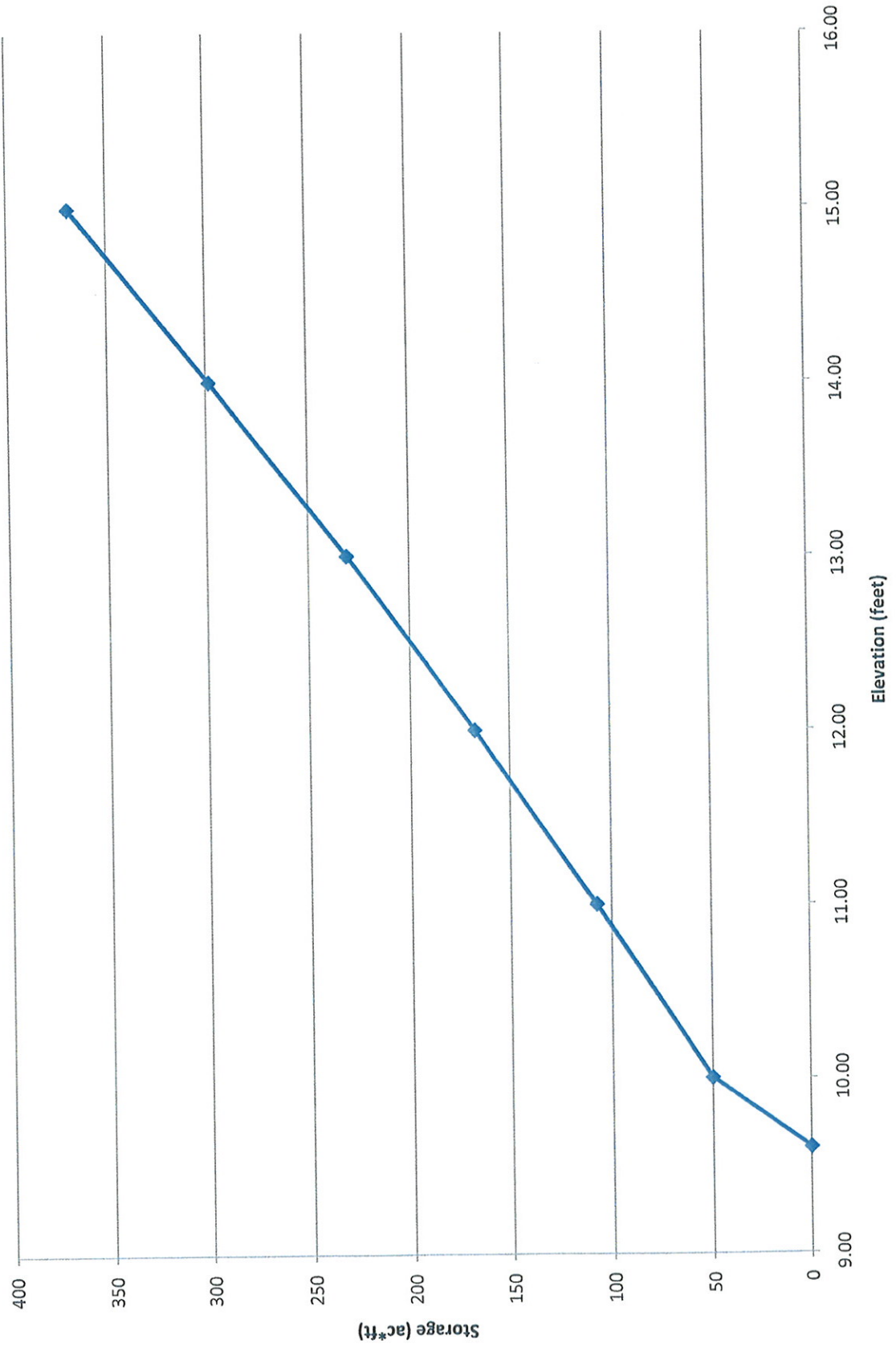


APPENDIX G

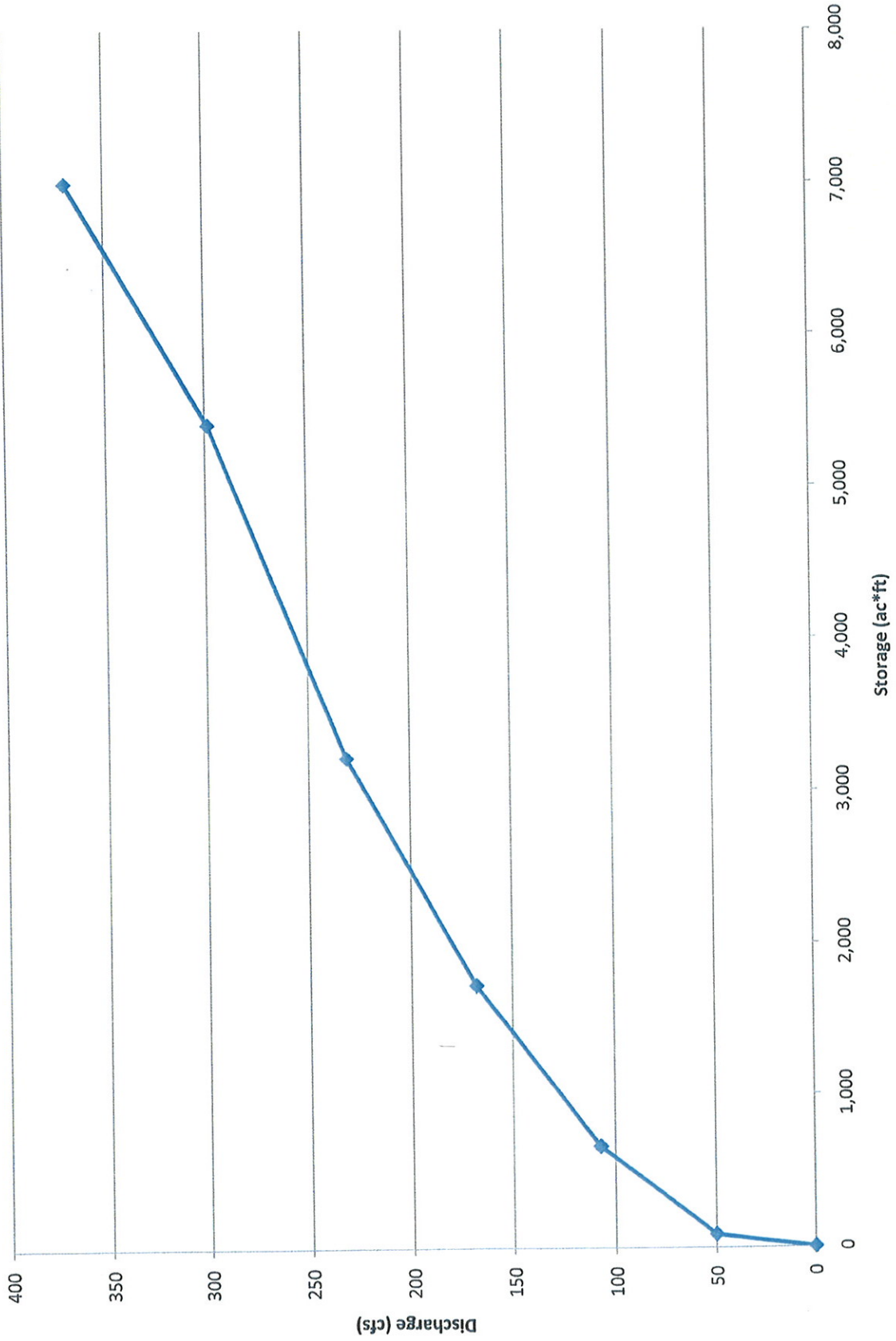
Dam Data

Elevation-Storage, Storage-Discharge, and Elevation-Area Curves

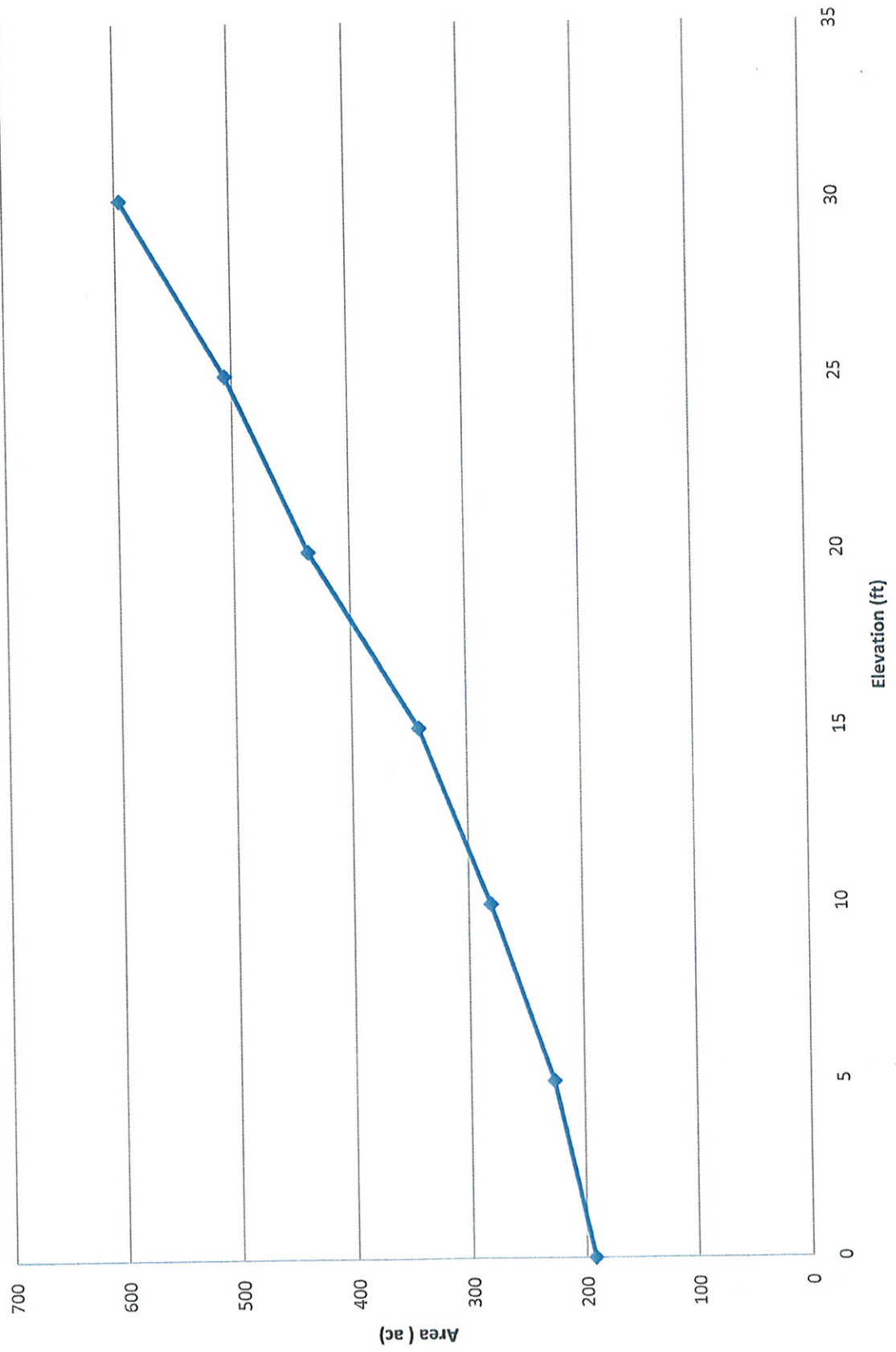
Elevation-Storage Curve for Shallcross Lake Dam (TR-20 FEMA)



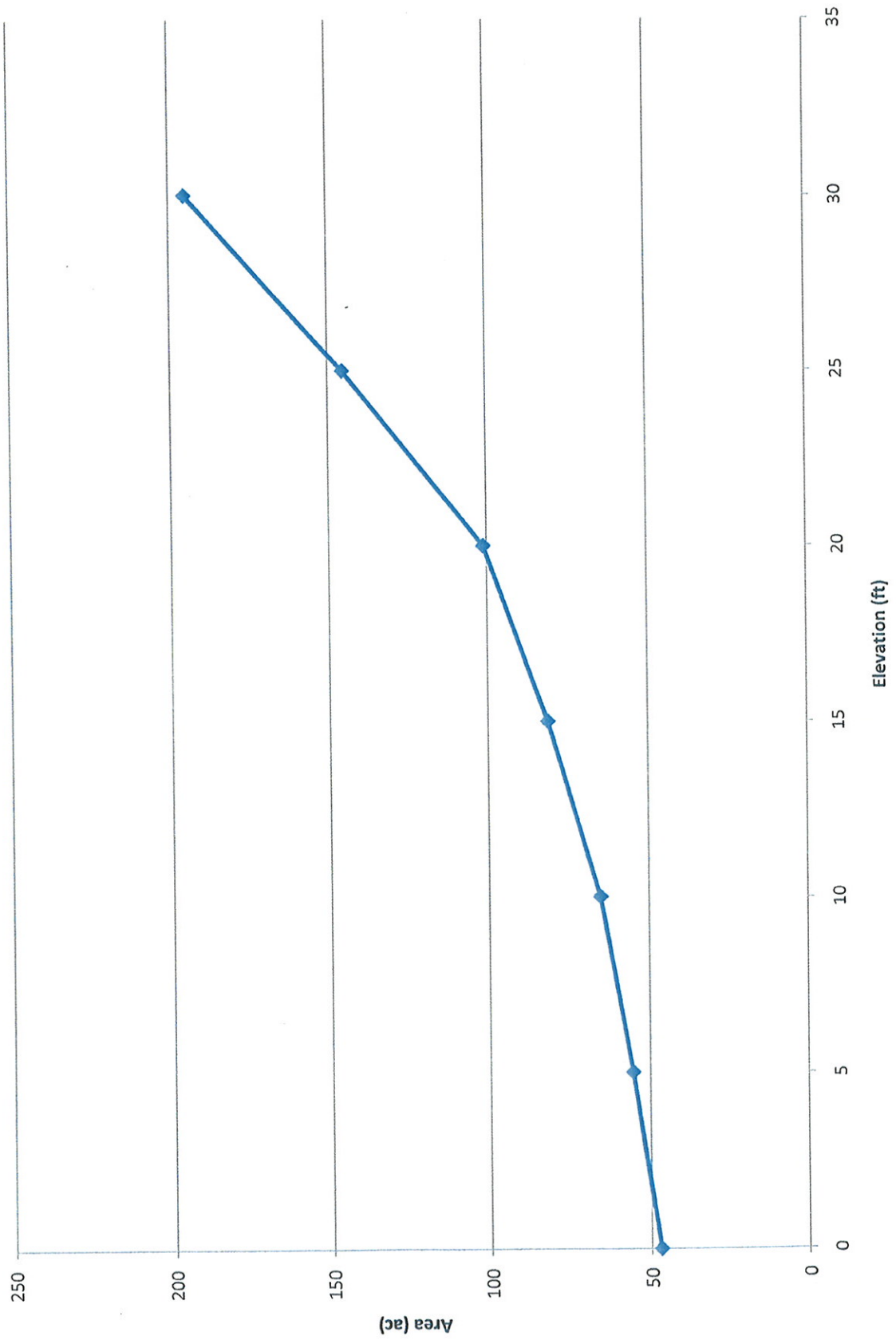
Storage-Discharge Curve for Shallcross Lake Dam (TR-20)



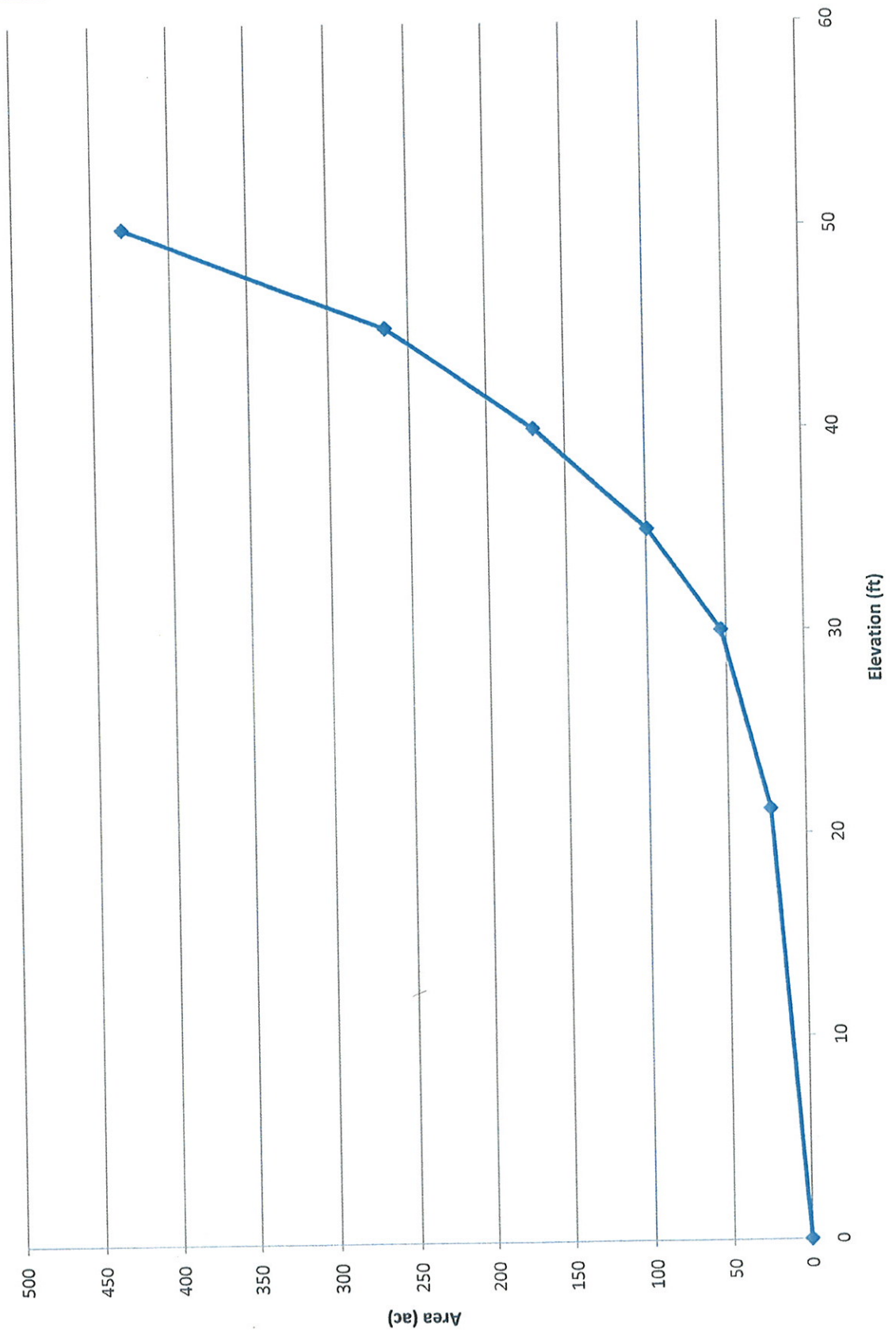
Elevation-Area Curve for Noxontown Lake Dam



Elevation-Area Curve for Silver Lake Dam



Elevation-Area Curve for Wiggins Mill Pond



**TR-20 Data for Shallcross Lake and its Upstream
Tributaries**

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*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR20									10	
TITLE 001									20	
TITLE	FOUR	SUBAREAS	AND THREE	REACHES	AND A LAKE				30	
3 STRUCT		01							40	
8			9.6	0.0	0.0				50	
8			10.0	85.	50.0				60	
8			11.0	667.	107.25				70	
8			12.0	1725.	167.5				80	
8			13.0	3219.	231.25				90	
8			14.0	5409.	298.5				100	
8			15.0	7000.	369.25				110	
9 ENDTBL									120	
6 RUNOFF	1	001	1	1.86	66.84	1.0	1	1	130	
6 RUNOFF	1	002	2	2.41	64.72	1.0	1	1	140	
6 ADDHYD	4	003	2	1	3		1	1	150	
6 REACH	3	004	3	4	500.	0.4	1	1	160	
6 RUNOFF	1	005	5	0.32	61.24	0.50	1	1	170	
6 ADDHYD	4	006	5	4	6		1	1	180	
6 REACH	3	007	6	7	2800.	0.4	1	1	190	
6 RUNOFF	1	008	1	1.20	63.02	0.80	1	1	200	
6 ADDHYD	4	009	1	7	2		1	1	210	
6 REACH	3	010	2	3	1000.	0.4	1	1	220	
6 RESVOR	2	01	3	4	9.0		1	1	230	
ENDATA									240	
7 INCREM	6			0.10					250	
7 COMPUT	7	001	01	0.0	7.2	1.0	2	2	01	260
ENDCMP	1								270	
ENDJOB	2								280	

*****END OF 80-80 LIST*****

1
 TR20 ----- SCS -
 BAYBERRY: TR-20 RUN: C850 VERSION
 08/15/** FOUR SUBAREAS AND THREE REACHES AND A LAKE 2.04TEST
 10:25:57 PASS 1 JOB NO. 1 PAGE 1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatible microcomputer environment.

Compatible input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATTKIN ROUTING: separate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low

SHALTR20

ground elevation. Program changes have been made to better handle multiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

1
 TR20 ----- SCS -
 08/15/** BAYBERRY: TR-20 RUN: C850 VERSION
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EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS 250

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1 260
 STARTING TIME = .00 RAIN DEPTH = 7.20 RAIN DURATION = 1.00
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
 ALTERNATE NO. = 0 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1
 PEAK TIME(HRS) 12.51 PEAK DISCHARGE(CFS) 2191.7 PEAK ELEVATION(FEET) (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.45 WATERSHED INCHES; 4140 CFS-HRS; 342.1 ACRE-FEET.
 DURATION(HRS) 2 4 6 8 10 12 14 16
 FLOW(CFS) 424 197 141 110 88 81 40 4
 DURATION(HRS) 17
 FLOW(CFS) 0

OPERATION RUNOFF XSECTION 2
 PEAK TIME(HRS) 12.52 PEAK DISCHARGE(CFS) 2639.2 PEAK ELEVATION(FEET) (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.23 WATERSHED INCHES; 5021 CFS-HRS; 414.9 ACRE-FEET.
 DURATION(HRS) 2 4 6 8 10 12 14 16
 FLOW(CFS) 518 246 174 135 109 101 40 3
 DURATION(HRS) 17

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FLOW(CFS) 0

OPERATION ADDHYD XSECTION 3

PEAK TIME(HRS) 12.51 PEAK DISCHARGE(CFS) 4830.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.32 WATERSHED INCHES; 9161 CFS-HRS; 757.0 ACRE-FEET.

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PAGE 3

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	937	443	313	244	197	182	74	7
DURATION(HRS)	18							
FLOW(CFS)	0							

OPERATION REACH XSECTION 4

PEAK TIME(HRS) 12.51 PEAK DISCHARGE(CFS) 4830.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.32 WATERSHED INCHES; 9161 CFS-HRS; 757.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	937	443	313	244	197	182	74	7
DURATION(HRS)	18							
FLOW(CFS)	0							

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS) 12.20 PEAK DISCHARGE(CFS) 487.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.87 WATERSHED INCHES; 592 CFS-HRS; 49.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	49	28	21	16	13	12	2	0

OPERATION ADDHYD XSECTION 6

PEAK TIME(HRS) 12.49 PEAK DISCHARGE(CFS) 5089.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.29 WATERSHED INCHES; 9753 CFS-HRS; 806.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	1057	470	333	260	210	194	77	7

DURATION(HRS) 18

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FLOW(CFS) 0

1

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OPERATION REACH XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
 12.68 4847.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.29 WATERSHED INCHES; 9753 CFS-HRS; 806.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	1068	481	337	263	210	195	79	7

DURATION(HRS) 18
 FLOW(CFS) 0

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
 12.39 1404.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.05 WATERSHED INCHES; 2365 CFS-HRS; 195.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	225	114	82	64	52	49	14	0

OPERATION ADDHYD XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
 12.61 5957.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.24 WATERSHED INCHES; 12118 CFS-HRS; 1001.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	1355	592	418	326	262	244	98	8

DURATION(HRS) 18
 FLOW(CFS) 0

OPERATION REACH XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
 12.61 5957.3 (NULL)

1

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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 Page 4

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3.24 WATERSHED INCHES; 12118 CFS-HRS; 1001.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	1355	592	418	326	262	244	98	8
DURATION(HRS)	18							
FLOW(CFS)	0							

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.11 3877.5 13.30

HRS	MAIN	HYDROGRAPH POINTS FOR				ALTERNATE = 0, STORM = 1			
		TIME	INCREMENT = .100 hr,			DRAINAGE AREA = 5.79 SQ.MI.			
12.00	CFS	-21	3	41	130	502	1063	1711	2446
12.00	ELEV	9.50	9.61	9.79	10.08	10.72	11.37	11.99	12.48
12.80	CFS	3017	3482	3781	3876	3822	3671	3461	3221
12.80	ELEV	12.86	13.12	13.26	13.30	13.28	13.21	13.11	13.00
13.60	CFS	3035	2841	2647	2458	2278	2109	1952	1807
13.60	ELEV	12.88	12.75	12.62	12.49	12.37	12.26	12.15	12.05
14.40	CFS	1686	1592	1503	1420	1342	1269	1202	1141
14.40	ELEV	11.96	11.87	11.79	11.71	11.64	11.57	11.51	11.45
15.20	CFS	1084	1031	983	940	900	863	829	798
15.20	ELEV	11.39	11.34	11.30	11.26	11.22	11.19	11.15	11.12
16.00	CFS	769	742	717	694	672	658	646	634
16.00	ELEV	11.10	11.07	11.05	11.03	11.00	10.98	10.96	10.94
16.80	CFS	622	610	599	588	577	567	557	547
16.80	ELEV	10.92	10.90	10.88	10.86	10.85	10.83	10.81	10.79
17.60	CFS	538	529	520	511	503	496	488	481
17.60	ELEV	10.78	10.76	10.75	10.73	10.72	10.71	10.69	10.68
18.40	CFS	473	466	460	453	446	440	434	428
18.40	ELEV	10.67	10.66	10.64	10.63	10.62	10.61	10.60	10.59
19.20	CFS	422	416	410	404	398	393	387	382
19.20	ELEV	10.58	10.57	10.56	10.55	10.54	10.53	10.52	10.51
20.00	CFS	376	371	365	360	355	350	344	339
20.00	ELEV	10.50	10.49	10.48	10.47	10.46	10.45	10.45	10.44
20.80	CFS	335	330	325	321	317	313	309	305
20.80	ELEV	10.43	10.42	10.41	10.41	10.40	10.39	10.38	10.38
21.60	CFS	302	299	295	293	290	287	285	282
21.60	ELEV	10.37	10.37	10.36	10.36	10.35	10.35	10.34	10.34
22.40	CFS	280	278	276	274	272	270	268	267
22.40	ELEV	10.34	10.33	10.33	10.32	10.32	10.32	10.32	10.31
23.20	CFS	265	264	262	261	259	258	256	255
23.20	ELEV	10.31	10.31	10.30	10.30	10.30	10.30	10.29	10.29
24.00	CFS	254	253	251	249	247	243	238	232
24.00	ELEV	10.29	10.29	10.29	10.28	10.28	10.27	10.26	10.25
24.80	CFS	224	214	204	193	182	171	160	149

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24.80	ELEV	10.24	10.22	10.20	10.19	10.17	10.15	10.13	10.11
25.60	CFS	138	128	119	110	102	94	87	84
25.60	ELEV	10.09	10.07	10.06	10.04	10.03	10.02	10.00	10.00
26.40	CFS	83.00	81.87	80.75	79.63	78.53	77.44	76.37	75.30
26.40	ELEV	9.99	9.99	9.98	9.97	9.97	9.96	9.96	9.95
27.20	CFS	74.25	73.22	72.20	71.19	70.20	69.22	68.25	67.30
27.20	ELEV	9.95	9.94	9.94	9.94	9.93	9.93	9.92	9.92
28.00	CFS	66.36	65.44	64.52	63.62	62.74	61.86	61.00	60.15

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28.00	ELEV	9.91	9.91	9.90	9.90	9.90	9.89	9.89	9.88
28.80	CFS	59.31	58.48	57.66	56.86	56.07	55.28	54.51	53.75
28.80	ELEV	9.88	9.88	9.87	9.87	9.86	9.86	9.86	9.85
29.60	CFS	53.00	52.26	51.53	50.81	50.11	49.41	48.72	48.04
29.60	ELEV	9.85	9.85	9.84	9.84	9.84	9.83	9.83	9.83
30.40	CFS	47.37	46.71	46.05	45.41	44.78	44.15	43.54	42.93
30.40	ELEV	9.82	9.82	9.82	9.81	9.81	9.81	9.80	9.80
31.20	CFS	42.33	41.74	41.16	40.58	40.02	39.46	38.91	38.37
31.20	ELEV	9.80	9.80	9.79	9.79	9.79	9.79	9.78	9.78
32.00	CFS	37.83	37.30	36.78	36.27	35.76	35.26	34.77	34.29
32.00	ELEV	9.78	9.78	9.77	9.77	9.77	9.77	9.76	9.76
32.80	CFS	33.81	33.34	32.87	32.41	31.96	31.52	31.08	30.64
32.80	ELEV	9.76	9.76	9.75	9.75	9.75	9.75	9.75	9.74
33.60	CFS	30.21	29.79	29.38	28.97	28.56	28.17	27.77	27.38
33.60	ELEV	9.74	9.74	9.74	9.74	9.73	9.73	9.73	9.73
34.40	CFS	27.00	26.63	26.25	25.89	25.53	25.17	24.82	24.47
34.40	ELEV	9.73	9.73	9.72	9.72	9.72	9.72	9.72	9.72
35.20	CFS	24.13	23.80	23.46	23.14	22.81	22.49	22.18	21.87
35.20	ELEV	9.71	9.71	9.71	9.71	9.71	9.71	9.70	9.70
36.00	CFS	21.57	21.27	20.97	20.68	20.39	20.10	19.82	19.55
36.00	ELEV	9.70	9.70	9.70	9.70	9.70	9.69	9.69	9.69
36.80	CFS	19.27	19.00	18.74	18.48	18.22	17.97	17.72	17.47
36.80	ELEV	9.69	9.69	9.69	9.69	9.69	9.68	9.68	9.68
37.60	CFS	17.22	16.98	16.75	16.51	16.28	16.06	15.83	15.61
37.60	ELEV	9.68	9.68	9.68	9.68	9.68	9.68	9.67	9.67
38.40	CFS	15.39	15.18	14.97	14.76	14.55	14.35	14.15	13.95
38.40	ELEV	9.67	9.67	9.67	9.67	9.67	9.67	9.67	9.67
39.20	CFS	13.76	13.56	13.38	13.19	13.01	12.82	12.64	12.47
39.20	ELEV	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66
40.00	CFS	12.29	12.12	11.95	11.79	11.62	11.46	11.30	11.14
40.00	ELEV	9.66	9.66	9.66	9.66	9.65	9.65	9.65	9.65
40.80	CFS	10.99	10.83	10.68	10.53	10.39	10.24	10.10	9.96
40.80	ELEV	9.65	9.65	9.65	9.65	9.65	9.65	9.65	9.65
41.60	CFS	9.82	9.68	9.55	9.41	9.28	9.15	9.03	8.90
41.60	ELEV	9.65	9.65	9.64	9.64	9.64	9.64	9.64	9.64
42.40	CFS	8.78	8.65	8.53	8.41	8.30	8.18	8.07	7.95
42.40	ELEV	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64
43.20	CFS	7.84	7.73	7.63	7.52	7.41	7.31	7.21	7.11
43.20	ELEV	9.64	9.64	9.64	9.64	9.63	9.63	9.63	9.63
44.00	CFS	7.01	6.91	6.81	6.72	6.63	6.53	6.44	6.35
44.00	ELEV	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63

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TR20 ----- SCS -

08/15/** BAYBERRY: TR-20 RUN: C850 VERSION
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44.80	CFS	6.26	6.18	6.09	6.01	5.92	5.84	5.76	5.68
44.80	ELEV	9.63	9.63	9.63	9.63	9.63	9.63	9.63	9.63
45.60	CFS	5.60	5.52	5.44	5.37	5.29	5.22	5.15	5.07
45.60	ELEV	9.63	9.63	9.63	9.63	9.62	9.62	9.62	9.62
46.40	CFS	5.00	4.93	4.86	4.80	4.73	4.66	4.60	4.53
46.40	ELEV	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62
47.20	CFS	4.47	4.41	4.35	4.29	4.23	4.17	4.11	4.05
47.20	ELEV	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62
48.00	CFS	4.00	3.94	3.88	3.83	3.78	3.72		
48.00	ELEV	9.62	9.62	9.62	9.62	9.62	9.62		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.99 WATERSHED INCHES; 11184 CFS-HRS; 924.2 ACRE-FEET.

DURATION(HRS)	4	8	12	16	20	24	28	32
FLOW(CFS)	658	355	247	64	37	21	12	7

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DURATION(HRS) 36 36
 FLOW(CFS) 4 4 TRUNCATED

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1 270

1 TR20 ----- SCS -
 BAYBERRY: TR-20 RUN: C850 VERSION
 08/15/** FOUR SUBAREAS AND THREE REACHES AND A LAKE 2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
RAINFALL OF 7.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.								
RAINTABLE NUMBER 2, ARC 2								
MAIN TIME INCREMENT .100 HOURS								
ALTERNATE		0	STORM	1				
XSECTION	1	RUNOFF	1.86	3.45	---	12.51	2192	1178.5
XSECTION	2	RUNOFF	2.41	3.23	---	12.52	2639	1095.0
XSECTION	3	ADDHYD	4.27	3.32	---	12.51	4830	1131.1
XSECTION	4	REACH	4.27	3.32	---	12.51	4830	1131.1
XSECTION	5	RUNOFF	.32	2.87	---	12.20	488	1525.0
XSECTION	6	ADDHYD	4.59	3.29	---	12.49	5089	1108.7
XSECTION	7	REACH	4.59	3.29	---	12.68	4848	1056.2
XSECTION	8	RUNOFF	1.20	3.05	---	12.39	1404	1170.0
XSECTION	9	ADDHYD	5.79	3.24	---	12.61	5957	1028.8
XSECTION	10	REACH	5.79	3.24	---	12.61	5957	1028.8
STRUCTURE	1	RESVOR	5.79	2.99	13.30	13.11	3878	669.8

1 TR20 ----- SCS -
 BAYBERRY: TR-20 RUN: C850 VERSION
 08/15/** FOUR SUBAREAS AND THREE REACHES AND A LAKE 2.04TEST
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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
 LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS			
			INFLOW		OUTFLOW		Q-A EQ.		PEAK RATIO Q/I (Q*)	ATT- KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)		
Page 7										

SHALTR20

BASEFLOW IS .0 CFS

	ALTERNATE	0	STORM	1							
4	500		4829	12.5	4829	12.5	.40	1.33	.005	1.000	1.00?
7	2800		5087	12.5	4843	12.7	.40	1.33	.045	.952	.53
10	1000		5954	12.6	5954	12.6	.40	1.33	.010	1.000	1.00?

1 TR20 ----- SCS -
 08/15/** BAYBERRY: TR-20 RUN: C850 VERSION
 10:25:57 FOUR SUBAREAS AND THREE REACHES AND A LAKE 2.04TEST
 SUMMARY, JOB NO. 1 PAGE 10

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE 1	5.79	
ALTERNATE 0		3878
XSECTION 1	1.86	
ALTERNATE 0		2192
XSECTION 2	2.41	
ALTERNATE 0		2639
XSECTION 3	4.27	
ALTERNATE 0		4830
XSECTION 4	4.27	
ALTERNATE 0		4830
XSECTION 5	.32	
ALTERNATE 0		488
XSECTION 6	4.59	
ALTERNATE 0		5089
XSECTION 7	4.59	
ALTERNATE 0		4848
XSECTION 8	1.20	
ALTERNATE 0		1404
XSECTION 9	5.79	

			SHALTR20

ALTERNATE	0		5957
XSECTION	10	5.79	

ALTERNATE	0		5957
1			
TR20	-----		SCS -
08/15/**	BAYBERRY: TR-20 RUN: C850		VERSION
	FOUR SUBAREAS AND THREE REACHES AND A LAKE		2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = a:shaltr20.dat , GIVEN DATA FILE
OUTPUT = a:shaltr20.OUT , DATED 08/15/**,10:25:57

FILES GENERATED - DATED 08/15/**,10:25:57

FILE a:shaltr20.TMG CONTAINS MESSAGE + WARNING INFORMATION

TOTAL NUMBER OF WARNINGS = 5, MESSAGES = 1

*** TR-20 RUN COMPLETED ***

1

*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR20									10
TITLE 001 CEDAR LANE-TR20-C1286									20
6 RUNOFF 1 001	12.41	64.72	1.0	1	1	1			30
ENDATA									40
7 INCREM 6	0.10								50
7 COMPUT 7 001 001 0.0		7.2	1.0	2	2	01	01		60
ENDCMP 1									70
ENDJOB 2									80

*****END OF 80-80 LIST*****

1

TR20	-----	SCS -
	CEDAR LANE-TR20-C1286	VERSION
10/29/**		2.04TEST
14:58:47	PASS 1 JOB NO. 1	PAGE 1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatible microcomputer environment.

Compatible input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATTKIN ROUTING: separate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle multiple

peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

1
 TR20 ----- SCS -
 10/29/** CEDAR LANE-TR20-C1286 VERSION
 14:58:47 PASS 1 JOB NO. 1 2.04TEST
 PAGE 2

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS 50

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1 60
 STARTING TIME = .00 RAIN DEPTH = 7.20 RAIN DURATION = 1.00
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
 ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)					
12.52	449.0		(RUNOFF)					
RUNOFF ABOVE BASEFLOW	(BASEFLOW = .00 CFS)		70.6 ACRE-FEET.					
3.23 WATERSHED INCHES;	854 CFS-HRS;							
DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	88	42	30	23	19	17	7	1
DURATION(HRS)	16							
FLOW(CFS)	0							

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1 70

1
 TR20 ----- SCS -
 10/29/** CEDAR LANE-TR20-C1286 VERSION
 14:58:47 SUMMARY, JOB NO. 1 2.04TEST
 PAGE 3

SUMMARY TABLE 1

 SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
 F--FLAT TOP HYDROGRAPH T--TRUNCATED HYDROGRAPH R--RISING TRUNCATED HYDROGRAPH

CLSB1.OUT

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	PEAK DISCHARGE		
					TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 7.20 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
 RAINFALL NUMBER 2, ARC 2
 MAIN TIME INCREMENT .100 HOURS

ALTERNATE		1	STORM	1				
XSECTION	1	RUNOFF	.41	3.23	---	12.52	449	1095.1

1 TR20 ----- SCS -
 10/29/** CEDAR LANE-TR20-C1286 VERSION
 14:58:47 SUMMARY, JOB NO. 1 2.04TEST
 PAGE 4

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....
XSECTION	1	.41
ALTERNATE	1	449

1 TR20 ----- SCS -
 10/29/** CEDAR LANE-TR20-C1286 VERSION
 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
 FILES

INPUT = A:CLSB1.DAT , GIVEN DATA FILE
 OUTPUT = A:CLSB1.OUT , DATED 10/29/**,14:58:47

FILES GENERATED - DATED 10/29/**,14:58:47

FILE A:CLSB1.TMG CONTAINS MESSAGE + WARNING INFORMATION

CLSBI.OUT

TOTAL NUMBER OF WARNINGS = 1, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Dam Data from DNREC

Job SMALLCROSS LAKE

Project No. URS ID 90

Sheet of

Description LOCAL DATUM

Computed by

Date 7-05-07

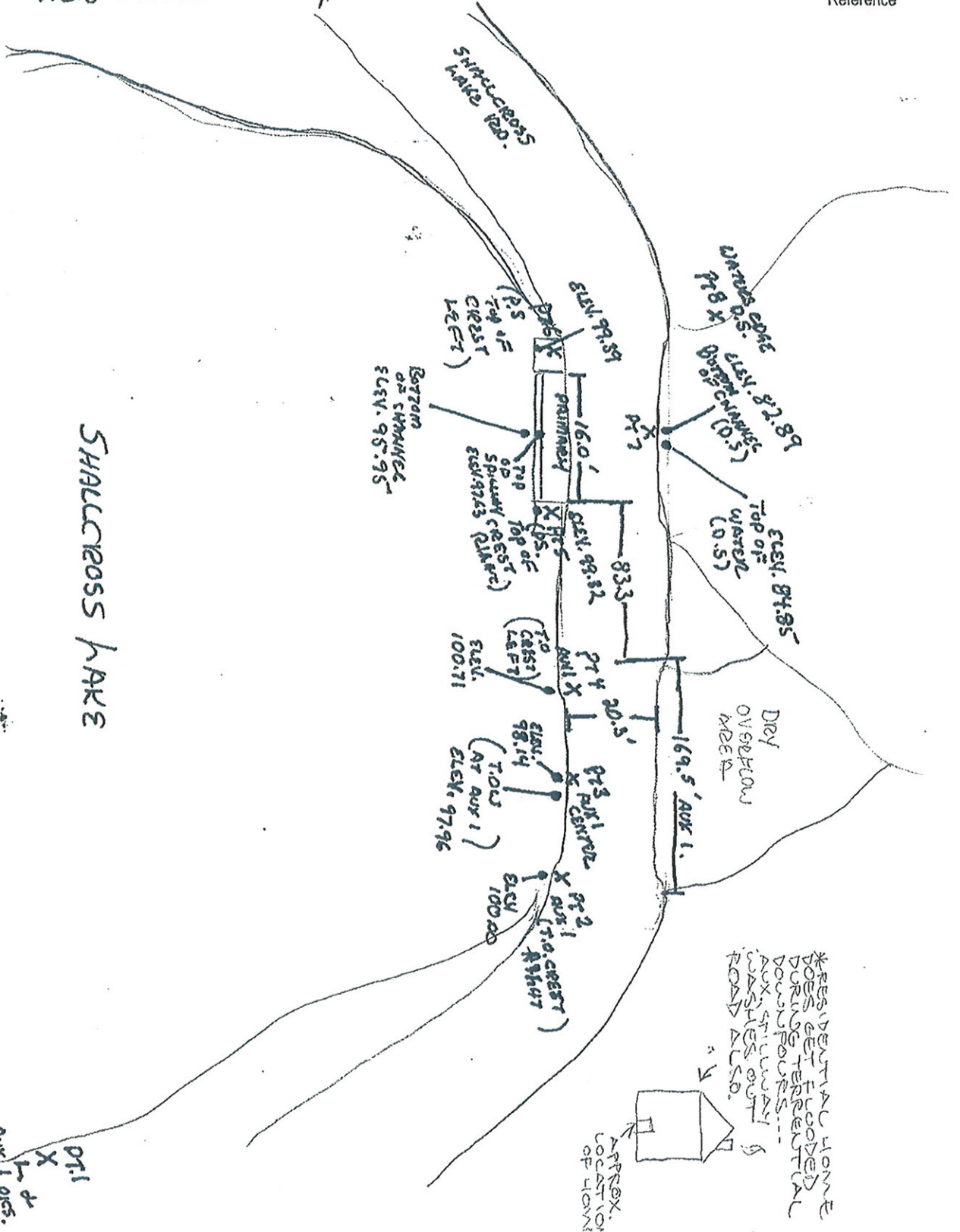
(CONCRETE SPILLWAY)
NEW CASTLE COUNTY

Checked by TE / JR

Date

Reference

● = ELEVATION
X = GRS PT.



Aux 1 p.c.s.
PT 1
X
X
X

Shallcross Lake Dam (URS ID 90) – Photo Index

Photo	Description	GPS Pt. taken From/Of
A	Landscape 1	From pt.1
B	Aux Spillway 1	From pt.1
C	Primary Spillway (left side @ bridge)	Of pt.6
D	Primary Spillway (right side @ bridge)	Of pt.5
E	Primary Spillway (downstream)	N/A
F	Top of TOW (downstream)	N/A



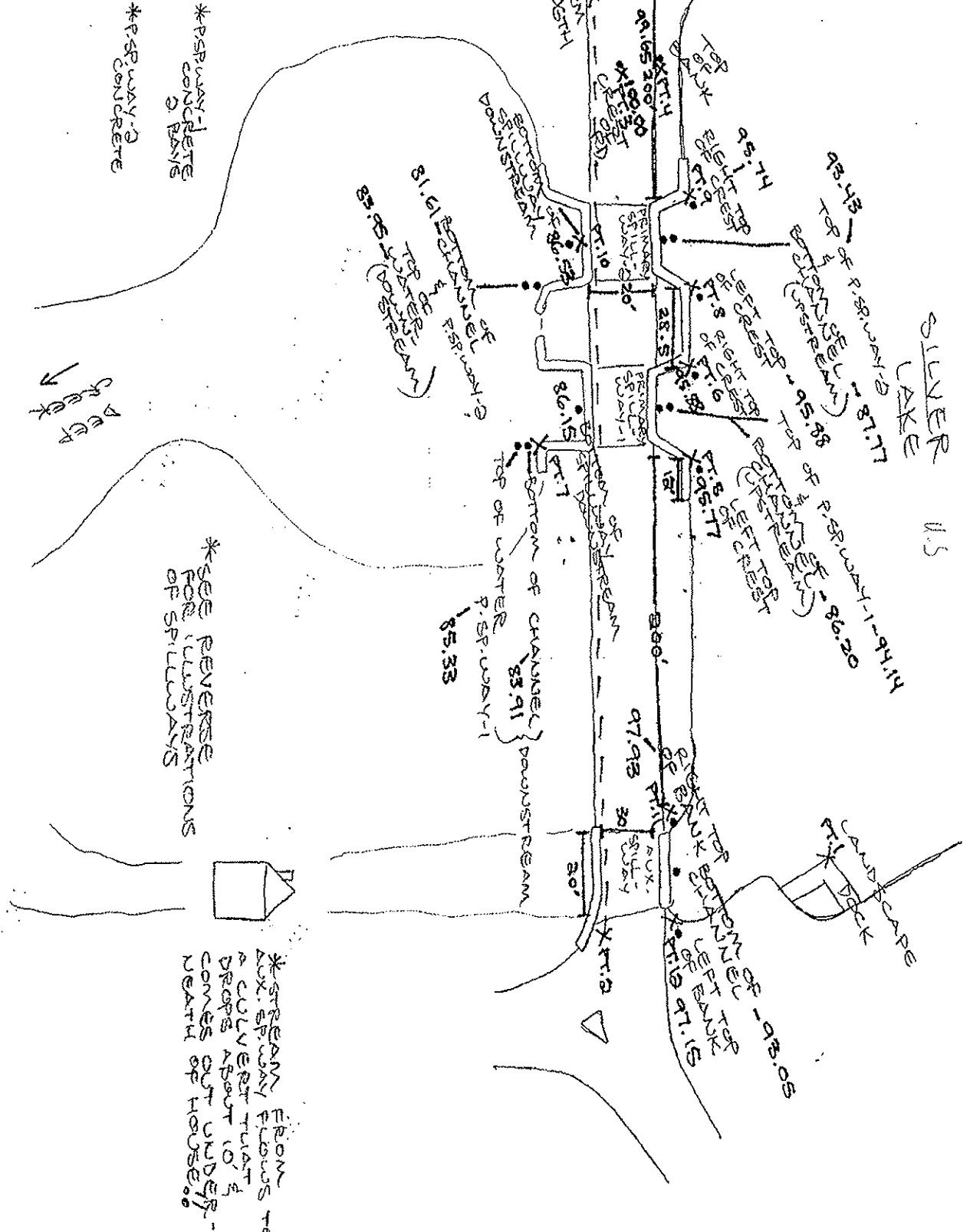


Job URS LD # 95
Description SILVER LAKE DAM
LOCAL DATUM
N.C.C.O.

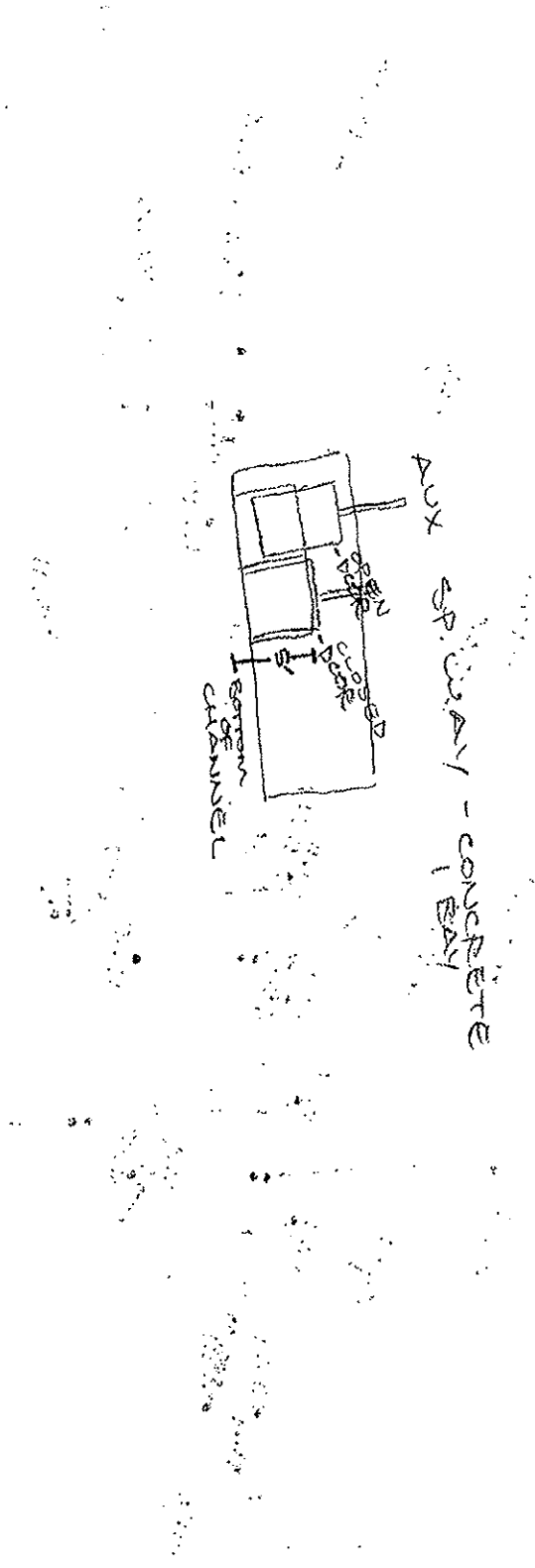
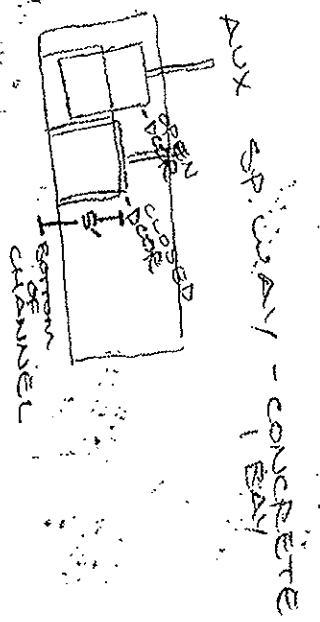
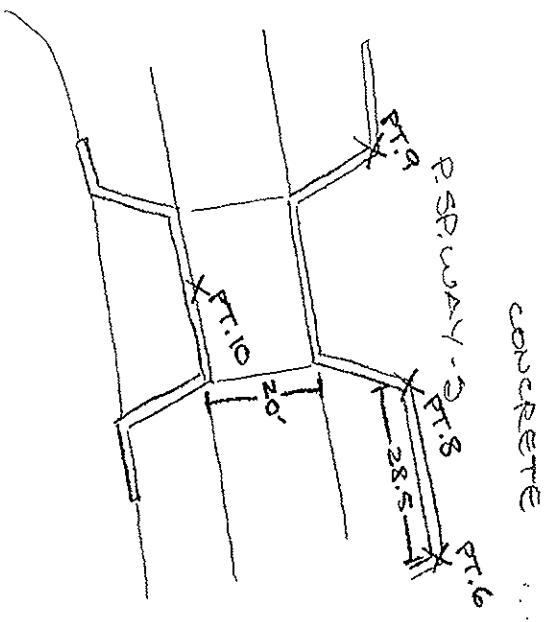
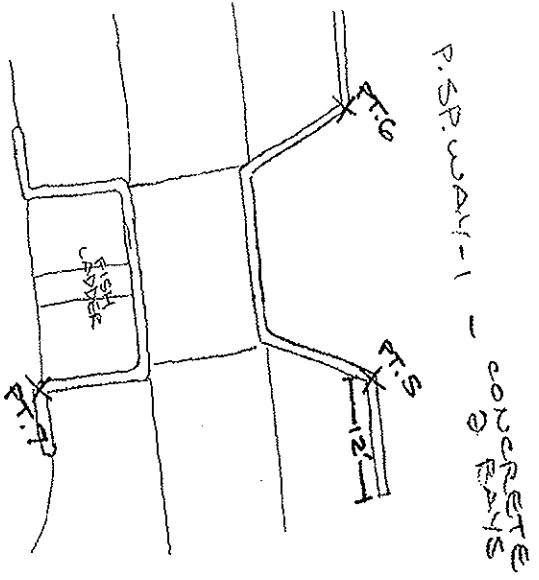
Project No. _____
Computed by _____
Checked by TE/JR

Sheet _____ of _____
Date 7/6/07
Date _____

Reference



SILVER LAKE U.S.

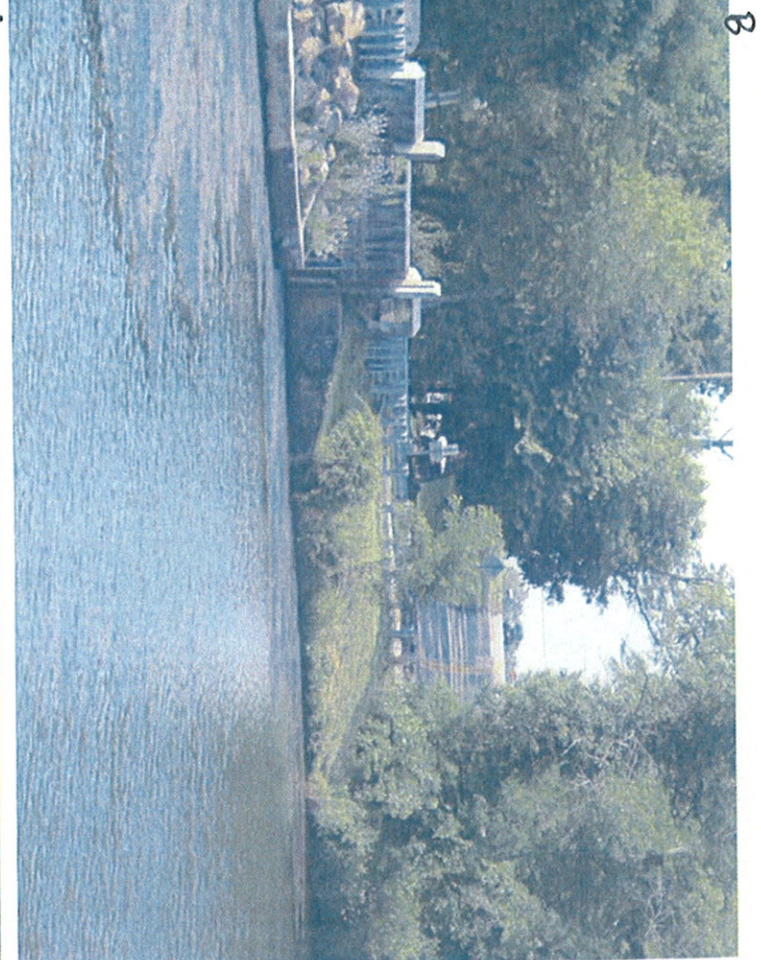


Silver Lake Dam (URS ID 95) – Photo Index

Photo	Description	GPS Pt. taken From/Of
A	Primary Spillway 1	From pt.1
B	Primary Spillway 2	From pt.1
C	Aux Spillway	From pt.1
D	Crest of Road	Of pt.3
E	Top of Bank	Of pt.4
F	Primary Spillway 1(left crest)	From pt.5
G	Primary Spillway 1 (downstream)	From pt.7
H	Primary Spillway 2 (right crest)	From pt.9
I	Primary Spillway 2 (downstream)	From pt.10
J	Aux Spillway	N/A
K	Aux Spillway (downstream)	N/A
L	Aux Spillway (downstream culvert inflow)	N/A
M	Aux Spillway (downstream culvert outflow)	N/A
N	Landscape of Culvert	N/A



A



B



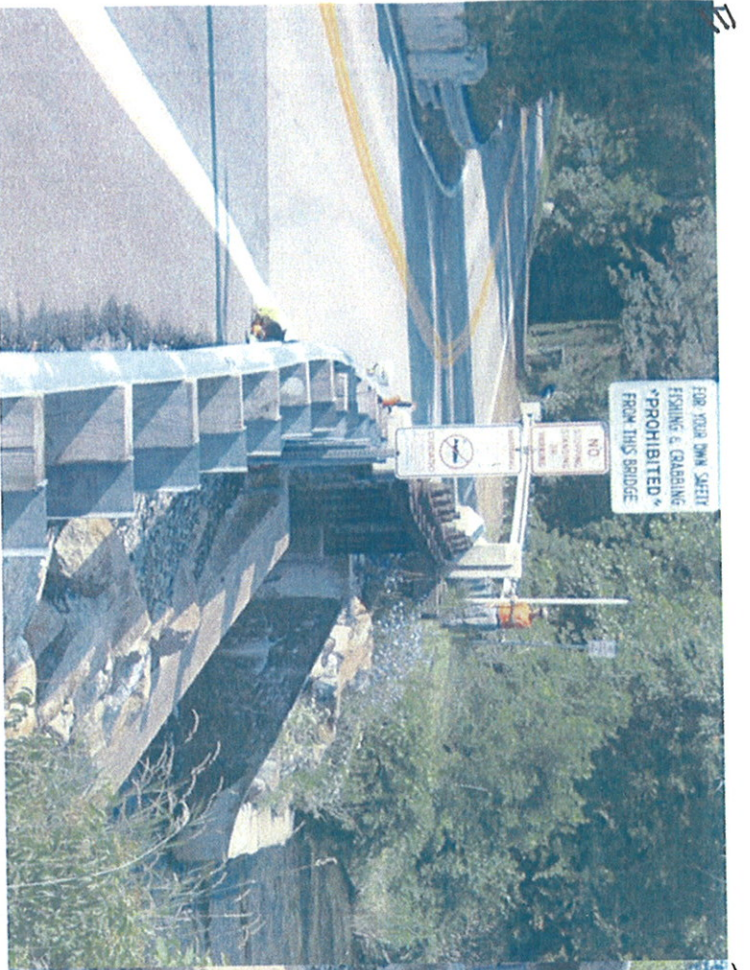
C



D

FOR YOUR OWN SAFETY
FISHING, CAMPING,
"PROHIBITED"
FROM THIS BRIDGE

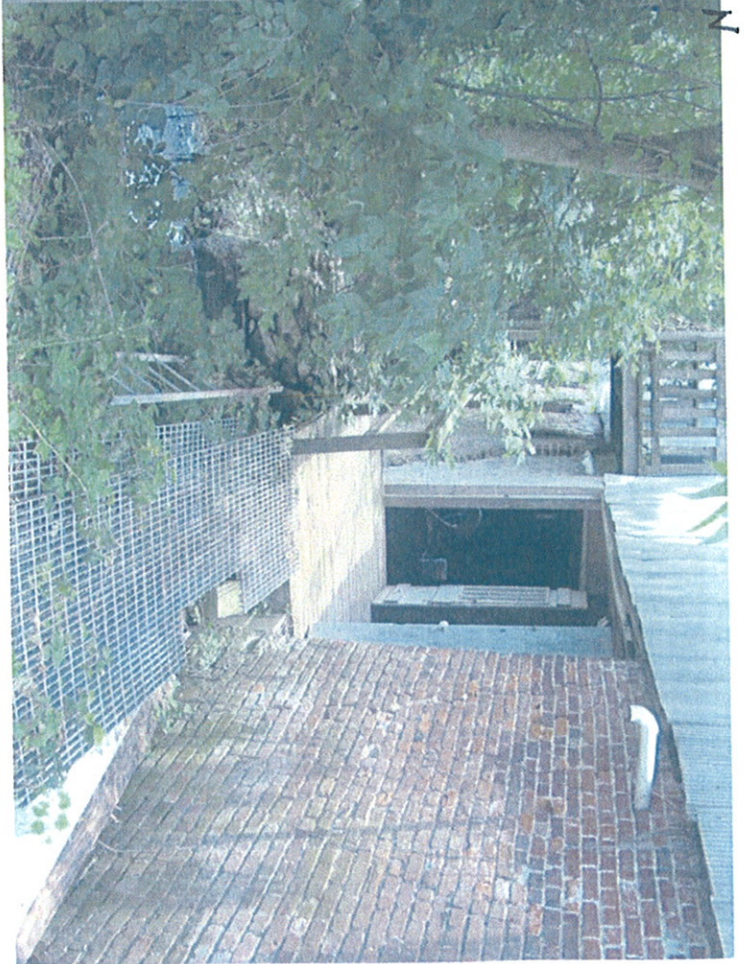








M



N

Delaware Department of Transportation

Bridge No. 1504 442

Sufficiency Rating: 75.3

Last NBI Inspection: 04/03/2007

Primary Spillway 1
2 spans

IDENTIFICATION

Bridge ID: 1504 442 (2) District: 05 (3) County: 3
 (5) Inventory Route (4) Place Code: 47030
 (A) On/Under: 1 (B) Highway Type: 4 (C) Service Lvl: 1
 (D) Route No: 00442 (E) Direction: 0
 6A) Features Intersected: SILVER LAKE SPILLWAY 6B) Critical:
 7) Facility Carried: SILVER LAKE RD.
 9) Location: S.E. OF MIDDLETOWN 11) Mile Pnt: 0.20 mi
 16) Latitude: 39^26'17" 17) Longitude: 75^41'36"
 99) Border Bridge Code: -2 99) Border Br. Str. No.: NA

STRUCTURE TYPE AND MATERIAL

43A) MAIN SPAN MATERIAL: 1 43B) DESIGN TYPE: 19
 45) Main Spans: 2 46) Approach Spans: 0
 107) Deck Type: 1
 108A) Wearing Surface: 6 108B) Membrane: 0 108C) Deck Prot.: 0
 Pier 1: NA Pier 2: NA Pier Ftg. 1: NA Pier Ftg. 2: NA
 Abut 1: NA Abut 2: NA Abut Ftg. 1: NA Abut Ftg. 2: NA

NAVIGATION DATA

38) Navigation Control: 0 39) Vert. Clr: 0.0 ft 40) Horiz. Clr: 0.0 ft
 111) Pier Protection: ! 116) Lift Bridge Vert. Clearance: 0.0 ft

AGE AND SERVICE

19) Detour Length: 2 mi 27) Year Built: 1939
 28) No. of Lanes A) On Bridge: 2 B) Under Bridge: 0
 29) ADT: 1906 30) Year of ADT: 2005
 42) Type of Service A) On Bridge: 1 B) Under Bridge: 5
 106) Year Reconst.: -4 109) % Truck ADT: 7

CLASSIFICATION

12) Base Hwy. Network: 0 13A) LRS Inv. Rte: NA 13B) LRS SubRoute: NA
 20) Toll Facility: 3 21) Maintenance: 1 22) Owner: 1
 26) Functional Class: 08 37) Historical: 2 100) Defense Highway: 0
 101) Parallel Str.: N 102) Direction: 2 103) Temp. Str.:
 104) Hwy Sys: 0 105) Fed. Lands Hwy: 0 110) Nat. Trk Network:
 112) NBIS Length: Y

LOAD RATING AND POSTING

31) Design Load: 4 41) Oper. Status: A
 63) Oper. Rating Method: 2 64) Operating Rating: 43.0 70) Bridge Posting: 5
 65) Inventory Rating Method: 2 66) Inv. Rating: 26.0
 Reason of Posting: NA Date of Resolution: NA Rating Anal. Req'd: NA
 S220: -1.0 S335: 0.0 S437: 0.0
 T330: 0.0 T435: 0.0 T540: 0.0

PROPOSED IMPROVEMENTS

75) Type of Work: NA 76) Length of Imp.: -3.3 ft
 94) Bridge Cost: -2 95) Roadway Cost: NA
 96) Total Cost: NA 97) Year of Cost Est.: NA
 114) Future ADT: NA 115) Year of Future ADT: 2016

CONTRACT INFORMATION

Contract 1: 672 Contract 2: 672A Contract 3: NA
 Contract 4: NA Contract 5: NA Contract 6: NA

Delaware Department of Transportation

INSPECTION

90) Inspection Date: 04/03/2007	91) Frequency: 24 months	Next Inspection: 04/03/2009
92A) FC Frequency: NA	93A) FC Insp. Date: NA	Next FC Insp.: NA
92B) UW Frequency: NA	93B) UW Insp. Date: NA	Next UW Insp.: NA
92C) SI Frequency: NA	93C) SI Date: NA	Next SI: NA
Elem Frequency: 24 months	Elem Insp. Date: 04/03/2007	Next Elem Insp.: 04/2009
UBIV Required: N	UBIV Days: NA	Inspection Zone: 06
UBIV Freq: NA	UBIV Insp Date: 01/01/1901	
Boat: N	Tidal: Y	GPS: Y
LC Insp Req: NA	LC Insp Date: 01/01/1901	

CONDITION

58) Deck: N	59) Superstructure: N	60) Substructure: N
61) Channel: 8	Paint Condition: N	
62) Culvert: 7	Paint Priority: 9999	

APPRAISAL

(36) Traffic Safety Features		
A) Bridge Rail: 1	B) Transition: 1	C) Approach rail: 1
D) Approach Rail Ends: N		
67) Structure Evaluation: 6	68) Deck Geometry: 4	69) Underclearances: N
71) Waterway Adequacy: 7	72) Approach Roadway Alignment: 6	
113) Scour Critical Evaluation: 8	Scour Analysis Date: NA	

GEOMETRIC DATA

32) Appr. Roadway Width (w/ Shldrs): 21.4 ft	33) Median: 0	
34) Skew: 0° 0' 0"	35) Structure Flared: 0	
48) Length Max.Span: 12.0 ft	49) Structure Length: 25.5 ft	
(50) Curb or Sidewalk	A) Left: 0.0 ft	B) Right: 0.0 ft
51) Width Curb to Curb: 24.6 ft	52) Deck Width Out to Out: 27.0 ft	
53) Min. Vertical Clearance Over Bridge Roadway: 328.1 ft		
54) Vertical Underclearance-:	A) Reference: N	B) Minimum: 0.0 ft
55) Lateral Underclearance-:	A) Reference: N	B) Minimum: 0.0 ft
56) Lateral Underclearance - Minimum Left: 0.0 ft		

INSPECTION NOTES

INSPECTOR: MILLER	INSP DATE: 04/03/2007	INSP TYPE: 1
NBI: Y	OTHER:	ELEMENT: Y
UNDERWATER: Y	FRACTURE CRITICAL:	

INSPECTION TEAM LEADER: _____

INSPECTED BY: G.MILLER(I,P,N) & R.MOORE(S,R)

MAXIMO REQ. : NONE AT THIS TIME.

MAINTENANCE

Delaware Department of Transportation**PONTIS DATA**

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
331	2	Conc Bridge Railing	(LF)	48	9	0	39	0	0	For Notes See MSPE Report
245	2	Maj Conc Culv	(LF)	52	47	5	0	0	0	For Notes See MSPE Report
390	2	Reinf Conc Wingwalls	(LF)	92	61	31	0	0	0	For Notes See MSPE Report
398	2	Reinf Conc Headwall	(LF)	42	42	0	0	0	0	For Notes See MSPE Report
399	2	Apron	(SF)	504	504	0	0	0	0	For Notes See MSPE Report

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Report for Span No. 1
Bridge No. 1504 442*

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
331	2	Conc Bridge Railing	(LF)	21	6	0	15	0	0	CS-3=15 LF : DETERIORATING/ DELAMINATING CONCRETE ALONG BASE OF RAILS, TYP. (5' ON EAST RAIL & 11' ON WEST RAIL.) PHOTO #6.
245	2	Maj Conc Culv	(LF)	26	21	5	0	0	0	CS-2=5 LF : DELAMINATION w/ EFFLO ON WEST END OF SOUTH WALL. CS-1=21 LF : SUPERFICIAL SEALED VERTICAL CRACKS IN BOTH WALLS NEAR CENTERLINE OF ROADWAY w/o CONNECTING LONGITUDINAL CRACK IN CEILING.
390	2	Reinf Conc Wingwalls	(LF)	46	26	20	0	0	0	CS-2=20 LF : HOLLOW SOUNDING REPAIRS AND DET. OF CONC. IN SOUTHWEST WING WALL. (NC-07...PH #7)
398	2	Reinf Conc Headwall	(LF)	18	18	0	0	0	0	CS-1=18 LF : SUPERFICIAL CRACKING TYP.
399	2	Apron	(SF)	216	216	0	0	0	0	NDN

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Report for Span No. 2
Bridge No. 1504 442*

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
331	2	Conc Bridge Railing	(LF)	27	3	0	24	0	0	CS-3=24 LF : DETERIORATING/ DELAMINATING CONCRETE ALONG BASE OF RAILS, TYP. (10' ON EAST & 13' ON WEST)
245	2	Maj Conc Culv	(LF)	26	26	0	0	0	0	CS-1=26 LF : SUPERFICIAL SEALED VERTICAL CRACKS ON BOTH WALLS NEAR CENTERLINE OF ROADWAY CONNECTED BY LONGITUDINAL CRACK w/ LIGHT EFFLO IN CEILING @ SAME LOCATION.
390	2	Reinf Conc Wingwalls	(LF)	46	35	11	0	0	0	CS-2=11 LF : 10 ft. OF WEATHERED AND DELAMINATED CONCRETE IN NORTHWEST WING WALL. 1 ft. OF MINOR SPALL/DELAM @ END OF NORTHEAST WING WALL.
398	2	Reinf Conc Headwall	(LF)	24	24	0	0	0	0	CS-1-24 LF : SUPERFICIAL CRACKS TYP.
399	2	Apron	(SF)	288	288	0	0	0	0	NDN

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Summary Report
Bridge No. 1504 442*

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5
331	2	Conc Bridge Railing	(LF)	48	9	0	39	0	0
245	2	Maj Conc Culv	(LF)	52	47	5	0	0	0
390	2	Reinf Conc Wingwalls	(LF)	92	61	31	0	0	0
398	2	Reinf Conc Headwall	(LF)	42	42	0	0	0	0
399	2	Apron	(SF)	504	504	0	0	0	0

Delaware Department of Transportation

SCOUR RELATED DATA
Bridge No: 1504 442

Bridge ID: 1504 442 **Inspection Date:** 04/03/2007 **Region:** Rural
Waterway Name: SILVER LAKE SPILLWAY **Fathometer Req'd:** No

WATERWAY INFORMATION

Tidal: Y **Underclearance:** 10.0 ft **Depth of Flow:** 2.0 ft

STREAMBED CHARACTERISTICS

Streambed Mtrl Type: Silt/Clay **Streambed Mtrl Penetration:** Loose 1"-3"

ARMORING

Abutment: N/A **Piers:** N/A
Upstream Channel: No Armoring **Wingwalls:** R-7 (AVG = 18")
Dwnstrm Channel: No Armoring **Channel Bottom:** No Armoring

TYPE OF FOUNDATION & SUBSTRUCTURE ELEMENTS

Foundation Type: Piles > 20 ft **Cap Shape:** **End. Mtrl:** Soil
Pier: **Shape of Piles:**

CHANNEL AND CHANNEL PROTECTION (NBI ITEM #61)

Waterway: G **Comments:** NA
Streambed: G **Comments:** NA
Embankment: G **Comments:** NA
Fender System: **Comments:** NA

CHANNEL INFORMATION

Debris in Channel: No **Sediment in Channel:** No **Cap. of Chnl:** Low
Chance of Overtopping: Slight (11-100 Yrs)
Upstream Bank Condition: **Downstream Bank Condition:**
Rdwy Overflow:

LOCAL SCOUR (OBSERVED) NBI ITEM #113

Piers: **Abutment:** **Bents:**

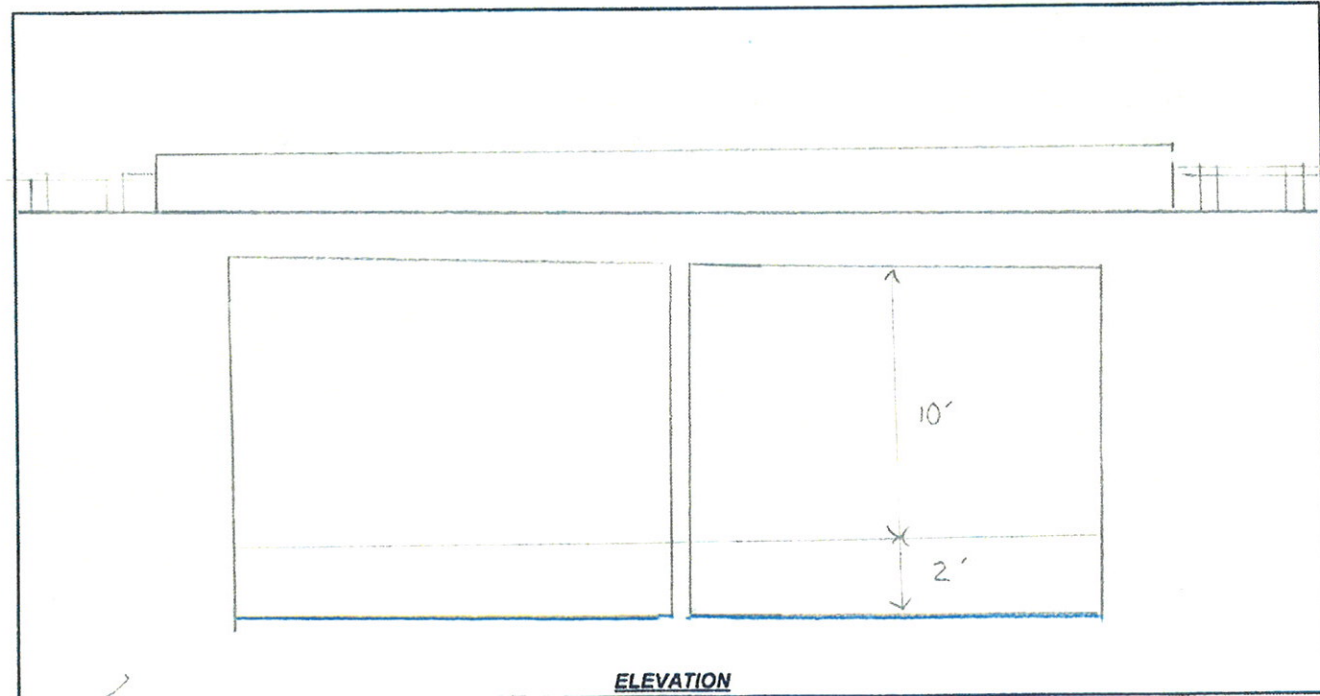
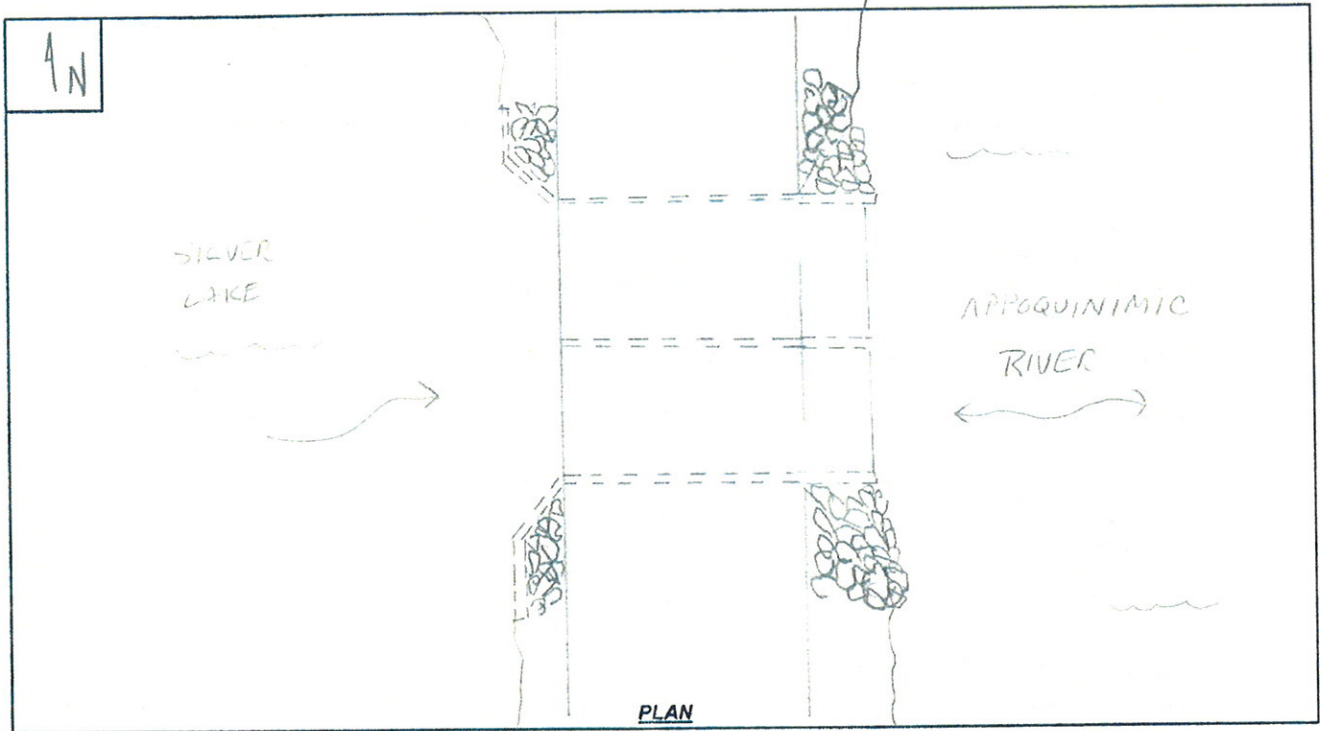
WATERWAY SKETCH SHEET

BR. ID.: 1-504-442

WATERWAY NAME: SILVER LAKE SPILLWAY

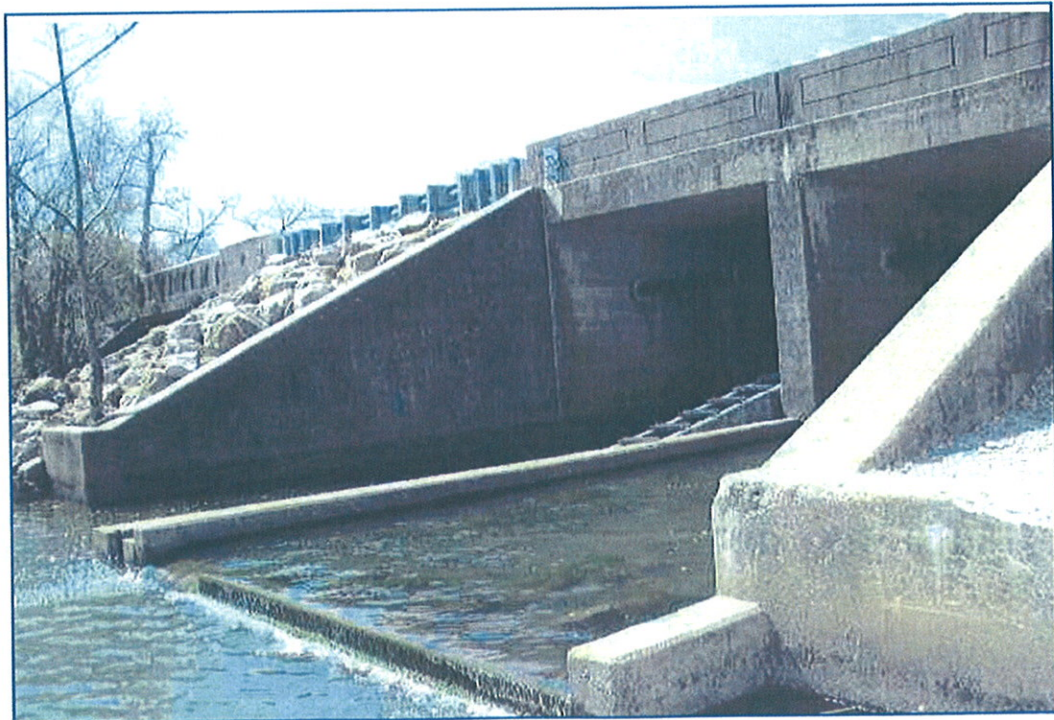
DATE: 04 103 107

INSPECTED BY: RM 1 GM 1 1

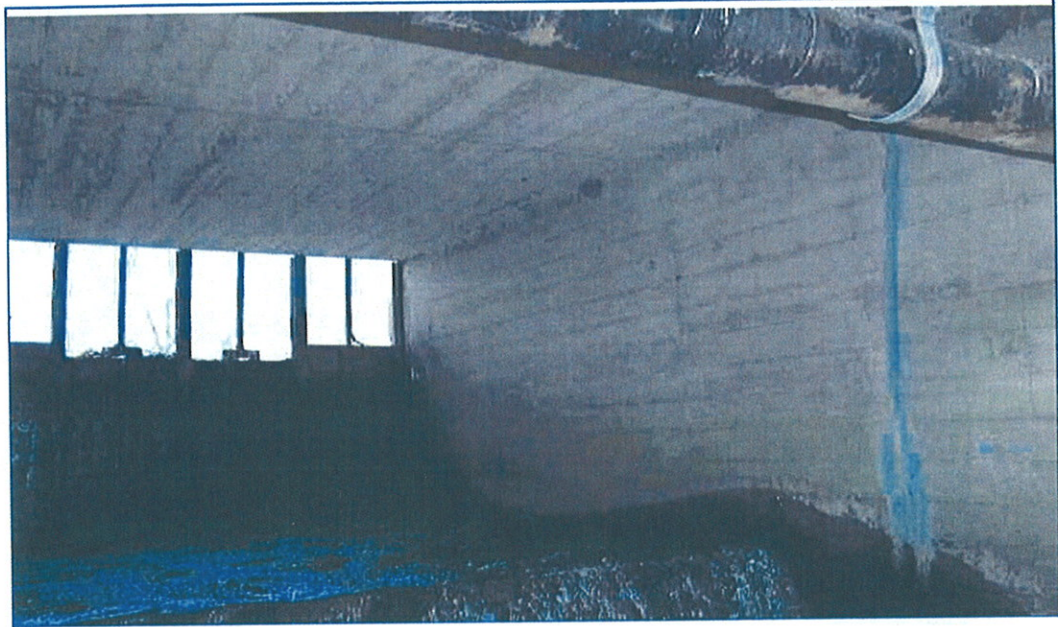




1. SOUTH APPROACH



2. EAST ELEVATION



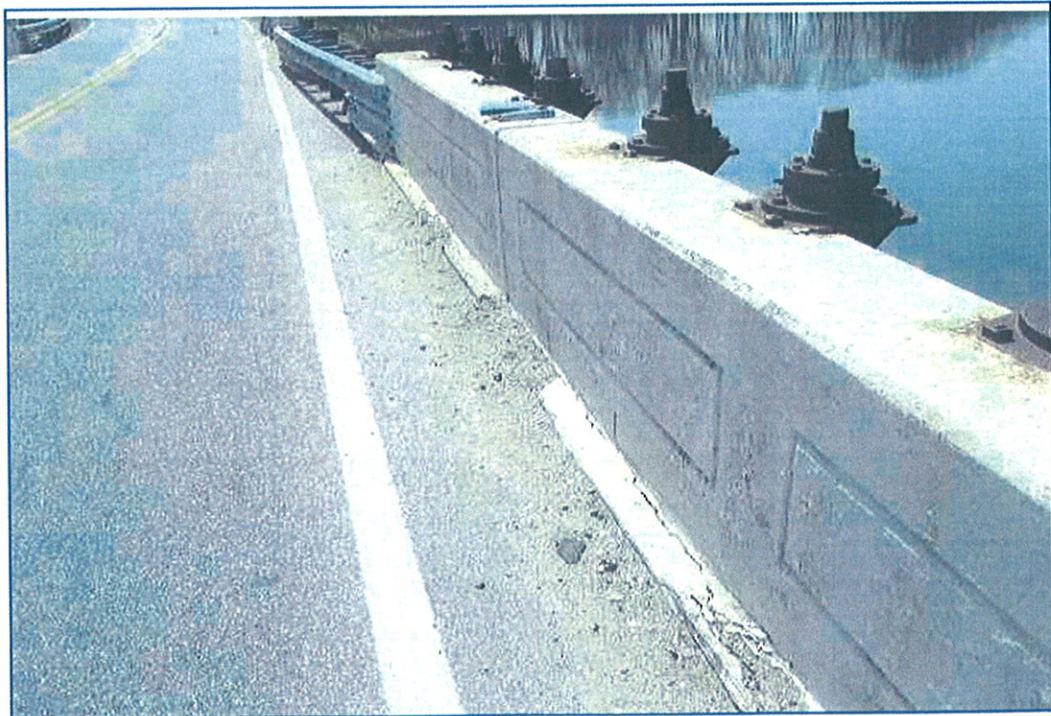
3. GENERAL VIEW (LOOKING WEST THRU NORTH CELL)



4. UPSTREAM (LOOKING WEST INTO LAKE)



5. DOWNSTREAM (LOOKING EAST)



6. DETERIORATED CONCRETE @ BASE OF WEST RAIL



7. DETERIORATED CONCRETE ALONG S/W WINGWALL

Delaware Department of Transportation

Bridge No. 1407 442

Primary Spillway 2

Sufficiency Rating: 59.8

Last NBI Inspection: 04/18/2007

IDENTIFICATION

Bridge ID: 1407 442 (2) District: 05 (3) County: 3
 (5) Inventory Route (4) Place Code: 47030
 (A) On/Under: 1 (B) Highway Type: 4 (C) Service Lvl: 1
 (D) Route No: 00442 (E) Direction: 0
 6A) Features Intersected: SILVER LAKE SPILLWAY 6B) Critical:
 7) Facility Carried: SILVER LAKE RD.
 9) Location: S.E. OF MIDDLETOWN 11) Mile Pnt: 0.20 mi
 16) Latitude: 39^26'16" 17) Longitude: 75^41'36"
 98) Border Bridge Code: -2 99) Border Br. Str. No.: NA

STRUCTURE TYPE AND MATERIAL

43A) MAIN SPAN MATERIAL: 3 43B) DESIGN TYPE: 2
 45) Main Spans: 1 46) Approach Spans: 0
 107) Deck Type: 1 108B) Membrane: 0 108C) Deck Prot.: 0
 108A) Wearing Surface: 6 Pier Ftg. 1: NA Pier Ftg. 2: NA
 Pier 1: NA Pier 2: NA Abut Ftg. 1: A Abut Ftg. 2: NA
 Abut 1: 2 Abut 2: NA

NAVIGATION DATA

38) Navigation Control: 0 39) Vert. Clr: 0.0 ft 40) Horiz. Clr: 0.0 ft
 111) Pier Protection: 1 116) Lift Bridge Vert. Clearance: 0.0 ft

AGE AND SERVICE

19) Detour Length: 2 mi 27) Year Built: 1931
 28) No. of Lanes A) On Bridge: 2 B) Under Bridge: 0
 29) ADT: 1906 30) Year of ADT: 2005 B) Under Bridge: 5
 42) Type of Service A) On Bridge: 1
 106) Year Reconstr.: 1939 109) % Truck ADT: 7

CLASSIFICATION

12) Base Hwy. Network: 0 13A) LRS Inv. Rte: NA 13B) LRS SubRoute: NA
 20) Toll Facility: 3 21) Maintenance: 1 22) Owner: 1
 26) Functional Class: 08 37) Historical: 2 100) Defense Highway: 0
 101) Parallel Str.: N 102) Direction: 2 103) Temp. Str.:
 104) Hwy Sys: 0 105) Fed. Lands Hwy: 0 110) Nat. Trk Network:
 112) NBIS Length: Y

LOAD RATING AND POSTING

31) Design Load: 0 41) Oper. Status: A
 63) Oper. Rating Method: 5 64) Operating Rating: 39.8 70) Bridge Posting: 5
 65) Inventory Rating Method: 5 66) Inv. Rating: 20.0
 Reason of Posting: NA Rating Anal. Req'd: NA
 S220: -1.0 S437: 0.0
 T330: 0.0 T540: 0.0

PROPOSED IMPROVEMENTS

75) Type of Work: 35 76) Length of Imp.: 22.0 ft
 94) Bridge Cost: 48000 95) Roadway Cost: 5000
 96) Total Cost: 73000 97) Year of Cost Est.: 2005
 114) Future ADT: 1179 115) Year of Future ADT: 2016

CONTRACT INFORMATION

Contract 1: N/A Contract 2: 672A Contract 3: NA
 Contract 4: NA Contract 5: NA Contract 6: NA

Delaware Department of Transportation

INSPECTION

90) Inspection Date: 04/18/2007	91) Frequency: 24 months	Next Inspection: 04/18/2009
92A) FC Frequency: NA	93A) FC Insp. Date: NA	Next FC Insp.: NA
92B) UW Frequency: NA	93B) UW Insp. Date: NA	Next UW Insp.: NA
92C) SI Frequency: NA	93C) SI Date: NA	Next SI: NA
Elem Frequency: 24 months	Elem Insp. Date: 04/18/2007	Next Elem Insp.: 04/2009
UBIV Required: N	UBIV Days: NA	Inspection Zone: 06
UBIV Freq: NA	UBIV Insp Date: 01/01/1901	
Boat: N	Tidal: N	GPS: Y
LC Insp Req: NA	LC Insp Date: 01/01/1901	

CONDITION

58) Deck: 7	59) Superstructure: 6	60) Substructure: 6
61) Channel: 8	Paint Condition: X	
62) Culvert: N	Paint Priority: 9999	

APPRAISAL

(36) Traffic Safety Features		
A) Bridge Rail: 0	B) Transition: 0	C) Approach rail: 0
D) Approach Rail Ends: 1		
67) Structure Evaluation: 5	68) Deck Geometry: 2	69) Underclearances: N
71) Waterway Adequacy: 7	72) Approach Roadway Alignment: 6	
113) Scour Critical Evaluation: 8	Scour Analysis Date: NA	

GEOMETRIC DATA

32) Appr. Roadway Width (w/ Shldrs): 19.0 ft	33) Median: 0	
34) Skew: 0^ 0' 0"	35) Structure Flared: 0	
48) Length Max. Span: 19.0 ft	49) Structure Length: 21.0 ft	
(50) Curb or Sidewalk	A) Left: 0.0 ft	B) Right: 0.0 ft
51) Width Curb to Curb: 20.1 ft	52) Deck Width Out to Out: 22.2 ft	
53) Min. Vertical Clearance Over Bridge Roadway: 328.1 ft		
54) Vertical Underclearance-:	A) Reference: N	B) Minimum: 0.0 ft
55) Lateral Underclearance-:	A) Reference: N	B) Minimum: 0.0 ft
56) Lateral Underclearance - Minimum Left: 0.0 ft		

INSPECTION NOTES

INSPECTOR: G MILLER	INSP DATE: 04/18/2007	INSP TYPE: 1
NBI: Y	OTHER:	ELEMENT: Y
UNDERWATER: Y	FRACTURE CRITICAL:	

INSPECTION TEAM LEADER: _____

INSPECTED BY: G.MILLER (I,P,N) & R.MOORE (S,R)

MAXIMO REQ. :
B002-SIG: CLEAN/FLUSH OUT CLOGGED SCUPPERS/DRAINS -- WORK ORDER #177068

MAINTENANCE

Delaware Department of Transportation**PONTIS DATA**

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
13	2	Unp Conc Deck/AC Ovl	(SF)	483	483	0	0	0	0	CS-1=484 SF : THE ASPHALT SHOWS NO DEFECTS. (NC-07)
65	2	Drainage	(EA)	2	0	0	2	0	0	CS-3=2 EA : BOTH CLOGGED WITH NO OTHER DEFECTS. (NC-07)
213	2	Concrete Encased	(LF)	197	182	15	0	0	0	CS-2=15 LF : HORIZONTAL CRACKS w/ RUST STAINS & DEBONDING OUTER CONCRETE ENCASUREMENT IN FASCIA BEAMS 1 & 9 (PHOTO #7) AROUND MID SPAN.
331	2	Conc Bridge Railing	(LF)	74	72	2	0	0	0	CS-2=2 LF : DELAM @ TOP OF SE END ABOVE WINGWALL. CS-1=73 LF : SUPERFICIAL SPALLING & VERTICAL CRACKS IN SCATTERED LOCATIONS THROUGHOUT.
215	2	R/Conc Abutment	(LF)	46	46	0	0	0	0	CS-1=46 LF : SUPERF. DEFECTS / SEALED CRKS w/ REPAIRED AREAS. (NC-07)
390	2	Reinf Conc Wingwalls	(LF)	48	42	6	0	0	0	CS-2=6 LF : MINOR SPALL ATTOP NE WING NEAR E END (1ft) & MINOR SPALLING ALONG TOP OF SW WING (5ft)
399	2	Apron	(SF)	645	645	0	0	0	0	CS-1=646 SF: MINOR SCALING BUT FUNCTIONING AS INTENDED.
359	1	Soffit Smart Flag	(EA)	1	1	0	0	0	0	CS-1=1 EA : MINOR SPALL AROUND WEST DRAIN ONLY.

Delaware Department of Transportation

SCOUR RELATED DATA
Bridge No: 1407 442

Bridge ID: 1407 442 Inspection Date: 04/18/2007 Region: Rural
Waterway Name: SILVER LAKE S. SPILL Fathometer Req'd: No

WATERWAY INFORMATION

Tidal: N Underclearance: 10.5 ft Depth of Flow: 1.0 ft

STREAMBED CHARACTERISTICS

Streambed Mtrl Type: Sand Streambed Mtrl Penetration: Loose 1"-3"

ARMORING

Abutment: Concrete Floor Piers: N/A
Upstream Channel: No Armoring Wingwalls: Concrete Floor
Dwnstrm Channel: No Armoring Channel Bottom: No Armoring

TYPE OF FOUNDATION & SUBSTRUCTURE ELEMENTS

Foundation Type: Piles > 20 ft Fnd. Mtrl: Soil
Pier: Cap Shape: Shape of Piles:

CHANNEL AND CHANNEL PROTECTION (NBI ITEM #61)

Waterway: G Comments: NA
Streambed: G Comments: NA
Embankment: G Comments: NA
Fender System: Comments: NA

CHANNEL INFORMATION

Debris in Channel: No Sediment in Channel: No Cap. of Chnl: High
Chance of Overtopping: Slight (11-100 Yrs)
Upstream Bank Condition: No Deficiency Downstream Bank Condition: No Deficiency
Rdwy Overflow: Insignificant

LOCAL SCOUR (OBSERVED) NBI ITEM #113

Piers: Abutment: None Bents:

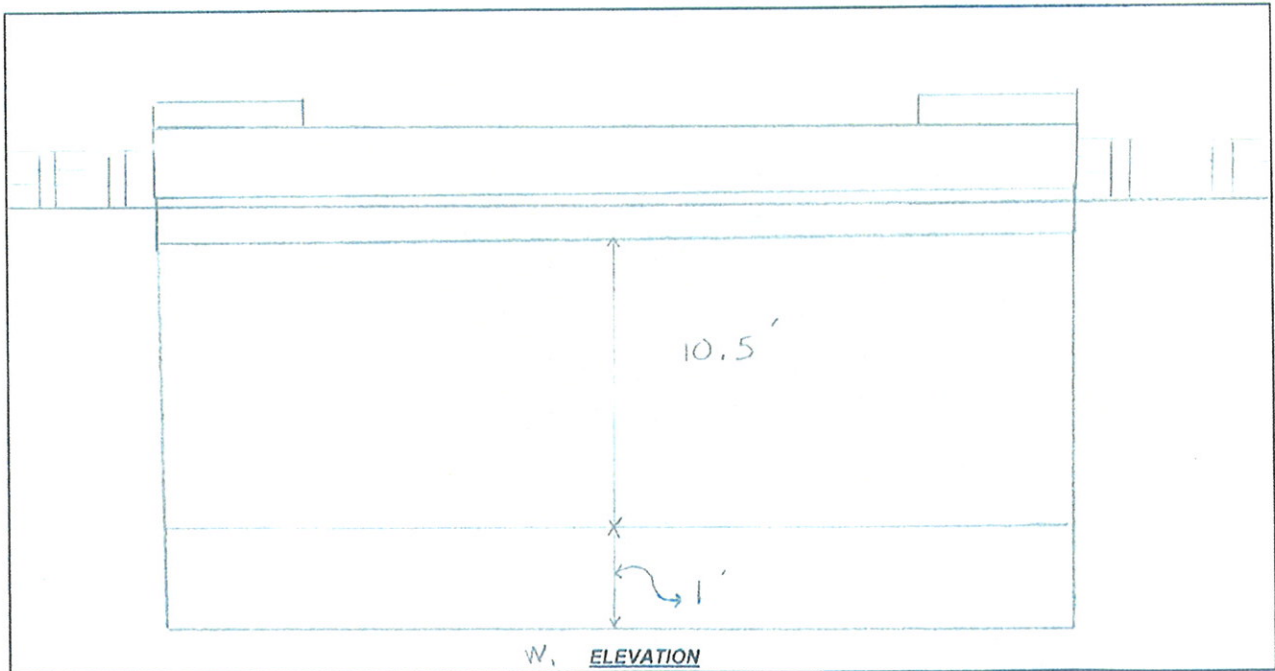
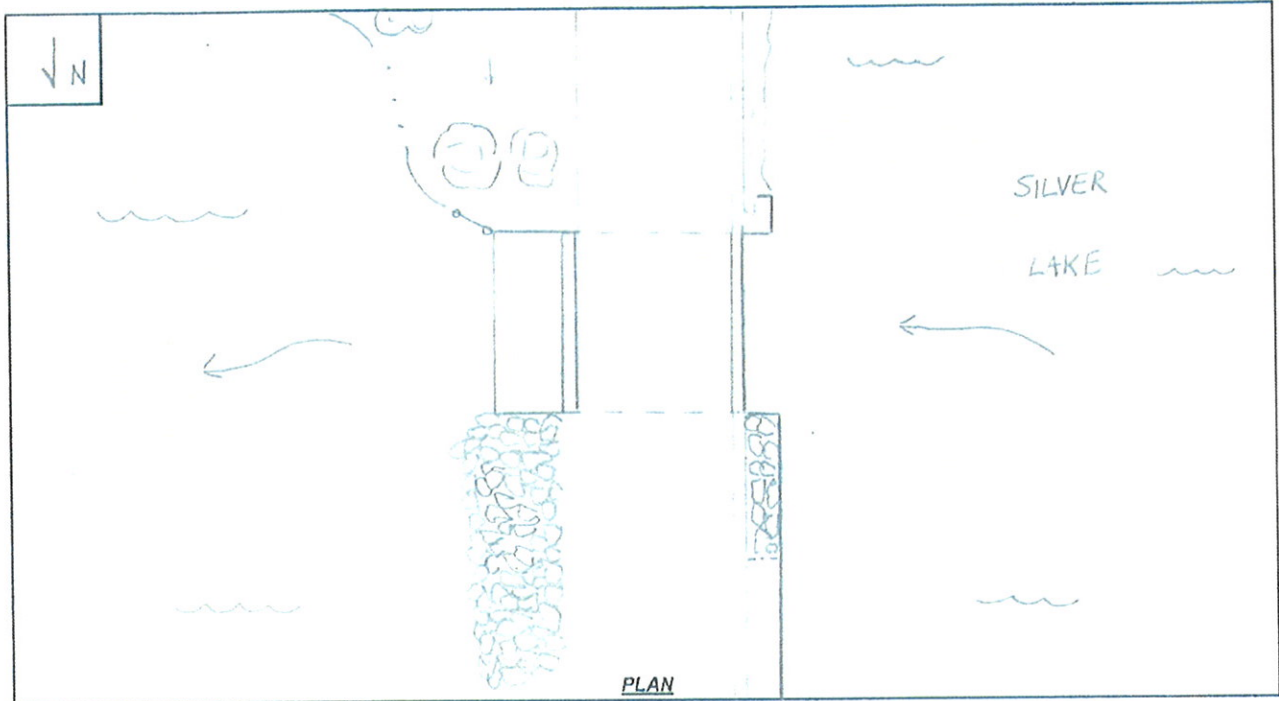
WATERWAY SKETCH SHEET

BR. ID.: 1 -407 -442

WATERWAY NAME: SILVER LAKE SPURWAY

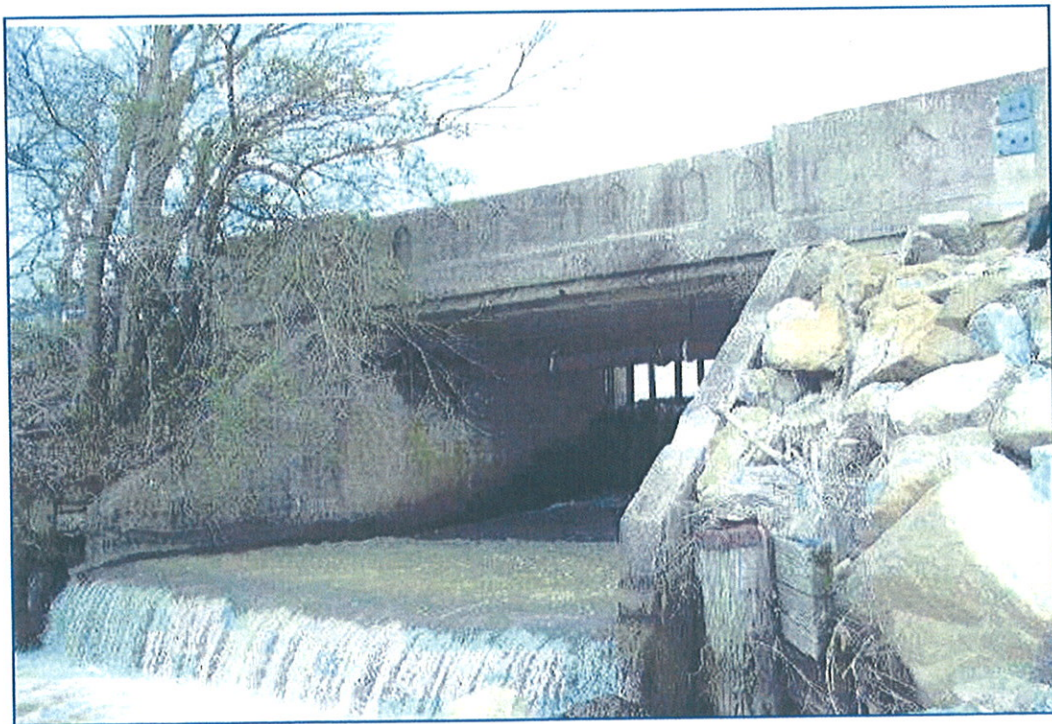
DATE: 04/18/07

INSPECTED BY: RM / GM / I





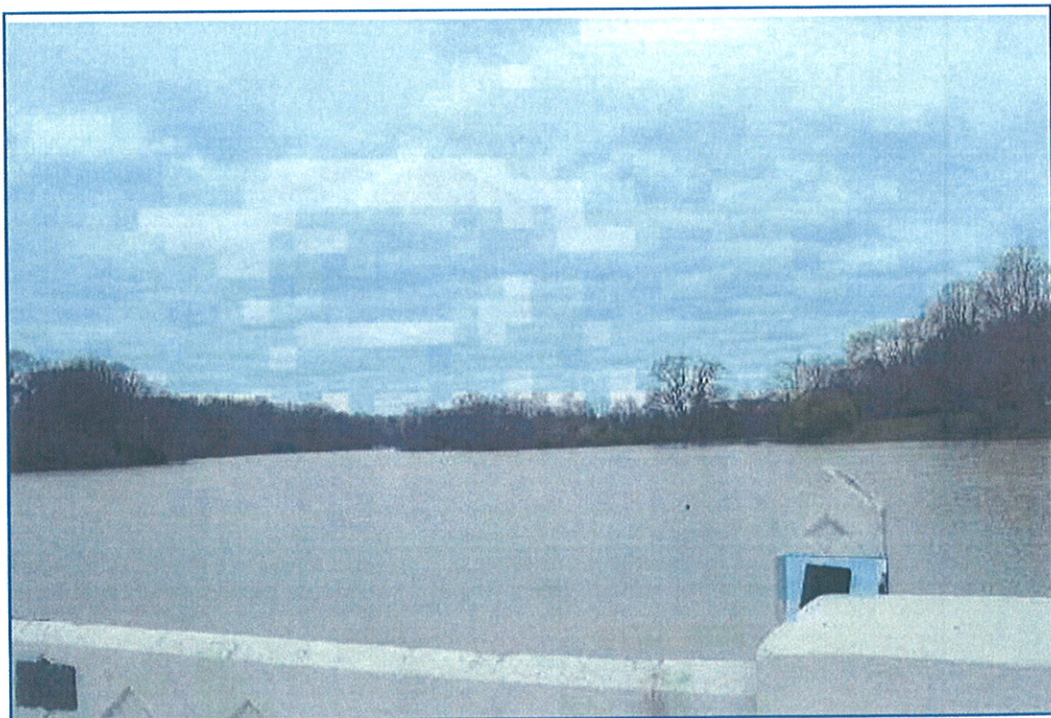
1. NORTH APPROACH



2. EAST ELEVATION



3. GENERAL VIEW (LOOKING SOUTH)



4. UPSTREAM (WEST SIDE OF SILVER LAKE)



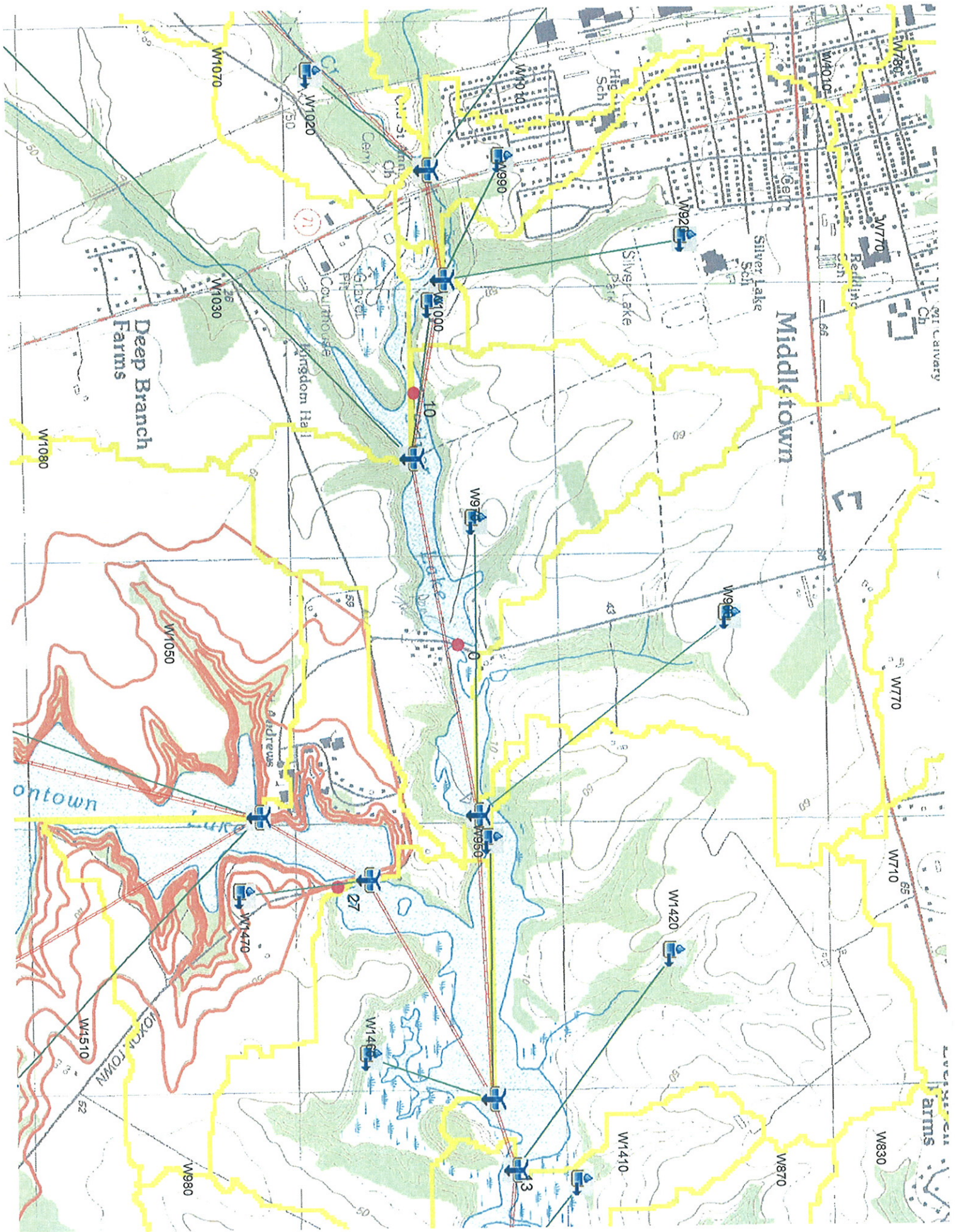
5. DOWNSTREAM (LOOKING EAST)



6. BRIDGE PLAQUE



7. CRACKS W/ RUST STAINING IN EAST FASCIA BEAM



Auxiliary Spillway

Bridge No. 1407A442

Sufficiency Rating: 96.1

Last NBI Inspection: 04/03/2007

IDENTIFICATION

Bridge ID: 1407A442 (2) District: 05 (3) County: 3
(5) Inventory Route (4) Place Code: 47030
(A) On/Under: 1 (B) Highway Type: 4 (C) Service Lvl: 1
(D) Route No: 00442 (E) Direction: 0
6A) Features Intersected: SILVER LAKE, MILL RA 6B) Critical:
7) Facility Carried: SILVER LAKE RD.
9) Location: S/E OF MIDDLETOWN LIMITS 11) Mile Pnt: 2.50 mi
16) Latitude: 39^26'19" 17) Longitude: 75^41'35"
98) Border Bridge Code: -2 99) Border Br. Str. No.: NA

STRUCTURE TYPE AND MATERIAL

43A) MAIN SPAN MATERIAL: 1 46) Approach Spans: 0 43B) DESIGN TYPE: 19
45) Main Spans: 1
107) Deck Type: 1
108A) Wearing Surface: 6 108B) Membrane: 0 108C) Deck Prot.: 1
Pier 1: NA Pier 2: NA Pier Ftg. 1: NA Pier Ftg. 2: NA
Abut 1: 1 Abut 2: NA Abut Ftg. 1: A Abut Ftg. 2: NA

NAVIGATION DATA

38) Navigation Control: 0 39) Vert. Clr: 0.0 ft 40) Horiz. Clr: 0.0 ft
111) Pier Protection: 1 116) Lift Bridge Vert. Clearance: 0.0 ft

AGE AND SERVICE

19) Detour Length: 2 mi 27) Year Built: 2001
28) No. of Lanes A) On Bridge: 2 B) Under Bridge: 0
29) ADT: 1906 30) Year of ADT: 2005 B) Under Bridge: 5
42) Type of Service A) On Bridge: 1
106) Year Reconst.: 0 109) % Truck ADT: 7

CLASSIFICATION

12) Base Hwy. Network: 0 13A) LRS Inv. Rte: NA 13B) LRS SubRoute: NA
20) Toll Facility: 3 21) Maintenance: 1 22) Owner: 1
26) Functional Class: 08 37) Historical: 5 100) Defense Highway: 0
101) Parallel Str.: N 102) Direction: 2 103) Temp. Str.:
104) Hwy Sys: 0 105) Fed. Lands Hwy: 0 110) Nat. Trk Network:
112) NBIS Length: N

LOAD RATING AND POSTING

31) Design Load: 6 41) Oper. Status: A
63) Oper. Rating Method: 1 64) Operating Rating: 54.5 70) Bridge Posting: 5
65) Inventory Rating Method: 1 66) Inv. Rating: 32.6
Reason of Posting: NA Date of Resolution: NA Rating Anal. Req'd: NA
S220: -1.0 S335: 0.0 S437: 0.0
T330: 0.0 T435: 0.0 T540: 0.0

PROPOSED IMPROVEMENTS

75) Type of Work: NA 76) Length of Imp.: -3.3 ft
94) Bridge Cost: 360000 95) Roadway Cost: NA
96) Total Cost: 360000 97) Year of Cost Est.: 2000
114) Future ADT: 1996 115) Year of Future ADT: 2017

CONTRACT INFORMATION

Contract 1: N/A Contract 2: LEVY CT Contract 3: 1079
Contract 4: NA Contract 5: NA Contract 6: NA

Delaware Department of Transportation

INSPECTION

90) Inspection Date: 04/03/2007
 92A) FC Frequency: NA
 92B) UW Frequency: NA
 92C) SI Frequency: NA
 Elem Frequency: 48 months
 UBIV Required: N
 UBIV Freq: NA
 Boat: N
 LC Insp Req: NA

91) Frequency: 48 months
 93A) FC Insp. Date: NA
 93B) UW Insp. Date: NA
 93C) SI Date: NA
 Elem Insp. Date: 04/03/2007
 UBIV Days: NA
 UBIV Insp Date: 01/01/1901
 Tidal: N
 LC Insp Date: 01/01/1901

Next Inspection: 04/03/2011
 Next FC Insp.: NA
 Next UW Insp.: NA
 Next SI: NA
 Next Elem Insp.: 04/2011
 Inspection Zone: 06
 GPS: Y

CONDITION

58) Deck: N
 61) Channel: 7
 62) Culvert: 8

59) Superstructure: N
 Paint Condition: N
 Paint Priority: 9999

60) Substructure: N

APPRAISAL

(36) Traffic Safety Features
 A) Bridge Rail: 0
 D) Approach Rail Ends: 0
 67) Structure Evaluation: 7
 71) Waterway Adequacy: 7
 113) Scour Critical Evaluation: 8

B) Transition: 0

C) Approach rail: 1

68) Deck Geometry: 6
 72) Approach Roadway Alignment: 6
 Scour Analysis Date: NA

69) Underclearances: N

GEOMETRIC DATA

32) Appr. Roadway Width (w/ Shldrs): 21.4 ft
 34) Skew: 0^ 0'33"
 48) Length Max. Span: 8.4 ft
 (50) Curb or Sidewalk
 51) Width Curb to Curb: 39.9 ft
 53) Min. Vertical Clearance Over Bridge Roadway: 328.1 ft
 54) Vertical Underclearance-:
 55) Lateral Underclearance-:
 56) Lateral Underclearance - Minimum Left: 0.0 ft

35) Structure Flared: 0
 49) Structure Length: 8.4 ft
 A) Left: 0.0 ft
 52) Deck Width Out to Out: 41.5 ft

33) Median: 0

B) Right: 0.0 ft

B) Minimum: 0.0 ft
 B) Minimum: 0.0 ft

INSPECTION NOTES

INSPECTOR: GMILLER
 NBI: Y
 UNDERWATER: Y

INSP DATE: 04/03/2007
 OTHER:
 FRACTURE CRITICAL:

INSP TYPE: 1
 ELEMENT: Y

INSPECTION TEAM LEADER: _____

INSPECTED BY: RMOORE(I,P) GMILLER (R,S,N)
 REQ. MAXIMO MAINT.: NONE AT THIS TIME.

MAINTENANCE

Delaware Department of Transportation**PONTIS DATA**

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
331	2	Conc Bridge Railing	(LF)	112	112	0	0	0	0	CS-1=113 (LF) : NDN (NC-07)
245	2	Maj Conc Culv	(LF)	46	46	0	0	0	0	NDN
390	2	Reinf Conc Wingwalls	(LF)	95	95	0	0	0	0	CS-1=95 (LF) : NDN (NC-07)
398	2	Reinf Conc Headwall	(LF)	20	20	0	0	0	0	NDN

Delaware Department of Transportation

SCOUR RELATED DATA
Bridge No: 1407A442

Bridge ID: 1407A442

Inspection Date: 04/03/2007

Region: Rural

Waterway Name: SILVER LAKE MILL RAC

Fathometer Req'd: No

WATERWAY INFORMATION

Tidal: N

Underclearance: 4.0 ft

Depth of Flow: 2.0 ft

Fill 2.5^{ft}

STREAMBED CHARACTERISTICS

Streambed Mtrl Type: Sand

Streambed Mtrl Penetration: Loose 1"-3"

ARMORING

Abutment: N/A

Piers: N/A

Upstream Channel: No Armoring

Wingwalls: R-5 (AVG = 9")

Dwnstrm Channel: No Armoring

Channel Bottom: No Armoring

4.0
2.0
2.5

8.5

TYPE OF FOUNDATION & SUBSTRUCTURE ELEMENTS

Foundation Type: Culvert

End. Mtrl: Soil

Pier:

Cap Shape:

Shape of Piles:

CHANNEL AND CHANNEL PROTECTION (NBI ITEM #61)

Waterway: F

Comments: DEBRIS @ INLET, BUT

Streambed: G

Comments: NA

Embankment: G

Comments: NA

Fender System:

Comments: NA

CHANNEL INFORMATION

Debris in Channel: Yes

Sediment in Channel: No

Cap. of Chnl: High

Chance of Overtopping: Slight (11-100 Yrs)

Upstream Bank Condition: No Deficiency Downstream Bank Condition: No Deficiency

Rdwy Overflow: Insignificant

LOCAL SCOUR (OBSERVED) NBI ITEM #113

Piers:

Abutment:

Bents:

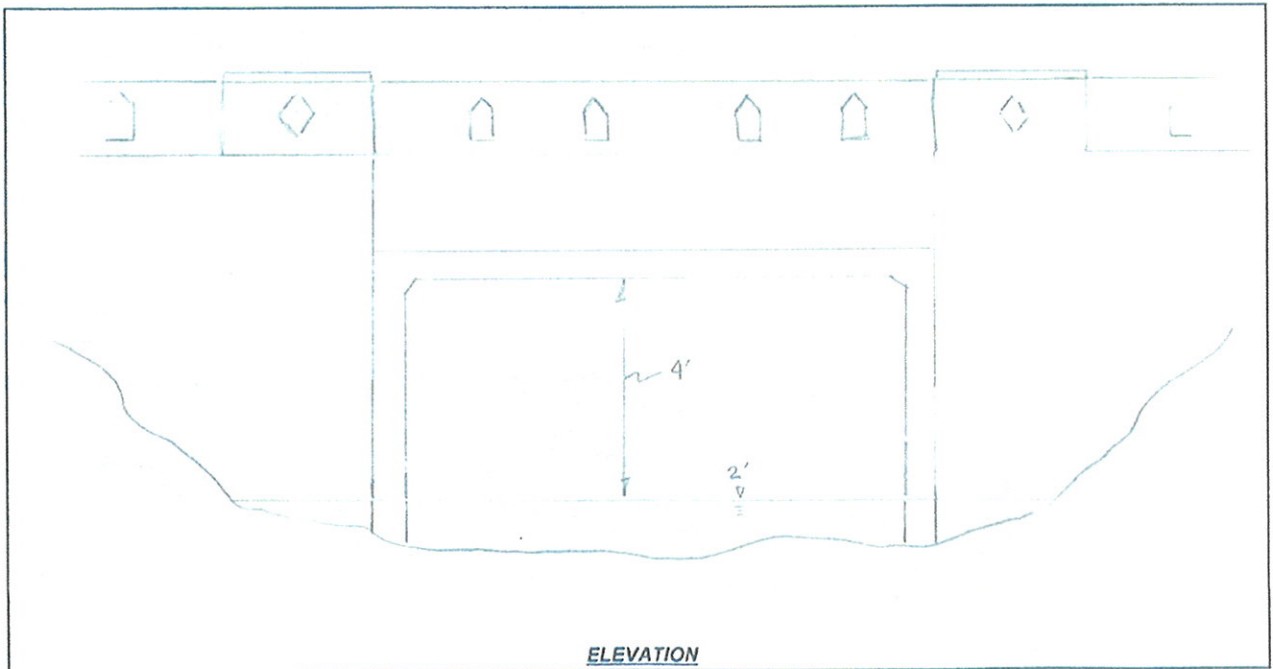
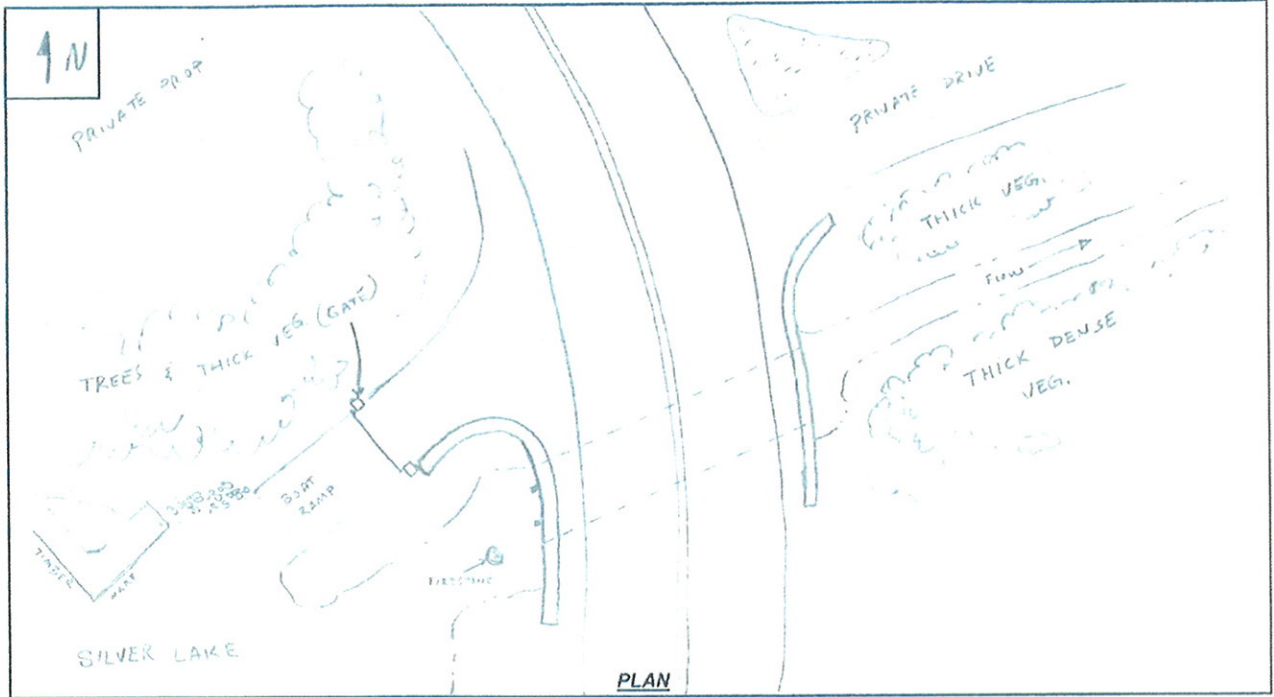
WATERWAY SKETCH SHEET

BR. ID.: 1-407A-442

WATERWAY NAME: SILVER LAKE MILL RACE

DATE: 4/3/2007

INSPECTED BY: GM / RM / I





1. SOUTH APPROACH



2. EAST ELEVATION



3. GENERAL VIEW (LOOKING WEST)



4. UPSTREAM (LOOKING WEST IN SILVER LAKE)



5. DOWNSTREAM (LOOKING EAST)

Job URS ID# 101

Project No.

Sheet of

Description WIGGINS MILL POND

Computed by

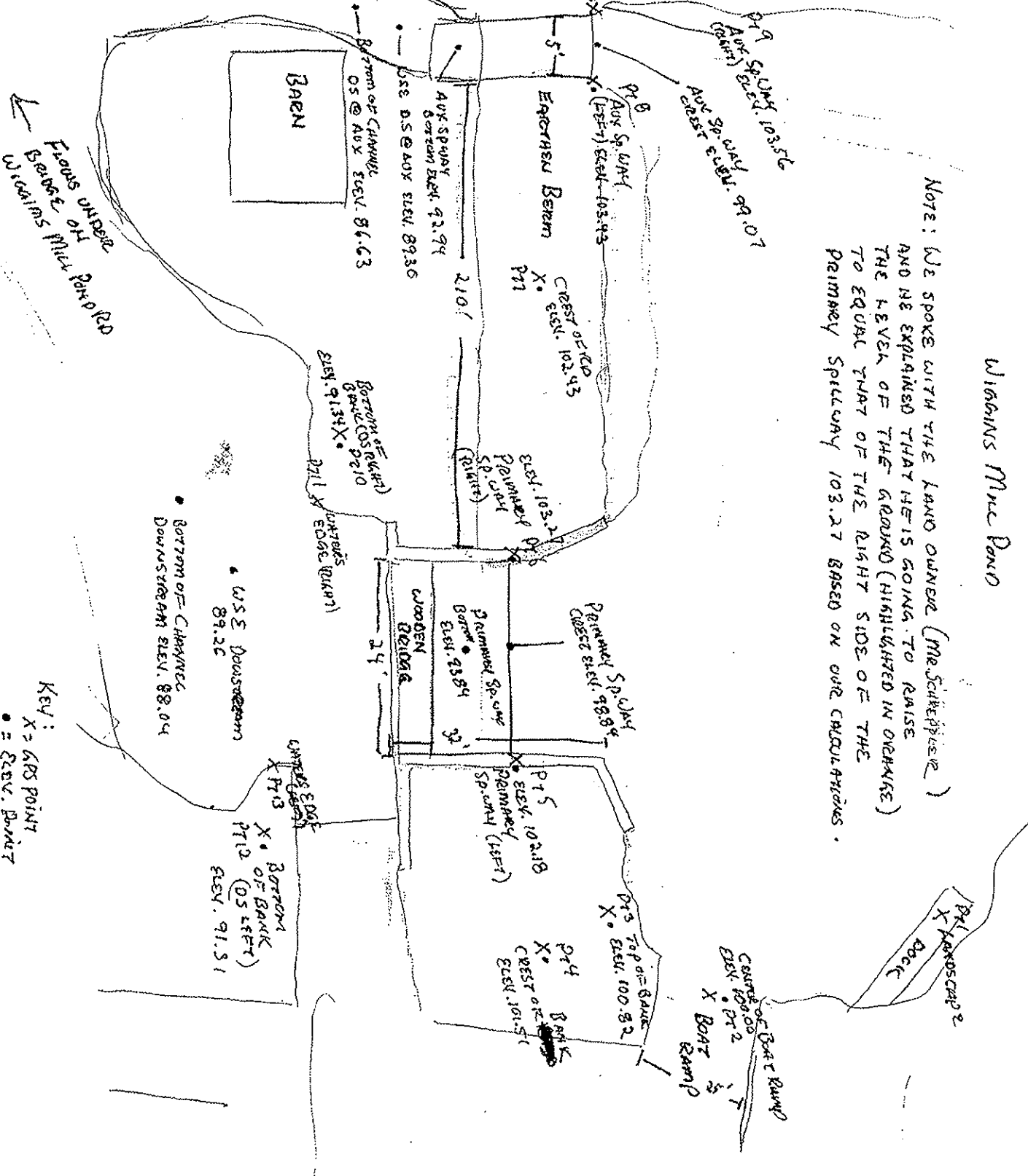
Date

NEW CASTLE COUNTY (LOCAL DATUM)

Checked by T.E./B.C.

Date 9-18-07

Reference



Wiggins Mill Pond (URS ID 101) – Photo Index

Photo	Description	GPS Pt taken from/of
A	Landscape 1	From pt.1
B	Landscape 2	From pt.1
C	Boat Ramp	Of pt.2
D	Top of Bank (lowest of highest)	Of pt.3
E	Primary Spillway (from left)	Of pt.6
F	Primary Spillway (from right)	Of pt.5
G	Primary Spillway (from downstream)	N/A
H	Aux. Spillway	Of pts. 8 & 9
I	Aux. Spillway (from downstream)	N/A
J	Crest of Bank	Of pt.4
K	Crest of Road	Of pt.7
L	Bottom of Bank (tow of slope Downstream right)	Of pt.10
M	Bottom of Bank (tow of slope Downstream left)	Of pt.12









Job ~~#~~ URSID #96

Project No. _____

Sheet _____ of _____

Description NOXONTOWN POND DAM

Computed by TE/ER

Date 7-06-07

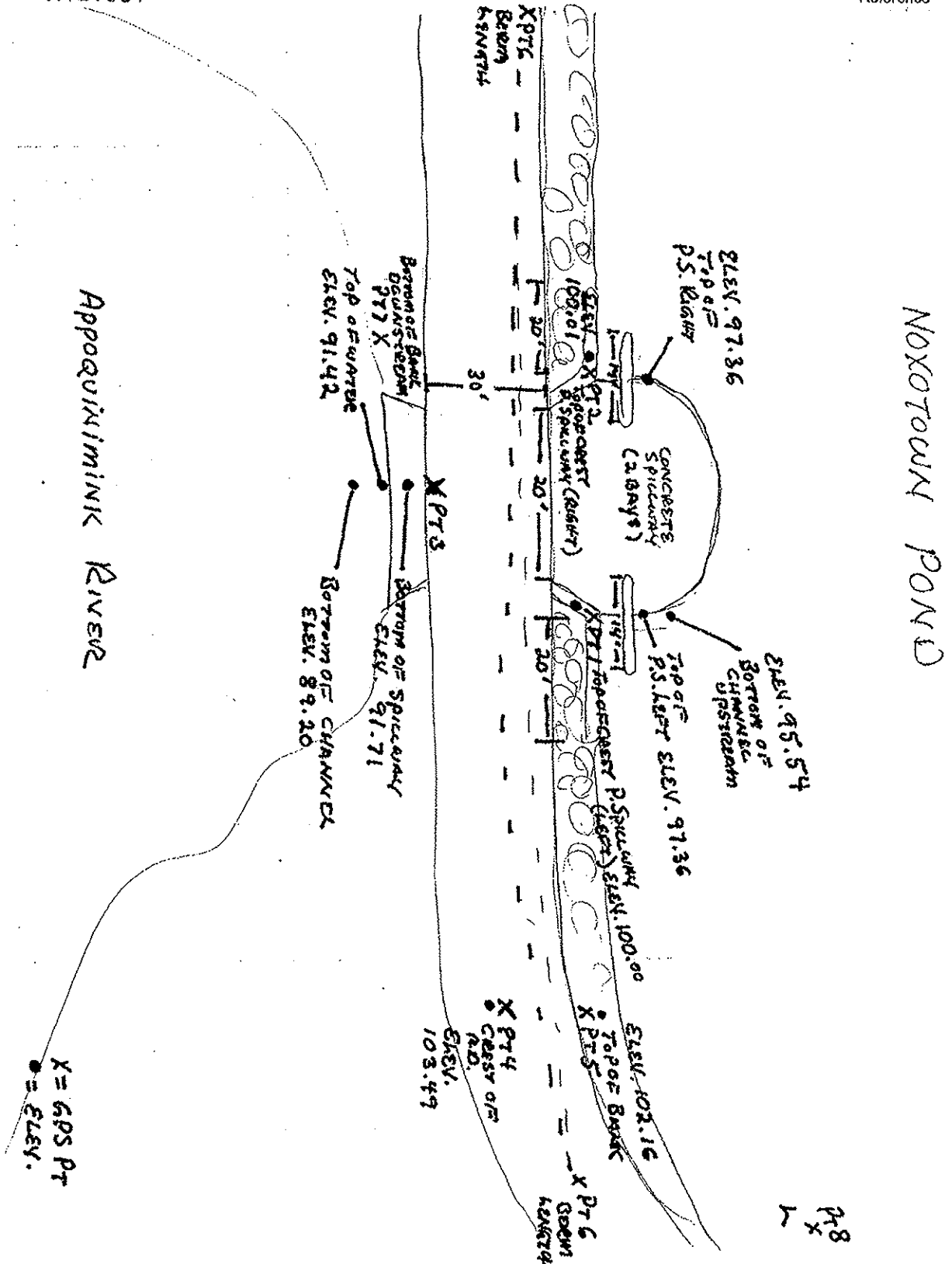
LOCAL DATUM

Checked by _____

Date _____

N.C.CO.

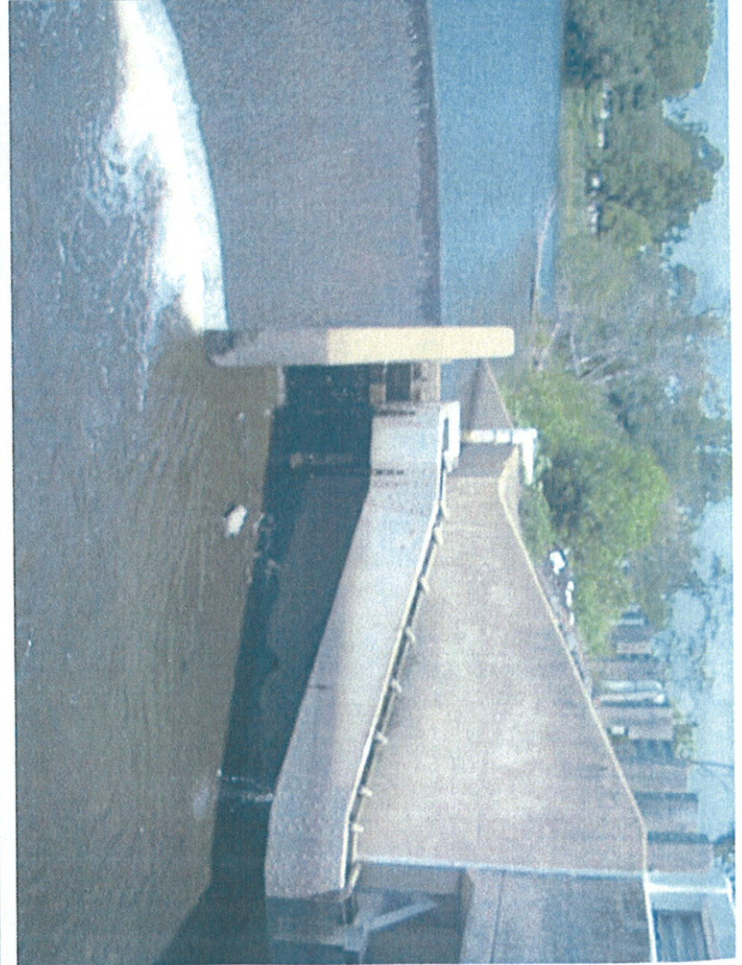
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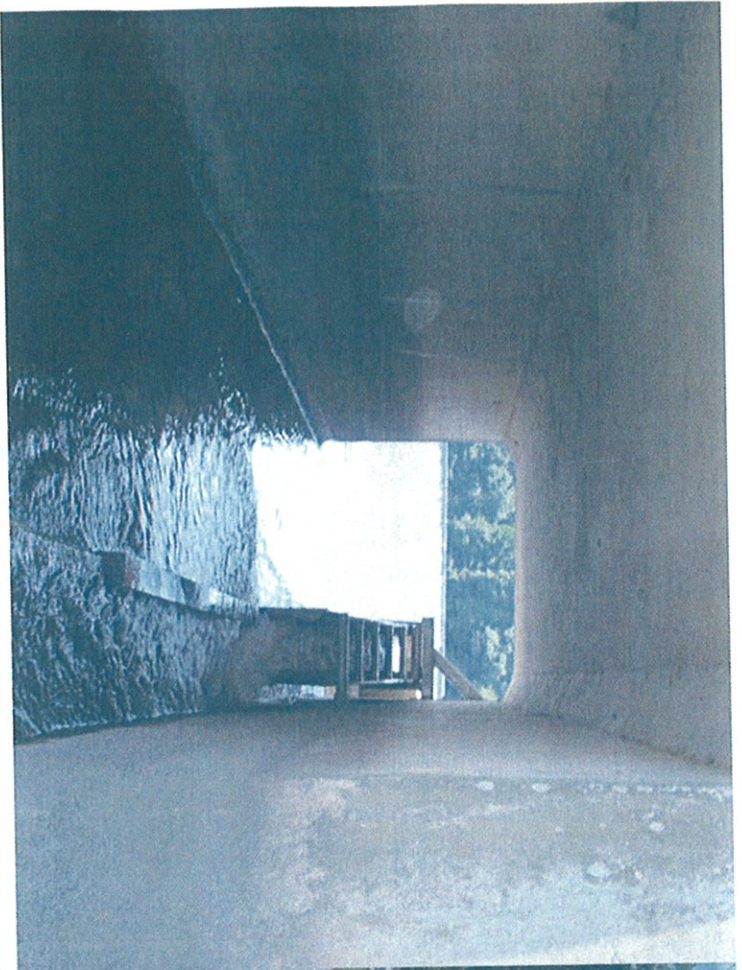


PT 8
X
L

Noxontown Lake Dam (URS ID 96) – Photo Index

Photo	Description	GPS Pt. taken From/Of
A	Primary Spillway (left crest)	Of pt.1
B	Primary Spillway (right crest)	Of pt.2
C	Primary Spillway (downstream right side)	N/A
D	Primary Spillway (downstream left side)	N/A
E	Crest of Road	Of pt.4
F	Top of Bank	Of pt.5
G	Landscape 1	From pt.8
H	Landscape 2	From pt.8
I	Landscape 3	From pt.8









2007 4 24

Delaware Department of Transportation

Bridge No. 1443 038

Sufficiency Rating: 99.8

Last NBI Inspection: 04/18/2007

IDENTIFICATION

Bridge ID: 1443 038 (2) District: 05 (3) County: 3
 (5) Inventory Route (4) Place Code: 47030
 (A) On/Under: 1 (B) Highway Type: 4 (C) Service Lvl: 1
 (D) Route No: C0038 (E) Direction: 0
 6A) Features Intersected: NOXONTOWN POND/SPILL 6B) Critical:
 7) Facility Carried: NOXONTOWN RD.
 9) Location: S/E MIDDLETOWN LIMITS 11) Mile Pnt: 1.74 mi
 16) Latitude: 39^26' 4" 17) Longitude: 75^41'-41"
 98) Border Bridge Code: -2 99) Border Br. Str. No.: NA

STRUCTURE TYPE AND MATERIAL

43A) MAIN SPAN MATERIAL: 1 43B) DESIGN TYPE: 19
 45) Main Spans: 2 46) Approach Spans: 0
 107) Deck Type: N
 108A) Wearing Surface: N 108B) Membrane: N 108C) Deck Prot.: N
 Pier 1: NA Pier 2: NA Pier Ftg. 1: NA Pier Ftg. 2: NA
 Abut 1: NA Abut 2: NA Abut Ftg. 1: G Abut Ftg. 2: NA

NAVIGATION DATA

38) Navigation Control: 0 39) Vert. Clr: 0.0 ft 40) Horiz. Clr: 0.0 ft
 111) Pier Protection: 1 116) Lift Bridge Vert. Clearance: 0.0 ft

AGE AND SERVICE

19) Detour Length: 3 mi 27) Year Built: 1967
 28) No. of Lanes A) On Bridge: 2 B) Under Bridge: 0
 29) ADT: 711 30) Year of ADT: 2005 B) Under Bridge: 5
 42) Type of Service A) On Bridge: 1
 106) Year Reconst.: 2002 109) % Truck ADT: 7

CLASSIFICATION

12) Base Hwy. Network: 0 13A) LRS Inv. Rte: NA 13B) LRS SubRoute: NA
 20) Toll Facility: 3 21) Maintenance: 1 22) Owner: 1
 26) Functional Class: 08 37) Historical: 5 100) Defense Highway: 0
 101) Parallel Str.: N 102) Direction: 2 103) Temp. Str.:
 104) Hwy Sys: 0 105) Fed. Lands Hwy: 0 110) Nat. Trk Network:
 112) NBIS Length: Y

LOAD RATING AND POSTING

31) Design Load: 5 41) Oper. Status: A
 63) Oper. Rating Method: 2 64) Operating Rating: 79.0 70) Bridge Posting: 5
 65) Inventory Rating Method: 2 66) Inv. Rating: 47.0
 Reason of Posting: NA Rating Anal. Req'd: NA
 S220: -1.0 S437: 0.0
 T330: 0.0 T435: 0.0 T540: 0.0

PROPOSED IMPROVEMENTS

75) Type of Work: NA 76) Length of Imp.: -3.3 ft
 94) Bridge Cost: -2 95) Roadway Cost: NA
 96) Total Cost: NA 97) Year of Cost Est.: NA
 114) Future ADT: 759 115) Year of Future ADT: 2016

CONTRACT INFORMATION

Contract 1: 6401013 Contract 2: NA Contract 3: NA
 Contract 4: NA Contract 5: NA Contract 6: NA

Delaware Department of Transportation

INSPECTION

90) Inspection Date: 04/18/2007
 92A) FC Frequency: NA
 92B) UW Frequency: NA
 92C) SI Frequency: NA
 Elem Frequency: 24 months
 UBIV Required: N
 UBIV Freq: NA
 Boat: N
 LC Insp Req: NA

91) Frequency: 24 months
 93A) FC Insp. Date: NA
 93B) UW Insp. Date: NA
 93C) SI Date: NA
 Elem Insp. Date: 04/18/2007
 UBIV Days: NA
 UBIV Insp Date: 01/01/1901
 Tidal: Y
 LC Insp Date: 01/01/1901

Next Inspection: 04/18/2009
 Next FC Insp.: NA
 Next UW Insp.: NA
 Next SI: NA
 Next Elem Insp.: 04/2009
 Inspection Zone: 06
 GPS: Y

CONDITION

58) Deck: N
 61) Channel: 8
 62) Culvert: 7

59) Superstructure: N
 Paint Condition: N
 Paint Priority: 9999

60) Substructure: N

APPRAISAL

(36) Traffic Safety Features
 A) Bridge Rail: 1
 D) Approach Rail Ends: 1
 67) Structure Evaluation: 7
 71) Waterway Adequacy: 7
 113) Scour Critical Evaluation: 8

B) Transition: 1
 68) Deck Geometry: 6
 72) Approach Roadway Alignment: 8
 Scour Analysis Date: NA

C) Approach rail: 1
 69) Underclearances: N

GEOMETRIC DATA

32) Appr. Roadway Width (w/ Shldrs): 22.0 ft
 34) Skew: 0^ 0' 0"
 48) Length Max.Span: 10.0 ft
 (50) Curb or Sidewalk
 51) Width Curb to Curb: 30.0 ft
 53) Min. Vertical Clearance Over Bridge Roadway: 328.1 ft
 54) Vertical Underclearance-:
 55) Lateral Underclearance-:
 56) Lateral Underclearance - Minimum Left: 0.0 ft

33) Median: 0
 35) Structure Flared: 0
 49) Structure Length: 20.8 ft
 A) Left: 0.0 ft B) Right: 0.0 ft
 52) Deck Width Out to Out: 32.3 ft
 A) Reference: N B) Minimum: 0.0 ft
 A) Reference: N B) Minimum: 0.0 ft

INSPECTION NOTES

INSPECTOR: GMILLER
 NBI: Y
 UNDERWATER: Y

INSP DATE: 04/18/2007
 OTHER:
 FRACTURE CRITICAL:

INSP TYPE: 1
 ELEMENT: Y

INSPECTION TEAM LEADER: _____

INSPECTED BY: G.MILLER(I,P,N) & R.MOORE(S,R)

MAXIMO REQ.: NONE AT THIS TIME.

MAINTENANCE

*Delaware Department of Transportation***PONTIS DATA**

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5	COMMENTS
331	2	Conc Bridge Railing	(LF)	43	37	6	0	0	0	For Notes See MSPE Report
334	2	Metal Rail Coated	(LF)	43	43	0	0	0	0	For Notes See MSPE Report
245	2	Maj Conc Culv	(LF)	63	62	0	1	0	0	For Notes See MSPE Report
390	2	Reinf Conc Wingwalls	(LF)	102	102	0	0	0	0	For Notes See MSPE Report
398	2	Reinf Conc Headwall	(LF)	43	43	0	0	0	0	For Notes See MSPE Report
399	2	Apron	(SF)	799	799	0	0	0	0	For Notes See MSPE Report

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Report for Span No. 1
Bridge No. 1443 038*

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CR1	CR2	CR3	CR4	CR5	COMMENTS
111	2	Conc Bridge Railing	(LF)	22	16	6	0	0	0	CR-2+6 LF : DELAMINATION ALONG TOP OF EAST RAIL @ SOUTH END.
124	2	Metall Rail Coated	(LF)	22	22	0	0	0	0	NEW
145	2	Hal Conc Curb	(LF)	12	11	0	1	0	0	CR-1-1 LF : 1/2" REIN RODS/COBBLES w/ EXPOSED REBAR @ WEST END OF SOUTH RAIL, (PH 461). CR-1-11 LF : SEALED VERTICAL CRACKS & PATCHED SPALLS IN SCATTERED LOCATIONS.
196	2	Reinf Conc Wingspalls	(LF)	51	51	0	0	0	0	CR-1-51 LF : SEALED CRACKS ALONG WITH SUPERFICIAL SPALLS IN SCATTERED LOCATIONS.
198	2	Reinf Conc Roadball	(LF)	22	22	0	0	0	0	CR1- Superficial defects. (NC-07)
199	2	Apron	(SF)	400	400	0	0	0	0	NEW

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Report for Span No. 2
Bridge No. 1443 038*

MEM	BNV	DESCRIPTION	UNITS	TOTAL	CR1	CR2	CR3	CR4	CR5	COMMENTS
131	2	Concrete Bridge Railings	(LF)	12	22	0	0	0	0	CR-1-22 LF : SUPERFICIAL SPALLS IN CENTERED LOCATIONS.
234	2	Metal Rail Coated	(LF)	22	22	0	0	0	0	NR
245	2	Mag Conc Coll	(LF)	32	32	0	0	0	0	CR-1-32 LF : SEALED VERTICAL CRACKS & PATCHED SPALLS IN SCATTERED LOCATIONS.
190	2	Reinf Conc Wingwalls	(LF)	51	51	0	0	0	0	CR-1-51 LF : SPALLS CRACKS ALONG WITH SUPERFICIAL SPALLS IN SCATTERED LOCATIONS.
198	2	Reinf Conc Handrail	(LF)	22	22	0	0	0	0	CR1- Superficial defects. (NC-07)
199	2	Apron	(SF)	400	400	0	0	0	0	NR

DELAWARE DEPARTMENT OF TRANSPORTATION

*Bridge Management Section
MultiSpan PONTIS Element Summary Report
Bridge No. 1443 038*

ELEM	ENV	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4	CS5
334	2	Conc Bridge Railing	(LF)	44	39	6	0	0	0
334	2	Metal Rail Coated	(LF)	44	44	0	0	0	0
245	2	Maj Conc Culv	(LF)	64	63	0	1	0	0
390	2	Reinf Conc Wingwalls	(LF)	102	102	0	0	0	0
398	2	Reinf Conc Headwall	(LF)	44	44	0	0	0	0
399	2	Apron	(SF)	800	800	0	0	0	0

Delaware Department of Transportation

SCOUR RELATED DATA
Bridge No: 1443 038

Bridge ID: 1443 038 **Inspection Date:** 04/18/2007 **Region:** Rural
Waterway Name: NOXONTOWN POND SPILL **Fathometer Req'd:** No

WATERWAY INFORMATION

Tidal:

Underclearance: 5.0 ft **Depth of Flow:** 3.0 ft

STREAMBED CHARACTERISTICS

Streambed Mtrl Type: Sand

Streambed Mtrl Penetration: Loose 1"-3"

ARMORING

Abutment: No Armoring
Upstream Channel: No Armoring
Dwnstrm Channel: No Armoring

Piers: No Armoring
Wingwalls: No Armoring
Channel Bottom: No Armoring

TYPE OF FOUNDATION & SUBSTRUCTURE ELEMENTS

Foundation Type: Piles > 20 ft
Pier: Pier

Cap Shape:

End. Mtrl: Soil
Shape of Piles:

CHANNEL AND CHANNEL PROTECTION (NBI ITEM #61)

Waterway: G
Streambed: G
Embankment: G
Fender System:

Comments: NA
Comments: NA
Comments: NA
Comments: NA

CHANNEL INFORMATION

Debris in Channel: No
Chance of Overtopping: Slight (11-100 Yrs)
Upstream Bank Condition: No Deficiency
Rdwy Overflow: Insignificant

Sediment in Channel: No **Cap. of Chnl:** High
Downstream Bank Condition: No Deficiency

LOCAL SCOUR (OBSERVED) NBI ITEM #113

Piers:

Abutment:

Bents:

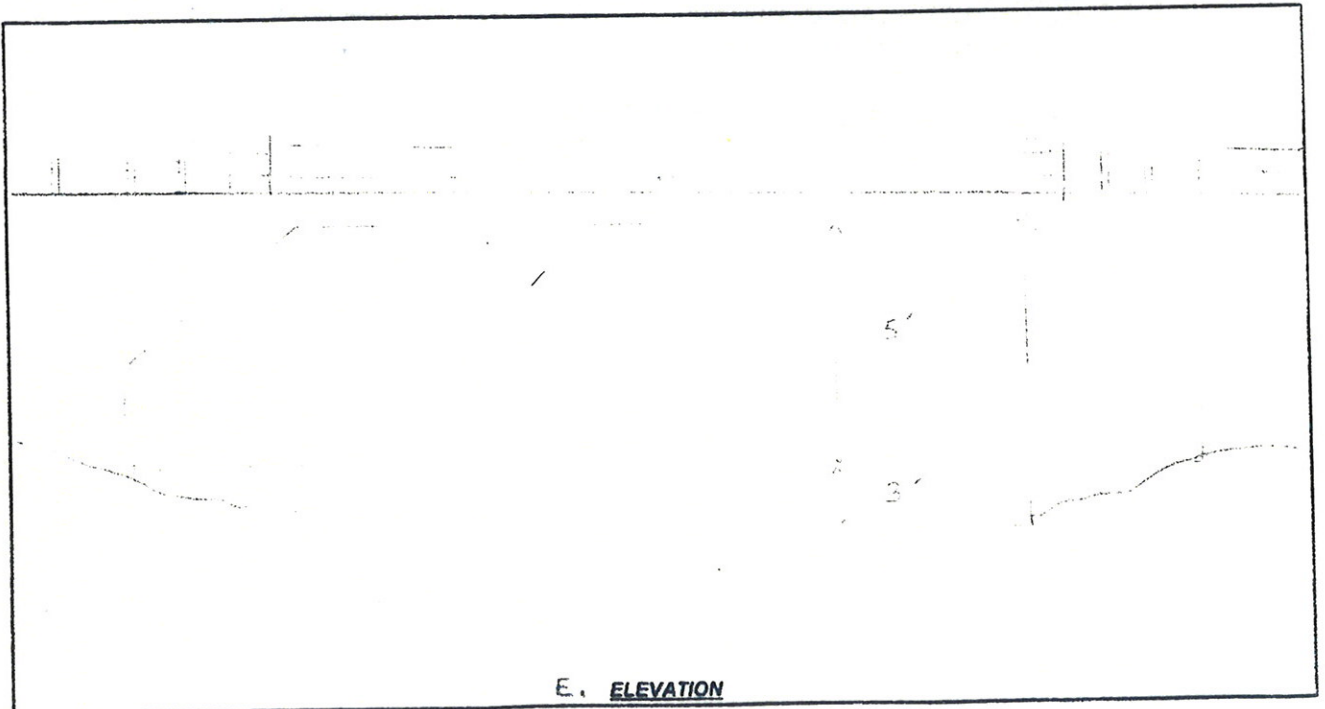
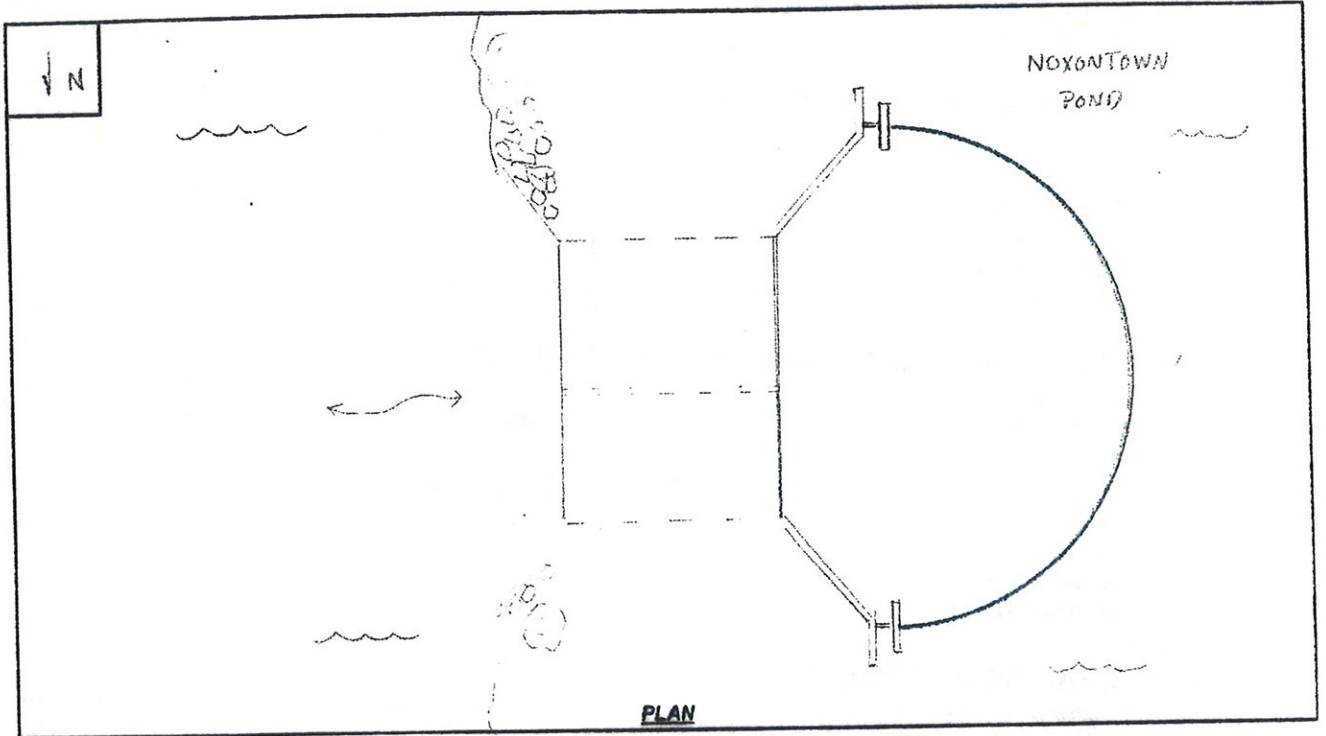
WATERWAY SKETCH SHEET

BR. ID.: 1 - 443 - 038

WATERWAY NAME: NOXONTOWN POND SPILLWAY

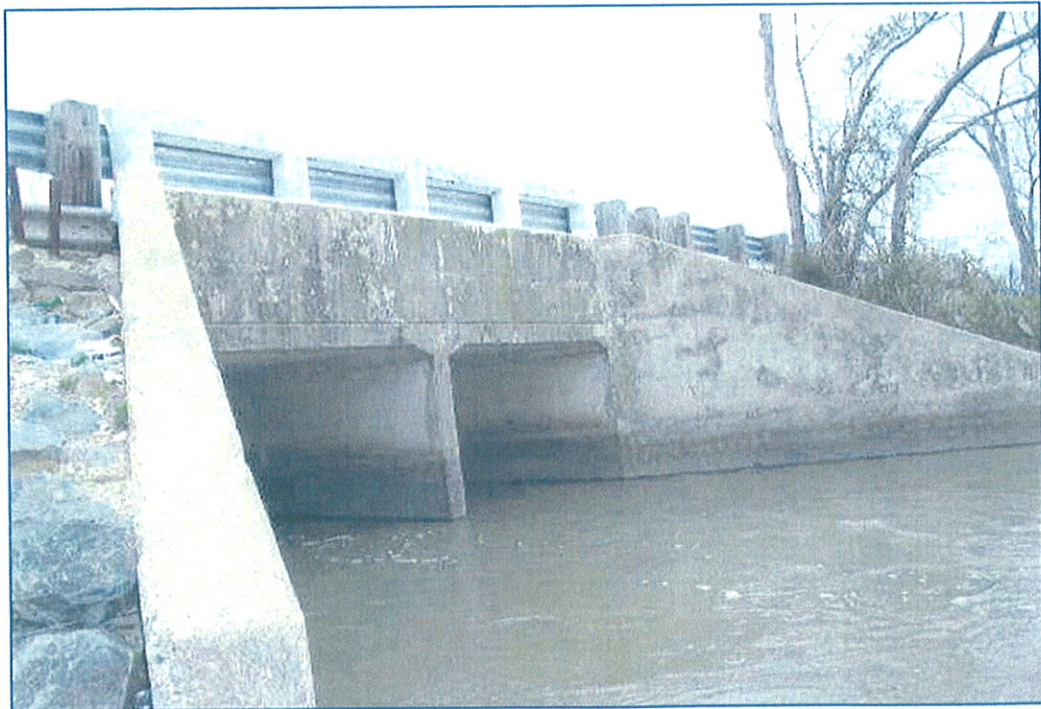
DATE: 04 18 107

INSPECTED BY: RM 1 GM 1 1





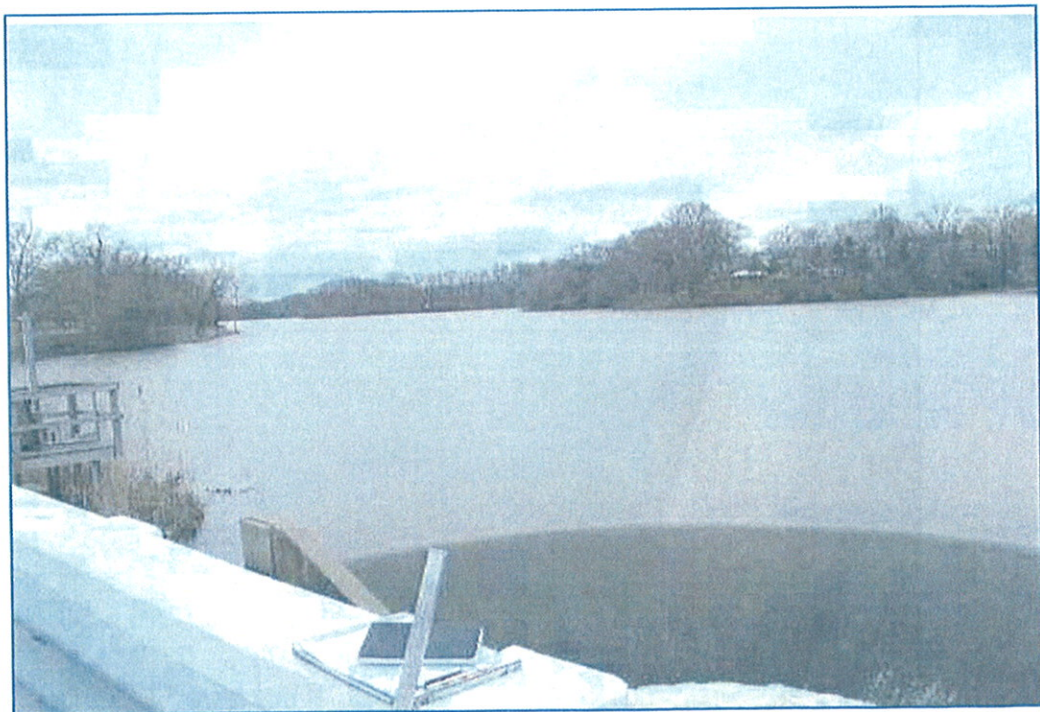
1. SOUTH APPROACH



2. EAST ELEVATION



3. GENERAL VIEW (LOOKING WEST THRU S. CELL)



4. UPSTREAM (LOOKING EAST INTO NOXONTOWN POND)



5. DOWNSTREAM (LOOKING EAST ALONG THE BEGINNING OF THE APPOQUINIMINK RIVER)



6. DEEP HONEYCOMBING W/ EXPOSED REBAR @ WEST END OF SOUTH CELL



Microsoft Outlook
4499-Dana-48 [Compa...
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P:\2006\2013\101\part1...
P:\2006\07\26\101\Task 2...
AEC-HIS 3.1.0 [P:\2006...
spdydo-25-08-av...
SILVER LAKE RD & N...
Map of New Castle, DE B...
Zoom
1:23 PM

50 ft
50 m

42055 06099 - Forest of Silver R