

INDEX APPENDIX B

Table I	Laboratory Test Methods	B-1
Table 2	Average Water Quality Data	B-4
Chart I	pH - Net Acidity Correlation	B-6

WATER QUALITY DATA BY STATION

WATER QUALITY CHARTS

TABLE I
HILLMAN STATE PARK
MINE ACID DRAINAGE POLLUTION SURVEY
OUTLINE OF LABORATORY TEST METHODS

1. pH - Laboratory pH values were obtained using a temperature - compensated Beckman Electric pH Meter.
2. Alkalinity - For samples having a pH of 4.5 or less, the alkalinity was reported as zero. For samples having a pH greater than 4.5, a 50 ml sample was titrated with .02 normal sulfuric acid down to an end point of pH 4.5. After proper conversion, the results were expressed in mg/l of calcium carbonate.
3. Acidity,- For samples having a pH of 4.5 or less, a 50 ml sample was boiled for two minutes. The sample was then titrated with .02 normal sodium hydroxide solution using a phenophthalien indicator to a permanent pink color and to an end point of pH 8.3. The results are expressed, after conversion, as mg/l of calcium carbonate. For samples of pH greater than 4.5, the same 50 ml sample utilized in the alkalinity determination was used to obtain acidity. As the conclusion of the alkalinity test, the 50 ml sample was boiled for two minutes, then titrated with .02 normal sodium hydroxide solution using a phenophthalien indicator to an end point of pH 8.3. The reported acidity value was then obtained by first applying the proper conversion units and then subtracting the previously determined alkalinity value. The subtraction serves to remove the "acidity" introduced into the virgin sample during the alkalinity test.

4. Iron - The total iron content was measured by using the 1,10 phenantroline method with a photoelectric colorimeter. The method is as follows:

- a. Take a water sample by filling a clean 25 ml graduated cylinder to the 25 ml mark. Pour the sample into a clean colorimeter bottle.
- b. Add the contents of the Ferro Ver Powder Pillow to the sample. Swirl the bottle to mix the sample. If iron is present, an orange color will develop. Let the sample stand for two minutes, but no longer than 10, before measuring the color.
- c. Fill a clean colorimeter bottle with some demineralized water and place it in the light cell. Insert the Iron (Ferro Ver Method) Meter Scale in the meter and use the 4445 Color Filter. Adjust the light control for a reading of zero ppm.
- d. Place the prepared sample in the light cell and read the ppm iron.

5. Sulfate - The barium sulfate turbidimetric method was used to measure the concentration of sulfate ions. A photoelectric colorimeter was used. The method is outlined as follows:

- a. Take a sample by filling a clean 25 ml graduated cylinder to the 25 ml mark. Pour the sample into a clean colorimeter bottle.
- b. Fill a colorimeter bottle with demineralized water and place in the light cell. Insert the Sulfate Meter Scale in the meter and use the 4445 Color Filter. Adjust the light control for a meter reading of zero ppm.
- c. Add the contents of one Sulfa Ver Powder Pillow. Allow the powder to lay on the surfaces of the sample for 30 seconds, then
- d. Place the prepared sample in the light cell and read the ppm Sulfate.

6. Aluminum - The determination of aluminum was made using the reagent called "aluminon" (aurintricarboxylic acid). A photoelectric colorimeter was used. The method is:

- a. Take a water sample by filling a clean 50 ml graduated cylinder to the 50 ml mark. Pour the water sample into a clean 250 ml Erlenmeyer flask.
- b. Add the contents of one Alu Ver Powder Pillow to the water sample. Swirl to dissolve the powder. A pink color will develop if aluminum is present.

c. Immediately divide the sample into two 25 ml portions by filling two clean colorimeter bottles.

d. Add to one of the colorimeter bottles the contents of one Bleaching Powder Pillow. Swirl the colorimeter bottle to dissolve the powder. Allow 30 minutes for color development. Insert the Aluminum Meter Scale in the meter and use the 445 color filter. Place the colorimeter bottle containing the sample plus bleaching powder in the light cell. Adjust the light control for a meter reading of zero ppm.

e. Place the colorimeter bottle of the prepared sample in the light cell. Read the ppm Aluminum.

TABLE 2

HILLMAN STATE PARK

AVERAGE WATER QUALITY DATA

Station	Type	Avg. Flow GPM	Avg. pH	Avg. Acidity, Mg/l		Avg. Acid Loads, Lbs/Day	
				Acid	Alk.	Acid	Alk.
1	Gauging	65	6.4	177	75	138	56
2	Gauging	497	6.4	179	55	1067	263
3	Gauging	3940	6.3	176	78	8321	3300
4	AMD Source (M)	191	5.8	198	39	454	93
4A	AMD Source (M)	93	4.2	753	15	840	20
5	AMD Source (M)	200	6.1	244	100	586	239
6	AMD Source	104	6.3	272	83	339	98
7	Gauging	200	5.9	318	55	763	102
9	AMD Source	38	5.0	445	20	203	6
10	Gauging	156	4.9	564	16	1056	29
11	AMD Source	17	6.4	142	115	29	26
12	AMD Source (M)	91	4.6	820	6	895	8
12A	AMD Source (M)	432	4.8	769	23	3220	54
13	AMD Source	22	6.0	261	55	69	12
14	AMD Source	22	5.9	276	111	73	11
15	AMD Source	108	6.3	288	310	372	403
16	AMD Source	36	6.1	364	250	157	110
17	AMD Source (M)	111	5.8	432	117	575	143
17A	AMD Source (M)	524	6.0	328	81	2060	400
18	Pond	--	6.1	186	37	--	--
19	Pond	--	6.2	173	102	--	--
19A	AMD Source	12	6.4	257	67	37	9
20	Pond	--	6.0	227	131	--	--

TABLE 2 CONT.

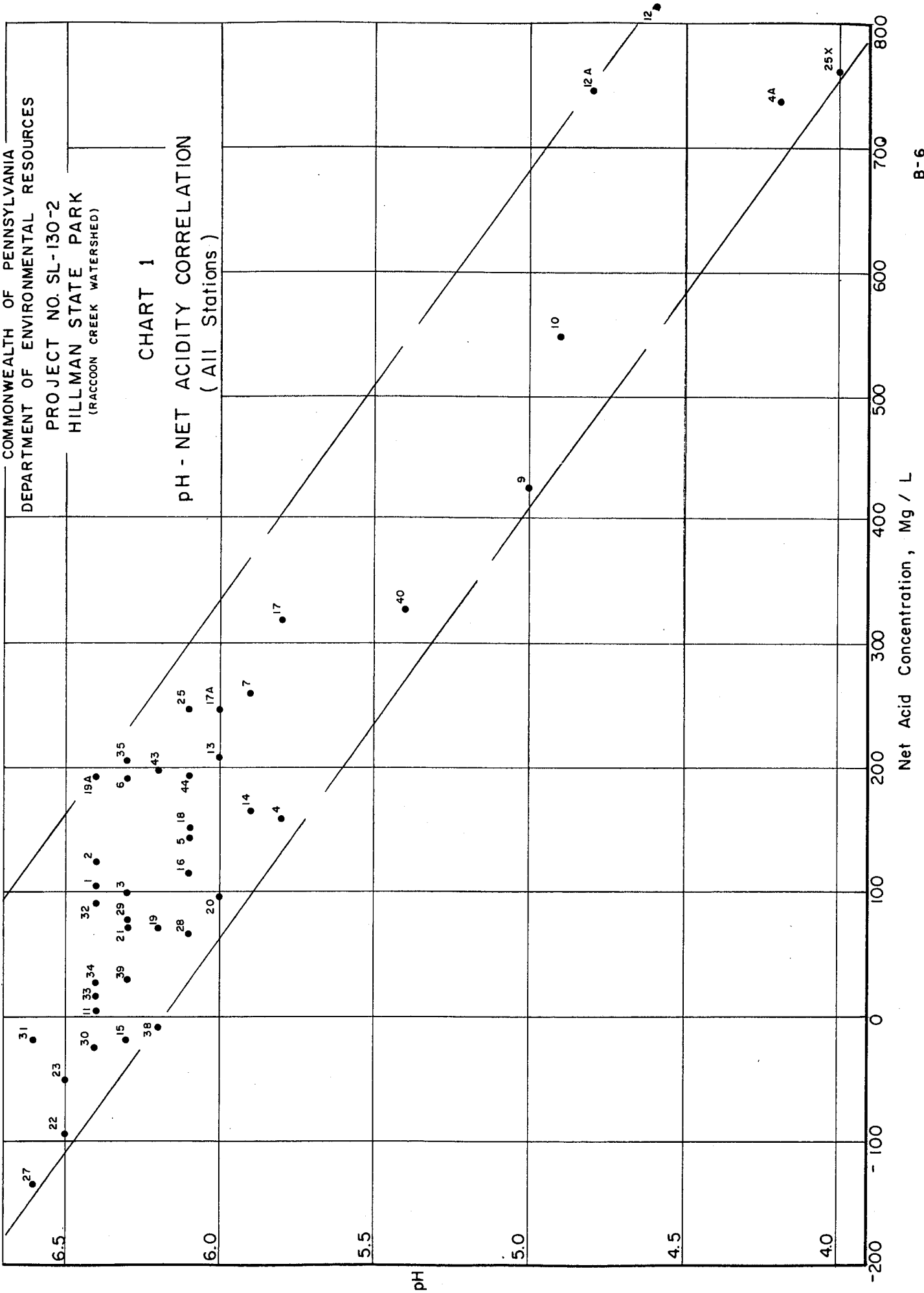
HILLMAN STATE PARK

AVERAGE WATER QUALITY DATA

Station	Type	Avg. Flow GPM	Avg. pH	Avg. Acidity, Mg/l		Avg. Acid Loads, Lbs/Day	
				Acid	Alk.	Acid	Alk.
21	Pond	---	6.3	204	133	---	---
22	Gauging	753	6.5	31	128	280	990 (710)
23	AMD Source	12	6.5	41	92	6	9 (3)
24	Pond	---	6.4	0	252	---	---
25	Gauging	175	6.1	305	59	641	92 549
25X	AMD Source	28	4.0	767	---	258	---
27	Pond	---	6.6	5	142	---	---
28	AMD Source	9	6.1	171	106	18	12 6
29	AMD Source	97	6.3	191	119	222	130 92
30	AMD Source	10	6.4	56	82	7	16 (9)
31	AMD Source	165	6.6	113	130	224	233 (9)
32	Gauging	1065	6.4	139	70	1780	837 943
33	Gauging	276	6.4	180	194	596	627 (31)
34	AMD Source	63	6.4	110	60	83	38 45
35	Gauging	2100	6.3	232	28	2350	280 2070
38	AMD Source	475	6.2	90	103	513	573 (60)
39	Gauging	1210	6.3	138	108	2004	1570 434
40	Gauging	560	5.4	337	11	2265	75 2190
41	Gauging	---	---	---	---	---	---
43	AMD Source (M)	578	6.2	235	37	1100	173 927
44	Gauging	621	6.1	217	27	1617	201 1416

(M) Indicates Major Source
 Net Values Shown in Parentheses Indicate Alkalinity

CHART 1
 pH - NET ACIDITY CORRELATION
 (All Stations)



STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	7/70	11/70	12/70	12/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	
FLOW (g.p.m.)	60	60	60	60	60	90	60	120	75	40	30	38	65
PH	6.9	6.7	6.2	6.3	6.6	6.6	6.2	6.3	6.8	6.3	6.2	6.3	6.4
CONC. (MG/L):													
ACID	2	228	410	228	124	124	296	116	168	72	234	70	177
ALK.	122	122	88	48	70	70	56	44	48	48	84	102	75
IRON	.13	.15	.08	.22	.10	.10	.05	.10	0	.04	.10	.48	.13
SULFATE	2000	1700	1725	1850	1825	1825	1350	1575	1800	1800	3250	1575	1860
ALUM.	.40	.87	.26	1.00	.33	.33	.40	.26	.53	.04	.05	.07	.38
LOAD (lbs/day)													
ACID	1	164	296	246	134	134	213	167	151	35	84	32	138
ALK	88	88	63	52	76	76	37	63	43	23	30	47	56
IRON													.09
SULFATE	1440	1224	1242	1998	1971	1971	972	2250	1730	863	1160	719	1420
ALUM													.34

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 2

DATE OF S A M P L I N G

Water Quality Parameter	7/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
LOW (g.p.m.)	400	360	420	379	435	1320	490	540	125	500	497
PH	6.9	6.5	6.4	6.5	5.8	5.5	6.8	6.9	6.1	6.4	6.4
CONC. (MG/L):											
ACID	8	152	228	380	224	298	290	72	92	46	179
ALK.	78	114	48	20	44	-	50	38	62	94	55
IRON	.11	.12	.22	.17	.05	.70	0	.02	.10	.11	.16
SULFATE	2050	1700	2175	2125	1750	3750	1800	2250	3500	1575	2267
ALUM.	.71	1.00	1.10	1.00	.13	1.40	1.20	.03	.52	.75	.78
LOAD (lbs/day)											
ACID	38	657	1150	1730	1170	4725	1708	467	144	276	1067
ALK	377	492	242	91	230	-	294	246	92	564	263
IRON											.95
SULFATE	9840	7344	10962	9664	9135	59400	8384	15580	5250	9450	14500
ALUM											4.85

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 3

D A T E O F S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
FLOW(g.p.m.)	554	1320	1320	1600	7500	1440	11700	6870	3861	7414	2860	5250	1586	1948		3940
pH	6.4	6.7	6.7	6.0	6.9	6.4	6.6	6.4	6.2	5.5	6.2	6.4	6.3	6.2	6.2	6.3
CONC. (MG/L):																
ACID	434	80	184	174	0	448	110	260	66	340	198	120	12	40		176
ALK.	92	28	120	72	62	86	38	66	80	66	100	108	44	140		78
IRON	.07	.10	.08	.03	.10	.05	.14	.15	.07	.10	0	.10	0	.05		.74
SULFATE	2275	2750	3000	1875	350	1375	100	2000	1675	1600	1950	2000	3000	1675		1830
ALUM.	.04	0	.03	.08	.10	.14	.14	.22	.07	.20	.28	.05	0	.04		.10
LOAD (lbs/day)																
ACID	2885	1268	2938	3360	0	7750	15480	21410	3060	30220	6790	7560	228	935		8321
ALK	610	360	1540	1380	5340	1490	5340	5440	3700	5860	3430	6800	840	4200		3300
IRON																.53
SULFATE	15080	34280	38480	36000	30170	23760	14040	164900	77600	142200	66820	120000	56600	41150		61400
ALUM																13.5

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 4

DATE OF S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
FLOW (g.p.m.)	480	60	60	240	180	180	75	180	270	480	150	240	32	52	191
PH	6.4	6.4	6.6	5.6	5.8	6.6	6.3	6.3	6.0	5.2	5.1	5.9	4.4	4.2	5.8
CONC. (MG/L):															
ACID	284	170	108	204	92	388	392	234	144	122	340	132	66	96	198
ALK.	34	34	40	68	36	52	48	54	62	16	72	30	-	-	39
IRON	.33	.53	1.10	.04	.09	.03	-	.27	.10	.15	.37	.04	.10	3.80	.49
SULFATE	3250	4000	3125	1050	1450	2000	2000	2000	2000	1950	3000	2125	2750	3250	2280
ALUM.	1.00	.38	.70	.05	.05	.06	.06	.07	.07	.18	.02	.02	-	.15	.20
LOAD (lbs/day):															
ACID	1636	122	78	588	199	839	353	505	467	703	612	380	25	60	454
ALK	196	25	29	196	78	112	43	117	201	92	129	86	-	-	93
IRON															.55
SULFATE	18720	2880	2251	3024	3132	4320	1800	4320	6480	11220	5400	5120	2130	2028	5202
ALUM															.69

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 4A

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	7/71	
FLOW (g.p.m.)	60	120	60	40	120	90	215	108	75	30	112		93
PH	4.8	4.4	4.7	4.2	4.1	4.0	4.2	4.5	3.6	3.7	4.2		4.2
CONC. (MG/L):													
ACID	538	540	858	1000	1118	1098	812	1040	770	194	312		753
ALK.	12	-	2	-	54	-	-	-	-	-	100		15
IRON	2.6	2.9	3.2	1.8	3.3	6.4	3.0	2.8	3.0	2.8	.1		2.9
SULFATE	1325	3000	3500	3500	5000	4250	4500	4750	3750	3250	1675		3500
ALUM.	1.7	1.6	.8	1.1	4.5	2.5	1.5	14.8	15.0	15.0	-		5.2
LOAD (lbs/day)													
ACID	387	778	618	480	1610	1186	2095	1347	693	69	419		840
ALK	8.6	-	1.4	-	77.8	-	-	-	-	-	134.4		20
IRON													3.9
SULFATE	954	4320	2520	1680	7200	4590	11600	6150	3370	1170	2250		4160
ALUM													5.2

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 5

D A T E O F S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	10/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
FLOW (g.p.m.)	120	80	30	150	480	180	240	600	144	225	68	83	200	
pH	6.4	6.5	6.0	6.0	6.4	6.6	6.3	5.7	6.0	6.3	6.0	6.3	6.1	
CONC. (MG/L):														
ACID	780*	0	116	254	226	282	200	320	154	490	20	48	244	
ALK.	96	96	114	88	174	74	118	60	68	76	72	180	100	
IRON	.10	.12	.02	.05	.08	.05	.10	.20	0	.10	0	.05	.07	
SULFATE	2200	3000	3250	2050	1575	1675	1500	1500	2700	1625	2125	1575	2061	
ALUM.	.12	0	.02	.05	.04	.04	.02	.05	0	.02	0	0	.03	
LOAD (lbs/day)														
ACID	1123*	0	42	457	1302	508	576	2320	266	1323	16	48	586	
ALK	138	92	41	158	1002	160	340	432	117	205	57	139	239	
IRON													.62	
SULFATE	3168	2880	1170	3690	9072	3618	4320	10800	4665	4387	1770	1898	3970	
ALUM													.10	

COMMENTS:

* Excluded From Calculation Of Average Values

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 6

DATE OF SAMPLING

Water Quality Parameter	7/70	9/70	10/70	10/70	10/70	11/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
	60	30	30	60	120	90	120	150	240	270	75	120	40	52	104		
FLOW (g.p.m.)																	
PH	6.5	6.4	6.0	6.8	6.3	6.3	6.3	6.1	6.2	5.8	5.9	6.7	5.9	6.3	6.3	6.3	6.3
CONC. (MG/L):																	
ACID	920*	86	646	0	12	456	788	448	678	128	34	0	96	662	272		
ALK.	88	82	154	92	70	90	52	64	116	56	56	80	34	138	83		
IRON	.05	.08	.07	.05	.04	.05	.02	.10	0	.10	0	.06	.10	.10	.05		
SULFATE	1225	3750	4000	2250	2000	1875	2500	2760	2250	3125	2350	2450	2125	2000	2479		
ALUM.	0	.04	0	.05	.03	0	.05	.04	0	0	0	0	0	0	.01		
LOAD (lbs/day)																	
ACID	662*	31	233	0	17	492	1135	806	1953	415	31	0	46	101	339		
ALK	63	30	55	66	101	97	75	115	334	181	50	115	16	86	98		
IRON															.05		
SULFATE	882	1350	1440	1620	2880	2025	3600	4968	6480	10130	2115	3530	1020	1248	3080		
ALUM															.01		

COMMENTS:

*Excluded From Calculation Of Average Values.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 7

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	7/70	10/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	7/71	
FLOW(g.p.m.)	30	80	50	480	240	240	420	240	240	80	105		200
PH	5.5	6.7	6.7	6.0	5.9	5.7	6.0	6.0	5.0	5.7	6.2		5.9
CONC. (MG/L):													
ACID	0	560	100	880	208	768	182	306	64	84	344		318
ALK.	68	100	72	48	44	52	14	18	42	70	80		55
IRON	.14	.07	.03	.03	.20	0	.20	.25	.03	.15	.09		.11
SULFATE	3000	3500	2750	2000	3125	4000	3750	3500	3125	1875	2175		2980
ALUM.	.05	.05	.08	.17	.72	.22	.01	.20	.23	.05	.07		.17
LOAD (lbs/day):													
ACID	0	538	60	5069	599	2212	917	881	184	81	433		763
ALK	24	96	43	277	127	150	71	52	121	67	101		102
IRON													.18
SULFATE	1080	3360	1650	11520	9000	11520	18900	10080	9000	1800	2690		7170
ALUM													.36

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 9

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	
FLOW (g.p.m.)	12	10	30	45	80	60	36	80	24	42	13	22	38
PH	6.2	6.1	4.5	5.3	4.7	5.1	5.2	5.0	5.2	4.1	4.2	4.9	5.0
CONC. (MG/L):													
ACID	192	516	480	226	530	412	758	348	370	326	514	662	445
ALK.	124	20	-	14	10	10	20	16	20	-	-	6	20
IRON	.44	.24	.25	.22	.12	.30	.15	.20	.20	.03	.30	.19	.22
SULFATE	3000	3125	2500	2200	1200	2500	2500	3125	2500	2500	850	1750	2300
ALUM.	.13	.20	1.30	1.65	.35	1.40	1.50	1.50	.30	3.00	3.00	1.20	1.29
LOAD (lbs/day)													
ACID	28	62	149	122	509	297	327	334	107	164	67	175	203
ALK	18	1	-	8	10	7	9	15	6	-	-	2	6.2
IRON													.09
SULFATE	432	375	1440	1188	1152	1800	1080	3010	720	1050	132	462	1062
ALUM													.59

COMMENTS:

Station 9 Combines Former Stations 8 and 9 Starting 10/70. Previous Data Not Reported.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 10

DATE OF S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	10/70	11/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
FLOW (g.p.m.)	160	45	45	150	160	240	240	180	180	180	240	300	180	210	75	20	156
PH	4.6	5.0	5.4	4.8	5.2	4.5	4.5	4.8	4.5	4.8	5.3	4.8	5.4	4.8	4.5	5.4	4.9
CONC. (MG/L):																	
ACID	518	386	380	322	390	1128	1200	608	456	570	512	482	746	212	482	746	564
ALK.	2	10	40	6	2	22	-	4	8	6	48	-	26	54	-	26	16
IRON	.26	.18	.40	.94	.17	1.10	.41	1.00	.60	.30	.26	.22	.24	.15	.22	.24	.45
SULFATE	3500	4250	5000	1400	3000	3250	3250	3750	4375	3750	4000	3750	2425	3500	3750	2425	3505
ALUM.	.90	.82	.10	.13	.36	.43	1.00	2.20	2.80	1.50	3.00	1.50	1.10	1.30	1.50	1.10	1.20
LOAD (lbs/day)																	
ACID	995	208	205	580	749	3249	2592	1313	1313	2052	1106	434	179	534	434	179	1056
ALK	3.8	5.4	21.6	10.8	3.8	63.4	-	8.6	23.0	21.6	103.0	-	6.2	136.0	-	6.2	29
IRON																	1.1
SULFATE	6720	2295	2700	2520	5670	9360	7020	9060	12600	13500	8640	3375	582	6830	3375	582	6490
ALUM																	2.56

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 11

D A T E O F S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
	6	30	3	15	12	20	60	30	30	30	10	30	Dry	Trickle	
FLOW (g.p.m.)															17
P.H.	5.6	6.9	6.1	6.8	6.5	6.5	6.5	6.5	6.9	6.6	6.5	5.6	-	6.5	6.4
CONC. (MG/L):															
ACID	212	150	0	0	440	118	358	14	320	0	82	0	-	148	142
ALK.	132	114	208	108	92	192	94	98	100	88	106	124	-	168	115
IRON	.03	.15	.25	.07	.15	.15	.10	.08	0	.05	.05	0	-	.98	.17
SULFATE	1450	3750	1500	1875	1325	1025	1175	1225	1375	1425	1325	1500	-	1125	1430
ALUM.	.03	.02	.04	.01	.03	.05	.01	.07	.02	0	.01	.02	-	.03	.02
LOAD (lbs/day)															
ACID	15	54	0	0	63	28	258	5	115	0	10	0	-	10	29
ALK	9	41	7	19	13	46	68	35	36	32	13	45	-	-	26
IRON															-
SULFATE	96	1350	54	338	190	246	846	441	495	513	160	540	-	-	378
ALUM															-

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 12

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	
FLOW(g.p.m.)	15	10	150	80	160	120	60	180	90	100	60	70	91
PH	4.1	4.1	5.4	5.1	4.4	4.6	5.1	4.8	4.4	4.8	4.2	4.6	4.6
CONC. (MG/L):													
ACID	1040	1206	290	636	850	2284*	980	662	670	884	950	834	820
ALK.	-	-	12	14	-	2	20	8	-	16	-	2	6.2
IRON	3.30	3.20	.78	2.10	.30	2.80	.27	.60	1.00	.17	2.00	1.80	1.50
SULFATE	8875	1625	3500	4000	4750	4375	3750	4500	3750	3125	3500	2300	4000
ALUM.	1.25	2.20	1.05	1.65	1.00	1.50	1.50	1.50	3.00	1.50	1.50	1.10	1.60
LOAD (lbs/day)													
ACID	187	145	522	611	1632	3289*	706	1430	723	1061	684	701	895
ALK	-	-	21.0	13.4	-	2.9	14.4	17.3	-	19.2	-	1.7	8.2
IRON													1.0
SULFATE	1598	195	6300	3840	9120	6300	2700	9710	4044	3750	2520	1932	4380
ALUM													1.2

COMMENTS:

*Excluded From Calculation Of Average Values.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 12A

DATE OF S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	11/70	11/70	11/70	12/70	1/71	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
FLOW (g.p.m.)	15	.3	.5	45	10	8	75	785	605	234	560	672	69	183	432		
PH	3.8	5.4	5.0	4.8	3.6	4.6	5.2	5.2	5.0	4.9	5.1	5.2	4.7	4.3	4.7	4.9	4.8
CONC. (MG/L):																	
ACID	1166	0	492	382	1326	1348	638	638	996	980	980	598	704	700	620	940	769
ALK.	-	152	92	14	-	8	4	4	8	20	14	14	18	-	10	6	23
IRON	1.90	.08	.16	1.80	3.20	3.20	.74	.74	2.20	.24	.50	.50	1.20	.21	2.30	1.85	1.30
SULFATE	5625	6500	7250	1350	5625	6500	4500	4500	4500	4000	4750	4000	1550	1550	3750	3000	4530
ALUM.	1.50	.61	.60	1.05	1.36	1.00	1.00	1.00	1.50	1.50	1.50	1.50	3.00	1.50	1.50	.95	1.30
LOAD (lbs/day)																	
ACID	210	0	3	206	159	129	574	6009	7231	7115	4020	1977	5640	513	2064	3220	
ALK	-	.55	7.60	-	.77	3.60	37.6	58.1	145.2	94.1	50.5	8.2	13.1	6.5	54		
IRON																	
SULFATE	1012	23	44	729	675	624	4050	42390	32670	29040	31950	11234	12500	3105	6588	21200	
ALUM																	6.7

COMMENTS:

Moved Station Downstream Beginning 1/71.
Average load data reported is based on estimated rates at same location for first six months and actual rates after 1/71.
Flow data is suspect based on field difficulties encountered.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 13

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	7/70	10/70	12/70	2/71	3/71	4/71	5/71	6/71	7/71				
FLOW (g.p.m.)	15	4	48	24	50	20	20	7	12				22
PH	5.3	5.8	5.9	5.7	6.2	6.8	6.7	5.5	6.0				6.0
CONC. (MG/L):													
ACID	70	188	978	64	438	76	40	82	420				261
ALK.	86	94	22	106	22	36	40	40	52				55
IRON	.25	0	.05	.03	.10	0	0	.70	.13				.14
SULFATE	3500	4375	3000	2750	3125	2750	3125	3000	2025				3072
ALUM.	.03	0	.21	.06	.05	.14	.02	.03	.05				.07
LOAD (lbs/day)													
ACID	12.6	9.0	563	18.4	263	182	96	6.9	60				69
ALK	15.5	4.5	12.7	30.5	13.2	8.6	9.6	3.4	7.4				11.7
IRON													-
SULFATE	630	210	1728	5610	1898	660	750	252	291				1336
ALUM													-

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 14

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING										AVG. for PERIOD	
	7/70	2/71	3/71	4/71	5/71	6/71	7/71					
FLOW(g.p.m.)	15	18	20	20	60	10	10					22
PH	5.4	5.9	5.7	6.5	5.7	6.0	6.1					5.9
CONC.(MG/L):												
ACID	112	584	194	16	666	106	252					276
ALK.	118	124	98	114	102	88	132					111
IRON	.40	.05	.10	.20	.10	.18	1.05					.25
SULFATE	3250	2500	3125	2400	2300	2500	1875					2564
ALUM.	.75	.07	.20	.70	.06	.02	.12					1.60
LOAD(lbs/day)												
ACID	20	126	47	3.8	480	12.7	30.2					73
ALK	21	27	24	27	73	10	16					11
IRON												-
SULFATE	585	540	728	576	1660	300	225					640
ALUM												-

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 15

Water Quality Parameter	DATE OF S A M P L I N G												AVG. for PERIOD		
	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71		6/71	7/71
FLOW (g.p.m.)	120	120	60	60	90	120	160	120	120	120	120	96	120	92	108
PH	6.2	7.1	6.6	5.8	6.1	6.1	6.1	6.2	6.2	6.5	6.4	6.2	6.3	6.0	6.3
CONC. (MG/L):															
ACID	478	40	0	0	950	52	284	1532*	632	32	186	642	84	372	288
ALK.	256	294	292	548	330	390	284	288	304	300	294	108	316	328	310
IRON	.28	.29	.57	1.10	.05	1.70	.10	.65	.02	.10	1.10	.23	.78	.70	.55
SULFATE	3750	4375	3500	1500	4750	5000	4250	5000	3750	4500	4000	3250	4375	3000	3214
ALUM.	.17	.06	0	0	0	0	.02	.03	0	0	0	.03	0	.02	.02
LOAD (lbs/day)															
ACID	688	58	0	0	1026	74.8	545	2206*	910	46	268	740	121	411	372
ALK	369	423	210	395	356	562	545	415	438	452	423	124	113	362	403
IRON															.52
SULFATE	5400	6300	2520	1080	5130	7200	8160	7200	5400	6480	5760	3744	1575	3312	4232
ALUM															.01

COMMENTS:

*Excluded From Calculation Of Average Values.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 16

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD		
	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71		6/71	7/71
FLOW(g.p.m.)	120	15	20	30	20	30	38	45	30	40	30	30	30	34	36
PH	5.7	6.6	6.6	5.6	6.1	6.2	6.2	6.4	6.3	5.8	5.4	6.1	6.6	6.1	6.1
CONC.(MG/L):															
ACID	656	250	38	104	522	648	14	1808*	730	224	344	704	40	448	364
ALK.	264	176	322	292	254	326	242	244	254	198	216	196	238	266	250
IRON	1.701	.65	.93	.53	.14	3.00	.75	2.00	.14	.20	1.50	.23	.25	2.85	1.06
SULFATE	4000	4500	5000	1500	4500	4750	4250	5000	4500	5000	4375	4000	5000	3000	4251
ALUM.	.05	.04	.02	.06	0	.07	.06	.02	0	.02	0	.03	0	.09	.03
LOAD(lbs/day)															
ACID	945	45	91	37	125	233	6.4	976*	263	108	124	253	14.4	183	157
ALK	380	32	77	105	61	117	110	132	91	95	79	70	86	108	110
IRON															.54
SULFATE	5760	810	1200	540	1080	1710	1938	2700	1620	2400	1575	1440	1800	1224	1842
ALUM															.02

COMMENTS:

*Excluded From Calculation of Average Values.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 17

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD			
	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71		6/71	7/71	
FLOW(g.p.m.)	90	60	120	90	60	90	75	75	75	144	240	184	140	100	87	11
PH	5.0	5.7	6.2	5.6	6.0	5.7	5.8	5.0	6.0	5.4	6.5	6.4	6.0	6.5	6.5	5.1
CONC.(MG/L):																
ACID	182	188	172	242	1022	608	236	188	762	588	522	564	276	494	43	
ALK.	52	210	248	160	142	110	42	24	68	8	90	184	138	168	11	
IRON	3.2	3.2	3.3	3.3	3.3	3.0	1.0	6.0	2.6	.5	2.9	.9	1.8	3.4	2.1	
SULFATE	4750	4375	3750	4500	4750	5000	4000	4000	4250	5750	4000	3500	1250	2425	402	
ALUM.	1.50	.95	.23	1.20	1.30	1.50	.78	1.50	.04	1.00	.15	.40	.04	.08	.7	
LOAD(lbs/day)																
ACID	197	135	248	261	736	657	212	169	1317	1693	1153	948	331	516	57	
ALK	56	151	357	173	102	119	39	22	117	23	198	309	165	175	14	
IRON															2.1	
SULFATE	5130	3150	5400	4860	3420	5400	3600	3600	7344	16560	8832	5880	1625	2531	552	
ALUM															.8	

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 17A

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	10/70	10/70	11/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71			
FLOW (g.p.m.)	90	240	240	378	914	1340	480	590	267	704			524
PH	6.5	5.6	6.4	6.1	6.1	6.2	6.5	5.2	5.7	6.7			6.0
CONC. (MG/L):													
ACID	130	80	436	972	544	280	138	1372*	0	370			328
ALK.	150	80	174	28	56	22	78	34	74	116			81
IRON	.40	.90	1.00	.65	.80	.40	.62	.25	.33	1.10			.65
SULFATE	3625	2450	3750	5250	4500	4375	4500	3500	3750	2000			3770
ALUM.	.17	.10	.57	.03	.09	.10	.17	.19	0	.24			.17
LOAD (lbs/day)													
ACID	140	230	1256	4409	5967	4502	795	9714*	0	3126			2060
ALK	162	230	501	127	614	353	449	240	237	975			400
IRON													3.6
SULFATE	3915	7056	10800	23810	49330	70300	25920	24780	12015	16896			24880
ALUM													0.9

COMMENTS:

*Excluded From Calculation Of Average Values.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 18

Water Quality Parameter	DATE OF SAMPLING							AVG. for PERIOD
	7/70	3/71	5/71	6/71	7/71			
FLOW (g.p.m.)								
PH	5.9	6.5	6.4	5.5	6.3			6.1
CONC. (MG/L):								
ACID	88	244	178	204	216			186
ALK.	10	30	62	12	72			37
IRON	.36	1.60	.32	.18	.12			.51
SULFATE	3500	4000	1425	3750	2050			2945
ALUM.	.96	.02	.05	.01	.03			.21
LOAD (lbs/day)								
ACID								
ALK								
IRON								
SULFATE								
ALUM								

COMMENTS:

Pond. No flow.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 19

Water Quality Parameter	DATE OF SAMPLING							AVG. for PERIOD
	7/70	3/71	5/71	6/71	7/71			
FLOW (g.p.m.)								
pH	5.7	6.3	6.9	6.3	5.9			6.2
CONC. (MG/L):								
ACID	350	252	206	0	58			173
ALK.	142	50	102	106	110			102
IRON	.12	.10	.06	.10	.05			.08
SULFATE	3500	4375	3000	3750	425			3010
ALUM.	.02	.30	.03	0	0			.07
LOAD (lbs/day)								
ACID								
ALK								
IRON								
SULFATE								
ALUM								

COMMENTS:

Pond. No flow.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 19A

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	2/71	3/71	4/71	5/71	6/71	7/71							
FLOW (g.p.m.)	9	30	8	15	5	9							12
PH	6.4	6.7*	6.4	6.7	6.4	6.4							6.4
CONC. (MG/L):													
ACID	456	216	260	132	58	420							257
ALK.	70	26	60	94	54	100							67
IRON	.04	.10	0	.01	.08	.22							.07
SULFATE	3750	5000	4000	3125	3750	2375							3100
ALUM.	0	0	.05	.06	0	.04							.02
LOAD (lbs/day)													
ACID	49	78	25	24	3.5	45							37
ALK	7.6	9.4	5.7	16.9	3.2	10.8							8.9
IRON													.01
SULFATE	405	1800	384	562	225	256							605
ALUM													0

COMMENTS:

*Excluded From Calculation Of Average Value.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 20

Water Quality Parameter	DATE OF SAMPLING						AVG. for PERIOD
	7/70	3/71	5/71	6/71	7/71		
FLOW (g.p.m.)							-
pH	5.9	6.5	5.3	6.5	5.9		6.0
CONC. (MG/L):							
ACID	794	94	170	0	76		227
ALK.	84	180	130	126	136		131
IRON	.05	.1	.26	.1	.07		.11
SULFATE	3125	4000	3000	3750	1925		3160
ALUM.	.04	.03	0	0	.03		.02
LOAD (lbs/day):							
ACID							-
ALK							-
IRON							-
SULFATE							-
ALUM							-

COMMENTS:

Pond. No flow.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 21

Water Quality Parameter	DATE OF SAMPLING						AVG. for PERIOD
	7/70	3/71	5/71	6/71	7/71		
FLOW (g.p.m.)							-
pH	6.6	6.5	5.9	6.4	6.3		6.3
CONC. (MG/L):							
ACID	0	22	746	12	238		204
ALK.	116	168	142	90	148		133
IRON	.02	.2	.07	.05	.01		.07
SULFATE	2250	3250	2500	3125	1775		2580
ALUM.	.07	0	0	0	.02		.01
LOAD (lbs/day):							
ACID							-
ALK							-
IRON							-
SULFATE							-
ALUM							-

COMMENTS:

Pond. No flow.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 22

D A T E O F S A M P L I N G

Water Quality Parameter	7/70	9/70	10/70	10/70	11/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	Avg. for Period
FLOW (g.p.m.)	600	120	45	1125	1200	1080	1605	1615	383	2140	273	108	46	197	753
PH	6.2	6.4	6.8	6.0	6.7	6.9	6.2	6.9	6.6	6.4	6.6	6.2	6.4	6.6	6.5
CONC. (MG/L):															
ACID	108	0	0	0	22	76	26	76	60	40	18	0	2	0	31
ALK.	110	128	114	440	66	90	70	76	168	60	168	86	116	104	128
IRON	.10	.08	.05	.10	.12	.03	0	.14	.02	.10	.02	.10	.05	.02	.07
SULFATE	675	875	625	75	1000	75	575	500	50	325	375	75	300	400	423
ALUM.	.03	.02	.03	.04	.05	.04	.10	.06	.02	.02	0	0	.01	.07	.04
LOAD (lbs/day)															
ACID	778	0	0	0	317	985	501	1473	276	1027	59	0	1.1	0	280
ALK	792	185	62	5929	951	1167	1348	1473	772	1540	609	111	64	245	990
IRON															.78
SULFATE	4860	1260	338	1011	14,400	972	11,675	9690	230	8330	1228	91	165	945	3900
ALUM															.56

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 23

DATE OF SAMPLING

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	7/70	12/70	2/71	3/71	4/71	5/71	7/71						
FLOW (g.p.m.)	3	23	3	45	3	9	7						12
PH	6.2	6.2	6.7	6.6	6.7	6.1	6.8						6.5
CONC. (MG/L):													
ACID	112	34	0	18	2	0	124						41
ALK.	124	40	104	52	96	94	132						92
IRON	.22	.02	0	.10	.02	.06	.03						.04
SULFATE	600	375	200	450	375	50	1300						418
ALUM.	.11	.10	0	.05	0	0	.01						.03
LOAD (lbs/day)													
ACID	4.0	9.4	0	9.5	.1	0	10.4						5.9
ALK	4.5	10.8	3.7	28.0	3.4	10.1	11.0						8.9
IRON													0
SULFATE	22	101	7	243	15	6	109						63
ALUM													0

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 24

Water Quality Parameter	DATE OF SAMPLING										AVG. for PERIOD
	7	7	7	7	7	7	7	7	7	7	
FLOW (g.p.m.)	-										-
PH	6.4										6.4
CONC. (MG/L):											
ACID	0										0
ALK.	252										252
IRON	.08										.08
SULFATE	1925										1925
ALUM.	.03										.03
LOAD (lbs/day)											
ACID	-										-
ALK	-										-
IRON	-										-
SULFATE	-										-
ALUM	-										-

COMMENTS:

Pond. Could not reach site due to poor road condition.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 25

Parameter	DATE OF SAMPLING												AVG. for PERIOD
	8/70	12/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	6/71	7/71	7/71	
DO (g.p.m)	150	120	180	200	150	538	120	160	50	80			175
	5.7	6.1	6.5	6.7	6.3	5.5	5.5	6.0	6.0	6.5			6.1
CONC. (MG/L):													
CL	548	542	264	48	248	158	370	0	534	334			305
CLK	80	78	58	52	46	4	58	86	54	74			59
PH	.40	.04	.04	.15	.23	1.80	.60	.06	2.50	.60			.64
SULFATE	2000	1650	1900	1750	1650	1575	1750	2000	1750	2125			1815
ALUM.	1.30	.17	1.00	1.00	.70	1.00	.32	.10	.60	.36			.66
SED. (inches/day)													
ACID	986	780	570	115	446	1021	533	0	320	321			641
ALK	144	113	126	125	83	26	84	111	33	71			92
													2.14
SULFATE	3600	2376	4104	4200	2970	10,150	2520	3840	1050	2160			3697
TOTAL													1.8

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 25X

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD			
	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71								
FLOW (g.p.m.)	90	30	20	40	10	19	6	8								28
PH	4.3	3.9	4.1	3.9	4.5	3.5	3.7	4.2								4.0
CONC. (MG/L):																
ACID	284	656	894	790	868	344	1174	1128								767
ALK.																-
IRON	1.2	3.2	3.0	3.0	3.0	6.8	16.7	4.2								5.1
SULFATE	1000	2500	1200	2750	2750	2000	3000	1675								2109
ALUM.	1.0	7.5	8.0	7.5	12.0	7.5	3.0	12.0								7.3
LOAD (lbs/day)																
ACID	307	236	215	379	104	79	85	108								258
ALK																-
IRON																1.0
SULFATE	1080	900	288	1320	330	456	216	160								595
ALUM																1.8

COMMENTS:

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 27

Water Quality Parameter	DATE OF SAMPLING							AVG for PERIOD
	8/70	3/71	5/71	7/71				
FLOW (g.p.m.)	Trickle...							-
PH	6.5	6.7	6.9	6.4			6.6	
CONC. (MG/L):								
ACID	16	4	0	0			5	
ALK.	152	130	152	134			142	
IRON	.10	.10	.03	1.70			.48	
SULFATE	100	75	250	250			170	
ALUM.	.07	.04	.06	.10			.07	
LOAD (lbs/day)								
ACID							-	
ALK							-	
IRON							-	
SULFATE							-	
ALUM							-	

COMMENTS:

Pond. No flow.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 28

D A T E O F S A M P L I N G

Water Quality Parameter	8/70	11/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
	Trickle	Trickle	15	15	8	30	5	10	3	5	
FLOW (g.p.m.)											9
PH	5.1	5.8	6.6	6.2	6.2	5.9	5.9	6.7	6.0	6.3	6.1
CONC. (MG/L):											
ACID	94	112	*238	328	34	140	586	0	82	164	171
ALK.	42	70	54	178	124	106	146	150	88	102	106
IRON	.54	.75	.12	2.60	1.60	1.50	.60	.28	.26	.07	.83
SULFATE	2300	3500	1325	2750	2500	2500	3250	2250	375	1825	2257
ALUM.	.02	1.60	.18	.13	.34	0	0	0	0	0	.23
LOAD (lbs/day)											
ACID	-	-	43	59	3.3	50	35	0	3.0	9.8	18.0
ALK	-	-	9.7	32.0	11.9	28.1	8.7	18.0	3.1	6.1	11.8
IRON											.14
SULFATE	-	-	239	495	240	900	195	270	14	109	246
ALUM											0

COMMENTS:

*Excluded From Calculation Of Average Value.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 29

D A T E O F S A M P L I N G

Water Quality Parameter	10/70	12/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71	AVG. for PERIOD
	60	240	120	180	180	180	60	95	17	20	
FLOW (g.p.m.)	trickle										97
PH	6.6	6.4	6.4	5.6	5.3	6.1	6.6	6.7	6.4	6.6	6.3
CONC. (MG/L):											
ACID	0	342	568	0	18	16	208	30	504	226	191
ALK.	138	168	102	154	108	76	118	118	124	88	119
IRON	.05	.05	.04	.15	.14	.38	.10	.09	.50	.06	.16
SULFATE	1825	1725	1275	1550	1250	1650	1175	1475	1700	1125	1475
ALUM.	.05	.02	.03	.03	.13	.14	.14	.04	.06	.02	.07
LOAD (lbs/day)											
ACID	-	246	1636	0	32	35	150	34.2	103	54	222
ALK	-	121	294	222	234	167	84	134	25	21	130
IRON											.18
SULFATE	-	1242	3672	2232	2700	3570	2256	1558	346	270	1785
ALUM											.09

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 30

DATE OF S A M P L I N G

Water Quality Parameter	DATE OF S A M P L I N G										AVG. for PERIOD
	11/70	12/70	2/71	4/71	5/71	6/71	7/71				
FLOW(g.p.m.)	15	30	15	15	10	-	-	-	-	-	10
PH	6.4	6.0	6.9	6.3	6.2	-	-	-	-	-	6.4
CONC.(MG/L):											
ACID	122	184	20	66	0	0	0	0	0	0	56
ALK.	168	100	94	104	108	0	0	0	0	0	82
IRON	.05	.12	0	.02	0	0	0	0	0	0	.03
SULFATE	800	75	775	850	825	0	0	0	0	0	475
ALUM.	.02	.01	0	.04	.04	0	0	0	0	0	.01
LOAD(lbs/day)											
ACID	22.0	66.2	3.6	11.9	0	0	0	0	0	0	6.9
ALK	30.2	36.0	16.9	17.7	12.9	0	0	0	0	0	16.2
IRON											0
SULFATE	144	27	140	153	99	0	0	0	0	0	80
ALUM											0

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 31

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING										AVG for PERIOD	
	12/70	12/70	1/71	2/71	3/71	4/71	5/71	7/71				
FLOW (g.p.m.)	90	360	60	240	113	112	162	147				165
PH	7.1	6.5	6.5	5.8	6.9	6.6	6.9	6.9				6.6
CONC. (MG/L):												
ACID	0	200	0	236	0	2	0	462				113
ALK.	130	88	128	128	156	174	164	68				130
IRON	.06	.05	.06	.05	.14	.07	.08	.25				.09
SULFATE	1275	1200	1500	800	1625	1375	1500	1150				1305
ALUM.	.02	.06	.08	.02	.05	0	.02	.07				.04
LOAD (lbs/day)												
ACID	0	860	0	680	0	2.7	0	815				224
ALK	140	380	92	369	218	228	318	119				233
IRON												.17
SULFATE	1377	5184	1080	2304	2220	1848	2964	2028				2376
ALUM												.07

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 32

Water Quality Parameter	DATE OF SAMPLING											AVG. for PERIOD	
	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71					
FLOW(g.p.m.)	420	2280	Ice	1166	630	1122	799	757					1065
PH	6.4	6.6	6.6	6.0	6.4	6.6	6.1	6.2	6.5				6.4
CONC. (MG/L):													
ACID	36	0	*892	438	126	106	148	34	96				139
ALK.	86	58	40	60	34	80	44	112	112				70
IRON	.13	.08	.55	.30	.10	.12	.08	1.2	.45				.33
SULFATE	2300	2750	4500	2300	3000	2750	3125	3750	1875				2936
ALUM.	.11	.14	.15	.10	.10	.06	.07	0	.03				.08
LOAD(lbs/day)													
ACID	181	0	-	6128	2041	801	1993	326	872				1780
ALK	433	158	-	840	550	604	591	1073	1017				837
IRON													1.7
SULFATE	11,592	7524	-	32,180	48,600	20,790	34,944	35,955	16,899				26,100
ALUM													1.1

COMMENTS:

*Excluded From Calculation Of Average Value.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 33

D A T E O F S A M P L I N G

Water Quality Parameter	DATE OF SAMPLING											AVG. for PERIOD
	12/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71			
:LOW(g.p.m)	322	480	240	240	480	240	180	161	136			276
PH	5.9	6.4	6.1	6.3	6.0	6.5	6.7	6.6	6.7			6.4
CONC.(MG/L):												
ACID	82	16	0	594	338	118	14	162	298			180
ALK.	230	334	190	210	100	196	210	150	128			194
IRON	.09	.10	.10	.05	.10	.08	.08	.13	.06			.09
SULFATE	4000	2050	4000	3125	3250	3500	2750	4000	2500			3242
ALUM.	.05	0	.07	.03	.05	.0	.02	.05	.04			.03
LOAD(lbs/doy)												
ACID	317	77	0	1711	1950	340	30	315	486			596
ALK	889	1924	547	605	577	339	441	115	208			627
IRON												.30
SULFATE	15456	11808	11520	9000	18750	10080	5840	7720	4080			10500
ALUM												.11

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 34

D A T E O F S A M P L I N G

Water Quality Parameter	D A T E O F S A M P L I N G												AVG. for PERIOD			
	10/70	12/70	1/71	2/71	3/71	4/71	5/71	6/71	7/71							
FLOW (g.p.m.)	-	270	60	40	60	20	45	Dry	12							63
PH	6.2	6.6	6.2	6.7	5.7	6.5	6.7	5.9	6.8							6.4
CONC. (MG/L):																
ACID	0	240	322	116	42	92	0	66	408*							110
ALK.	70	46	50	78	36	54	50	44	108							60
IRON	.09	.05	0	0	.06	.25	.01	.15	.32							.10
SULFATE	1425	1050	1300	950	900	825	950	625	800							947
ALUM.	.04	.02	0	.02	.06	.05	.02	.05	0							.03
LOAD (lbs/day)																
ACID	-	778	232	56	30	22	0	0	59							83
ALK	-	149	36	37	26	13	27	0	16							38
IRON																.03
SULFATE	-	3402	936	456	648	198	512	0	115							784
ALUM																.01

COMMENTS:

*Excluded From Calculation Of Average Value.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 35

Water Quality Parameter	DATE OF SAMPLING												AVG. for PERIOD
	1/71	2/71	3/71										
FLOW (g.p.m.)	1346	1796	3160										2100
PH	6.3	6.4	6.3										6.3
CONC. (MG/L):													
ACID	344	172	180										232
ALK.	28	32	14										28
IRON	.70	.44	1.7										.95
SULFATE	1750	1575	1500										1610
ALUM.	.90	.36	.4										.55
LOAD (lbs/day)													
ACID	5556	3707	6826										2350
ALK	452	690	531										280
IRON													-
SULFATE	28,266	33,944	56,900										-
ALUM													-

COMMENTS:

Loose dogs on property. No samples after 3/71.
Average acid loads are estimated based on readings obtained and expected seasonal fluctuations as per other stations.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 38

Water Quality Parameter	DATE OF SAMPLING					AVG. for PERIOD
	2/71	3/71	5/71			
FLOW (g.p.m.)	494	565	378			475
PH	6.2	5.8*	6.1			6.2
CONC. (MG/L):						
ACID	180	0*	0			90
ALK.	112	76	122			103
IRON	0	.10	.02			.04
SULFATE	1625	1750	1000			1458
ALUM.	.06	.05	.02			.04
LOAD (lbs/day)						
ACID	1067	0	0			513
ALK	664	515	541			573
IRON						.25
SULFATE	9633	11880	4536			8683
ALUM						.25

COMMENTS:

*Excluded From Calculation of Average Value.

STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2

STATION 39

Water Quality Parameter	DATE OF SAMPLING						AVG. for PERIOD
	2/71	3/71	5/71				
FLOW (g.p.m.)	Ice	1320	1100				1210
PH	6.5	6.3	6.1				6.3
CONC. (MG/L):							
ACID	576*	184	92				138
ALK.	70	34	120				108
IRON	.4	.1	.7				.4
SULFATE	2500	4125	2750				3231
ALUM.	.06	.20	0				.08
LOAD (lbs/day)							
ACID	0	2915	1214				2004
ALK	0	538	1584				1570
IRON							.3
SULFATE	0	65,400	36,300				50,700
ALUM.							1.1

COMMENTS:

*Excluded From Calculation Of Average Value.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 40

Water Quality Parameter	DATE OF SAMPLING										AVG. for PERIOD
	2/71	3/71	4/71	5/71							
FLOW (g.p.m.)	446	838	398	560							560
PH	5.5	5.3	5.5	5.3							5.4
CONC. (MG/L):											
ACID	612	248	352	136							337
ALK.	22	12	10	2							11
IRON	.1	.3	.3	.1							.2
SULFATE	3250	3250	2500	2750							2937
ALUM.	1.1	1.5	1.4	1.3							1.3
LOAD (lbs/day)											
ACID	3275	2494	1681	914							2265
ALK	118	121	47	13							75
IRON											1.4
SULFATE	17394	32700	11840	18480							20200
ALUM											8.9

COMMENTS:

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 41

Water Quality Parameter	DATE OF SAMPLING										AVG. for PERIOD	
FLOW (g.p.m.)	3/71										986	
PH	5.3											
CONC. (MG/L):												
ACID	506											
ALK.	22											
IRON	.1											
SULFATE	2500											
ALUM.	1.0											
LOAD (lbs/day)												
ACID	5980											
ALK	261											
IRON	1.2											
SULFATE	29,600											
ALUM	11.8											

COMMENTS:

Data not considered. Stream reading. Swamp area too difficult to reach.

**STREAM QUALITY DATA
HILLMAN STATE PARK
PROJECT SL-130-2**

STATION 43

Water Quality Parameter	DATE OF SAMPLING										AVG. for PERIOD	
	2/71	3/71	5/71									
FLOW (g.p.m.)	300	1075	360									578
PH	6.1	6.0	6.4									6.2
CONC. (MG/L):												
ACID	288	286	130									235
ALK.	50	12	50									37
IRON	.07	.20	.05									.11
SULFATE	2250	2750	2500									2500
ALUM.	1.0	.5	1.0									.8
LOAD (lbs/day)												
ACID	1037	3689	562									1100
ALK	180	155	216									173
IRON												-
SULFATE	8100	35,500	10,800									-
ALUM												-

COMMENTS:

Average load data estimated for total survey period on the basis of seasonal fluctuations observed at downstream Station 2.

STREAM QUALITY DATA
 HILLMAN STATE PARK
 PROJECT SL-130-2

STATION 44

DATE OF SAMPLING

Water Quality Parameter	2/71	3/71	5/71	DATE OF SAMPLING				AVG for PERIOD
FLOW (g.p.m.)	264	1121	480					621
PH	6.0	6.0	6.4					6.1
CONC. (MG/L):								
ACID	212	264	174					217
ALK.	40	4	38					27
IRON	.05	.2	.02					.09
SULFATE	2125	2375	2250					2240
ALUM.	.7	1.1	.3					.7
LOAD (lbs/day)								
ACID	672	3551	1002					1617
ALK	127	52	218					201
IRON								-
SULFATE	6732	31,900	12,950					-
ALUM								-

COMMENTS:

Average load data estimated for total survey period on the basis of seasonal fluctuations observed at downstream Station 2.