MARTIN ENGINEERING

Civil Engineering & Surveying
8900 North Central Ave., Suite 202
Phoenix, Arizona 85020
Telephone (602) 944-5829

Denis H. Martin, P.E.

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

LETTER OF TRANSMITTAL

Date: 9/27/86.

TO: MARICOPA COUNTY FLOOD CONTROL DISTRICT.

Job No.

ATTN: MR. EARL. KIRBY, PE.

RE: GILA RIVER X-SECTIONS (SR-85)

We are sending you attached:

Original drwgs.	Legal Description	Specifications
Prints	Cost Estimate	Other

Description

5 BOOKS X-SECTIONS.
STA (-1+00) TO 96+00. (WEST SIDE OF BRIDGE).

These are transmitted as checked below:

For approval

For Review & Comment

As Requested

For your use

Other

FLOOD CONTROL DISTRICT
RECEIVED
SEP 26 '86

Books to RCP
9-26-86 BOK

CH ENG	HYDRO
ASST	
ADMIN	
C & O	
ENGR	
REMARKS	

Remarks 9/29/86

Signed:

MARTIN ENGINEERING

Civil Engineering & Surveying
8900 North Central Ave., Suite 202
Phoenix, Arizona 85020
Telephone (602) 944-5829

Denis H. Martin, P.E.

LETTER OF TRANSMITTAL

Date: 6/8/86

TO: MCFD
3335 W. DURANGO ST.
PHX AZ 85009

Job No. 7060B

FLOOD CONTROL DISTRICT
RECEIVED
JUN 11 '86

ATTN: DICK PERRAULT

RE: GILA RIVER X-SECTIONS

CH ENG	HYDRO
ASST	LMgt
ADMIN	SUSP
C & O	FILE
ENGR	DESTROY
FINANCE	
REMARKS	

We are sending you attached:

Original drwgs. Legal Description Specifications

Prints Cost Estimate Other

Description

LOCATION OF POWER LINE IN VICINITY OF STA 145±.

These are transmitted as checked below:

For approval Other

For Review & Comment

As Requested

For your use

Remarks

Signed:

		405' S of ℄			
⊼ @ 147+83.50 ON ℄		BS 144+00 405'		FS SOUTH OF ℄	HD
~~Horz~~	SD	VA	Desc		
320-01-37	175 51	88-02-53	PP East Leg		175.44'
324-37-40	189 12	88-23-13	PP West Leg		189.05'
308-19-49	238 40	87-23-28	PP East Leg		238.15'
329-59-13	245 37	87-23-32	PP West Leg		245.12'
78-49-25	435 46	87-54-45	PP East Leg		435.17'
77-40-43	490 02	87-01-33	PP West Leg		439.43'

6/2/86

BENCH LOOP

GILA RIVER

5-1-1986

N. TOURIAN
K. SPUDE
J. NELSON

X-SECTIONS

145+00 TO ~~170+00~~ 181+00
EAST SIDE OF BRIDGE
STATE ROUTE 85

STA.	B.S.	H.I.	I.F.S.	F.S.	ELEV.	
B.M.	4.83				825.01	SOUTH END BRIDGE, ℄ ∠ IRON. ℄ ROAD - STATE ROUTE 85
TP #1	4.37			4.38	825.46	
B.M.	1.45			2.06	827.77	A.D.O.T. B/C
T.P. #2	4.44			7.87	821.35	
T.P. #3	6.69			5.68	820.11	
T.P. #4	7.70			4.21	822.59	
T.P. #5	2.38			4.25	826.04	
T.P. #6	6.50			6.30	822.12	
T.P. #7	6.04			2.85	825.77	
T.P. #8	4.88			4.21	827.60	
T.P. #9	5.11			5.51	826.97	
T.P. #10	6.26			7.29	824.79	
	60.65			61.81 54.61		

STA	B.S.	H.I.	I.F.S.	F.S.	ELEV.		
T.P. #11	4.43			1.98	828.07		
T.P. #12	4.68			6.20	827.30		
T.P. #13	3.57			3.02	828.96		
T.B.M. #1				5.82	826.71	EAST PP Top Nut	N. of Line
T.B.M. #2				5.72	826.81	WEST PP Top Nut	N. of Line
	77.35			71.63			
	1.70						

STA.	B.S.	H.I.	I.F.S.	F.S.	ELEV.
T.B.M.#1	6.24	832.95			826.71
T.B.M.#2				6.13	826.82
T.P.#13	3.39			3.99	828.96
T.P.#12	6.14			5.06	827.29
T.P.#11	2.16			4.36	829.07
T.P.#10	7.37			6.45	824.78
T.P.#9	5.62			5.20	826.95
T.P.#8	4.02			4.99	827.58
T.P.#7	2.80			5.85	825.75
T.P.#6	6.18			6.45	822.10
T.P.#5	4.26			2.26	826.02
T.P.#4	4.23			7.71	822.51
	52.41			52.32	

TOP BOLT ON EAST P.P. N. OF LINE

TOP BOLT ON WEST P.P. N. OF LINE

IMPORTANT NOTE

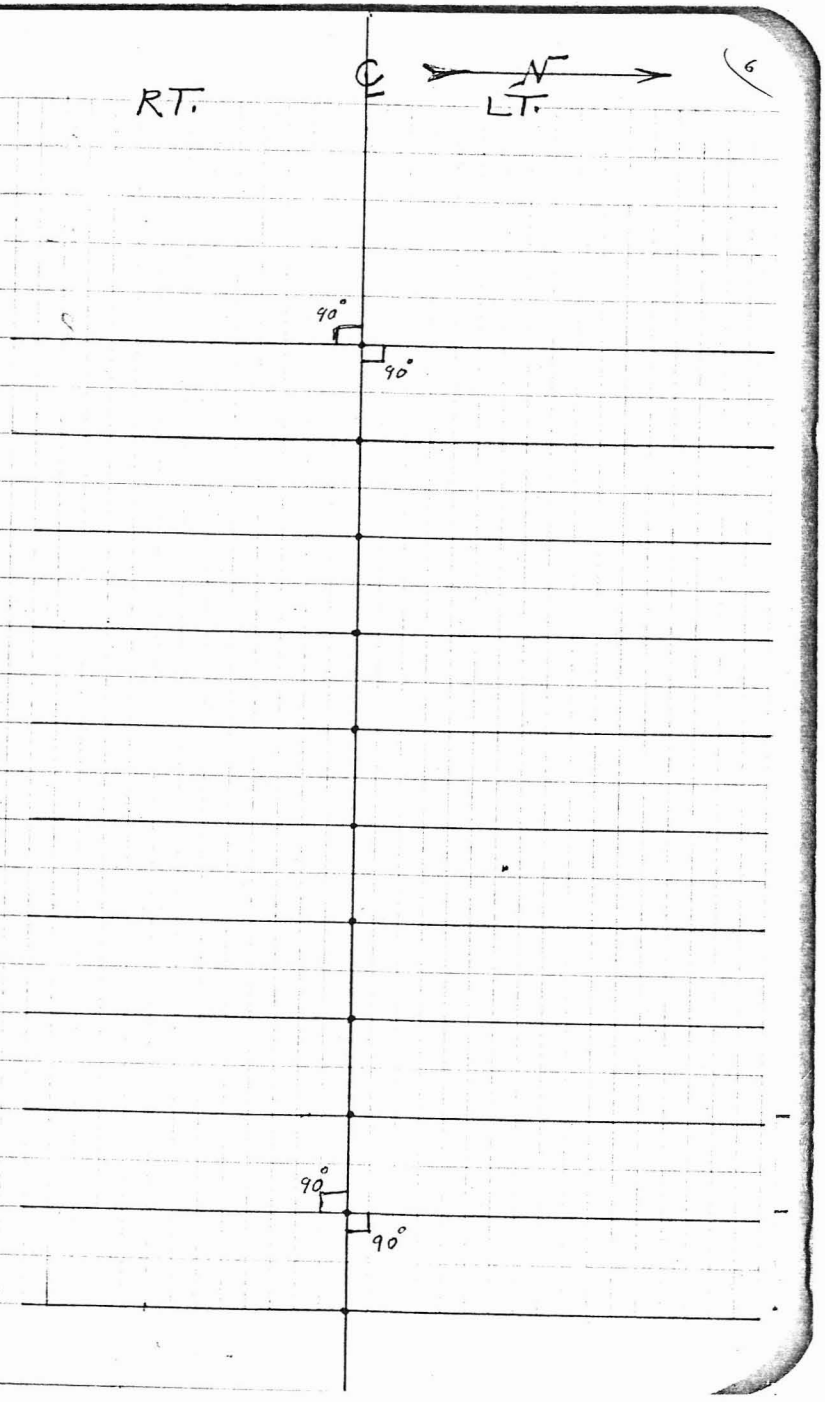
℄ IS 405' SOUTH.

& PARALEL TO

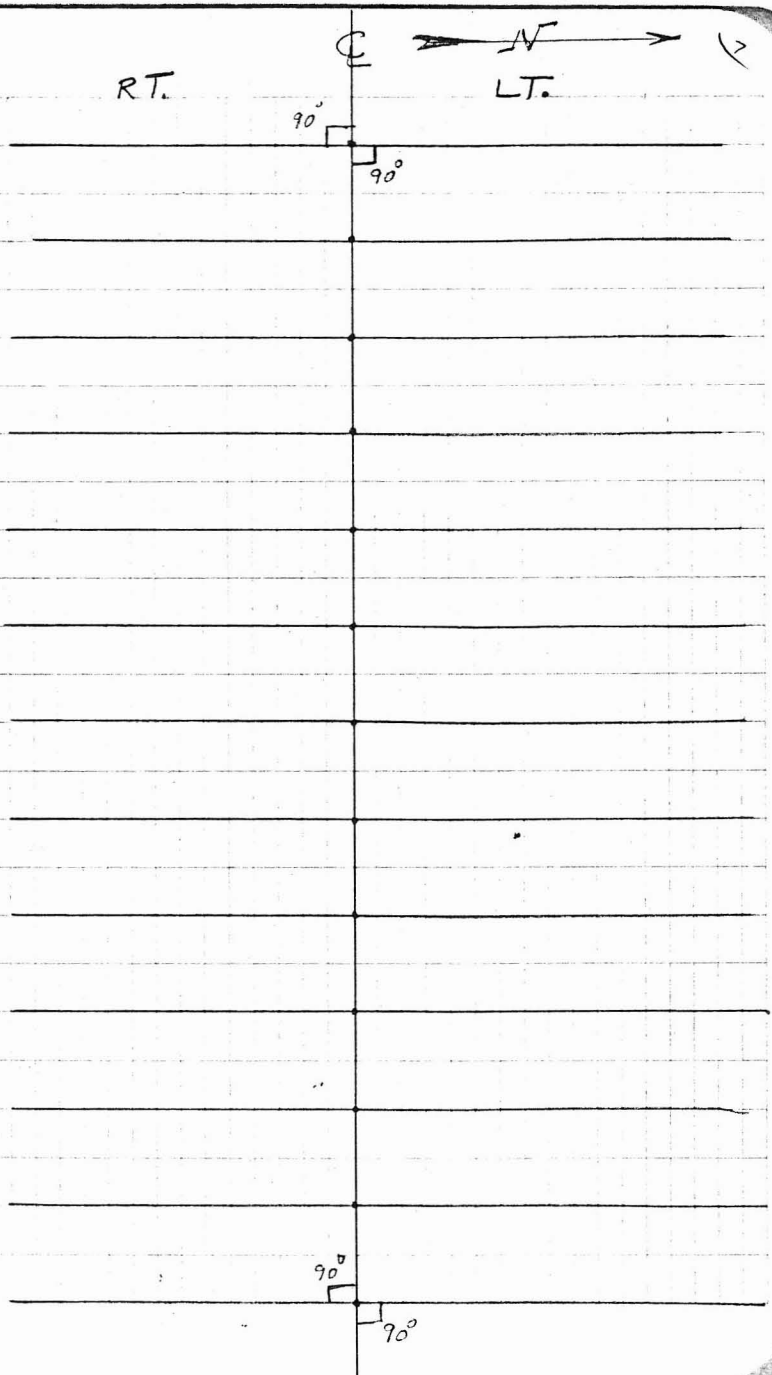
ORIGINAL BASELINE (℄)

STA	B.S.	H.I.	I.F.S.	F.S.	ELEV.	
T.P. #3	5.90			6.70	820.10	
T.P. #2	8.21			4.66	821.34	
T.P. #1	4.26			4.10	825.45	
B.M.				4.71	825.00	<IRON @ S. END OF BRIDGE.
	70.78			72.49	OK	
				1.71		

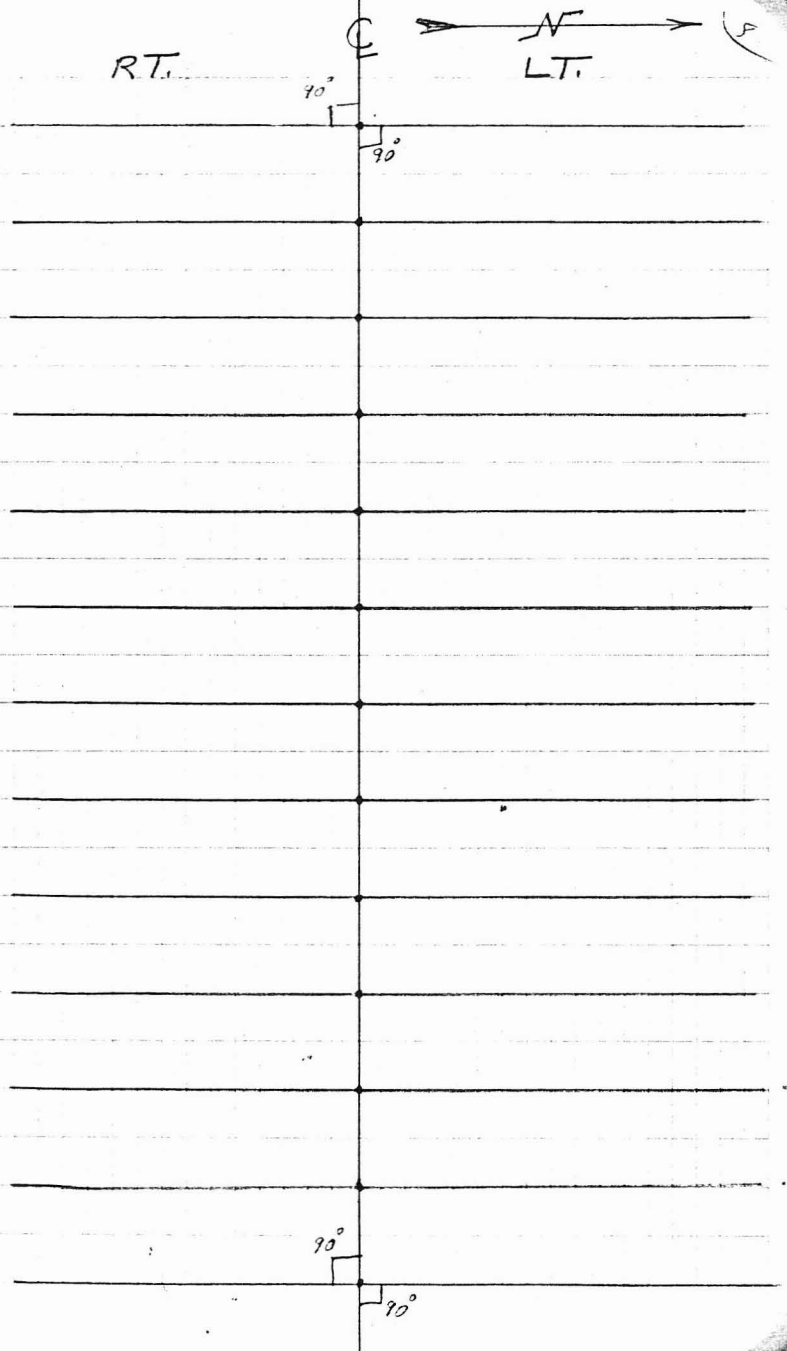
STA.	B.S.	H.I.	I.F.S.	F.S.	ELEV.
T.B.M. #2	7.18	834.00			826.82
T.P.	7.60	833.38		8.22	825.78
145+00			8.55		824.83
146+00			12.78		820.60
147+00			15.81		817.57
148+00			4.99		828.39
149+00	4.89	833.54		4.73	828.65
150+00			4.95		828.59
151+00			5.02		828.52
152+00			7.34		826.20
153+00	5.91	835.03		4.42	829.12
154+00			6.99		828.04
155+00			6.12		828.91



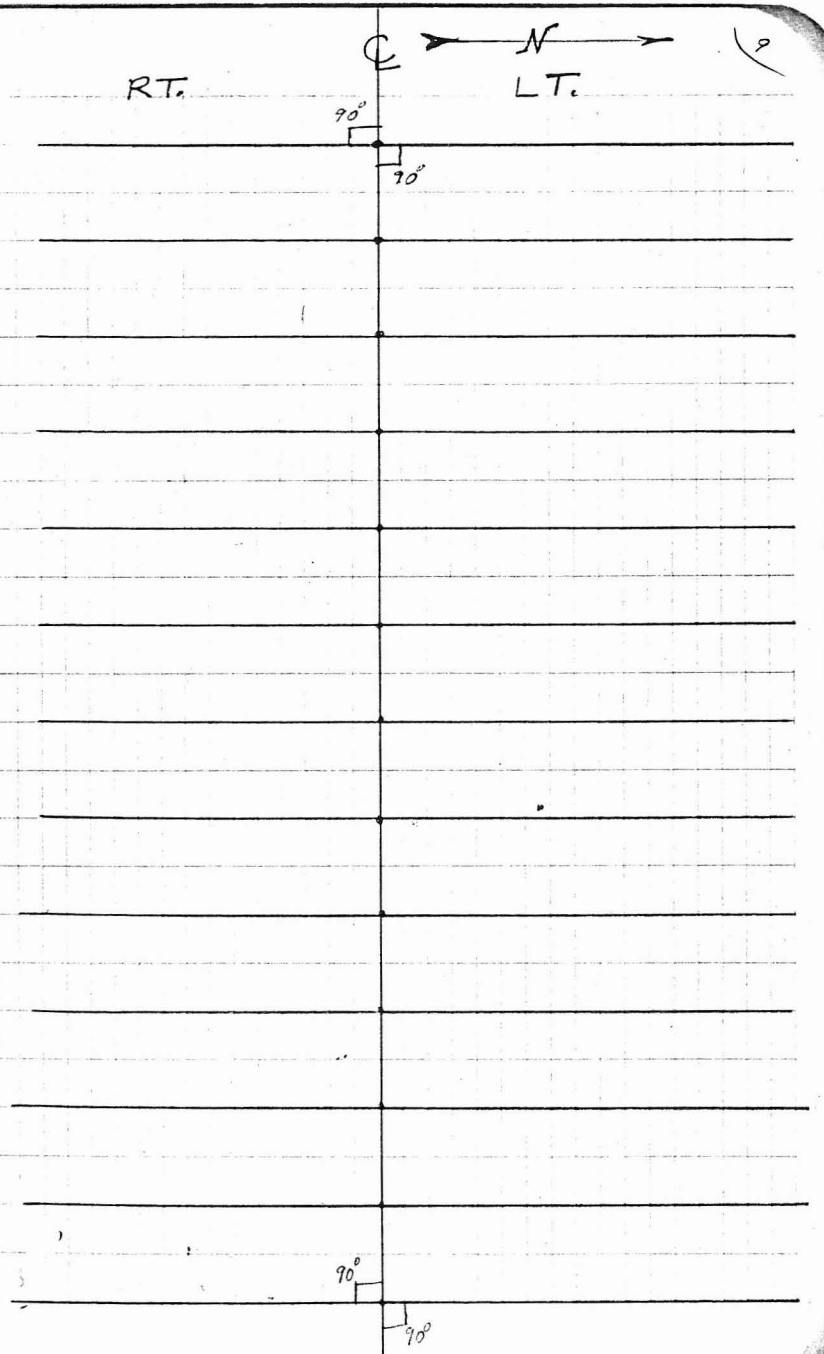
STA.	B.S.	835.03 H.I.	I.E.S.	F.S.	ELEV.
156+00			5.94		829.09
157+00			6.38		828.65
158+00			5.28		829.75
159+00			5.53		829.50
160+00	5.19	835.25		4.97	830.06
161+00			7.91		827.34
162+00			5.16		830.09
163+00			5.27		829.98
164+00			5.14		830.11
165+00			6.16		829.09
166+00			11.05		824.20
167+00	5.77	829.47		11.55	823.70
168+00			5.62		823.85



STA.	B.S.	829.47 H.I.	I.F.S.	F.S.	ELEV
169+00			6.11		823.36
170+00			5.32		824.15
171+00			3.98		825.49
172+00			3.04		826.43
173+00	7.81	835.58		1.70	827.77
174+00			6.28		829.30
175+00			5.96		829.62
176+00			6.07		829.51
177+00			6.91		828.67
178+00			5.37		830.21
179+00			6.25		829.33
180+00			5.02		830.56
181+00	5.39	835.61		5.36	830.22



STA.	B.S.	835.61 H.I.	L.F.S.	F.S.	ELEV.
182+00			8.02		827.59
183+00			5.08		830.53
184+00			4.72		830.89
185+00	6.79	836.96		5.44	830.17
186+00			5.67		831.29
187+00			4.69		832.27
188+00	56.53			4.82	832.14
				51.21	
189+00					
190+00	IN THE WATER				
191+00					
192+00					
193+00					
194+00					
195+00					



STA	℄ HI	SD	VA	No. Rod Sec.	Elev	Desc
14+00	4.95					
LT. NORTH		93.57	85°27'41"	1	829.0	
"		175.88	88°20'23"	1	828.7	
"		270.00	89°02'07"	1	828.1	G.B. T/S
"		319.50	88°17'32"	4	818.8	TOE
℄					824.8	
RT. SOUTH		84.60	89°33'34"	1	824.2	
"		180.62	88°02'00"	2	825.1	
"		279.16	88°50'31"	2	824.6	
"		298.00	89°02'04"	3	819.1	

# Rod Sec.	Height
1	6.20
2	10.85
3	15.69
4	20.53
5	25.36

STA	℄ H.I.	S.D	V. ∠	NO. ROD. SEC.	ELEV.	DESC.
146+00	4.98					
LT. NORTH.		37 00	86-30 4	1	821.6	GB
		121 25	88-30	1	822.3	toe
		140 18	88-06-57	1	824.0	top
		176 16	88-	1	825.3	top
		190 55	88 16-15	1	825.1	top
		220 72	87-57 21	3	817.8	toe
		276 20	87 1	3	820.2	GB
		288. 30	87-	3	821.6.	GB
		312	87	3	822.0	
RT. SOUTH						
		100.13	89°-30-07"	1	820.3	G/B.
		125.92	90°-10-04"	1	819.0	G/B.
		216.08	90°-13-24"	1	818.5	G/B.
		254.74	89°-38-39"	1	821.0	G/B.
		284.50	90°-10-34"	1	818.5	G/B
		316.00	90°-24-26"	1	817.1	TOE
		341.00	89°-14-59"	1	823.8	T/B
		357.70	89°-04-31"	1	825.2	
℄					820.6	

STA	℄ H.I.	S.D	V. ∢	NO. R. S.	Elev.	Desc
147+00	5.16					
Left N		76.88	89-53-52	1	816.7	GB.
		108.65	89-17-09	1	817.9	GB
		158.60	89-07-09	1	818.9	GB
		225.50	88-49-38	1	821.1	GB
		313.20	87-02-54	1	821.7	GB
Right scour						
℄					817.6	
		33.30	80°-30'-28"	1	822.0	T/B
		95.80	85°17'08"	1	824.4	
		175.70	85°-45'-45"	2	824.9	
		266.25	85°-30'-11"	3	827.9	
		300.60	85°-52'-32	3	828.6	

STA	℄ H.I.	S.D	V.∠	No. R.S.	Elev.	Desc
148+00	4.94					
Left N		56.98	84-25-18	2	828.0	
		131.35	87-13-27	2	828.8	
		183.47	88-16-[illegible]	1	828.0	GB
		233.64	88-15-37	2	827.5	GB
		261.28	88-36-12	2	828.8	GB
		314.68	88-51-10	2	828.7	
℄					828.4	
RT. S		83.97	90°-06'-28"	1	827.0	
		146.10	89°-21'-58"	1	828.7	G.B
		190.60	88°-45'-37"	2	826.6	G.B.
		265.80	89°-46'-25"	1	828.2	G.B.
		306.78	89°-28'-46"	2	825.3	

STA.	℄ H.I.	S.D.	V.℄	No. R.S.	℄ Elev.	Desc
149+00	5.08					
Left N.		55.31	84-55-44	2	827.8	GB
		107.63	86-41-47	2	829.1	GB
		169.23	87-47-32	2	829.4	GB
		205.[illegible]	88-21-[illegible]	2	828.6	GB
		262.19	88-43-17	2	828.8	GB
		305.82	88-53-10	2	828.9	
℄					828.7	
RT. SOUTH		63.38	86-16-37	2	827.0	
		124.67	87°52'02"	2	827.6	
		144.92	88°21'18"	2	827.1	G.B.
		196.01	89°06'55"	2	826.0	G.B.
		243.99	89°22'22"	2	825.6	
		310.00	89°37'04"	2	825.0	

STA.	∡ H.I.	S.D.	V. ∡	No. R. S.	Elev	Desc.
	4.79					
150+00						
Left		71.13	85-01-52	2	828.7	GB
		110.72	86-36-[illegible]	2	829.1	GB
		134.78	87-53-[illegible]	2	827.5	GB
		179.14	87-51-12	2	829.3	GB
		210.76	88-21-[illegible]	2	828.4	GB
		277.10	88-[illegible]-56	2	827.9	GB
		311.63	88-57-36	2	828.0	
℄					828.6	
RT.		61.55	85°07'01"	2	827.8	G.B.
		94.14	87°02'33"	2	827.4	G.B.
		141.69	87°51'29"	2	827.8	G.B.
		172.10	88°53'21"	2	826.3	G.B.
		236.74	88°44'52"	2	827.7	
		274.63	89°24'47"	2	825.4	G.B.
		310.40	88°59'48"	2	828.0	G.B.

STA.	℄ H.I.	S.D.	V. ∠	No. R. S.	Elev	Desc.
151+00	5.05					
LT.		65.72	84°-56'-51"	2	828.5	G.B.
		97.00	86°-40'-52"	2	828.3	
		122.07	87°-10'-03"	2	828.7	
		156.65	87°-31'-28"	2	829.5	G.B.
		203.88	88°-16'-32"	2	827.7	G.B.
		236.72	88°-52'-04"	2	827.4	G.B.
		289.60	88°-55'-43"	2	828.1	G.B.
		306.45	87°-05'-06"	2	827.6	G.B.
℄					828.5	
RT		38.23	80°-48'-03"	2	828.8	G.B.
		117.88	87°-20'-[illegible]"	2	828.2	
		169.77	88°-18'-51"	2	827.7	G.B.
		200.13	88°-58'-35"	2	826.3	G.B.
		229.93	88°-53'-58"	2	827.1	G.B.
		290.20	89°-21'-36"	2	825.9	G.B.
		305.95	87°-05'-36"	2	827.5	G.B.

STA	℄ H.I.	S.D.	V. ∠	No. R.S.	Elev.	
1524+00	5.04	64.40	84-12-26	2	826.9	
LT.		137.47	87-17-15	2	826.9	
		203.84	88-14-37	2	826.7	
		263.05	88-44-52	2	826.1	
		305.52	88-44-24	2	827.1	
Right						
℄					826.2	
		80.31	85°-56-14	2	826.1	G.B.
		102.59	86°-40-53	2	826.3	
		177.63	88°-01-28	2	826.5	G.B.
		199.00	88°-17-09	2	826.3	
		232.58	88°-08-24	2	827.9	G.B
		270.27	88°-29-01	2	827.5	G.B.
		307.09	89°-01-35	2	825.6.	

STA	H.I.	S.O.	V.A.	No. R.S.	Elev	
153+00	5.06					
LT.		71.14	[illegible]	2	828.4	GB
		102.56	87-16-16	2	828.2	GB
		146.70	87-50-57	2	828.8	GB
		202.22	88-38-23	2	828.1	
		254.23	89 [illegible]	[illegible]	827.7	
		314.16	89-09-[illegible]	2	828.0	
℄					829.12	
RT.		35.51	80°-42'-57"	2	829.0	
		106.77	87°-30'-41"	2	828.0	G.B.
		144.95	87°-57'-24"	2	828.5	G.B.
		201.65	89°-02'-47"	2	826.7	G.B.
		260.74	89°-10'-26"	2	827.1	G.B.
		317.70	89°-17'-00"	2	827.3	G.B.

STA.	H.I.	S.D.	V.∠	No. R.S.	Elev	
154+00	4.98					
LT.		54.54	83°35'25"	2	828.2	GB
		108.98	86-35-26		828.7	GB
		152.29	87-34-08	2	828.6	GB
		196.16	88-25-58	2	827.5	GB
		227.27	88-30-52	2	828.1	GB
		281.29	88-47-06	2	828.1	GB
		320.80	88-42-31	2	829.1	GB
Right						
℄					828.04	
		72.85	85°03'04"	2	828.5	G.B.
		119.79	87°19'58"	2	827.7	
		164.05	87°44'31"	2	828.6	G.B.
		204.47	88°43'11"	2	826.7	G.B.
		251.27	88°32'43"	2	828.5	G.B.
		298.36	88°52'26"	2	828.0	G.B.
		317.50	88°42'51"	2	828.6	

STA.	H.I.	S.D.	V. ∠	No. R.S.	Elev		
1557+00	5.04						
LT.		91.62	86°-04-17"	2	829.4		G.B.
		177.84	88°-16-07"	2	828.5		G.B.
		210.53	88°-23-55"	2	829.0		G.B.
		272.08	88°-44-37"	2	829.1		G.B.
		302.30	88°-54-57"	2	828.2		G.B.
Right							
		55.27	83-16-08	2	829.6		GB
		111.78	87-12-25	2	828.5		
		174.18	88-13-47	2	828.5		
		232.91	89-02-32	2	827.0		GB
		260.28	88-56-27	2	827.9		GB
		272.70	89-06-13	2	827.4		GB
		311.15	89-08-50	2	827.7		
℄					828.9		

STA	℄ H.I. 5.02	S.D.	V.∠	No R.S.	Elev	
156+00						
Left		89.68	86°-01-17"	2	829.5	G.B.
		126.57	87°-24-29"	2	829.0	G.B.
		187.00	88°-14-55"	2	829.0	G.B.
		208.46	88°-21-47"	2	829.2	
		261.38	88°-48-45"	2	828.7	
		311.76	89°-00-16"	2	828.7	
Right						
		69.76	84-41-37	2	829.7	GB
		121.88	86-57-27	2	829.7	
		184.52	88-19-01	2	828.7	
		257.79	88-53-13	2	828.3	
		323.36	89-19-41	2	827.1	
℄					829.09	

STA.	H.I.	S.D	V.∠	No. R.S.	Elev	
15A00	5.28					
Lt.		83.67	85°-37'-30"	2	829.5	
		125.11	86°-52'-38"	2	829.9	G.B.
		198.99	88°-14'-57"	2	829.2	G.B.
		248.55	88°-26'-35"	2	829.8	
		306.78	88°-51'-58"	2	829.2	
Right						
		58.15	84-42-16	2	828.5	
		104.82	87-06-38	2	828.4	
		153.88	88-19-33	2	827.6	GB
		186.54	88-04-22	2	829.4	GB
		226.48	88-24-35	2	829.4	
		272.76	89-04-25	2	827.5	GB
		322.34	89-15-35	2	827.2	
℄					828.65	

STA	℄ H.I.	S.D.	V. ∠	No R.S.	Elev	
158+00	4.92					
LT.						
		54.70	87°58'11"	1	830.4	
		99.61	88°56'38"	1	830.3	
		149.49	89°16'09"	1	830.4	
		198.10	89°20'08"	1	830.8	
		251.09	89°38'24"	1	830.0	
		300.60	89°41'28"	1	830.1	
℄					829.75	
RT.		46.57	88°36'48"	1	829.6	
		101.78	89°41'17"	1	829.0	
		151.04	89°49'17"	1	828.9	
		192.19	89°35'07"	1	829.9	GB
		261.83	90°12'22"	1	827.5	
		314.50	90°16'20"	1	827.0	

STA.	H.I.	S.D.	V.∠	N≠R.S	Elev	
159+00	4.87					
LT.		46.26	87°24'13"	1	830.3	G.B.
		99.13	89°13'44"	1	829.5	
		148.93	89°11'08"	1	830.3	G.B.
		199.75	89°29'27"	1	829.9	
		251.29	89°29'27"	1	830.4	
		305.08	89°46'07"	1	829.4	
Rt.						
		55.98	89-1-01	1	829.0	
		100.73	89-14-17	1	828.5	GB
		160.52	89-34-10	1	829.4	
		216.51	89-49-58	1	828.8	GB
		252.31	90-15-52	1	827.0	GB
		297.10	89-45-38	1	829.4	GB
		320.43	90-12-58	1	827.0	
℄					829.50	

STA.	H.I.	S.D.	V.∠	No R.S.	Elev	
160+00	4.98					
LT.		56.85	88°-51-10"	1	830.0	
		96.26	89°-17-38"	1	830.0	
		148.12	89°-26-44"	1	830.3	
		205.86	89°-50-19"	1	829.4	
		254.24	89°-48-34"	1	829.7	
		305.98	89°-42-33"	1	830.4	
℄					830.06	
RT.		57.53	89-18-17	1	829.5	
		102.03	89-21-06	1	829.9	
		145.00	89-54-36	1	829.1	
		192.55	90-08-44	1	828.4	GB
		234.69	90-23-05	1	827.3	GB
		267.84	89-52-10	1	829.5	GB
		315.71	90-04-33	1	828.4	

STA.	H.I.	S.D.	V. ∠	No R.S.		
161+00	4.96					
LT.		47.95	86°-24'-52"	1	829.0	
		103.50	85°-12'-20"	1	829.1	
		151.19	88°-53'-24"	1	829.0	
		197.62	88°-58'-19"	1	829.6	
		252.83	89°-05'-11"	1	830.1	
		310.03	89°-20'-45"	1	829.6	
℄					827.34	
RT.		60.53	89-13-06	1	826.9	
		107.51	89-45-53	1	826.5	
		159.15	89-36-30	1	827.2	
		211.48	89-37-38	1	827.5	GB
		250.13	89-58-17	1	826.2	GB
		289.98	89-34-45	1	828.2	GB
		313.34	89-21-57	1	826.9	GB

STA.	H.I.	S.D	V. ∠	No. R.S.	Elev		
162+00	5.13						
LT.		52.82	89°-00'-12"	1	829.9		G.B.
		101.08	90°-28'-11"	1	828.2		G.B.
		149.60	90°-12'-24"	1	828.2		
		199.87	90°-15'-52"	1	828.1		
		254.58	90°-13'-06"	1	828.0		
		309.45	89°-52'-25"	1	829.7		G.B.
℄					830.0		
Right							
		79.53	88°-59'-26"	1	830.4		GB
		126.70	90°-34'-48"	1	827.7		GB
		176.90	89°-55'-25"	1	829.2		GB
		238.85	90°-24'-28"	1	827.3		
		293.22	90°-35'-07"	1	826.0		
		325.19	90°-31'-21"	1	825.3		

STA.	⊼ H.I.	S.D.	V.∡	No R.S.	Elev	
163+00	5.05					
LT		50.00	88°-37'-09"	1	830.1	
		97.20	89°-07'-03"	1	830.3	
		154.41	89°-22'-02"	1	830.6	
		205.13	89°-15'-36"	1	831.5	
		256.30	89°-24'-34"	1	831.5	
		309.32	89°-49'-46"	1	829.8	
℄					830.0	
RT.						
		64.19	89-14-00	1	829.7	GB
		103.25	91-02-12	1	827.0	GB
		132.50	90-21-5	1	828.0	GB
		174.00	90-51-15	1	826.3	GB
		250.76	91-21-16	1	822.9	GB
		295.07	90-53-47	1	824.2	GB
		330.77	90-37-51	1	825.2	

STA.	℄ H.I.	S.D.	V. ∠	No R.S	Elev	
164+00	5.16					
LT.		51.50	88°-05'-06"	1	830.8	
		99.75	89°-19'-58"	1	830.2	
		148.56	89°-32'-12"	1	830.3	
		200.90	89°-35'-42"	1	830.5	
		253.50	89°-32'-45"	1	831.1	
		309.40	89°-32'-24"	1	831.5	
℄					830.11	
RT.						
		62.17	89-29-13	1	829.6	GB
		76.77	91-28-14	1	827.1	GB
		125.07	91-15-15	1	826.3	
		185.53	91-24-02	1	824.5	GB
		211.26	91-50-03	1	822.3	GB
		236.40	91-18-53	1	823.6	GB
		277.38	91-08-20	1	823.6	
		317.96	90-58-38	1	823.6	

STA.	℄ H.I.	S.D.	V.∠	No R.S.	Elev	
165+00	5.09					
LT.		48.48	89°-05'-54"	1	828.8	
		100.65	89°-21'-47"	1	829.1	
		151.89	89°-09'-31"	1	830.2	
		207.72	89°-07'-37"	1	831.2	G.B.
		261.18	89°-20'-47"	1	831.0	
		306.36	89°-31'-38"	1	830.5	
℄					829.1	
RT						
		37.07	88-11-57	1	828.8	GB
		79.67	92-45-22	1	824.2	GB
		115.10	91-13-00	1	825.5	GB
		167.58	91-13-33	1	824.4	
		222.04	91-12-04	1	823.3	
		266.89	90-51-28	1	824.0	
		325.56	90-56-52	1	822.6	

STA.	℄ H.I.	S.O.	V. ∠	No R.S.	Elev		
166+00	4.85						
LT.		53.59	86°-28'-21"	1	826.1	G.B.	
		106.59	85°-51'-54"	1	830.5	G.B.	
		155.78	87°-11'-56"	1	830.5		
		207.69	87°-46'-54"	1	830.7		
		246.42	88°-01'-12"	1	831.4		
		304.99	88°-14'-24"	1	832.2		
℄					824.2		
RT.							
		37.36	88-37-21	1	827.0	G.B.	
		57.08	88-04-37	1	824.8	G.B.	
		108.75	89-30-17	1	823.8		
		164.30	89-42-47	1	823.7		
		230.41	89-40-22	1	824.2		
		305.23	89-51-46	1	823.6		

STA.	H.I.	S.D.	V. ∠	No. R.S.	Elev	
167+00	4.90					G.B.
LT.		25.00	91°29'05"	1	821.8	G.B.
		51.08	86°46'40"	1	825.4	G.B.
		104.59	87°28'25"	1	827.0	
		154.91	87°20'25"	1	829.6	
		204.26	87°52'20"	1	830.0	
		250.71	88°17'05"	1	830.2	
		301.22	87°28'55"	2	830.2	
℄					823.7	
RT.		49.12	87-41-15	1	824.4	GB
		118.82	88-57-45	1	824.6	
		171.76	89-26-20	1	824.1	
		217.06	89-26-30	1	824.5	
		261.46	89-21-15	1	825.3	
		310.98	89-24-40	1	825.6	

STA.	H.I.	S.D.	V.∠	No R.S.	Elev	
168+00	4.95					
LT		38.59	90°-26'-24"	1	822.3	G.B.
		72.65	87°-01'-52"	1	826.4	G.B.
		100.87	87°-48'-23"	1	826.5	G.B.
		149.00	87°-30'-36"	1	829.1	
		201.08	87°-53'-22"	1	830.0	
		244.77	88°-08'-06"	1	830.6	
		301.52	88°-30'-10"	1	830.5	
℄					823.85	
RT.						
		34.18	85-11-39	1	825.5	GB
		52.52	83-56-00	2	823.5	GB
		105.92	87-13-19	2	823.1	GB
		122.83	86-14-08	2	826.0	GB
		153.20	87-02-54	2	825.8	
		203.56	87-46-38	2	825.8	
		251.50	88-21-46	2	825.1	
		301.84	88-32-09	2	825.2	

STA	℄ H.I.	S.D.	V. ∠	No R.S.	Elev	
169+00	5.08					
LT.		36.99	86°-50'-48"	1	824.3	G.B.
		61.92	89°-24'-32"	1	822.9	G.B.
		88.82	87°-41'-17"	1	825.8	G.B.
		103.07	87°-55'-59"	1	826.0	
		152.60	86°-29'-58"	2	826.9	
		199.73	88°-00'-29"	1	829.2	
		246.71	88°-05'-48"	1	830.4	
		308.21	88°-31'-14"	1	830.2	
℄					823.36	
RT.						
		23.19	83°-33'-17"	1	824.8	GB
		39.57	85-21-23	1	825.4	GB
		57.83	88-23-44	1	823.9	GB
		98.47	88-30-07	1	824.8	
		147.12	88-46-44	1	825.4	
		196.84	88-52-40	1	826.1	
		250.56	89-01-53	1	826.5	GB
		274.87	89-22-48	1	825.2	GB
		297.03	87-01-00	1	827.3	GB
		318.30	87-01-	1	827.6	

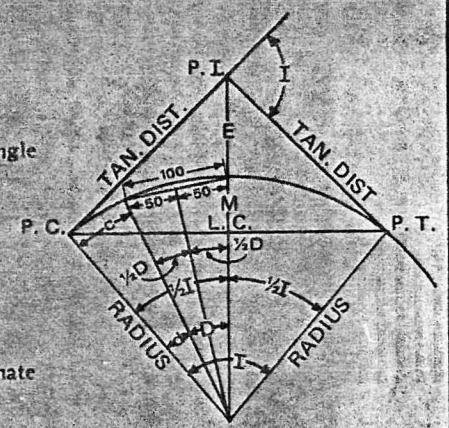
STA.	H.I.	S.D.	V.∠	No R.S.	Elev	
170+00	5.00					
LT.		67.40	89°-09'-55"	1	823.9	G.B.
		83.40	90°-13'-11"	1	822.6	G.B.
		116.92	88°-18'-34"	1	826.4	G.B.
		152.22	88°-39'-00"	1	826.5	
		200.23	88°-23'-32"	1	828.6	
		250.60	88°-30'-33"	1	829.5	
		307.87	88°-39'-02"	1	830.2	
℄					824.15	
RT.						
		59.61	88-54-34	1	824.1	
		105.04	88-48-04	1	825.1	
		149.25	88-52-20	1	825.9	
		198.56	89-12-18	1	825.7	
		251.74	89-07-24	1	826.8	
		294.50	89-00-45	1	828.0	GB
		324.58	89-13-50	1	827.3	

RETURN LOOP

STA.	B.S.	H.I.	I.F.S.	F.S.	ELEV.
185+00	6.79	836.96			830.17
186+00			5.67		831.29
187+00			4.69		832.27
188+00	5.00	837.17		4.82	832.17
183+00	5.64	836.19		6.62	830.55
177+00	6.08	834.76		7.51	828.68
170+00	9.88	834.06		10.58	824.18
162+00	5.33	835.44		7.95	830.11
156+00	5.29	834.40		6.33	829.11
150+00	5.01	833.61		5.80	828.60
144+00	8.21	838		7.82	825.79
T.B.M.2				7.18	826.82

CURVE FORMULAE

D = Degree of Curve
1° = 1-Degree of Curve
2° = 2-Degree of Curve
P.C. = Point of Curve
P.T. = Point of Tangent
P.I. = Point of Intersection
I = Intersection of Angle, Angle Between Two Tangents
L = Length of Curve, from P.C. to P.T.
T = Tangent Distance
E = External Distance
R = Radius
L.C. = Length of Chord
M = Length of Middle Ordinate
c = Length of Sub-Chord
d = Angle of Sub-Chord



$$R = \frac{L.C.}{2\sin{}^1\!/_2 I}, \quad T = R\tan{}^1\!/_2 I = \frac{L.C.}{2\cos{}^1\!/_2 I}$$

$$\frac{L.C.}{2} = R\sin\frac{I}{2}, \quad D\,1° = R = 5730, \quad D\,2° = \frac{5730}{2}, \quad D = \frac{5730}{R}$$

$$M = R\,(1 - \cos{}^1\!/_2 I), = R - R\cos\frac{I}{2}$$

$$\frac{E+R}{R} = \sec\frac{I}{2}, \quad \frac{R-M}{R} = \cos\frac{I}{2}$$

$$c = 2R\sin{}^1\!/_2 d, \quad d = \frac{c}{2R}$$

$$L.C. = 2R\sin{}^1\!/_2 I, \quad E = R\,(\sec{}^1\!/_2 I - 1), = R\sec\frac{I}{2} - R$$

Minutes in Decimals of a Degree

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

Inches in Decimals of a Foot

1/16	3/32	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

STA.	⊼ H.I.	S.D.	V. ∢	No R.S.	Elev	
171+00	5.00					
LT.		51.99	88°-58'-34"	1	825.2	
		102.19	89°-59'-15"	1	824.3	G.B.
		153.19	88°-50'-57"	1	827.4	G.B.
		202.33	88°-50'-58"	1	828.4	
		249.96	88°-49'-41"	1	829.4	
		302.20	88°-56'-36"	1	829.9	
℄					825.49	
R.T.						
		77.44	89-32-18	1	824.9	
		116.48	88-31-52	1	827.3	
		162.70	88-58-22	1	827.2	
		190.52	89-00-50	1	827.6	
		215.68	88-55-04	1	828.4	
		246.23	88-56-37	1	828.7	G.B.
		293.04	89-29-35	1	826.9	G.B.
		329.47	89-28-23	1	827.3	

STA	℄ H.I.	S.D.	V. ∠	No R.S.	Elev	
172400	5.18					
LT.		52.55	90°-04-14"	1	825.3	
		99.58	89°-44'-06"	1	825.9	G.B.
		142.39	90°-40'-46"	1	823.7	G.B.
		173.58	89°-07'-31"	1	828.1	G.B.
		176.74	89°-04'-29"	1	828.6	
		250.72	89°-00'-41"	1	829.7	
		308.05	89°-11'-43"	1	829.7	
	℄				826.43	
RT.						
		51.74	89-01-18	1	826.2	
		95.83	86-32-18	1	827.9	
		148.35	88-47-58	1	828.5	
		199.02	89-33-42	1	826.9	GB
		243.94	89-11-45	1	828.8	GB
		263.08	89-15-28	1	828.8	GB
		308.22	89-51-36	1	826.2	GB
		360.25	89-19-17	1	829.7	GB

STA.	℄ H.I.	S.D.	V.∠	N R C	Elev	
173+00	4.84					
LT.		62.85	88°42'30"	1	826.7	
		104.57	90°04'58"	1	826.3	
		146.66	89°22'11"	1	828.0	G.B.
		162.03	90°40'37"	1	824.5	G.B.
		198.46	88°42'54"	1	827.4	G.B.
		252.04	89°27'36"	1	828.8	
		300.36	89°20'52"	1	829.8	
℄					827.77	
RT.						
		47.71	89-42-00	1	826.7	
		93.52	88-33-24	1	828.8	
		156.57	89-01-12	1	829.1	
		197.43	89-01-00	1	829.8	
		244.03	89-24-45	1	829.9	
		268.44	8126-54	1	829.0	GB
		296.00	89-54-03	1	827.1	GB
		319.23	89-[illegible]-45	1	826.5	GB
		347.65	89-[illegible]-06	1	828.9	GB

STA.	℄ H.I.	S.D.	V. ∠	№ R.S.	Elev	
174+00	5.18					
LT.		44.28	89°-40'-20"	1	828.5	
		101.55	90°-22'-37"	1	827.6	
		139.69	91°-09'-54"	1	825.4	G.B.
		156.79	90°-18'-38"	1	827.4	G.B.
		198.37	90°-45'-29"	1	825.7	G.B.
		246.45	89°-58'-02"	1	828.4	
		300.71	89°-44'-25"	1	829.6	
℄					829.3	
RT.		32.81	89-50-28	1	828.4	GB
		47.77	92-14-21	1	826.4	GB
		61.57	91-43-09	1	826.4	GB
		90.73	89-39-48	1	828.8	GB
		118.45	89-45-03	1	828.8	GB
		146.85	89-58-11	1	828.4	GB
		177.85	87-26-05	1	830.0	GB
		199.84	89-51-19	1	828.8	
		251.48	90-00-27	1	827.9	
		301.26	90-11-26	1	827.0	

STA.	℄ H.I.	S.D.	V.∠	NO R.S.	Elev	
175+00	4.95					
LT.		43.78	89°-39'-53"	1	828.6	
		96.75	89°-48'-10"	1	828.7	
		155.82	90°-23'-21"	1	827.3	
		198.79	90°-26'-07"	1	826.9	G.B.
		224.45	90°-36'-04"	1	826.0	G.B.
		249.53	89°-55-23	1	828.7	G.B.
		307.15	89°-45'-40"	1	829.7	
℄					829.62	
Right						
		49.09	88°-41'-16"	1	829.4	GB
		69.19	90°-23'-18"	1	827.9	GB
		113.90	90°-02'-46"	1	828.3	GB
		151.91	90°-38'-05"	1	826.7	
		204.37	89°-51'-24"	1	828.9	GB
		257.50	90°-08'13"	1	827.7	
		304.67	90°-11'-14"	1	827.1	

STA.	H.I.	S.D.	V∠	N.O.R.S	Elev	
176+00	5.02					GB
Lt.		28.05	88°-17'-33"	1	829.2	G.B,
		52.30	90°-18'-44"	1	828.0	G.B.
		81.45	89°-10'-50"	1	829.5	G.B.
		100.32	89°-24'-03"	1	829.4	
		149.01	89°-59'-12"	1	828.4	
		200.19	89°-55'-25"	1	828.6	
		252.53	89°-51'-33"	1	829.0	
		303.87	89°-39'-25"	1	830.1	
℄					829.57	
Right						
		24.67	91-04-32	1	827.9	GB
		71.79	90-24-10	1	827.8	GB
		104.82	89-20-54	1	829.5	GB
		135.40	90-05-37	1	828.1	GB
		158.25	89-58-37	1	828.4	
		197.92	89-51-32	1	828.8	
		220.07	89-39-47	1	829.6	GB
		262.68	90-10-32	1	827.5	GB
		290.48	90-10-02	1	827.5	GB
		318.30	89-49-21	1	829.3	GB

Sta.	H.I.	S.D.	V∠	NORS.	Elev	
177+00	4.98					
Lt.		47.62	86°-04-34"	1	830.7	G.B.
		78.69	86°-26-09"	2	827.7	G.B.
		104.44	86°-36-55"	2	829.0	G.B.
		148.29	87°-41-48"	2	828.8	
		205.11	88°-17-27"	2	828.9	
		248.57	88°-27-51"	2	829.5	
		304.53	88°-37-33"	2	830.1	
℄					828.7	
Right						
		49.46	87-38-01	1	829.5	GB
		106.22	89-24-35	1	828.6	GB
		123.97	90-14-54	1	826.9	GB
		137.53	90-11-00	1	827.0	GB
		168.47	89-03-18	1	830.3	GB
		193.63	87-25-30	1	829.4	
		231.00	88-37-37	2	828.4	GB
		254.60	89-05-11	2	826.9	GB
		289.76	88-42-44	2	829.3	GB
		313.40	88-44-47	2	829.7	

Sta.	H.I.	S.D.	V∠	N.O.R.S.	Elev	
178+00	5.06					
Left		58.47	90°-03'-48"	1	829.0	
		103.34	89°-44'-59"	1	829.5	
		145.10	89°-44'-47"	1	829.7	
		199.97	89°-50'-54"	1	829.6	
		252.56	89°-49'-15"	1	829.9	
		305.89	89°-52'-55"	1	829.7	
℄					830.21	
Right						
		50.61	90-25-00	1	828.7	
		91.90	90-52-33	1	827.7	
		111.54	89-56-19	1	829.2	← → GB
		149.69	90-33-01	1	827.6	GB
		185.98	89-43-12	1	830.0	GB
		217.82	89-48-53	1	829.8	GB
		247.45	90-30-29	1	826.8	GB
		275.74	90-24-11	1	827.1	GB
		311.45	89-48-57	1	830.1	GB
		321.86	89-47-13	1	830.3	

STA.	℄ H.I.	S.D.	V. ∠	N2 R.S.	Elev	
179+00	5.44					
LT.		37.24	87-48-12	1	830.0	G.B.
		71.16	90-21-17	1	828.1	G.B.
		97.92	89-27-47	1	829.5	G.B.
		149.80	89-20-06	1	830.3	
		197.38	89-34-32	1	830.0	
		251.03	89-34-01	1	830.5	
		307.55	89-34-47	1	830.8	
	℄				829.33	
RT.						
		49.51	91-15-04	1	829.2	
		94.22	89-50-28	1	828.8	
		160.83	89-54-55	1	828.8	
		202.07	90-16-51	1	827.6	
		249.95	90-22-04	1	827.0	
		277.47	90-25-55	1	826.7	GB
		311.77	89-50-07	1	829.5	GB.
		334.83	89-52-20	1	829.3	

Sta	H.I.	S.D.	V∠	N.O.R.S	Elev	
180+00	4.99					
Left		42.27	88°-54-56"	1	830.1	G.B.
		82.59	90°-24-57"	1	828.8	G.B.
		112.42	89°-49-50"	1	829.7	G.B.
		165.62	89°-56-27"	1	829.5	G.B.
		211.57	89°-45-49"	1	830.2	G.B.
		259.66	89°-49-10"	1	830.2	
		303.94	89°-46-33"	1	830.5	
℄					830.56	
RT.		24.95	88°-11-43"	1	830.1	G.B.
		53.71	91°-35-41"	1	827.9	G.B.
		100.77	89°-29-25"	1	830.2	G.B.
		142.47	89°-35-46"	1	830.4	G.B.
		178.68	90°-40-37"	1	827.2	G.B.
		221.77	90°-11-16"	1	828.6	G.B.
		254.99	90°-19-58"	1	827.9	G.B.
		305.31	89°-53-45"	1	829.9	G.B.

STA.	⊼ H.I.	S.D.	V. ∢	No R.C.	Elev	
181+00	4.79					
LT		34.85	86°-58'-43"	1	830.6	G.B.
		110.85	89°-23'-25"	1	830.0	G.B.
		148.82	89°-23'-20"	1	830.4	
		203.20	89°-28'-06"	1	830.7	
		254.28	89°-44'-07"	1	830.0	
		301.93	89°-40'-27"	1	830.5	
℄					830.22	
RT		29.09	91°-11'-36"	1	828.2	G.B.
		52.60	88°-45'-50"	1	829.9	G.B.
		99.96	89°-55'-24"	1	828.9	
		124.23	90°-26'-35"	1	827.8	G.B.
		146.85	89°-43'-28"	1	829.5	G.B.
		201.74	90°-06'-46"	1	828.4	
		248.45	89°-44'-25"	1	829.9	
		302.03	89°-43'-22"	1	830.3	

MARTIN ENGINEERING

Civil Engineering & Surveying
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Phoenix, Arizona 85020
Telephone (602) 944-5829

Denis H. Martin, P.E.

LETTER OF TRANSMITTAL

TO: FLOOD CONTROL DISTRICT OF MARICOPA COUNTY.

Date: 6/26/86.

Job No. 7060 B.

FLOOD CONTROL DISTRICT
RECEIVED
JUN 30 '86

ATTN: MR DICK PERRAULT.

RE: X-SECTIONS EAST OF SR85 BRIDGE GILA RIVER.

	CH ENG		HYDRO
	ASST		LMgt
	ADMIN		SUSP
	C & O		FILE
	[illegible]		DESTROY
	FINANCE		

REMARKS RRGP

We are sending you attached:

Original drwgs.	Legal Description	Specifications
Prints	Cost Estimate	Other

Description

STATION 182+00. TO 188+00'

These are transmitted as checked below:

For approval	Other
For Review & Comment	
As Requested	
For your use	

Remarks

Signed:

Sta.	⊼ H.I.	S.D.	V ∡	NORS	Elev	
132+00	5.25					G.B.
Left		46.45	87°-43'-12"	1	828.5	↵
		101.04	87°-31'-20"	1	831.0	
		147.73	88°-08'-10"	1	831.4	
		204.71	88°-45'-39"	1	831.1	
		256.36	88°-52'-51"	1	831.6	
		317.63	88°-24'-25"	2	830.8	
℄					827.59	
R.T.		36.85	87°-30'-30"	1	828.2	G.B.
		53.80	89°-01'-14"	1	827.6	G.B.
		96.93	87°-50'-37"	1	830.3	G.B.
		149.09	88°-52'-42"	1	829.6	
		200.69	89°-07'-55"	1	829.7	
		239.20	88°-16'-54"	2	829.2	G.B.
		248.21	87°-40'-56"	4	822.3	E.O.W.
"	+5.08	254.16	89-34-35	3	818.9	E.O.W.
Jun 23	+5.18	288.28	88-53-40	4	817.7	FL
"		387.63	89-05-19	4	818.3	S. EDGE OF WATER
"		422.57	88-58-29	4	819.7	GB

Sta.	H.I.	S.D.	V∠	No. R.S.	Elev
183+00	5.16				
L.T.		44.65	89°-34'-16"	1	829.8
		100.59	90°-05'-19"	1	829.3
		150.37	89°-54'-21"	1	829.7
		200.14	90°-02'-08"	1	829.4
		250.58	89°-59'-56"	1	829.5
		304.04	89°-45'-25"	1	830.8
℄					830.53
R.T		47.48	90°-48'-11"	1	828.8
		102.17	90°-11'-52"	1	829.1
		150.04	89°-58-10	1	829.6
		185.46	90°-02'-24"	1	829.4
MAY -		199.12	90°-04'-37"	3	819.7
JUNE 23	+5 48	198 90	90-23-50	3	818.9
		204 45	90-27-44	3	818.7
		208 02	90-23-00	3	818.9
		212 77	90-20-52	3	819.6
		214 94	90-22-32	3	818.9
JUN 23	+5 19	233 43	90-50-02	3	816.6
"	"	288 10	90-14-10	3	818.8
		314 02	90-44-41	2	820.8

G.B.

T.O.B.
E.O.W.

E O W
G B, FE
E O W
TOP OF BANK
EOW RIVER SIDE
FE
S. E O W
GB

Sta.	H.I.	S.D.	V∠	No. R.S.	Elev	
184+00	5.13					G.B.
L.T.		52.81	88°37'28"	1	831.1	
		102.06	89°26'25"	1	830.8	
		150.02	89°29'35"	1	831.1	
		200.70	89°32'18"	1	831.4	
		250.24	89°42'58"	1	831.1	
		305.59	89°45'24"	1	831.1	
℄					830.89	
RT.	4.99	27.54	90°54'55"	1	829.2	
		47.70	90°30'26"	1	829.3	G.B.
		98.15	89°33'52"	1	830.4	
	+533	209 55	90-25-46	3	819.0	EOW
		209 55	90-13-25	3	819.7	TOP OF BANK
		147 34	90-02-13	3	820.4	GB
6-23	+5 18	220 16	89-36-20	4	817.1	℄
"	"	276 81	89-17-35	4	819.0	EOW
		318 79	89-55-03	3	820.8	GB

STA.	H.I.	S.D.	V∠	No.	R.S.	Elev.	
185+00	5.01						
LT.		52.71	88°-43'-10"	1		830.2	
		94.98	89°-14'-28"	1		830.2	
		151.28	89°-23'-00"	1		830.6	
		199.30	89-23-02	1		831.1	
		253.14	89°-20'-04"	1		831.9	
		307.41	89°-28'-15"	1		831.8	
		345.70	89°-29'-55"	1		832.0	
		386.58	89°-32'-26"	1		831.5	G.B.
		402.06	89°-28'-41"	1		832.6	G.B.
		424.33	88°-54'-06"	1		837.1	
℄						830.17	
RT	4.92	56.73	89°-24'-15"	1		829.5	
		114.78	89°-23'-10"	1		830.1	
	+5 47	476 41	90-39-49	1		823.9	TOP OF BANK S. SIDE RIVER
		590 05	90-26-40	1		824.9	NG
		460 12	90-49-54	2		818.1	EOW
		443 77	90-26-10	3		816.6	E
		373 85	90-17-44	3		818.0	EOW N. EDGE OF S. ISLD
		368 50	90-04-58	3		819.4	TOP OF BANK
		282 43	90-11-51	3		819.0	EOW
		238 48	90-24-30	3		818.3	E
		200 71	90-18-22	3		818.9	EOW
		140 52	89-57-40	3		820.0	GB

STA.	℄ H.I.	S.D.	V. ∠	No. R.S.	Elev	
186+00	5.00					
LT.		42.61	87°-53-01"	1	831.7	
		99.86	90°-01-53"	1	830.0	
		149.90	89°-48-14"	1	830.6	
		201.86	89°-43-41"	1	831.0	
		253.56	89°-44-24"	1	831.2	
		302.59	89°-43-17"	1	831.6	
		349.94	89°-46-25"	1	831.5	
		404.51	89°-02-29"	2	832.2	
℄					831.29	
RT.		62.04	90°-07-23"	1	830.0	
		95.60	89°-14-40"	1	831.4	
	+5.42	597.69	89-36-20	3	825.1	NG
		402.60	90-15-50	2	824.0	GB
		385.80	90-54-52	2	819.7	GB
		325.60	91-18-02	2	818.5	EOW
		310.90	91-35-35	2	817.2	FL
		297.30	91-25-27	2	818.5	EOW
		272.80	91-25-50	2	819.0	EOW S. SIDE OF N. BRANCH
		212.59	91-00-30	3	817.3	E
		137.91	90-37-10	3	819.0	EOW
		149.70	90-17-36	3	820.3	GB
		145.56	90-31-11	3	819.7	GB
		127.78	90 30 00	3	819.9	GB
		109.22	89-52-50	1	830.7	TOP OF BANK

STA.	℄ H.I.	S.D.	V. ∠	No R.S.	Elev	
187+00	4.76					
LT.		51.35	89°-32'-51"	1	831.2	
		97.94	89°-54'-32"	1	831.0	
		147.16	90°-10'-10"	1	830.4	
		197.98	89°-58'-28"	1	830.9	
		252.54	90°-00'-34"	1	830.8	
		300.89	89°-51'-41"	1	831.6	
		348.64	89°-54'-48"	1	831.4	
		398.85	89°-33'-33"	1	833.9	
℄					832.27	
RT.		47.23	89°-32'-44"	1	831.2	
		82.46	89°-22'-00"	1	831.7	
	+4 84	94 12	89-37-22	1	831.5	
		111 01	91-02-45	3	819.4	TOP of BANK
		120 99	90-33-13	3	820.3	GB
		137 17	90-52-27	3	819.3	GB
		176 94	90-48-32	3	818.9	GB
	OK	~~200 38~~	~~91-20-39~~	~~3~~	816.7	EOW
B-23	+4 95	298 25	90-33-20	3	818.6	~~℄~~ OK
"	"	303 45	90-06-29	3	821.0	EOW
		345 54	90-13-45	2	825.0	GB - TOP OF BANK
		383 03	90-13-52	2	824.8	GB
		505 23	89-57-25	2	826.7	GB
		522 27	90-10-55	2	824.7	GB
		616 74	90-06-41	2	825.2	GB
						NG

STA.	H.I.	S.D	V.∠	No R.S.	Elev	
188+00	4.89					
LT.		49.34	90°-15'-32"	1	830.6	
		96.19	89°-32'-58"	1	831.6	
		149.02	89°-51'-05"	1	831.2	
		200.45	90°-10'-22"	1	830.2	
		247.27	89°-51'-25"	1	831.4	
		301.33	89°-57'-52"	1	831.0	
		350.93	89°-51'-01"	1	831.7	
		386.78	89°-38'-40"	1	833.2	G.B.
		401.92	89°-45'-08"	2	827.9	G.B.
℄					832.14	
RT.		23.23	87°-12'-46"	1	832.0	G.B.
		47.30	90°-31'-20"	1	830.4	G.B.
	+5 09	129 99	91-09-[illegible]	3	818.9	EOW
		93 88	91-05-58	3	818.6	GB
6-23	+5 01	205 91	91-33-06	3	816.0	IE
"	"	233 03	90-39-37	3	818.9	EOW
	"	302 79	91-07-49	2	820.4	GB
		313 31	90-46-52	2	822.1	GB
		325 96	90-02-00	2	826.2	GB
		449 70	89-53-20	2	827.3	GB
		489 41	90-15-16	2	824.2	GB
		572 81	89-37-[illegible]	3	825.2	NG
		613 51	89-39-05	3	825.3	NG

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8900 North Central Ave., Suite 202
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Telephone (602) 944-5829

Denis H. Martin, P.E.

LETTER OF TRANSMITTAL

Date: 8/29/86.

Job No. 7060B.

TO: MCFD.
3335 W. DURANGO ST
PHX AZ 85009.

FLOOD ... TRICT
R D
AUG 29 '86

ATTN: MR. DICK. PERRAULT

RE:

CIV ENG	
ADMIN	
ADMIN	
C&O	
ENGR	
FINANCE	
REMARKS	

We are sending you attached:

Original drwgs.	Legal Description	Specifications
Prints	Cost Estimate	Other

RGP 29/8/86
GHS

Description

X- SECTIONS WEST of SP 85 BRIDGE
STA 56+00 — 89+00

These are transmitted as checked below:

For approval

For Review & Comment

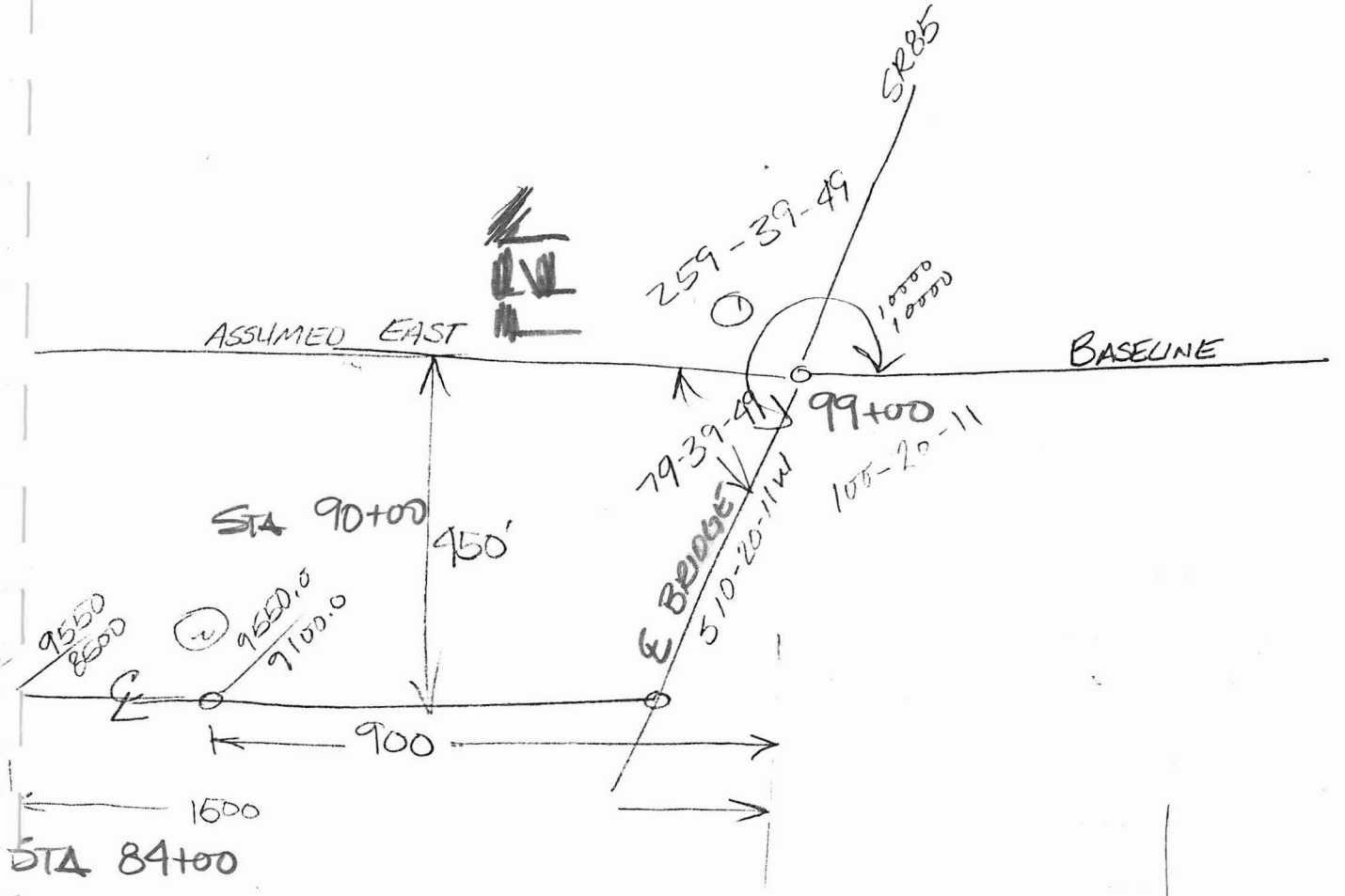
As Requested

For your use

Other

Remarks

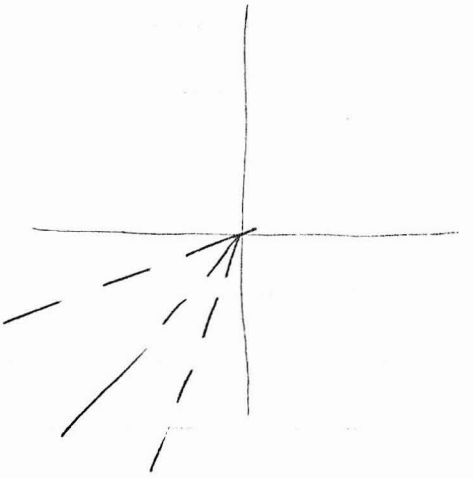
Signed: [signature]



1 to 2 S63-26-06W

1006.23

53-05-55



1 to 3 S73-18-03W

1566.05

62-57-52

STA	+	HI	−	ELEV
B.M.				825.01
	4.66			
TP			13.90	15.77
	3.70			
95			10.44	809.03
95	10.69	819.72		
94			9.05	810.67
93			10.89	808.83
92			8.81	810.91
92	14.81	825.72		
91			14.30	811.42
90			11.17	814.55
89			2.85	822.87
88			2.43	823.29
87			3.62	822.10

BM S. END OF BRIDGE ON ⊥ IRON

Sta	+	H.I	−	Elev
87	4^{18}	826.58		
86			4^{13}	822.45
85			4^{64}	821.94
84			5^{13}	821.45
83			5^{60}	820.98
82			5^{67}	820.91
81			6^{72}	819.86
81	3^{37}	823.23		
80			4^{67}	818.56
79			5^{02}	818.21
78			6^{32}	816.91
77			5^{31}	817.92
76			3^{745}	819.48
75			3^{33}	819.90

STA	HI	HI	–	ELEV
75	4.24	824.14		
-.74			5.43	818.71
73			5.33	818.81
72			5.13	819.01
71			6.03	818.11
70			6.20	817.94
69			5.29	818.85
69	3.30	822.15		
68			4.20	817.95
67			3.96	818.19
66			5.08	817.07
65			6.93	815.22
64			6.46	815.69
63			7.65	814.50

STA	+	HI	−	ELEV
63	4^{62}	819.12		
62			4^{61}	814.51
61			4^{68}	814.44
60			5^{015}	814.10
59			5^{65}	813.47
58			6^{50}	812.62
57			6^{10}	813.02
57	7^{57}	820.59		
56			8^{23}	812.36
55			8^{77}	811.82
54			5^{49}	815.10
53			6^{86}	813.73
52			7^{525}	813.06
51			8^{95}	811.64

STA	+	HI	−	ELEV
51	5.07	816.71		
50			6.65	810.06
49			7.805	808.90
48			4.94	811.77
47			5.86	810.85
47	6.02	816.87		
53			3.24	813.63
53	4.12	817.75		
59			4.39	813.36
59	6.40	819.76		
65			4.64	815.12
65	7.94	823.06		
71			5.06	818.00

STA	+	HI	−	ELEV
71	5^{60}			
77			5^{81}	817.79
77	5^{65}			
83			2^{59}	820.85
83	6^{31}			
89			4^{42}	822.74
89	2^{08}			
TP			11^{02}	813.80
	5^{83}			
			4^{225}	815.40
	13^{92}			
BM			4^{95}	824.88

NOTE 0^{13} CLOSURE IS DEEMED ACCEPTABLE FOR THIS WORK. A SECOND LOOP & CLOSURE WAS NOT RUN.

STA 56	HI = 812.36 + 4.79 =		817.2			
NORTH	SLOPE DIST		VERT ∠	ROD	ELEV.	DESC.
8-27						
	43.64		88-09-30	1	812.4	GB
	133.40		89-29-24	1	812.1	"
	208.20		89-39-52	1	812.2	"
	249.66		89-18-32	1	814.0	"
	299.95		88-43-02	2	813.0	"
SOUTH	64.09		88-34-15	1	812.5	GB
	218.26		89-34-20	1	812.6	"
	304.75		89-50-15	1	811.8	"

STA 57	HI = 83.02 + 5.08 = 818.1						
NORTH	SLOPE DIST		VERT Δ		ROD	ELEV	DESC
8-27							
	66.49		88-09-30		1	814.0	GB
	116.48		89-00-10		1	813.9	"
	216.39		89-30-41		1	813.7	"
	238.22		89-46-14		1	812.9	"
	267.43		89-32-54		1	814.0	"
	297.00		89-31-42		1	814.3	"
	340.98		89-53-45		1	812.5	"
SOUTH	46.66		89-30-35		1	812.3	GB
	154.74		89-18-44		1	813.8	"
	261.62		89-40-16		1	813.4	"
	295.77		89-48-52		1	812.9	"
	327.60		90-11-30		1	810.8	"

STA 58	HI = 82.62 + 4.79 = 817.4						
NORTH	SLOPE DIST		VERT ∠		ROD	ELEV.	DESC.
8-27							
	90.56		86-55-44		1	816.1	GRADE BREAK
	154.84		89-59-02		1	811.3	"
	211.73		88-57-31		1	815.1	"
	317.42		89-43-51		1	812.7	"
SOUTH	18.24		89-10-30		1	811.5	GRADE BREAK
	126.74		88-18-31		1	815.0	"
	247.44		89-15-00		1	814.4	"
	311.10		89-57-30		1	811.4	"

STA 59 | HI = 813.47 + 5.15 = 818.6

	SLOPE DIST		VERT ∠		ROD	ELEV	DESC
NORTH							
8-27							
	104.16		89-09-48		1	813.9	GB
	146.66		90-10-55		1	812.0	"
	191.52		89-11-48		1	815.1	"
	219.27		89-20-32		1	814.9	"
	249.83		89-50-30		1	813.1	"
	290.70		89-35-06		1	814.5	"
	325.19		89-44-15		1	813.9	"
SOUTH	37.45		90-21-25		1	812.2	GB
	72.90		88-27-15		1	814.4	"
	113.23		88-33-30		1	815.3	"
	166.82		90-04-06		1	812.2	"
	194.93		89-39-45		1	813.6	"
	254.12		89-49-00		1	813.2	"
	279.16		89-40-06		1	814.0	"
	323.67		89-55-35		1	812.8	"

STA 60	HI = 814.10 + 4.97 = 819.1						
NORTH	SLOPE DIST		VERT ∠	ROD		ELEV.	DESC.
8-27	37.35		88-35-56	1		813.8	GB
	73.94		88-01-57	1		815.4	GB
	132.08		90-09-15	1		812.5	GB
	205.76		89-33-09	1		814.5	GB
	279.77		89-31-38	1		815.2	GB
	304.49		88-43-05	2		814.6	GB
SOUTH	14.46		85-50-50	1		813.9	GB
	78.11		90-28-45	1		812.2	GB
	131.25		89-46-55	1		813.4	GB
	163.52		90-07-47	1		812.5	GB
	252.90		89-39-11	1		814.9	GB
	311.77		89-33-17	1		815.3	GB

STA 61 | HI = 814.44 + 5.33 = 819.8

	SLOPE DIST		VERT ∠	ROD	ELEVATION	DESC
NORTH						
B-27	21.29		88-22-22	1	814.2	GB
	51.30		87-59-30	1	815.4	GB
	101.05		90-29-35	1	812.7	GB
	136.55		89-47-16	1	814.1	GB
	179.35		90-00-00	1	813.6	GB
	215.71		90-11-24	1	812.7	GB
	324.72		89-45-33	1	814.9	GB
SOUTH	68.90		89-18-54	1	814.4	GB
	109.71		90-33-11	1	812.5	GB
	162.91		90-05-02	1	813.3	GB
	221.56		89-46-00	1	814.3	GB
	265.35		89-38-15	1	815.2	GB
	299.71		89-49-21	1	814.5	GB

STA 62 HI = 814.51 + 4.91 = 819.42

	SLOPE DIST		VERT ∠		ROD	ELEVATION	DESCRIPTION
NORTH							
8-27							
	79.89		90-18-16		1	812.8	GB
	118.69		88-37-50		1	816.1	GB
	205.30		89-39-28		1	814.4	GB
	280.60		90-17-53		1	811.8	GB
	312.22		90-03-27		1	812.9	GB
SOUTH	46.46		88-31-56		1	814.4	GB
	145.88		90-23-17		1	812.2	GB
	183.13		89-27-30		1	815.0	GB
	220.16		89-36-38		1	814.7	GB
	258.40		89-24-50		1	815.9	GB
	312.11		89-36-37		1	815.3	GB

STA 63 HI = 814.50 + 4.85 = 819.35

	SLOPE DIST	VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
NORTH 8-25					
	52.05	86-30-47	1	816.3	GRADE BREAK
	149.95	88-35-16	1	816.8	"
	209.22	88-56-44	1	817.0	"
	289.26	89-28-51	1	815.8	"
	362.79	89-27-02	2	812.0	"
SOUTH	61.79	90-30-53	1	812.6	GB
	116.25	89-08-14	1	814.9	"
	151.11	89-35-57	1	814.2	"
	178.81	88-51-46	2	812.0	"
	222.52	89-39-17	1	814.5	"
	312.66	89-44-36	1	814.6	

STA 64 HI = 815.69 + 4.73 = 820.42

NORTH 8-25	SLOPE DIST.	VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
	33.76	83-19-58	1	818.1	GB
	65.88	87-32-22	1	817.0	GB
	200.69	89-13-32	1	816.9	GB
	229.14	89-04-56	1	817.9	GB
	284.40	89-28-20	1	816.8	GB
	333.90	89-24-36	1	817.7	GB
SOUTH	~~333.90~~				
	27.82	91-23-39	1	813.5	GB
	80.86	89-44-33	1	814.6	GB
	109.29	89-54-25	1	814.4	GB
	142.44	90-42-25	1	812.5	GB
	192.03	89-43-31	1	815.1	GB
	266.84	90-01-01	1	814.1	GB
	326.21	89-48-56	1	815.3	GB

STA 65 HI = 815.22 + 5.25 = 820.47

NORTH	SLOPE DIST	VERT ∡	ROD SECTIONS	ELEVATION	DESCRIPTION
8-25	140.70	88-31-20	1	817.5	GB
	216.40	89-15-30	1	817.1	GB
	260.10	89-26-00	1	816.8	GB
	294.14	89-17-50	1	817.9	GB
	351.53	89-24-49	1	817.9	GB
SOUTH	30.30	87-35-56	1	815.5	GB
	60.82	90-08-36	1	814.1	GB
	92.01	89-16-20	1	815.4	GB
	128.55	90-35-04	1	813.0	GB
	172.43	89-26-10	1	816.0	GB
	248.78	90-02-00	1	814.1	GB
	304.43	89-51-14	1	815.0	GB

STA 66	HI	=817.07	+ 5.31	= 822.38		ELEVATION	DESCRIPTION
NORTH	SLOPE DIST		VERT ∠		ROD SECTIONS		
B-25	40.88		89-14-14		1	816.7	GB
	68.54		90-06-45		1	816.0	GB
	120.71		89-24-55		1	817.4	GB
	238.01		89-30-11		1	818.2	GB
	311.48		89-48-51		1	817.2	GB
SOUTH	77.82		88-35-54		1	818.1	GB
	150.39		91-13-40		1	813.0	GB
	168.84		91-04-36		1	813.0	GB
	218.84		89-53-01		1	816.6	GB
	243.04		89-54-30		1	816.6	GB
	289.70		90-14-14		1	815.0	GB
	326.57		90-10-04		1	815.2	GB

STA 67	HI = 818.19		+ 5 00	= 823.19			
NORTH	SLOPE DIST.		VERT. ∠		ROD SECTIONS	ELEVATION	DESCRIPTION
8-25	33.35		88-12-15		1	818.0	GB
	94.90		89-57-10		1	817.1	GB
	225.05		89-25-02		1	819.3	GB
	299.99		90-01-27		1	816.9	GB
SOUTH	18.44		87-57-28		1	817.6	GB
	151.70		90-05-56		1	816.7	GB
	212.35		90-57-38		1	813.4	GB
	259.35		90-24-26		1	815.1	GB
	312.35		90-20-43		1	815.1	GB

STA 68 HI = 817.95 + 5 55 = 823.50

	SLOPE DIST		VERT. ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
NORTH 8:25						
	39 43		88-38-39	1	818.2	GB
	64 07		89-51-51	1	817.5	GB
	124 74		89-15-00	1	818.9	GB
	243 86		89-35-05	1	819.2	GB
	300 60		90-01-54	1	817.1	GB
SOUTH	23 11		90-19-15	1	817.2	GB
	77 98		89-14-20	1	818.3	GB
	177 35		89-48-25	1	817.9	GB
	234 36		89-54-08	2	813.0	GB
	308 20		89-30-54	2	815.3	GB

STA 69 HI = 818.85 + 5 20 = 824.05

	SLOPE DIST		VERT ∠		ROD SECTIONS	ELEVATIONS	DESCRIPTION
NORTH							
8-25							
	121 31		90-16-24		1	817.3	GB
	163 12		89-32-04		1	819.2	GB
	227.32		89-33-45		1	819.6	GB
	307.73		90-07-40		1	817.2	GB
SOUTH	33.43		88-57-42		1	818.5	GB
	53.14		90-17-15		1	817.6	GB
	142.17		90-01-24		1	817.8	GB
	243.27		89-53-09		1	818.3	GB
	291.01		89-47-31		2	814.3	GB
	383.18		89-47-41		2	814.6	GB

HI = 817.94 + 5.01 = 822.95

STA 70	SLOPE DIST	VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
NORTH					
8+22					
	63.63	89-16-07	1	817.6	GB
	106.03	88-24-22	1	819.7	GB
	183.76	89-39-39	1	817.8	GB
	229.19	89-10-24	1	820.1	GB
	304.67	89-36-41	1	818.8	GB
SOUTH	152.44	89-23-36	1	818.4	GB
	256.48	89-08-35	2	815.9	GB
	327.49	89-54-55	1	817.2	GB

	HI = +	+4.87 + 818.11 = 822.98				
STA 71 North 8-22	SLOPE DISTANCE		Vert ∠		Rod Sections	ELEVATION	DESCRIPTION
	138.70		89-25-14		1	818.2	GB
	172.17		89-17-01		1	818.9	GB
	190.08		89-44-27		1	817.6	GB
	250.04		89-21-21		1	819.6	GB
	299.38		89-51-34		1	817.5	GB
SOUTH	209.57		89-45-03		1	817.7	GB
	345.46		89-56-30		1	817.1	GB

STA. 72	HI = +5	19	+ 819.01	= 824.20		ELEVATION	Descriptions
North	SLOPE Distance		Vert. ∠		Rod Sections		
8-22	138.66		89-15-03		1	818.6	GB
	162.29		89-24-38		1	819.7	GB
	223.85		90-05-48		1	817.6	GB
	349.23		89-39-16		1	820.1	GB
South							
	77.20		89-36-03		1	818.5	GB
	203.57		89 44 44		1	818.9	GB
	287.18		90-07-32		1	817.4	GB
	345.01		90-23-17		1	815.7	GB

STA 73	HI=	+ 5.02	+818.81 = 823.83		ELEVATION	description
North	SLOPE Distance		Vert ∠	Rod Sect.		
8-22	46.20		88-07-45	1	819.1	GB
	71.90		89-33-08	1	818.2	GB
	140.24		89-13-56	1	819.5	GB
	196.72		89-45-56	1	818.4	GB
	218.06		90-05-30	1	817.3	GB
	327.66		89-41-35	1	819.4	GB
South						
	217.30		90-15-53	1	816.6	GB
	274.23		89-57-03	1	817.8	GB
	354.61		90-29-12	1	814.6	GB

STA 74	HI = + 5.62	+ 818.71	= 824.33			
North	Slope Distance		Vert. ∠		Rod Sections	
8-22						
	177.23		89-29-19		1	819.7 GB
	258.91		90-00-57		1	818.1 GB
	328.90		89-50-04		1	819.1 GB
SOUTH						
	131.97		90-02-40		1	818.0 GB
	246.90		90-25-30		1	816.3 GB
	286.66		89-57-35		2	813.7 GB
	312.43		89-34-31		2	815.8 GB

ELEVATIONS

Descriptions

STA 75	HI = 819.90+		5 18 = 825.08				
						ELEVATION	DESCRIPTION
NORTH	SLOPE DIST.		VERT. ∠		ROD SECTIONS		
	129.34		89-25-48		1	820.2	GB
	171.14		89-58-47		1	818.9	GB
	220.94		89-58-25		1	819.0	GB
	316.71		90-03-35		1	818.5	GB
SOUTH							
	132.80		90-42-23		1	817.2	GB
	167.91		91-05-34		1	815.7	GB
	204.33		90-00-26		2	814.2	GB
	245.08		89-28-20		2	816.5	GB
	288.97		90-30-17		1	816.3	GB
	334.67		90-27-11		1	816.2	GB

STA 76 Hi 819.48 + 5.18 = 824.66

NORTH	SLOPE DIST		VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
8-22	39.44		88-04-22	1	819.8	GB
	151.55		89-16-53	1	820.4	GB
	276.85		89-48-32	1	819.4	GB
	309.98		89-41-01	1	820.2	GB
SOUTH	89.78		92-09-29	1	815.1	GB
	118.63		90-55-46	1	816.5	GB
	206.18		89-02-36	2	817.3	GB
	248.68		89-12-05	2	817.3	GB
	316.10		89-26-13	2	816.9	GB

STA 77	HI =	+ 5.05	+ 817.92 = 822.97			ELEV.	DESCRIPTION
NORTH	SLOPE DIST.		VERT. ∠		ROD SECTIONS		
8-22							
	33.37		85-50-55		1	819.2	GB
	169.18		88-33-57		1	821.0	GB
	209.62		89-12-21		1	819.7	GB
	251.15		89-10-41		1	820.4	GB
	298.77		89-36-50		1	818.6	GB
	355.94		89-22-55		1	820.6	GB
SOUTH	42.77		93-20-37		1	814.3	GB
	72.60		90-07-36		1	816.6	GB
	105.59		89-22-36		1	817.9	GB
	133.67		90-05-00		1	816.6	GB
	217.03		89-26-11		1	818.9	GB
	259.03		89-27-30		1	819.2	GB
	305.31		89-05-57		2	816.9	GB

STA 78 HI = 816 91 + 4 92 = 821.83

	SLOPE DISTANCE		VERT. ∠	ROD SECTIONS	ELEVATIONS	DISCRIPTION
NORTH						
8-22	42 01		84-08-12	1	820.0	GB
	90 79		87-23-40	1	819.8	GB
	204 57		88-30-16	1	821.0	GB
	264 22		89-18-23	1	818.8	GB
	313 77		89-16-27	1	819.6	GB
SOUTH	20 31		92-45-10	1	814.7	GB
	54 04		88-30-59	1	817.0	GB
	109 55		88-48-26	1	817.9	GB
	151 95		89-03-35	1	818.1	GB
	168 13		88-49-25	1	819.1	GB
	233.52		89-11-44	1	818.9	GB
	334 10		88-56-39	2	817.1	GB

Sta 71 | HI = 818.21 + 5.30 = 823.51

	Slope distances	Vert ∠	Rod Sections	Elevations	Descriptions
North					
8.21	39.59	92-18-47	1	815.7	GB
	78.38	89-24-50	1	818.1	GB
	147.77	89-03-27	1	819.7	GB
	170.64	89-37-44	1	818.4	GB
	262.20	89-24-33	1	820.0	GB
	348.47	89-27-06	1	820.6	GB
South					
	40.19	87-14-33	1	819.2	GB
	92.42	88-24-20	1	819.9	GB
	120.51	89-36-34	1	818.1	GB
	228.34	89-10-35	1	820.6	GB
	293.57	89-56-18	1	817.6	GB
	342.20	89-52-22	1	818.1	GB

STA 80	HI = 818.56 +	4.90 = 823.46			
North	SLOPE DIST	VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
8-21	32.23	89-22-15	1	817.6	GB
	47.78	90-25-20	1	816.9	GB
	107.59	89-55-44	1	817.4	GB
	122.61	90-34-07	1	816.0	GB
	150.54	89-51-32	1	817.6	GB
	183.05	90-07-04	1	816.9	GB
	217.19	89-49-03	1	818.0	GB
	253.75	89-21-04	1	820.1	GB
	285.36	89-35-37	1	819.3	GB
	306.87	89-29-30	1	820.0	GB
South					
	12.24	83-43-11	1	818.6	GB
	32.29	88-53-47	1	817.9	GB
	93.49	88-36-58	1	819.5	GB
	147.34	89-00-15	1	819.8	GB
	165.82	89-22-29	1	819.1	GB
	193.49	89-10-00	1	820.1	GB
	263.48	89-30-36	1	819.5	GB
	304.20	89-50-01	1	818.1	GB

STA 81	HI = 819.86 + 5.17 = 825.03						
			VERT.	ROD SECTIONS		ELEVATION	DESCRIPTION
NORTH 8·21	SLOPE DIST		∠				
	50.59		88-54-16	1		820.6	GB
	81.06		90-00-24	1		819.6	GB
	112.25		89-41-02	1		820.2	GB
	160.82		90-13-21	1		819.0	GB
	213.59		90-20-57	1		818.3	GB
	305.78		89-41-49	1		821.2	GB
South	50.55		91-45-02	1		818.1	GB
	88.32		89-44-00	1		820.0	GB
	188.08		89-45-25	1		820.4	GB
	216.69		90-03-00	1		819.4	GB
	251.85		89-35-42	1		821.4	GB
	315.12		90-14-05	1		818.3	GB

BOJC

SCB FIELD

STA 82	HI = 820.91 + 4.90 = 825.81		VERT ∠	ROD SECTION	ELEV	DESCRIPTION
NORTH	SLOPE DIST					
8-21						
	52.67		90-08-36	/	819.5	GB
	114.61		90-06-32	/	819.4	GB
	144.01		89-32-46	/	820.7	GB
	266.90		90-23-36	/	817.8	GB
	349.37		89-46-34	/	820.8	GB
SOUTH						
	36.14		88-01-39	/	820.9	GB
	55.12		90-14-49	/	819.4	GB
	80.12		89-16-45	/	820.6	GB
	121.87		89-24-11	/	820.9	GB
	142.44		90-00-24	/	819.6	GB
	173.37		89-36-57	/	820.8	GB
	210.99		90-03-01	/	819.4	GB
	269.70		89-37-49	/	821.4	GB
	302.90		90-02-49	/	819.4	GB

STA 83	HI = 820.98 + 5.05 = 826.03			ROD SECTIONS	ELEV.	DESCRIPTION
	SLOPE DIST		VERT Δ			
North						
8-21	33.54		90-41-00	/	819.4	GB
	57.75		89-10-20	/	820.7	GB
	199.19		89-23-46	/	821.9	GB
	281.79		90-29-29	/	817.8	MASSIVE GB
	326.25		89-57-40	/	820.1	GB
SOUTH						
	41.15		89-43-51	1	820.0	GB
	63.81		88-41-35	1	821.3	GB
	107.26		88-50-36	1	822.0	GB
	134.93		89-10-35	1	821.8	GB
	159.67		89-53-31	1	820.1	GB
	197.98		90-08-09	1	819.4	GB
	242.14		89-42-32	1	821.1	GB
	264.12		87-55-04	1	820.2	GB
	301.49		89-58-22	1	820.0	GB

STA 84 Hi = + 4.95 + 821 45 = 826.40

	SLOPE DIST		VERT ∠		ROD SECTIONS	ELEVATIONS	DESCRIPTION
NORTH							
8-21	26.34		91-52-26		1	819.3	GB
	106.54		89-05-01		1	821.9	GB
	184.84		89-57-50		1	820.3	GB
	215.72		89-38-32		1	821.5	GB
	285.34		90-30-15		1	817.7	GB
	335.50		89-47-06		1	821.5	GB
	459.10		90-00-43		1	820.1	GB
	463.43		89-29-14		1	824.5	GB
	505.51		89-54-56		1	820.9	GB
SOUTH	112 44		89-19 29		1	821.5	GB
	145 05		90-07-26		1	819.9	GB
	171 03		89-49-36		1	820.7	GB
	257 69		89-48-05		1	821.1	GB
	309 01		90-09-23		1	819.9	GB
	360 02		89-47-52		1	821.5	GB
	393.97		89-52-21		1	821.1	GB
	419.94		89-48-16		1	821.6	GB
	485.22		90-00-00		1	820.2	GB
	506.43		89-56-30		1	820.7	GB

STA 85 | HI = 821.94 + 4.85 = 826.79

	SLOPE DIST	VERT. ∠	ROD SECTIONS	ELEVATIONS	DESCRIPTION
NORTH					
8-21	21.33	91-08-38	1	820.2	GB
	59.27	88-20-23	1	822.3	GB
	131.50	89-58-40	1	820.6	GB
	261.67	90-30-17	1	818.3	GB
	284.60	90-15-43	1	819.3	GB
	372.18	89-57-55	1	820.8	GB
	438.86	90-05 47	1	819.9	GB
	561.50	89-08-26	5	809.9	GB
SOUTH	99.69	89-22-16	1	821.7	GB
	186.25	90-17-06	1	819.7	GB
	218.22	89-50-32	1	821.2	GB
	241.23	90-10-38	1	819.8	GB
	308.36	89-55-16	1	821.0	GB
	347.61	90-06-30	1	819.9	GB
	367.98	89-55-54	1	821.0	GB
	456.35	89-59-02	1	820.7	GB
	499.61	89-58-20	2	816.2	GB

STA 87	HI = 822.10 + 1.85 = 826.95					
NORTH 8-20-86	SLOPE DIST.		VERT ∠	ROD SECTIONS	ELEVATION	DESCRIPTION
	867.3		89-12-28	1	821.9	GB
	140.40		90-14-12	1	820.2	GB
	211.75		89-47-30	1	821.5	GB
	237.75		89-59-40	1	820.8	GB
	282.43		90-09-16	1	820.0	GB
	308.56		90-13-27	3	810.1	GB
	404.60		90-05-00	3	810.7	GB
	467.30		90-11-52	3	809.6	GB
	505.60		90-09-43	3	809.8	GB
SOUTH						
	48.24		87-48-21	1	822.6	GB
	137.19		90-00-40	1	820.7	GB
	176.50		87-41-55	1	821.7	GB
	194.91		90-04-44	1	820.5	GB
	297.41		90-03-52	1	820.4	GB
	365.64		90-29-00	1	817.7	GB
	374.31		90-43-33	1	816.10	GB
	418.11		90-15-16	3	809.4	GB
	449.63		90-19-02	3	808.8	EOW
	466.86		90-21-56	3	808.3	FL
	484.70		90-17-10	3	808.8	EOW
	522.13		89-50-05	3	812.8	GB

STA	SLOPE DIST.		VERT ∠	ROD SECTIONS	ELEVATION	DESC.
88	H.I. = 823.29	+ 4.74 =	828.03			
NORTH						
8-30-86						
	137.80		89-59-05	1	821.9	GB
	176.15		89-13-26	2	819.6	GB
	202.90		89-03-26	3	815.7	GB
	215.95		89-14-50	4	810.3	GB
	316.45		90-11-16	3	811.1	GB
	405.57		90-17-50	3	810.2	GB
	447.23		90-17-48	3	810.0	GB
	460.80		90-32-14	3	808.0	GB
	~~547~~ 547.90		90-33-18	3	807.0	E.O.W
South	78.63		89-31-10	1	822.5	GB
	210.40		90-35-22	1	819.7	GB
	279.65		90-28-05	1	819.5	GB
	356.00		89-56-29	3	812.7	GB
	367.40		90-30-57	3	809.0	E.O.W.
	381.00		90-36-15	3	808.3	E
	399.53		90-29-40	3	808.9	E.O.W
	544.90		90-35-40	1	816.2	GB

STA 89 HI = + 5 22 + 822 87 =

	SLOPE DISTANCE	VERT. ∡	ROD SECTIONS	ELEVATION	DISCRIPTION
NORTH	21.42	89-56-15	1	821.9	GB
8-20-86 DATE	40 58	91-01-37	2	816.5	GB
	105 58	91-41-55	2	814.1	GB
	125 35	90-28-00	3	811.4	GB
	135 60	90-47-19	3	810.5	GB
	348 95	90-17-05	3	810.7	GB
	389 70	90-25-34	3	809.5	GB
	395 72	90-40-05	3	807.8	GB
	414 04	90-42-35	3	807.3	E.O.W
	427 18	90-42-35	3	807.1	℄
	449 95	90-40-46	3	807.1	E.O.W
	454 64	90-38-38	3	807.3	GB
→	471 48	90-35-46	3	807.5	GB
	474 93	90-38-07	3	807.1	E.O.W.
	497 40	90-42-11	3	806.3	℄
	522 63	90-34-49	3	807.1	E.O.W.
	526 61	90-32-10	3	807.5	GB
	529 37	90-33-54	3	807.2	E.O.W
	531 69	90-36-32	3	806.7	℄
	534 63	90-33-00	3	807.3	E.O.W
	536 72	90-29-40	3	807.8	GB

STA 89	HI 822.87 SLOPE DIST.	+5.22 =	VERT ∠		ROD SECTIONS	ELEVATION	DISCRIPTION
SOUTH							
8-20-86	41.53		87-52-36		1	823.4	GB
	153.88		90-58-34		1	819.3	GB
	199.03		90-37-07		1	819.7	GB
	243.67		90-50-25		1	818.3	GB
	314.27		91-30-29		2	809.0	E.O.W.
	326.49		90-41-41		3	808.4	℄
	341.96		91-22-36		2	809.0	E.O.W.
	392.78		91-03-47		2	810.0	GB
	454.75		90-57-26		1	814.0	GB
	516.65		90-41-07		1	815.7	GB

CROSS SECTIONS EAST OF
SR 85, ROOKS rd - MILLER rd.

July 86

STATION	FILL SQFT	CUT SQFT	CUT VOL CY	FILL VOL CY
140		589	2894.4	
141		974	3411.1	
142		868	3207.4	
143		864	3405.5	
144		975	3259.3	
145		785	1911.1	
146		247	2033.3	
147		851	3572.2	
148		1078	3655.6	
149		896	3446.3	
150		965	3540.7	
151		947	3457.4	
152		920	3481.5	
153		960	3674.1	
154		1024	3690.7	
155		969	3755.6	
156		1059	4001.9	
157		1102	4103.7	
158		1114	4016.7	
159		1055	3722.2	
160		955	3370.4	
161		865	3416.7	
162		980	3387.0	
163		849	2979.6	
164		760	2561.1	
165		623	2264.8	
166		600	2101.9	
167		535	1963.0	
168		525	1951.9	

GILA RIVER FLOOD CHANNEL
CROSS SECTIONS EAST OF
SR85, ROOKS rd - MILLER rd.

STATION	FILL SQFT	CUT SQFT	CUT VOL CY	FILL VOL CY
169		529	1874.1	
170		483	2005.6	
171		600	2355.6	
172		672	2646.3	
173		757	3051.9	
174		891	3872.2	
175		1200	4287.0	
176		1115	4388.9	
177		1255	4611.1	
178		1235	4568.5	
179		1232	4537.0	
180		1218	4520.4	
181	0	1223	4157.4	479.6
182	259	1022	4177.8	1005.6
183	284	1234	4864.8	1053.7
184	285	1393	4903.7	4450.0
185	2118	1255	~~5320.4~~ 5298.1	6514.8
186	1400	~~1618~~ 1606	~~6172.2~~ 6048.1	5081.5
187	1344	~~1715~~ 1660	~~6509.3~~ 6170.4	~~5250.0~~ 5738.9
188	~~1491~~ 1755	~~1800~~ 1672	6287.0	5135.2
189	1018	1723		

CROSS SECTIONS EAST OF
SR 85, COOKS rd - MILLER rd.

$$\left(\frac{A+B}{2}d + \frac{B+C}{2}d + \frac{C+D}{2}d + \frac{D+E}{2}d\right)/27$$

$$\left[\frac{A+E}{2} + B+C+D\right]d/27$$

VOL OF CUT = ~~17,061 CY~~ 176862.7 CY

VOL OF FILL = ~~23,835 CY~~ 29459.1 CY