+05	14455.	-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.88	1161.	0.000033	1.2	0.021	6.90	6.88
572+05		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.88	1161.	0.000033	1.2	0.021	6.90	6.88
580+20	815.	-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	16.91	1163.	0.000032	1.2	0.021	6.93	6.91
S-333															
															TW= 6.91 HW= 7.50
580+20		-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	17.50	1225.	0.000028	1.1	0.019	7.52	7.50
582+01	181.	-10.0	35.	2.0	0.035	1350.0	3.36	UNDEF.	17.51	1226.	0.000028	1.1	0.019	7.52	7.51

TABLE 2

Summary of Hydraulic Design Data for Bridges

Station	Canal and Location	Design Discharge (c.f.s.)	Design W.S. Elev. (ft.-msl)	Net area thru br. (ft. ²)	Avg. Vel. thru br. (ft./sec.)	Remarks
157+20	L-29, Fish Management Area #2	1260	5.7	977	1.29	New
427+50	L-29, Fish Management Area #3	1330	6.4	1000	1.33	"

TABLE 2

TABLE 3

Pumping Station 332

Cyclical Flow Rate

Month	Percent of Annual Flow	Monthly Flow	Average Monthly
		in Acre-Feet	Flows in Cubic Feet per Second
		Taylor Slough	Taylor Slough
Jan	8.6	3,180	52
Feb	3.5	1,300	23
Mar	1.6	590	10
Apr	.6	220	4
May	.6	220	4
Jun	1.9	700	12
Jul	2.9	1,070	17
Aug	4.8	1,780	29
Sep	14.9	5,510	93
Oct	25.7	9,510	155
Nov	22.5	8,330	140
Dec	12.4	4,590	75
Total	100.0	37,000	

TABLE 3

REV. JAN 75

TABLE 4

PUMPING STATION 332

HYDRAULIC DESIGN DATA

Location: Junction of Taylor Slough and Levee 31 (W)

Design discharge: Varies 4-159 cfs

Average annual volume: 38,000 A-F

*(Req'd. " to ENP")
= 37,000*

*+ 18,000 to
pump handle*

Intake water surface elevation:

Normal pumping

Varies 3.0 - 5.0

Optimum

4.5

Discharge water surface elevation: Varies 4.5 - 5.5

Protection elevation

7.5

TABLE 5

PUMP AND MOTOR DATA

<u>Unit No.</u>	<u>Rating</u>		<u>Motor</u>	
	<u>CFS</u>	<u>Ft. TH</u>	<u>HP</u>	<u>RPM</u>
1	50	8.0	100	720
2	5	8.0	10	1800
3	50	8.0	100	720
4	10	8.0	20	1200
5	30	8.0	50	720
6	20	8.0	40	900

TABLE 5

TABLE 6

Structures 194 (Mod), 336 and 338

Summary of Hydraulic Design Data

Item	S-194 (Mod)	S-336	S-338
Location	C-102, Sta. 686+60	C-4, near L-30 Borrow Canal Sta. 143+00	C-1, Sta.849+00
Design conditions			
Discharge (c.f.s.)	190	145	305
Headwater elevation	3.9	4.7	3.5
Tailwater elevation	3.7	4.2	3.0
Optimum conditions			
Headwater elevation	5.5	5.0	5.0
Tailwater elevation	5.5	-	5.0
Canal section			
	(1)	(1)	
Side slopes (vert. on hor.)	1 on 1	1 on 1	1 on 1
Upstream bottom width/elev.	10'/-3.5	25'/-3.0	20'/-5.0
Downstream bottom width/elev.	10'/-4.5	25'/-3.0	20'/-5.0
Culvert			
Number	2	3	2
Size (inches)	84	54	84
Invert elevation	-2.5 inlet; -3.5 outlet	-1.8	-4.5
Type of control	Slide gate	Slide gate	Slide gate
Protection elevation	12.0	11.0	8.0

NOTE: All elevations in feet, m.s.l.
(1) Existing canal

TABLE 7

Structures 333, 334 and 335
Summary of hydraulic design data

	<u>S-333</u>	<u>S-334</u>	<u>S-335</u>
Location			
Canal	L-29	L-29	L-30
Station	580+22	15+00	80+00
Design Conditions			
Discharge (c.f.s.)	1350	1230	525
Headwater elevation	7.5	5.0	5.0
Tailwater elevation	7.0	4.7	4.8
Optimum Conditions			
Headwater elevation	9.5 to 10.5	5.0 to 6.5	6.0
Tailwater elevation	5.0	5.0	5.0
Crest			
Shape	Trapezoidal	Trapezoidal	Trapezoidal
Elevation	-3.1	-6.9	-4.2
Net length (ft.)	29	29	20
Gates			
Number	1	1	1
Width x height (ft.)	29 x 14.6	29 x 14.4	20 x 11.2
Clearance elevation	8.5	6.0	6.0
Overflow slot elevation	8.5 to 11.0	5.0 to 7.0	5.0 to 6.5
Stilling Basin			
Apron elevation	-6.0	-8.0	-6.2
Apron length (ft.)	20	20	20
End sill elevation	-5.0	-7.0	-5.2
Training wall elevation	7.0	4.7	4.8
Channel Section			
Upstream bottom width (ft.)	35.0	60.0	25.0 [±]
Upstream bottom elevation	-10.0	-7.0	-12.2 [±]
Upstream side slopes 1 vertical on 2 horizontal			
Downstream bottom width (ft.)	35.0	60.0	25.0 [±]
Downstream bottom elevation	-10.0	-7.0	-12.0 [±]
Downstream side slopes 1 vertical on 2 horizontal			
Canal Riprap			
Upstream riprap length (ft.)(min.)	20	-	-
Upstream protection elevation	10.5	-	-
Downstream riprap length (min.)	20	-	-
Downstream protection elevation	10.0	-	-
Structure Protection Elevation	14.5	14.0	11.5

NOTE: All elevations shown are in feet, mean sea level

TABLE 8

LEVEE 29 BORROW CANAL

SUMMARY OF BRIDGE CONSTRUCTION AND COSTS

Station	Location Road Designation	Net area provided (Sq. ft.)	Design W.S. elev. (ft., m.s.l.)	Channel Bottom		Description of proposed work	Deck elevation (ft., m.s.l.)	Total Estimated Initial Cost
				Width (ft.)	Elevation (ft., m.s.l.)			
157+20	Fish mgt. Area No. 2 Access Road	980	5.7	10	-15.0	Construct new 115 ft.+ concrete bridge (28 ft. roadway)	11.0	140,000
207+50	Private road	1,000	6.0	60	-7.0	Construct new 130 ft.+ concrete bridge (6 ft. roadway)	11.0	35,000
351+00	Private road	1,350	6.2	60	-10.0	Construct new 140 ft.+ concrete bridge (12 ft. roadway)	11.0	75,000
427+50	Fish mgt. area No. 3 access road	1,000	6.4	35	-10.0	Construct new 120 ft.+ concrete bridge (28 ft. roadway)	11.0	145,000

TABLE 9

LEVEE 29 BORROW CANAL

Quantities and Cost Estimates

(Date of Estimate: August 1974)

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>CONSTRUCTION COSTS</u>		
Excavation		
Peat - 374,000 C.Y. @ \$0.93	348,000	
Rock - 960,000 C.Y. @ \$2.03	1,949,000	
Clearing	48,000	
	Subtotal	\$ 2,345,000
		<u>281,000</u>
Contingencies @ 12%		\$ 2,626,000
Contract Price		184,000
Supervision and Administration @ 7%		\$ 2,810,000
Construction Cost		
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
80% of construction cost	\$ 2,248,000	
Engineering and design @ 8%	<u>210,000</u>	
	Initial Federal Costs	\$ 2,458,000
<u>Annual</u>		
Federal investment subject to interest & amortization		(\$ 2,458,000)
Interest @ 2-1/2%	\$ 61,000	
Amortization @ 2-1/2% for 50 years	<u>25,000</u>	
	Annual Federal Costs	86,000

TABLE 9 (Continued)

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
20% of construction costs	\$ 562,000	
Lands, including acquisition costs	1,000	
Public relocations		
Bridges	285,000	
Acceleration and deceleration lane	15,000	
Boat ramp	3,000	
Private relocations, bridges	110,000	
	Initial Non-Federal costs	\$ 976,000
<u>Annual</u>		
Non-Federal investment subject to interest and amortization		(\$976,000)
Interest @ 2-1/2%	\$ 24,000	
Amortization @ 2-1/2% for 50 years	10,000	
Maintenance	<u>2,000</u>	
	Annual Non-Federal costs	\$ 36,000
TOTAL INITIAL FEDERAL AND NON-FEDERAL COST		\$3,434,000
TOTAL ANNUAL FEDERAL AND NON-FEDERAL COST		\$ 122,000

TABLE 10
PUMPING STATION 332
Quantities and cost estimates
(Date of estimate: Aug. 1974)

Item	Unit	Unit Price	Quantity	Amount
Dewatering	Job	L.S.	1	170,000
Excavation, structure	Cu. yd.	7.00	3,300	23,100
Fill and backfill	Cu. yd.	6.00	3,300	19,800
Stone protection (from contract excavation)	Cu. yd.	40.00	425	17,000
Concrete	Cu. yd.	300.00	440	132,000
Cement	Cwt.	2.50	2,300	5,750
Steel, reinforcing	Lb.	0.60	55,000	33,000
Steel, structural	Lb.	1.10	10,000	11,000
Steel, miscellaneous	Lb.	1.30	5,000	6,500
Steel sheet piling	Sq. ft.	11.00	825	9,075
Chain Link Fence	Lin. ft.	12.00	150	1,800
Grating	Sq. ft.	13.00	400	5,200
Handrail	Lin. ft.	12.00	40	480
Guardrail	Lin. ft.	10.00	300	3,000
Staff gages (2)	Job	L.S.	1	2,600
Needle beams	Job	L.S.	1	26,000
Pickup beam	Job	L.S.	1	3,000
Access road and tieback levee	Job	L.S.	1	125,000
Subtotal structure				\$ 591,305
Adjusted subtotal structure				591,000
Contingencies (12%+)				71,000
Total structure contract price				662,000
Pump machinery auxiliaries and other operating equipment contract price				178,000
Grand total				\$ 840,000

TABLE 11

PUMPING STATION 332

DETAILED COST ESTIMATE--MACHINERY AND EQUIPMENT

DATE OF ESTIMATE: AUGUST 1974

<u>Item No.</u>	<u>Description</u>	<u>Each</u>	<u>Quantity</u>	<u>Total</u>
PUMP MACHINERY, AUXILIARIES AND OTHER OPERATING EQUIPMENT				
1.	Main pump and motor assemblies, complete with discharge tubes and flapgates:			
a.	50 CFS pump/motor assembly	\$15,000	2	\$ 30,000
b.	30 CFS pump/motor assembly	11,000	1	11,000
c.	20 CFS pump/motor assembly	9,000	1	9,000
d.	10 CFS pump/motor assembly	6,000	1	6,000
e.	5 CFS pump/motor assembly	5,000	1	5,000
2.	Pump spares	8,000	Set	8,000
3.	Services erection engineer	200	50 M/D	10,000
4.	Station service water, vent. and auto. control systems	4,000	1	4,000
5.	Station crane	6,000	1	6,000
6.	Installation (Items 1, 4 and 5)	12,000	Job	12,000
7.	Motor control center	22,000	1	22,000
8.	Lighting fixtures	4,000	Job	4,000
9.	Wiring, conduit & misc.	15,000	Job	15,000
10.	Transmission line	17,000	1	<u>17,000</u>
	Subtotal			159,000
	Contingencies (12%+)			<u>19,000</u>
	TOTAL OPERATING EQUIPMENT			\$178,000

TABLE 12

Pumping Station 332

Total cost

Cost Estimate

(Date of estimate: August 1974)

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$591,000	
Contingencies (12 pct. +)-----	71,000	
Contract price, structure-----	\$662,000	
Supervision and administration-----	46,000	
Subtotal, structure-----		\$708,000
Operating equipment-----	\$159,000	
Contingencies (12 pct. +)-----	19,000	
Contract price, operating equipment--	\$178,000	
Supervision and administration-----	13,000	
Subtotal, operating equipment-----		\$191,000
Construction costs-----		\$899,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 pct. of structure contract price--	\$529,600	
80 pct. of operating equipment		
contract price-----	142,400	
Supervision and administration on		
80 pct. of structure contract price--	36,800	
80 pct. of operating equipment		
contract price-----	10,400	
Engineering and design on total contract		
price		
Structure-----	52,900	
Operating equipment-----	14,100	
Initial Federal costs-----		\$786,200

(continued)

TABLE 12--continued

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>FEDERAL COSTS (cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$786,200)
Interest at 2.5 pct.-----	\$19,700	
Amortization at 2.5 pct. for 50 years----	<u>8,100</u>	
Annual Federal costs-----		\$ 27,800
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$132,400	
20 pct. of operating equipment contract price-----	35,600	
Supervision and administration on		
20 pct. of structure contract price-----	9,200	
20 pct. of operating equipment contract price-----	<u>2,600</u>	
Initial non-Federal costs-----		\$179,800 ✓
<u>Annual</u>		
Initial non-Federal costs-----		(\$179,800)
Interest at 2.5 pct.-----	\$ 4,500	
Amortization at 2.5 pct. for 50 years----	1,800	
Operation and maintenance:		
Operation and care-----	35,000	
Replacement of operating equipment after 25 years*-----	3,900	
Annual non-Federal costs-----		\$ 45,200
Grand total--initial Federal and non- Federal costs-----		\$966,000
Grand total--annual Federal and non- Federal costs-----		73,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$204,800. Present worth in 25 years at 2.5 pct. equals \$110,400. Interest and amortization at 2.5 pct. for 50 years equals \$3,900.

TABLE 12

TABLE 13

CONTROL STRUCTURE 194 (MOD)

Contract Price

Quantity and cost estimates
 (Date of estimate: August 1974)

<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Total</u>
Dewatering-----	Job	L.S.	1	\$ 70,000
Excavation-----	Cu.Yd.	7.00	1,800	12,600
Backfill and fill-----	Cu.Yd.	5.00	800	4,000
Stone protection-----	Cu.Yd.	42.00	90	3,780
Pavement-----	Sq.Yd.	9.00	800	7,200
Concrete-----	Cu.Yd.	400.00	25	10,000
Cement-----	Cwt.	2.50	130	330
Reinforcing steel-----	Lb.	.60	3,125	1,870
Handrail-----	Lin.Ft.	11.00	50	550
Guardrail-----	Lin.Ft.	12.00	50	600
Staff gages-----	Job	L.S.	1	2,600
84" Concrete pipe-----	Lin.Ft.	120	90	10,800
Subtotal, structure-----				124,330
Adjusted subtotal, structure-----				124,000
Slide gate and operating machinery---	Job	L.S.	1	24,000
Subtotal, operating equipment-----				24,000
Total				148,000
Contingencies (12 pct.±)-----				17,000
Contract price-----				\$165,000

TABLE 14

Control Structure 194 (Mod)

Total cost

Cost estimate

(Date of estimate: August 1974)

Item	Amount	Total
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$124,000	
Contingencies (12 pct. +)-----	14,000	
Contract price, structure-----	\$138,000	
Supervision and administration-----	10,000	
Subtotal, structure-----		\$148,000
Operating equipment-----	\$ 24,000	
Contingencies (12 pct. +)-----	3,000	
Contract price, operating equipment--	\$ 27,000	
Supervision and administration-----	2,000	
Subtotal, operating equipment-----		\$ 29,000
Construction costs-----		\$177,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 pct. of structure contract price--	\$110,400	
80 pct. of operating equipment contract price-----	21,600	
Supervision and administration on		
80 pct. of structure contract price--	8,000	
80 pct. of operating equipment contract price-----	1,600	
Engineering and design on total contract price		
Structure-----	10,900	
Operating equipment-----	2,100	
Initial Federal costs-----		\$154,600

(continued)

TABLE 14--continued

Item	Amount	Total
<u>FEDERAL COSTS(cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$154,600)
Interest at 2.5 pct.-----	\$ 3,900	
Amortization at 2.5 pct. for 50 years----	<u>1,600</u>	
Annual Federal costs-----		\$ 5,500
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$27,600	
20 pct. of operating equipment contract price-----	5,400	
Supervision and administration on		
20 pct. of structure contract price-----	2,000	
20 pct. of operating equipment contract price-----	<u>400</u>	
Initial non-Federal costs-----		\$ 35,400
<u>Annual</u>		
Initial non-Federal costs-----		(\$ 35,400)
Interest at 2.5 pct.-----	\$ 900	
Amortization at 2.5 pct. for 50 years----	400	
Operation and maintenance:		
Operation and care-----	1,600	
Replacement of operating equipment after 25 years*-----	<u>600</u>	
Annual non-Federal costs-----		\$ 3,500
Grand total--initial Federal and non- Federal costs-----		\$190,000
Grand total--annual Federal and non- Federal costs-----		\$ 9,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$30,900. Present worth in 25 years at 2.5 pct. equals \$16,100 Interest and amortization at 2.5 pct. for 50 years equals \$600.

TABLE 15

Structure 333Contract price

Quantity and cost estimates
(Date of estimate: August 1974)

Item	Unit	Unit Price	Quantity	Total
Dewatering-----	Job	L.S.	1	\$100,000
Excavation-----	Cu.yd.	4.00	20,000	80,000
Backfill and fill-----	Cu.yd.	5.00	5,500	27,500
Stone protection-----	Cu.yd.	40.00	400	16,000
Concrete-----	Cu.yd.	300.00	350	105,000
Cement-----	Cwt.	2.5	1,800	4,500
Reinforcing steel-----	Lb.	.50	43,750	21,875
Steel sheet piling-----	Sq.ft.	11.00	1,450	15,950
Miscellaneous metal-----	Lb.	1.50	5,000	7,500
Handrail-----	Lin.ft.	11.00	300	3,300
Guardrail-----	Lin.ft.	12.00	200	2,400
Staff gages-----	Job	L.S.	1	2,600
Control house-----	Job	L.S.	1	16,000
Safety barriers-----	Job	L.S.	1	10,000
Pavement-----	Sq.yd.	8.00	1,750	14,000
Electrical work-----	Job	L.S.	1	20,000
Chain link fence-----	Lin.ft.	12.00	350	4,200
Existing boat ramp removal-	Job	L.S.	1	4,000
Stilling wells	Job	L.S.	1	5,000
Access road and ramps	Job	L.S.	1	4,000
Grassing and sodding	Job	L.S.	1	10,000
Subtotal, structure-----				\$473,875
Adjusted subtotal, structure-----				474,000
Vertical lift gates-----	Job			70,000
Gate-operating machinery--	Job			40,000
Subtotal, operating equipment-----				120,000
Total-----				\$594,000
Contingencies (12 pct. +)-----				71,000
Contract price-----				\$665,000

TABLE 16

Control Structure 333

Total cost

Cost estimate

(Date of estimate: August 1974)

Item	Amount	Total
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$474,000	
Contingencies (12 pct. +)-----	57,000	
Contract price, structure-----	\$531,000	
Supervision and administration-----	37,000	
Subtotal, structure-----		\$568,000
Operating equipment-----	\$120,000	
Contingencies (12 pct. +)-----	14,000	
Contract price, operating equipment--	\$134,000	
Supervision and administration-----	10,000	
Subtotal, operating equipment-----		\$144,000
Construction costs-----		\$712,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 pct. of structure contract price--	\$424,800	
80 pct. of operating equipment		
contract price-----	107,200	
Supervision and administration on		
80 pct. of structure contract price--	29,600	
80 pct. of operating equipment		
contract price-----	8,000	
Engineering and design on total contract		
price		
Structure-----	42,400	
Operating equipment-----	10,600	
Initial Federal costs-----		\$622,600

(continued)

TABLE 16--continued

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>FEDERAL COSTS(cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$622,600)
Interest at 2.5 pct.-----	\$15,600	
Amortization at 2.5 pct. for 50 years----	<u>6,400</u>	
Annual Federal costs-----		\$ 22,000
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$106,200	
20 pct. of operating equipment contract price-----	26,800	
Supervision and administration on		
20 pct. of structure contract price-----	7,400	
20 pct. of operating equipment contract price-----	<u>2,000</u>	
Initial non-Federal costs-----		\$142,400
<u>Annual</u>		
Initial non-Federal costs-----		(\$142,400)
Interest at 2.5 pct.-----	\$ 3,600	
Amortization at 2.5 pct. for 50 years----	1,500	
Operation and maintenance:		
Operation and care-----	3,000	
Replacement of operating equipment after 25 years*-----	<u>2,900</u>	
Annual non-Federal costs-----		\$ 11,000
Grand total--initial Federal and non- Federal costs-----		\$765,000
Grand total--annual Federal and non- Federal costs-----		\$ 33,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$154,600. Present worth in 25 years at 2.5 pct. equals \$83,400. Interest and amortization at 2.5 pct. for 50 years equals \$2,900.

TABLE 17

Structure 334

Contract price

Quantity and cost estimates
(Date of estimate: August 1974)

<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Total</u>
Dewatering-----	Job	L.S.	1	\$170,000
Excavation-----	Cu.yd.	7.00	3,000	21,000
Backfill and fill-----	Cu.yd.	5.00	8,000	40,000
Stone protection-----	Cu.yd.	40.00	305	12,200
Concrete-----	Cu.yd.	300.00	300	90,000
Cement-----	Cwt.	2.5	1,600	4,000
Reinforcing steel-----	Lb.	.50	37,500	18,750
Steel sheet piling-----	Sq.ft.	11.00	2,400	26,400
Miscellaneous metal-----	Lb.	1.50	5,000	7,500
Handrail-----	Lin.ft.	11.00	450	4,950
Guardrail-----	Lin.ft.	12.00	250	3,000
Staff gages-----	Job	L.S.	1	2,600
Control house-----	Job	L.S.	1	16,000
Safety barriers-----	Job	L.S.	1	10,000
Pavement-----	Sq.yd.	8.00	1,800	14,400
Electrical work-----	Job	L.S.	1	20,000
Chain link fence-----	Lin.ft.	12.00	350	4,200
Stilling wells-----	Job	L.S.	1	5,000
Grassing and sodding-----	Job	L.S.	1	10,000
Subtotal, structure-----				\$480,000
Adjusted subtotal, structure-----				480,000
Vertical lift gates-----	Job			60,000
Gate-operating machinery---	Job			40,000
Subtotal, operating equipment-----				100,000
Total-----				580,000
Contingencies (12 pct. \pm)-----				70,000
Contract price-----				\$650,000

TABLE 17

TABLE 18

Control Structure 334

Total cost

Cost estimate

(Date of estimate: August 1974)

Item	Amount	Total
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$480,000	
Contingencies (12 pct. +)-----	58,000	
Contract price, structure-----	\$538,000	
Supervision and administration-----	38,000	
Subtotal, structure-----		\$576,000
Operating equipment-----	\$100,000	
Contingencies (12 pct. +)-----	12,000	
Contract price, operating equipment--	\$112,000	
Supervision and administration-----	8,000	
Subtotal, operating equipment-----		\$120,000
Construction costs-----		\$696,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 pct. of structure contract price--	\$430,400	
80 pct. of operating equipment		
contract price-----	89,600	
Supervision and administration on		
80 pct. of structure contract price--	30,400	
80 pct. of operating equipment		
contract price-----	6,400	
Engineering and design on total contract		
price		
Structure-----	43,000	
Operating equipment-----	9,000	
Initial Federal costs-----		\$608,800

(continued)

TABLE 18--continued

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>FEDERAL COSTS(cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$608,800)
Interest at 2.5 pct.-----	\$15,200	
Amortization at 2.5 pct. for 50 years----	6,300	
Annual Federal costs-----		\$21,500
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$107,600	
20 pct. of operating equipment contract price-----	22,400	
Supervision and administration on		
20 pct. of structure contract price-----	7,600	
20 pct. of operating equipment contract price-----	1,600	
Lands including 5 pct. acquisition cost-----		
Initial non-Federal costs-----		\$139,200
<u>Annual</u>		
Initial non-Federal costs-----		(\$139,200)
Interest at 2.5 pct.-----	\$ 3,500	
Amortization at 2.5 pct. for 50 years-----	1,400	
Operation and maintenance:		
Operation and care-----	3,100	
Replacement of operating equipment after 25 years*-----	2,500	
Annual non-Federal costs-----		\$ 10,500
Grand total--initial Federal and non- Federal costs-----		\$748,000
Grand total--annual Federal and non- Federal costs-----		\$ 32,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$128,800. Present worth in 25 years at 2.5 pct. equals \$69,500. Interest and amortization at 2.5 pct. for 50 years equals \$2,500.

TABLE 19

Structure 335

Contract price

Quantity and cost estimates

(Date of estimate: August 1974)

<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Total</u>
Dewatering-----	Job	L.S.	1	\$160,000
Excavation-----	Cu.yd.	8.00	1,000	8,000
Backfill and fill-----	Cu.yd.	6.00	3,000	18,000
Stone protection-----	Cu.yd.	40.00	495	19,800
Concrete-----	Cu.yd.	300.00	260	78,000
Cement-----	Cwt.	2.5	1,400	3,500
Reinforcing steel-----	Lb.	.50	32,500	16,250
Steel sheet piling-----	Sq.ft.	11.00	3,000	33,000
Miscellaneous metal-----	Lb.	1.50	5,000	7,500
Handrail-----	Lin.ft.	11.00	300	3,300
Guardrail-----	Lin.ft.	12.00	250	3,000
Staff gages-----	Job	L.S.	1	2,600
Control house-----	Job	L.S.	1	16,000
Safety barriers-----	Job	L.S.	1	10,000
Stabilization-----	Sq.yd.	2.00	13,500	27,000
Electrical work-----	Job	L.S.	1	20,000
Chain link fence-----	Lin.ft.	12.00	350	4,200
Stilling wells-----	Job	L.S.	1	5,000
Access road-----	Job	L.S.	1	5,000
Grassing and sodding-----	Job	L.S.	1	10,000
Remove S-24B gated culverts-	Job	L.S.	1	<u>25,000</u>
Subtotal, structure-----				\$475,150
Adjusted subtotal, structure-----				\$475,000
Vertical lift gates-----	Job			40,000
Gate-operating machinery--	Job			<u>30,000</u>
Subtotal, operating equipment-----				\$70,000
Total-----				\$544,000
Contingencies (12 pct. ⁺)-----				<u>65,000</u>
Contract price-----				\$610,000

TABLE 19

Structure 335

Contract price

Quantity and cost estimates
(Date of estimate: August 1974)

<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Total</u>
Dewatering-----	Job	L.S.	1	\$160,000
Excavation-----	Cu.yd.	8.00	1,000	8,000
Backfill and fill-----	Cu.yd.	6.00	3,000	18,000
Stone protection-----	Cu.yd.	40.00	495	19,800
Concrete-----	Cu.yd.	300.00	260	78,000
Cement-----	Cwt.	2.5	1,400	3,500
Reinforcing steel-----	Lb.	.50	32,500	16,250
Steel sheet piling-----	Sq.ft.	11.00	3,000	33,000
Miscellaneous metal-----	Lb.	1.50	5,000	7,500
Handrail-----	Lin.ft.	11.00	300	3,300
Guardrail-----	Lin.ft.	12.00	250	3,000
Staff gages-----	Job	L.S.	1	2,600
Control house-----	Job	L.S.	1	16,000
Safety barriers-----	Job	L.S.	1	10,000
Stabilization-----	Sq.yd.	2.00	13,500	27,000
Electrical work-----	Job	L.S.	1	20,000
Chain link fence-----	Lin.ft.	12.00	350	4,200
Stilling wells-----	Job	L.S.	1	5,000
Access road-----	Job	L.S.	1	5,000
Grassing and sodding-----	Job	L.S.	1	10,000
Remove S-24B gated culverts-	Job	L.S.	1	<u>25,000</u>
Subtotal, structure-----				\$475,150
Adjusted subtotal, structure-----				\$475,000
Vertical lift gates-----	Job			40,000
Gate-operating machinery--	Job			<u>30,000</u>
Subtotal, operating equipment-----				\$70,000
Total-----				\$544,000
Contingencies (12 pct. +)-----				<u>65,000</u>
Contract price-----				\$610,000

TABLE 19

TABLE 20

Control Structure 335

Total cost

Cost estimate

(Date of estimate: August 1974)

Item	Amount	Total
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$475,000	
Contingencies (12 pct. +)-----	57,000	
Contract price, structure-----	532,000	
Supervision and administration-----	37,000	
Subtotal, structure-----		\$569,000
Operating equipment-----	\$ 70,000	
Contingencies (12 pct. +)-----	8,000	
Contract price, operating equipment--	78,000	
Supervision and administration-----	6,000	
Subtotal, operating equipment-----		\$ 84,000
Construction costs-----		653,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 85 pct. of structure contract price--	\$425,600	
80 85 pct. of operating equipment contract price-----		62,400
Supervision and administration on		
80 85 pct. of structure contract price--	29,600	
80 85 pct. of operating equipment contract price-----		4,800
Engineering and design on total contract price		
Structure-----	42,700	
Operating equipment-----	6,300	
Initial Federal costs-----		\$571,400

(continued)

TABLE 20--continued

Item	Amount	Total
<u>FEDERAL COSTS(cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$571,400)
Interest at 2.5 pct.-----	\$14,300	
Amortization at 2.5 pct. for 50 years----	5,900	
Annual Federal costs-----		\$ 20,200
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$106,400	
20 pct. of operating equipment contract price-----	15,600	
Supervision and administration on 20 pct. of structure contract price-----	7,400	
20 pct. of operating equipment contract price-----	1,200	
Lands including 5 pct. acquisition cost-----		
Initial non-Federal costs-----		\$130,600
<u>Annual</u>		
Initial non-Federal costs-----		(\$130,600)
Interest at 2.5 pct.-----	\$ 3,300	
Amortization at 2.5 pct. for 50 years----	1,300	
Operation and maintenance:		
Operation and care-----	2,800	
Replacement of operating equipment after 25 years*-----	2,400	
Annual non-Federal costs-----		\$ 9,800
Grand total--initial Federal and non- Federal costs-----		\$702,000
Grand total--annual Federal and non- Federal costs-----		\$ 30,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$126,200. Present worth in 25 years at 2.5 pct. equals \$68,100. Interest and amortization at 2.5 pct. for 50 years equals \$2,400.

TABLE 21

326

Control Structure 328Contract Price

Quantity and cost estimates
(Date of estimate: August 1974)

<u>Item</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Total</u>
Dewatering-----	Job	L.S.	1	35,000
Excavation-----	Cu.Yd.	8.00	700	5,600
Backfill and fill----	Cu.Yd.	7.00	1,900	13,300
Stone protection----	Cu.Yd.	40.00	280	11,200
Stabilization-----	Sq.Yd.	4.00	150	600
Concrete-----	Cu.Yd.	400.00	.35	14,000
Cement-----	Cwt.	2.5	180	450
Reinforcing steel----	Lb.	.60	4,500	2,700
Handrail-----	Lin.Ft.	11.00	125	1,375
Guardrail-----	Lin.Ft.	12.00	75	900
Staff gages-----	Job	L.S.	1	2,600
54" C.M.P. pipe-----	Lin.Ft.	85.00	275	23,375
Subtotal, structure-----				111,100
Adjusted subtotal, structure-----				111,000
Slide Gate and operating machinery---	Job	L.S.	1	23,000
Subtotal, operating equipment-----				23,000
Total-----				134,000
Contingencies (12 pct. +)-----				16,000
Contract price-----				150,000

TABLE 22

Control Structure 336

Total cost

Cost estimate

(Date of estimate: August 1974)

<u>Item</u>	<u>Amount</u>	<u>Total</u>
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$111,000	
Contingencies (12 pct. +)-----	13,000	
Contract price, structure-----	124,000	
Supervision and administration-----	9,000	
Subtotal, structure-----		\$133,000
Operating equipment-----	\$ 23,000	
Contingencies (12 pct. +)-----	3,000	
Contract price, operating equipment--	\$ 26,000	
Supervision and administration-----	2,000	
Subtotal, operating equipment-----		\$ 28,000
Construction costs-----		161,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 85 pct. of structure contract price--	\$ 99,200	
80 85 pct. of operating equipment contract price-----	20,800	
Supervision and administration on		
80 85 pct. of structure contract price--	7,200	
80 85 pct. of operating equipment contract price-----	1,600	
Engineering and design on total contract price		
Structure-----	9,900	
Operating equipment-----	2,100	
Initial Federal costs-----		\$140,800

(continued)

TABLE 22--continued

Item	Amount	Total
<u>FEDERAL COSTS(cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$140,800)
Interest at 2.5 pct.-----	\$ 3,500	
Amortization at 2.5 pct. for 50 years----	<u>1,400</u>	
Annual Federal costs-----		\$ 4,900
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
15 pct. of structure contract price-----	\$24,800	
15 pct. of operating equipment contract price-----	5,200	
Supervision and administration on		
15 pct. of structure contract price-----	1,800	
15 pct. of operating equipment contract price-----	<u>400</u>	
Initial non-Federal costs-----		(\$ 32,200)
<u>Annual</u>		
Initial non-Federal costs-----		(\$ 32,200)
Interest at 2.5 pct.-----	\$ 800	
Amortization at 2.5 pct. for 50 years----	300	
Operation and maintenance:		
Operation and care-----	1,400	
Replacement of operating equipment after 25 years*-----	<u>600</u>	
Annual non-Federal costs-----		\$ 3,100
Grand total--initial Federal and non-Federal costs-----		\$173,000
Grand total--annual Federal and non-Federal costs-----		\$ 8,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$29,600. Present worth in 25 years at 2.5 pct. equals \$16,000. Interest and amortization at 2.5 pct. for 50 years equals \$600.

TABLE 23

Control Structure 338

Contract Price

Quantity and cost estimates
(Date of estimate: August 1974)

Item	Unit	Unit Price	Quantity	Total
Dewatering-----	Job	L.S.	1	75,000
Excavation-----	Cu.Yd.	8.00	300	2,400
Backfill and fill----	Cu.Yd.	8.00	900	7,200
Stone protection----	Cu.Yd.	40.00	360	14,400
Stabilization-----	Sq.Yd.	4.00	1,000	4,000
Concrete-----	Cu.Yd.	400.00	40	16,000
Cement-----	Cwt.	2.5	210	525
Reinforcing steel----	Lb.	.60	5,000	3,000
Handrail-----	Lin.Ft.	11.00	100	1,100
Guardrail-----	Lin.Ft.	12.00	100	1,200
Staff gages-----	Job	L.S.	1	2,600
84" C.M.P. pipe-----	Lin.Ft.	110.00	190	20,900
Access road-----	Job	L.S.	1	8,000
Subtotal, structure-----				156,325
Adjusted subtotal, structure-----				156,000
Slide Gate and operating machinery---	Job	L.S.	1	40,000
Subtotal, operating equipment-----				40,000
Total-----				196,000
Contingencies (12 pct. +)-----				24,000
Contract price-----				220,000

TABLE 24

Control Structure 338

Total costCost estimate

(Date of estimate: August 1974)

Item	Amount	Total
<u>CONSTRUCTION COSTS</u>		
Structure-----	\$156,000	
Contingencies (12 pct. +)-----	19,000	
Contract price, structure-----	\$175,000	
Supervision and administration-----	12,000	
Subtotal, structure-----		\$187,000
Operating equipment-----	\$ 40,000	
Contingencies (12 pct. +)-----	5,000	
Contract price, operating equipment--	\$ 45,000	
Supervision and administration-----	3,000	
Subtotal, operating equipment-----		\$ 48,000
Construction costs-----		\$ 235,000
<u>FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
80 pct. of structure contract price--	\$140,000	
80 pct. of operating equipment		
contract price-----	36,000	
Supervision and administration on		
80 pct. of structure contract price--	9,600	
80 pct. of operating equipment		
contract price-----	2,400	
Engineering and design on total contract		
price		
Structure-----	14,200	
Operating equipment-----	3,800	
Initial Federal costs-----		\$206,000

(continued)

TABLE 24--continued

Item	Amount	Total
<u>FEDERAL COSTS (cont'd.)</u>		
<u>Annual</u>		
Initial Federal costs-----		(\$206,000)
Interest at 2.5 pct.-----	\$ 5,200	
Amortization at 2.5 pct. for 50 years----	2,100	
Annual Federal costs-----		\$ 7,300
<u>NON-FEDERAL COSTS</u>		
<u>Initial</u>		
Contract price		
20 pct. of structure contract price-----	\$35,000	
20 pct. of operating equipment contract price-----	9,000	
Supervision and administration on		
20 pct. of structure contract price-----	2,400	
20 pct. of operating equipment contract price-----	600	
Lands including 5 pct. acquisition cost-----	5,000	
Initial non-Federal costs-----		\$ 52,000
<u>Annual</u>		
Initial non-Federal costs-----		(\$ 52,000)
Interest at 2.5 pct.-----	\$ 1,300	
Amortization at 2.5 pct. for 50 years----	500	
Operation and maintenance:		
Operation and care-----	1,900	
Replacement of operating equipment after 25 years*-----	1,000	
Annual non-Federal costs-----		\$ 4,700
Grand total--initial Federal and non-Federal costs-----		\$258,000
Grand total--annual Federal and non-Federal costs-----		\$ 12,000

NOTE: *Replacement cost, including contingencies, engineering, and overhead, is \$ 51,500. Present worth in 25 years at 2.5 pct. equals \$27,200. Interest and amortization at 2.5 pct. for 50 years equals \$1,000.

TABLE 25

Levee 29, Section 3 Borrow Canal Enlargement
Pumping Station 332, and Control Structures
194 (Mod) 333, 334, 335, 336, and 338

Contract price

Comparison of costs with previously approved estimates

Item	Costs (1) (2) (3)		
	Design memo est. herein (Aug 1974)		Current approved PB-3 estimate (July 1973)
Levee 29, Section 3, Borrow Canal Enlargement	2,626,000		2,477,000
Pumping Station 332	840,000		750,000
Structure 194 (Mod)	165,000		151,000
Structure 333	665,000		560,000
Structure 334	650,000		610,000
Structure 335	610,000		540,000
Structure 336	150,000		125,000
Structure 338	220,000		205,000

- (1) Excludes all lands and relocations costs
- (2) Costs for features covered in this report were not specifically covered in the original project document, but are a part of the current plan as presented in Part V, Supp. 52, GDM "Conveyance Canals to Everglades National Park and South Dade County."
- (3) See paragraph 46 for explanation of cost differences

5920 5418

1.0938

Δ = 509 9 1/2 %

$$\begin{aligned}
 & 1.0938 \times 15,536,000 = 16,993,000 \\
 + & C-1 = 5,338 + 258,000 \\
 \hline
 & \Sigma \quad \$ 17,251,000
 \end{aligned}$$

TABLE 26

Levee 29, Section 3, Borrow Canal Enlargement,
Pumping Station 332
Control Structures 194 (MOD), 333, 334, 335, 336, and 338

Summary of Federal and non-Federal Costs
 (Date of Estimate: Nov 1974)

Cost Acct. No.		Amount	Total
<u>CONSTRUCTION COST</u>			
09.	<u>Channels and Canals</u>		
	Levee 29, Borrow Canal-----	\$2,626,000	
13.	<u>Pumping Plants</u>		
	Pumping Station 332-----	840,000	
15.	<u>Floodway Control and Diversion Structures</u>		
	Control Structure 194 (MOD)-----	165,000	
	Control Structure 333-----	665,000	
	Control Structure 334-----	650,000	
	Control Structure 335-----	610,000	
	Control Structure 336-----	150,000	
	Control Structure 338-----	<u>220,000</u>	
	TOTAL CONTRACT PRICE	\$5,926,000	
31.	Supervision and Administration----- (includes overhead and retirement)	<u>417,000</u>	
	Construction Costs		\$6,343,000

Cost Acct. No.		Amount	Total
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FEDERAL COSTS

Initial

	80% of construction cost-----	\$5,074,000	
30.	Engineering and design on total contract price-----	<u>474,000</u>	
	Initial Federal Costs		\$5,548,000

Annual

	Federal investment subject to interest & amortization		(\$5,548,000)
	Interest @ 2-1/2%-----	\$ 138,500	
	Amortization @ 2-1/2% for 50 years-----	<u>56,500</u>	
	Annual Federal Costs		\$ 195,000

NON-FEDERAL COSTS

Initial

	20% of construction cost-----	\$1,269,000	
	Lands, including acquisition costs-----	6,000	
	Public relocations		
	Bridges-----	285,000	
	Acceleration and deceleration lane-----	15,000	
	Boat ramp-----	3,000	
	Private relocations, bridges-----	<u>110,000</u>	
	Initial non-Federal Costs		\$1,688,000

Cost Acct. No.	Amount	Total
<u>Annual</u>		
Non-Federal investment subject to interest & amortization		(\$1,688,000)
Interest-----	\$ 42,000	
Amortization-----	17,300	
Operation and Maintenance		
L-29, Borrow Canal-----	2,000	
Pumping Station 332-----	35,000	
Control Structure 194 (MOD)-----	1,600	
Control Structure 333-----	3,000	
Control Structure 334-----	3,100	
Control Structure 335-----	2,800	
Control Structure 336-----	1,400	
Control Structure 338-----	1,900	
Replacement of operating equipment after 25 years		
Pumping Station 332-----	3,900	
Control Structure 194 (MOD)-----	600	
Control Structure 333-----	2,900	
Control Structure 334-----	2,500	
Control Structure 335-----	2,400	
Control Structure 336-----	600	
Control Structure 338-----	<u>1,000</u>	
Annual Non-Federal Costs		\$124,000
TOTAL INITIAL FEDERAL AND NON-FEDERAL COST		<u>\$7,236,000</u>
TOTAL ANNUAL FEDERAL AND NON-FEDERAL COST		<u>\$ 319,000</u>