LAKE SHELBYVILLE
UPPER MISSISSIPPI RIVER BASIN

KASKASKIA RIVER, ILLINOIS

REPORT OF SEDIMENTATION
1980 RESURVEY

U. S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

REPORT ON RESURVEY OF SEDIMENTATION
LAKE SHELBYVILLE
KASKASKIA RIVER, ILLINOIS

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PERTINENT DATA SUMMARY
LAKE SHELBYVILLE

Item	Unit	
DRAINAGE AREA	sq. mi.	1,054
INACTIVE STORAGE POOL		
Elevation	N.G.V.D.	573.0
Area at Top of Pool	acres	2,992
Storage	acre-feet	30,023
Storage (runoff)	inches	0.55
JOINT-USE POOL		
Elevation	N.G.V.D.	573.0-599.7
Area at Top of Pool	acres	11,118
Storage	acre-feet	177,795
Storage (runoff)	inches	3.28
Regulated Outflow (min.)	c.f.s.	10
Regulated Outflow (max.)	c.f.s.	1,800
FLOOD CONTROL POOL		
Elevation	N.G.V.D.	599.7-626.5
Area at Top of Pool	acres	25,269
Storage	acre-feet	468,385
Storage (runoff)	inches	8.63
Regulated Outflow (max.)	c.f.s.	4,500
INDUCED SURCHARGE POOL		
Elevation	N.G.V.D.	626.5-630.5
Area at Top of Pool	acres	28,300
Storage	acre-feet	107,100
Storage (runoff)	inches	1.95
Outflow (max.)	c.f.s.	116,300
SURCHARGE POOL (TOTAL)		
Elevation	N.G.V.D.	626.5-638.2
Area at Top of Pool	acres	35,800
Storage	acre-feet	351,900
Storage (runoff)	inches	6.41
Outflow (max.)	c.f.s.	162,500

PERTINENT DATA SUMMARY (continued)
LAKE SHELBYVILLE

Item	Unit	
FREEBOARD		
Elevation	N.G.V.D.	638.2-643.0
Area at Top of Dam	acres	42,700
Storage	acre-feet	191,100
Storage (runoff)	inches	3.48
Height	feet	4.8
STANDARD PROJECT FLOOD		
Peak (natural condition)	c.f.s.	77,040
Peak Inflow (reservoir)	c.f.s.	164,490
Peak Outflow (reservoir)	c.f.s.	4,500
Design Storm	inches	13.16
Runoff (includes base flow)	acre-feet	541,160
Runoff (includes base flow)	inches	9.85
SPILLWAY		
Width		
Gross	feet	156
Net	feet	136
Elevation of Crest	N.G.V.D.	593
Number of Tainter Gates	each	3
Size	feet	45.33'W x 36.92'H
Top Elevation (closed)	N.G.V.D.	627.5
DAM		
Elevation, Top of Dam	N.G.V.D.	643.0
Height Above Streambed	feet	108
Length of Crest	feet	3,025
OUTLET STRUCTURE		
Number of Sluices	each	2
Size	feet	5.5'W x 11.0'H
Minimum Opening	feet	10.8
Intake Invert Elevation	N.G.V.D.	550.0
Outlet Invert Elevation	N.G.V.D.	549.0

1 inch runoff = 56,210 acre-feet

CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
inches	25.4	millimetres
feet	0.3048	metres
miles (U. S. statute)	1.609344	kilometres
square miles	2.589988	square kilometres
cubic yards	0.7645549	cubic metres
acre-feet	1233.482	cubic metres
feet per second	0.3048	metres per second
cubic feet per second	0.02831685	cubic metres per second

REPORT ON RESURVEY OF SEDIMENTATION

LAKE SHELBYVILLE

KASKASKIA RIVER, ILLINOIS

1. INTRODUCTION.

This report is prepared according to instructions in EM 1110-2-4000, dated 15 November 1961, and compares the original 1970 survey with the 1974 and 1980 resurveys of the upstream sediment ranges and downstream retrogression ranges for Lake Shelbyville.

The purpose of the investigation was to analyze the 1974 and 1980 resurvey data to determine the distribution of sediment in the lake, and also the trap efficiency of the lake. Initial operation of the reservoir began on 1 August 1970.

2. LOCATION OF RESERVOIR.

Lake Shelbyville is a multi-purpose reservoir located on the Kaskaskia River, one-half mile east and one-fourth mile north of the town of Shelbyville, Illinois. The reservoir extends from the main dam at river mile 221.8 1/ to river mile 280. The watershed for the reservoir is 1,054 square miles. PLATE 1 shows the relationship of the reservoir to the entire basin.

3. PURPOSE OF RESERVOIR.

The purpose of this project is to provide flood protection; to create recreational opportunities; to provide fish and wildlife conservation; to augment water supplies; to enhance water quality; and to augment flows for navigation.

4. RESERVOIR PERTINENT DATA - DAM AND APPURTENANT STRUCTURES.

The Pertinent Data Summary, shown on page iv, contains pertinent data concerning the dam, outlet, and spillway structures, and the elevations, areas and capacities of the inactive, joint-use, flood control, and surcharge pools.

5. WATERSHED CHARACTERISTICS.

The watershed has a total area of 1,054 square miles. The lake occupies approximately 39.5 square miles of this area at the top of flood control pool (el. 626.5).2/ The watershed has a length of 58 miles, an extreme width of 35 miles, and an average width of 18 miles. (See PLATE 1)

1/ A table of factors for converting U.S. customary units of measurement to metric (SI) units is presented on page vi.

2/ All elevations (el) cited herein are in feet referred to National Geodetic Vertical Datum.

6. CLIMATE.

The climate of the area is relatively moderate. The summers are usually mild with occasional temperatures of 100°F or slightly higher. The winters are usually short and moderate, although temperatures below zero are occasionally experienced. The average annual temperature in this area is about 55°F and the average monthly temperature varies from a maximum of 78°F during July to a minimum of 30°F during January.

7. RESERVOIR OPERATION.

The objective is to regulate the project to provide flood control to downstream interests and to maintain the pool at seasonal pool elevation as set forth by the Schedule of Release, thus providing water storage for water supply, pollution abatement, fish and wildlife conservation, recreation, and navigation on the lower Kaskaskia River. A minimum release of 10 c.f.s. is required at all times to maintain good downstream water quality. The downstream channel restricts non-damaging releases to 1800 c.f.s. or less during the growing season (1 May through harvest).

8. RESERVOIR INFLOW.

Summaries of the monthly and annual precipitation and runoff data for the watershed are given in TABLES 1 and 2. One inch of runoff equals 56,210 acre-feet. Average annual precipitation and inflow for the sediment survey period are tabulated in Items 34 and 35 of PLATE 54, a data summary of reservoir sediment, ENG. Form 1787. The average monthly inflow hydrograph for the period 1970 through 1980 is shown on PLATE 2. The average monthly pool stage for the same period is shown on PLATE 3.

9. ORIGINAL RESERVOIR SURVEY.

A tabulation of the original capacity for 5-foot intervals is shown in TABLE 3. Item 46 of PLATE 55, ENG Form 1787, gives area and storage (capacity) tabulation at 10-foot intervals for the original survey. Area and capacity curves are shown on PLATE 4.

10. TYPE AND SCOPE OF INITIAL SEDIMENT SURVEY.

There were forty (40) sediment ranges established and surveyed by direct leveling during the period March 1969 - June 1971 for the purpose of observing sediment distribution and the approximate rate of reservoir storage depletion. PLATE 5 shows the location of the pool sediment ranges. The cross-sections of the ranges for the original survey and the 1974 and 1980 resurveys are shown on PLATES 6 through 45. Appendix A shows detailed location of the forty sediment ranges.

11. TYPE AND SCOPE OF SEDIMENT RESURVEYS.

A. Detailed sediment resurveys were made during 1974 and 1980. The dry land portions of the resurveys were conducted by direct leveling. The soundings were performed with a Raytheon, Model 719B, depth recorder which

was used in conjunction with a Motorola Miniranger distance measuring unit which constantly updates the distance from the shore station. The depth recorder was placed in an 18 foot jon boat with a 20 horsepower outboard motor. Horizontal alignment was maintained by communication with walkie-talkies between the boat operator and a person on shore. The person on shore was located at one end of the sedimentation range with a transit sighted on the other end of the range for alignment purposes. Thus, if the boat making the soundings varied off the range, the person on shore manning the transit could communicate with the boat operator by walkie-talkie as to what corrective measure to take.

B. The 1974 resurvey was conducted from February to April 1974. The average pool elevation during the measurements was 603.1. The 1980 sediment resurvey was conducted during November and December 1980. The average pool elevation during the measurements was 596.3. The capacities based on the results of both resurveys are shown in TABLE 3.

12. METHODS OF SEDIMENT COMPUTATIONS.

Several methods have been developed for computing the amount of sediment deposited in a reservoir. The modified - prismoidal method, average depth method and the average end method were used in this report to analyze and compute the volume of sediment deposited. In the analysis, water surface areas were determined using a water surface elevation of 626.5. Cross-sectional range data is tabulated in TABLE 4 and TABLE 5. The three methods used to compute the volume of sediment for the periods of 1970-1974 and 1970-1980 are defined as:

Prismoidal Method - The prismoidal formula used to compute the volume of sediment deposited during the 1974 and 1980 resurveys was derived by the Soil Conservation Service and published as USDA Technical Bulletin No. 524, "Silting of Reservoirs," dated August 1939. For method of computations see pages 158-161.

Average Depth Method - The surface area between two adjacent ranges was multiplied by the average depth of the two ranges to determine the capacity of the segment of reservoir bounded by the two ranges. The average depth of a range equals the cross-sectional area divided by the horizontal length of the range. The equation is expressed as:

$$V_{1-2} = A \times \frac{\left[\frac{E_1}{W_1} + \frac{E_2}{W_2}\right]}{2}$$

Average End Method - The average change in cross-sectional area of sediment between two adjacent ranges was multiplied by the length of the segment (L) to determine the net change in volume of sediment bounded by the two ranges. The equation is expressed as:

$$V = \frac{(E_1 + E_2)}{2} \times \frac{L}{43,560}$$

Symbols used in the above equations are defined as:

V = change in sediment volume between ranges for a survey period in acre-feet.

A = surface area between ranges of the segment in acres.

E = net change in cross-sectional area between ranges for a survey period in square feet.

W = horizontal length of the range at crest elevation in feet.

L = length between ranges in feet.

Results of the analysis using the above equations are presented in TABLE 7.

13. SEDIMENT QUANTITIES.

A. The Prismoidal Method was used for final sediment quantities in this report since it was developed specifically for calculating the amount of sediment deposited between two ranges and is well documented and referenced. The Average-Depth and Average-End Methods were used for comparison purposes only. As can be seen in TABLE 7, the Average-Depth Method produced results which totaled approximately ~~13~~ 14 percent greater than the prismoidal method. The Average-End Method produced results which were about ~~24~~ 42 percent less. The Average-End Method applies best to areas with fairly uniform widths throughout. Since Lake Shelbyville has numerous inlets and bays along its shoreline, i.e., not constant width between ranges, the Average-End Method should not have produced accurate results, which is shown when compared to the other two methods. The above comparisons were based on the results of the 1980 resurvey.

B. A summary of the area changes of each sediment range along with the volume of sediment deposited between each range in the reservoir for the periods 1970-1974 and 1970-1980 are presented in TABLES 6 and 7, respectively. Calculations using data of the initial 1974 sedimentation resurvey indicate an increase of about 0.66 percent in the total storage between the date of initial operation and April 1974. The results of the 1980 resurvey indicated that about 1.2 percent (8,214 acre-feet) of the capacity in the entire reservior has been lost between 1970 and 1980. Of the 8,214 acre-feet of sediment deposited, approximately 6,155 acre-feet was deposited within the inactive pool (below el. 573.0). This decreased the storage capacity of the inactive pool by 20 percent. In the joint use pool (el. 573.0 to el. 599.7), there was 1,904 acre-feet of sediment deposited. This reduced the joint-use pool storage by one percent. The remaining sediment was deposited within the flood control pool (above el. 599.7). The

amount is insignificant when compared to the 468,385 acre-feet of flood control storage. The resurvey also showed that the majority of the sediment (84 percent) was deposited from the dam to a point approximately 10 miles upstream (Range 17A is approximately 10 miles upstream from the dam). As can be seen in TABLE 7, the sediment within this 10 mile stretch was distributed fairly evenly. The following table summarizes the sediment deposition for the lake based on the 1980 resurvey:

	AMOUNT OF SEDIMENT DEPOSIT (ACRE-FEET)	RATE OF DEPOSITION (ACRE-FEET/YEAR)*
Entire Reservior	8,214	775
Inactive Storage	6,155	580
Joint-use Storage	1,904	180
Flood Control Storage	155	15

*Based on 10.6 years, Plate 54, Item 27.

14. TRAP EFFICIENCY OF THE RESERVOIR.

For the period of operation, Lake Shelbyville has a trap efficiency of 100 percent. This computation was based on the method of Gunnar M. Brune, using the capacity - inflow ratio (Item 33, Plate 54), presented in a transaction of the American Geophysical Union, Volume 34, Number 3, June 1953, pages 407-414. TABLE 9 is a tabulation of sieve analysis of sediment samples taken in 1980. Sediment samples were not taken in 1974.

15. DOWNSTREAM CHANNEL AND RESERVOIR OPERATION.

A series of six (6) retrogression ranges cover from mile 220.9 to mile 216.8 (see PLATE 46). The 1974 and 1980 resurveys showed no significant aggradation or degradation occurring. A thalweg profile, including the initial 1970 survey and both the 1974 and 1980 resurveys, is shown on PLATE 47. The plotted retrogression ranges are shown as PLATES 48 through 53. PLATE 47A compares the 1972 tailwater rating curve with the latest available curve, 1977. TABLE 8 shows a tabulation of volume change downstream of the dam. There has only been a slight increase in volume, 3.6 percent, since initial operation. Retrogression range 1C was destroyed when Highway 16 was relocated downstream of Shelbyville Dam. It has not been re-established.

16. SUMMARY.

Based upon the results of the 1980 resurvey, in 50 years of operation the inactive pool will have lost 29,000 acre-feet of capacity, or for all practical purposes, been depleted entirely, and the joint use pool will have lost 9,000 acre-feet of capacity to sediment. Overall, the 775 acre-feet per year deposition rate is 2.7 times higher than the predicted rate of 288 acre-feet per year. The predicted rate was based on samples taken with a U.S. Geological Survey bucket-type sampler at the Shelbyville sediment gaging station. Often times the sedimentation rate will be higher during the first

few years of operation of a reservoir due to the clearing of land in the lake area. This exposes land which once was protected from erosion. Then, until this land once again stabilizes, erosion rates will be higher, therefore increasing the amount of sediment entering the reservoir.

Concerning the results of the 1974 resurvey, the data was reviewed for errors which could have resulted in the increased capacity. No errors were found in the resurvey data. Also, there is no great amount of mining activity or oil well drilling in the area to cause subsidence of the land. The only other reason for the high rate appears to be survey error. The same contractor conducted the 1974 resurvey at Rend Lake, Big Muddy River, Illinois. The results at Rend Lake for the 1974 resurvey also showed an increase in capacity. Therefore, it is possible that the contractor's equipment produced erroneous results. In the future, the data should be reduced as soon as possible, so that questionable data can be adjusted or redone.

17. RECOMMENDATION.

It is recommended that a resurvey be conducted no later than FY 85. Since the 1974 resurvey gave no rate of deposition, there is no way of knowing if the sedimentation rate computed with the 1980 resurvey is increasing, decreasing, or has stabilized. If a complete resurvey is not possible by FY 85, then a partial resurvey consisting of ranges 1A through 17A should be conducted. The area extending upstream from the dam to range 17A was the area of greatest sediment deposition. Therefore, a resurvey of this area would be an indicator as to the tendency of the rate of deposition. After the next resurvey, it may be necessary to modify the Water Supply Contract due to higher than anticipated sediment deposition rates.

TABLE 1

MONTHLY PRECIPITATION AND RUNOFF
FOR DRAINAGE AREA ABOVE LAKE SHELBYVILLE GAGE
(1970-1980)

MONTH	MAXIMUM RAINFALL (INCHES)	MINIMUM RAINFALL (INCHES)	AVERAGE RAINFALL (INCHES)	AVERAGE RUNOFF (INCHES)	RUNOFF (PERCENT)
January	4.59	0.53	1.76	1.37	77.8
February	4.79	0.48	1.88	1.06	56.4
March	6.51	1.53	3.84	1.86	48.4
April	7.15	0.76	3.59	2.29	63.8
May	8.88	1.59	3.80	1.19	31.3
June	7.82	1.97	4.08	1.33	32.6
July	10.28	1.23	5.07	0.75	14.8
August	7.99	0.67	4.28	0.39	9.1
September	7.27	0.23	3.53	0.35	9.9
October	4.17	1.10	2.37	0.26	11.0
November	5.03	0.49	2.34	0.46	19.7
December	7.40	0.26	2.84	1.13	39.8

TABLE 2

ANNUAL PRECIPITATION AND RUNOFF
FOR DRAINAGE AREA ABOVE LAKE SHELBYVILLE GAGE
(1970-1980)

YEAR	RAINFALL (INCHES)	RUNOFF (INCHES)	RUNOFF (PERCENT)	AVERAGE DAILY RUNOFF (c.f.s.)
1970	34.52	10.10	29.3	767
1971	40.24	9.25	23.0	702
1972	41.27	11.45	27.7	869
1973	48.68	18.61	38.2	1,412
1974	47.65	23.63	49.6	1,793
1975	45.26	14.61	32.3	1,109
1976	27.16	5.65	20.8	429
1977	41.52	8.84	21.3	671
1978	38.60	13.77	35.7	1,045
1979	37.93	14.86	39.2	1,128
1980	30.54	5.44	17.8	413
Maximum	48.68	23.63	49.6	1,793
Minimum	27.16	5.44	17.8	413
Average	39.40	12.38	30.4	940

TABLE 3

TABULATION OF CAPACITY FOR LAKE SHELBYVILLE

ELEVATION (FEET, NGVD)	ORIGINAL CAPACITY (ACRE-FEET)	1974 CAPACITY* (ACRE-FEET)	1980 CAPACITY* (ACRE-FEET)
535	0	0	0
540	99	76	0
545	421	366	183
550	1,105	1,163	470
555	2,818	2,892	1,468
560	6,305	6,660	4,479
565	12,428	12,869	8,855
570	22,238	22,786	16,618
575	36,721	37,419	30,210
580	56,906	58,116	49,594
585	83,796	85,478	76,375
590	118,383	120,655	110,446
595	161,329	164,320	153,330
600	212,980	216,329	204,921
605	274,565	278,526	266,471
610	347,959	352,205	339,829
615	433,927	438,303	425,768
620	532,310	536,770	524,096
625	644,969	649,249	636,755

TABLE 3 - (Continued)

TABULATION OF CAPACITY FOR LAKE SHELBYVILLE

ELEVATION (FEET, NGVD)	ORIGINAL CAPACITY (ACRE-FEET)	1974 CAPACITY* (ACRE-FEET)	1980 CAPACITY* (ACRE-FEET)
630	775,118	779,578	766,904
635	914,370	918,830	906,156
640	1,056,120	1,065,358	1,047,906

*Based on prismoidal method.

TABLE 4

RANGE DATA - LAKE SHELBYVILLE

SECTION	DISTANCE BETWEEN RANGES (FEET)	SURFACE AREA (ACRES)
Dam - 1A	3,100	260
1A - 3A	4,150	887
2B	12,700	525
3A - 4A	4,400	668
4A - 5A	4,050	795
5A - 6A	5,100	578
6A - 7A	3,650	615
7A - 8B	7,200	569
8B - 9B	3,500	518
9B - 10B	8,300	498
10B	6,500	487
11A - 12A	5,100	517
12A - 14A	5,600	473
13B	9,800	342
14A - 15A	6,350	596
15A - 17A	4,600	479
16B	15,600	384
17A - 18A	5,400	835
18A - 19A	7,150	865
19A - 20A	6,100	663

TABLE 4 (Continued)

RANGE DATA - LAKE SHELBYVILLE

SECTION	DISTANCE BETWEEN RANGES (FEET)	SURFACE AREA (ACRES)
20A - 21A	7,800	930
22B	14,800	528
21A - 23A	9,650	977
23A - 24A	2,450	207
24A - 40B	7,400	784
39B	11,300	349
40B	18,000	982
25A - 26A	3,300	358
26A - 27A	5,200	406
27A - 28A	4,200	627
28A - 29A	4,650	950
29A - 30A	4,000	518
30A - 31A	5,300	489
31A - 32B	6,200	692
32B	15,500	620
33A - 34A	5,000	427
35B - 36A	5,100	1,047
35B	7,000	117
36A - 38A	8,900	1,120
38A	34,250	1,850
37B	14,000	505

TABLE 5

CROSS-SECTION RANGE DATA - LAKE SHELBYVILLE

CROSS - SECTION	1970 WIDTH* (FT)	1970 AREA* (FT^2)	1974 WIDTH* (FT)	1974 AREA* (FT^2)	1980 WIDTH* (FT)	1980 AREA* (FT^2)
1A	3,001	128,382	3,086	127,673	3,085	124,455
2B	2,728	128,905	2,733	129,830	2,730	126,926
3A	2,880	137,355	2,880	137,155	2,910	136,316
4A	3,056	132,606	3,057	132,444	3,068	128,804
5A	2,664	115,255	2,656	116,653	2,661	113,201
6A	2,993	133,794	3,012	134,899	2,999	131,903
7A	1,402	66,466	1,409	67,587	1,414	65,490
8B	1,839	64,035	1,836	64,471	1,840	63,987
9B	3,104	89,926	3,105	90,708	3,105	88,890
10B	803	14,466	801	14,544	786	13,593
11A	2,894	115,364	2,880	115,737	2,930	113,934
12A	2,710	117,586	2,708	117,149	2,704	113,566
13B	908	38,606	906	38,497	905	37,235
14A	2,328	86,190	2,322	85,177	2,315	84,384
15A	3,082	130,310	3,079	130,142	3,083	124,937
16B	1,125	33,047	1,144	33,777	1,118	31,348
17A	3,283	101,488	3,283	102,635	3,297	101,695
18A	3,486	88,438	3,493	90,366	3,494	88,160
19A	3,340	93,985	3,336	97,521	3,338	92,708

*Based upon water surface elevation of 615.7.

TABLE 5 (Continued)

CROSS-SECTION RANGE DATA - LAKE SHELBYVILLE

CROSS - SECTION	1970 WIDTH (FT)	1970 AREA (FT^2)	1974 WIDTH (FT)	1974 AREA (FT^2)	1980 WIDTH (FT)	1980 AREA (FT^2)
20A	2,237	48,894	2,234	49,394	2,231	48,177
21A	6,667	155,223	6,667	155,395	6,672	154,168
22B	1,872	33,851	1,878	33,761	1,871	32,882
23A	1,500	18,705	1,510	18,819	1,508	18,666
24A	824	10,661	825	10,500	820	10,705
25A	1,964	64,408	1,964	66,780	1,965	64,829
26A	2,200	78,167	2,195	79,795	2,195	78,992
27A	1,675	51,349	1,662	50,909	1,676	49,596
28A	5,338	179,873	5,330	182,140	5,331	183,654
29A	2,657	67,111	2,700	68,524	2,694	67,673
30A	2,936	70,499	2,936	71,494	2,938	70,528
31A	2,449	45,303	2,456	45,467	2,468	44,663
32B	1,274	19,312	1,279	19,619	1,274	18,996
33A	1,476	32,413	1,483	32,465	1,480	31,708
34A	1,705	25,499	1,703	25,386	1,695	25,136
35B	515	5,426	515	5,354	514	5,286
36A	2,855	38,468	2,857	39,018	2,848	37,098
37B	651	5,699	650	5,850	654	5,602
38A	1,191	7,412	1,189	7,616	1,186	7,366
39B	708	5,300	705	5,180	706	5,695
40B	1,296	12,144	1,298	12,339	1,301	12,402

TABLE 6

TABULATION OF RANGE AREA CHANGES IN LAKE SHELBYVILLE

RANGE CROSS-SECTION	AREA CHANGE (1970-1974) (SQUARE FEET)	AREA CHANGE (1970-1980) (SQUARE FEET)
1A	709	3,927
2B	-925*	1,979
3A	200	1,039
4A	162	3,802
5A	-1,398	2,054
6A	-1,105	1,891
7A	-1,121	976
8B	-436	48
9B	-782	1,036
10B	-78	873
11A	-373	1,430
12A	473	4,020
13B	109	1,371
14A	1,013	1,806
15A	168	5,373
16B	-730	1,699
17A	-1,147	-207
18A	-1,928	278
19A	-3,536	1,277
20A	-500	717

*Negative value indicates an increase in area.

TABLE 6 (Continued)

TABULATION OF RANGE AREA CHANGES IN LAKE SHELBYVILLE

RANGE CROSS-SECTION	AREA CHANGE (1970-1974) (SQUARE FEET)	AREA CHANGE (1970-1980) (SQUARE FEET)
21A	-172	1,055
22B	90	969
23A	-114	39
24A	161	-44
25A	-2,372	-421
26A	-1,628	-825
27A	440	1,753
28A	-2,267	-3,781
29A	-1,413	-562
30A	-995	-29
31A	-164	640
32B	-307	316
33A	-52	705
34A	113	363
35B	72	140
36A	-550	1,370
37B	-151	97
38A	-204	46
39B	120	-395
40B	-195	-258

TABLE 7

TABULATION OF COMPUTATION OF RESERVOIR SEDIMENT

DEPOSITED IN ACRE-FEET

	(1970-1974)			(1970-1980)		
SECTION	(A)	(B)	(C)	(A)	(B)	(C)
Dam - 1A	52	60	50	289	331	279
1A - 3A	107	133	43	585	723	237
2B	-131*	-89	-135	281	190	288
3A - 4A	35	41	18	457	533	244
4A - 5A	-158	-188	-57	685	799	272
5A - 6A	-253	-258	-147	398	405	231
6A - 7A	-295	-357	-93	344	406	120
7A - 8B	-276	-294	-127	188	204	85
8B - 9B	-111	-127	-49	86	93	44
9B - 10B	-100	-87	-82	332	360	182
10B	-23	-24	-6	258	270	65
11A - 12A	7	8	4	493	510	319
12A - 14A	149	141	93	579	536	374
13B	26	21	12	328	259	154
14A - 15A	131	146	86	705	752	523
15A - 17A	-73	-71	-52	407	402	273
16B	-173	-123	-131	411	292	304
17A - 18A	-338	-376	-191	7	7	4

*Negative value indicates an increase in storage.

TABLE 7 (Continued)

TABULATION OF COMPUTATION OF RESERVOIR SEDIMENT

DEPOSITED IN ACRE-FEET

	(1970-1974)			(1970-1980)		
SECTION	(A)	(B)	(C)	(A)	(B)	(C)
18A - 19A	-690	-697	-448	197	200	128
19A - 20A	-440	-426	-283	233	233	140
20A - 21A	-102	-116	-60	213	233	159
22B	19	13	15	201	137	165
21A - 23A	-46	-49	-32	109	90	121
23A - 24A	9	12	1	-2	-3	0
24A - 40B	9	18	-3	-87	-99	-26
39B	38	30	16	-125	-98	-51
40B	-77	-74	-40	-102	-97	-53
25A - 26A	-302	-349	-152	-92	-106	-47
26A - 27A	-101	-97	-71	119	136	55
27A - 28A	-77	-50	-88	22	106	-98
28A - 29A	-382	-451	-196	-387	-436	-232
29A - 30A	-201	-223	-111	-50	-57	-27
30A - 31A	-92	-99	-71	54	61	37
31A - 32B	-91	-106	-34	157	176	68
32B	-92	-74	-55	95	77	56
33A - 34A	6	7	4	132	147	61
35B - 36A	-37	-28	-28	321	394	88
35B	11	8	6	22	16	11

TABLE 7 (Continued)

TABULATION OF COMPUTATION OF RESERVOIR SEDIMENT

DEPOSITED IN ACRE-FEET

	(1970-1974)			(1970-1980)		
SECTION	(A)	(B)	(C)	(A)	(B)	(C)
36A - 38A	-178	-204	-77	274	291	145
38A	-154	-159	-80	35	36	18
37B	-66	-59	-24	42	37	16
TOTAL	-4,460	-4,617	-2,575	8,214	8,546	4,732

NOTE: (A) Prismoidal Method
(B) Average - Depth Method
(C) Average - End Method

Percent of Storage Lost:

1970-1974

Method A:

$$\frac{-4,460}{676,203} \times 100 = 0.66\% \text{ gain in storage}$$

1970-1980

Method A:

$$\frac{8,214}{676,203} \times 100 = 1.20\%$$

TABLE 8

TABULATION OF VOLUME CHANGES DOWNSTREAM

OF LAKE SHELBYVILLE DAM

KASKASKIA RIVER

SECTION	(1970-1974) VOLUME CHANGE* (ACRE-FEET)	(1970-1980) VOLUME CHANGE* (ACRE-FEET)
2C - 3C	4	-4
3C - 4C	1	-6
4C - 5C	-8**	-9
5C - 6C	-12	-15
6C - 7C	-31	-6
TOTAL	-46	-40

Percent Changes:

1970-1974 $\frac{-46}{1,100} \times 100 = 4.2\%$ increase in volume.

1970-1980 $\frac{-40}{1,100} \times 100 = 3.6\%$ increase in volume.

*Calculated using Average End Method.
**Negative value indicates an increase in volume.

TABLE 9

TABULATION OF SIEVE ANALYSIS FOR
SEDIMENTATION SAMPLES AT LAKE SHELBYVILLE
(1980)

SAMPLE (RANGE)	SIEVE SIZE	PERCENT PASSING
1A-1*	# 10	98.9
	# 40	84.1
	# 70	73.1
	# 100	69.4
	# 200	65.9
	.0426mm	57.0
	.0041mm	36.2
1A-2	# 200	99.1
	.0403mm	71.2
	.0205mm	67.3
	.0078mm	57.5
	.0040mm	44.4
2B	# 200	99.9
	.0369mm	91.9
	.0188mm	88.0
	.0075mm	69.5
	.0040mm	51.8
3A	# 40	87.0
	# 70	77.0
	# 100	72.5
	# 200	67.5
	.0401mm	55.6
	.0042mm	22.2
4A	# 40	96.3
	# 70	86.3
	# 100	79.6
	# 200	68.5
	.0392mm	51.8
	.0043mm	12.9
5A	# 200	99.7
	.0402mm	73.6
	.0206mm	67.7
5A	.0082mm	46.4
	.0042mm	35.9
6A-1	# 40	88.3
	# 70	71.9
	# 100	64.1
	# 200	51.5
	.0429mm	37.3
	.0045mm	6.3
6A-2	# 200	95.4
	.0386mm	83.3
	.0199mm	77.4
	.0077mm	61.9
	.0040mm	49.7
7A	# 200	97.7
	.0401mm	95.0
	.0192mm	81.2
	.0078mm	53.6
	.0041mm	39.5
8B	# 200	99.5
	.0395mm	78.2
	.0205mm	70.1
	.0080mm	51.9
	.0041mm	39.9
9B	# 200	99.8
	.0385mm	76.8
	.0200mm	72.9
	.0075mm	64.1
	.0040mm	48.8
10B	# 40	98.0
	# 70	63.1
	# 100	46.4

* Some ranges had 2 samples taken, i.e., 1A-1 and 1A-2 indicates that two samples were taken.

TABLE 9 (Continued)

TABULATION OF SIEVE ANALYSIS FOR
SEDIMENTATION SAMPLES AT LAKE SHELBYVILLE
(1980)

SAMPLE (RANGE)	SIEVE SIZE	PERCENT PASSING
10B	# 200	38.8
	.0436mm	34.7
	.0044mm	13.6
11A	# 200	99.9
	.0387mm	82.4
	.0201mm	74.5
	.0078mm	58.9
	.0040mm	45.1
12A	# 200	99.8
	.0382mm	81.4
	.0196mm	75.5
	.0076mm	61.7
	.0040mm	49.0
13B	# 200	99.8
	.0405mm	72.9
	.0208mm	67.0
	.0080mm	55.5
	.0041mm	42.8
14A	# 10	99.9
	# 40	97.7
	# 70	89.3
	# 100	86.0
	# 200	82.5
	.0405mm	75.5
	.0040mm	32.6
15A	# 200	99.1
	.0383mm	84.4
	.0203mm	72.5
	.0077mm	60.9
	.0037mm	49.1
16B	# 200	99.3
	.0378mm	86.9
	.0196mm	80.0
	.0077mm	63.6
	.0041mm	46.8
17A	# 10	99.9
	# 40	98.9
	# 70	91.6
	# 100	85.7
	# 200	77.5
	.0318mm	48.5
	.0045mm	9.4
18A-1	# 40	92.5
	# 70	68.6
	# 100	57.1
	# 200	47.4
	.0418mm	41.9
	.0044mm	10.9
18A-2	# 200	91.4
	.0412mm	68.2
	.0214mm	59.3
	.0084mm	40.8
	.0043mm	27.2
19A	# 200	99.6
	.0390mm	81.5
	.0199mm	77.5
	.0078mm	60.0
	.0041mm	41.9
20A	# 200	98.8
	.0398mm	76.0
	.0204mm	70.0
	.0080mm	56.1
	.0041mm	43.4
21A	# 200	99.4
	.0377mm	86.9
	.0193mm	82.0
	.0076mm	63.4
	.0040mm	48.0
22B	# 200	99.1
	.0499mm	87.9
	.0206mm	71.6

TABLE 9 (Continued)

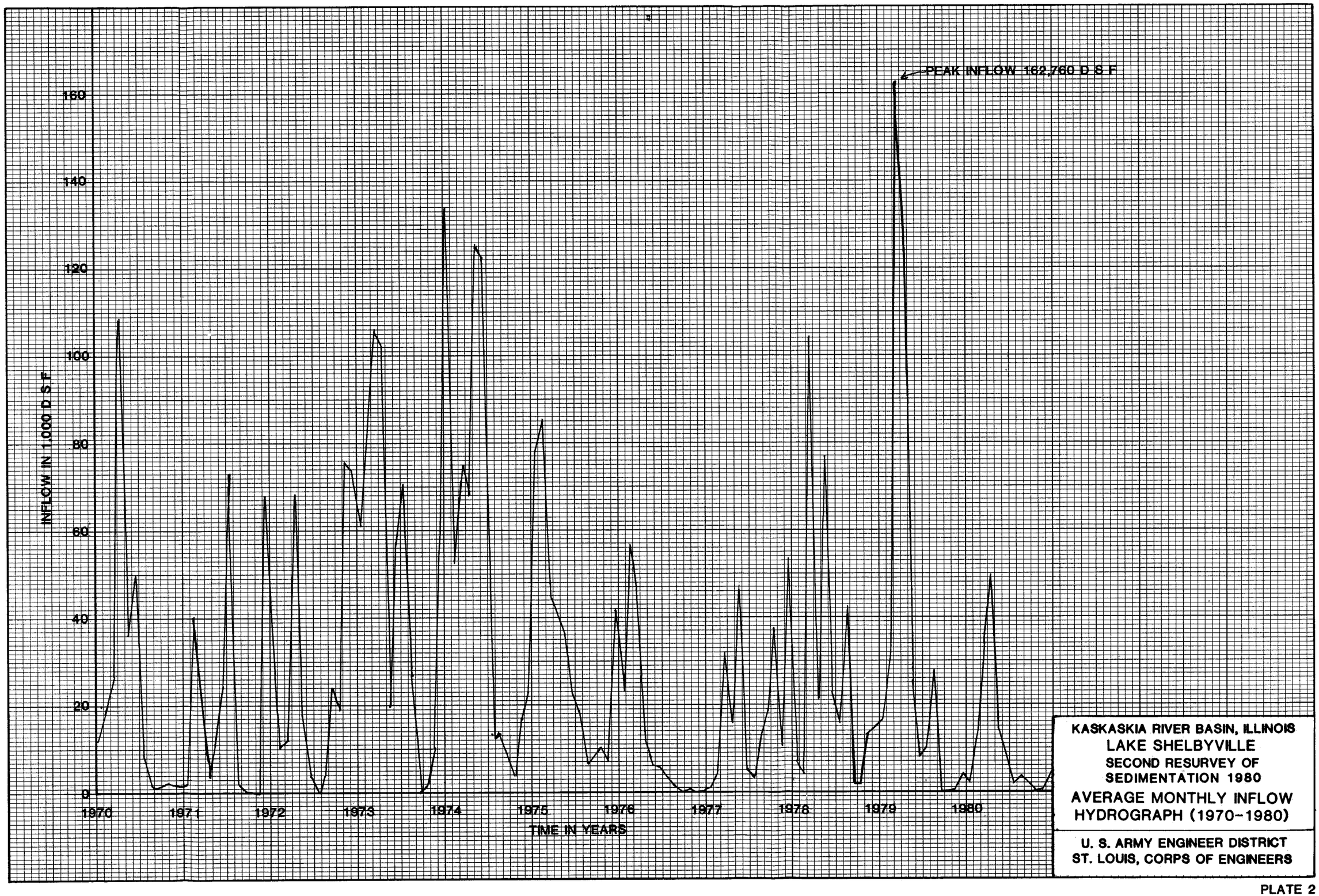
TABULATION OF SIEVE ANALYSIS FOR
SEDIMENTATION SAMPLES AT LAKE SHELBYVILLE
(1980)

SAMPLE (RANGE)	SIEVE SIZE	PERCENT PASSING
22B	.0079mm	59.2
	.0040mm	47.8
23A	# 40	99.7
	# 70	94.3
	# 100	82.3
	# 200	70.6
	.0422mm	64.1
	.0042mm	34.8
24A	# 200	91.8
	.0394mm	79.9
	.0206mm	70.0
	.0082mm	46.6
	.0042mm	33.1
25A	# 200	99.6
	.0374mm	85.3
	.0198mm	73.5
	.0078mm	53.7
	.0041mm	38.5
26A	# 40	99.9
	# 70	96.7
	# 100	90.6
	# 200	78.7
	.0412mm	70.0
	.0042mm	35.2
27A	# 200	98.7
	.0387mm	82.2
	.0203mm	71.3
	.0078mm	58.7
	.0041mm	46.2
28A	# 10	99.9
	# 40	92.4
	# 70	64.6
	# 100	46.6
	# 200	22.7
	.0493mm	14.8
	.0046mm	3.6
29A-1	# 200	99.3
	.0377mm	85.2
	.0196mm	77.3
	.0076mm	62.6
	.0040mm	50.0
29A-2	# 200	96.2
	.0391mm	80.3
	.0203mm	72.4
	.0081mm	48.8
	.0041mm	37.9
30A-1	# 40	97.9
	# 70	48.3
	# 100	27.0
	# 200	10.6
	.0507mm	7.3
	.0046mm	2.8
30A-2	# 40	96.7
	# 70	84.8
	# 100	76.1
	# 200	63.2
	.0550mm	57.5
	.0044mm	17.8
31A	# 10	99.6
	# 40	97.9
	# 70	83.1
	# 100	64.9
	# 200	48.5
	.0456mm	46.4
	.0045mm	16.4
32B	# 200	99.5
	0369mm	92.7
	.0105mm	71.8
	.0077mm	61.2
	.0041mm	42.1

TABLE 9 (Continued)

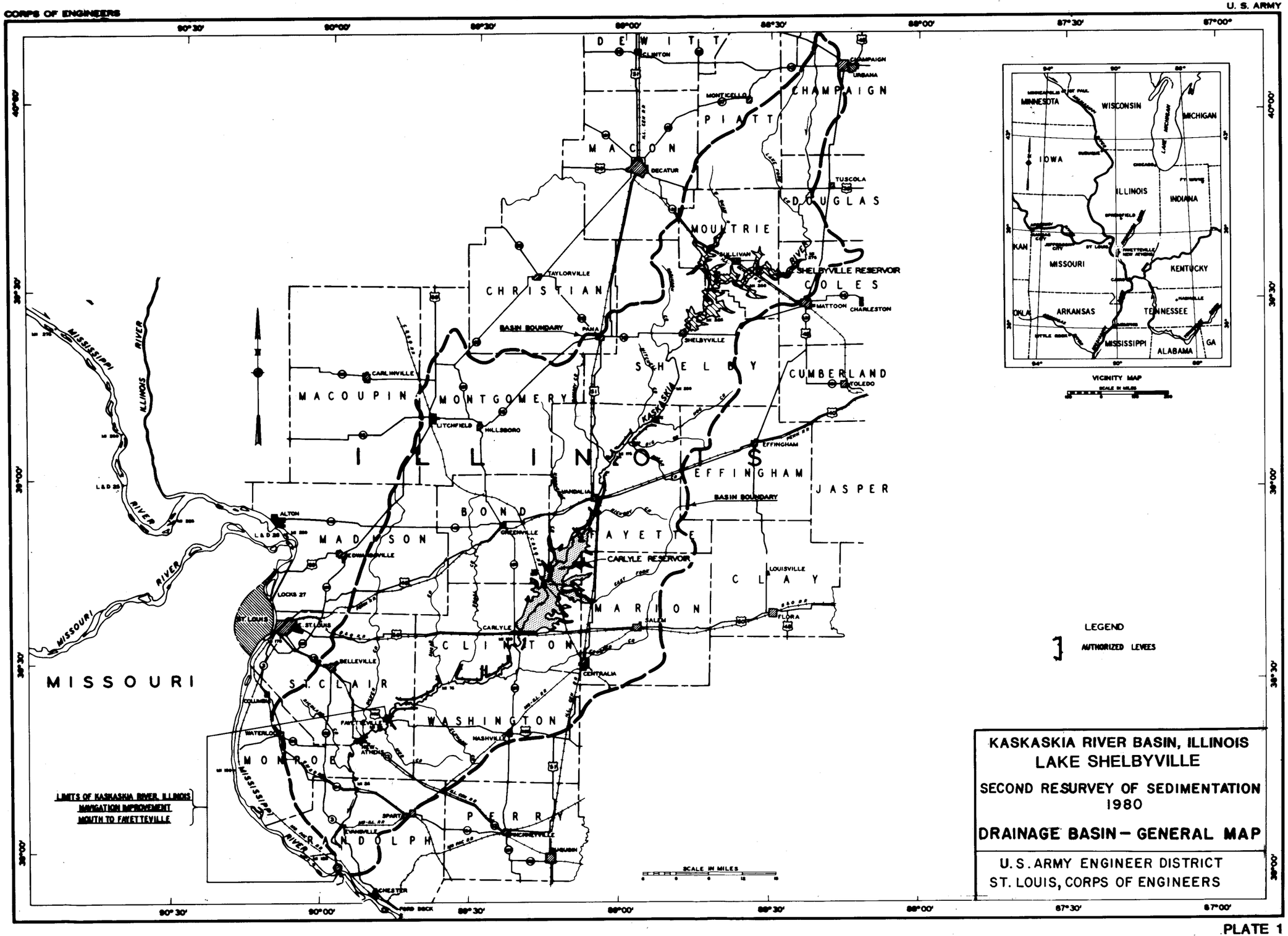
TABULATION OF SIEVE ANALYSIS FOR SEDIMENTATION SAMPLES AT LAKE SHELBYVILLE (1980)

SAMPLE (RANGE)	SIEVE SIZE	PERCENT PASSING
33A	# 40	99.9
	# 70	95.4
	# 100	85.3
	# 200	74.8
	.0416mm	66.2
	.0043mm	32.3
34A	# 200	91.5
	.0379mm	86.0
	.0203mm	71.1
	.0081mm	50.3
	.0042mm	37.2
35B	# 200	95.8
	.0391mm	80.1
	.0206mm	68.2
	.0083mm	44.3
	.0043mm	31.6
36A	# 10	99.8
	# 40	99.4
	# 70	94.0
	# 100	74.6
	# 200	52.7
	.0456mm	43.6
	.0044mm	19.1
37B	# 70	97.1
	# 100	89.8
	# 200	69.2
	.0433mm	55.7
	.0120mm	33.7
	.0044mm	21.5
40B	# 200	94.2
	.0387mm	82.3
	.0208mm	66.4
	.0084mm	41.4
	.0043mm	29.8



KASKASKIA RIVER BASIN, ILLINOIS
LAKE SHELBYVILLE
SECOND RESURVEY OF SEDIMENTATION 1980
AVERAGE MONTHLY INFLOW HYDROGRAPH (1970-1980)

U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS

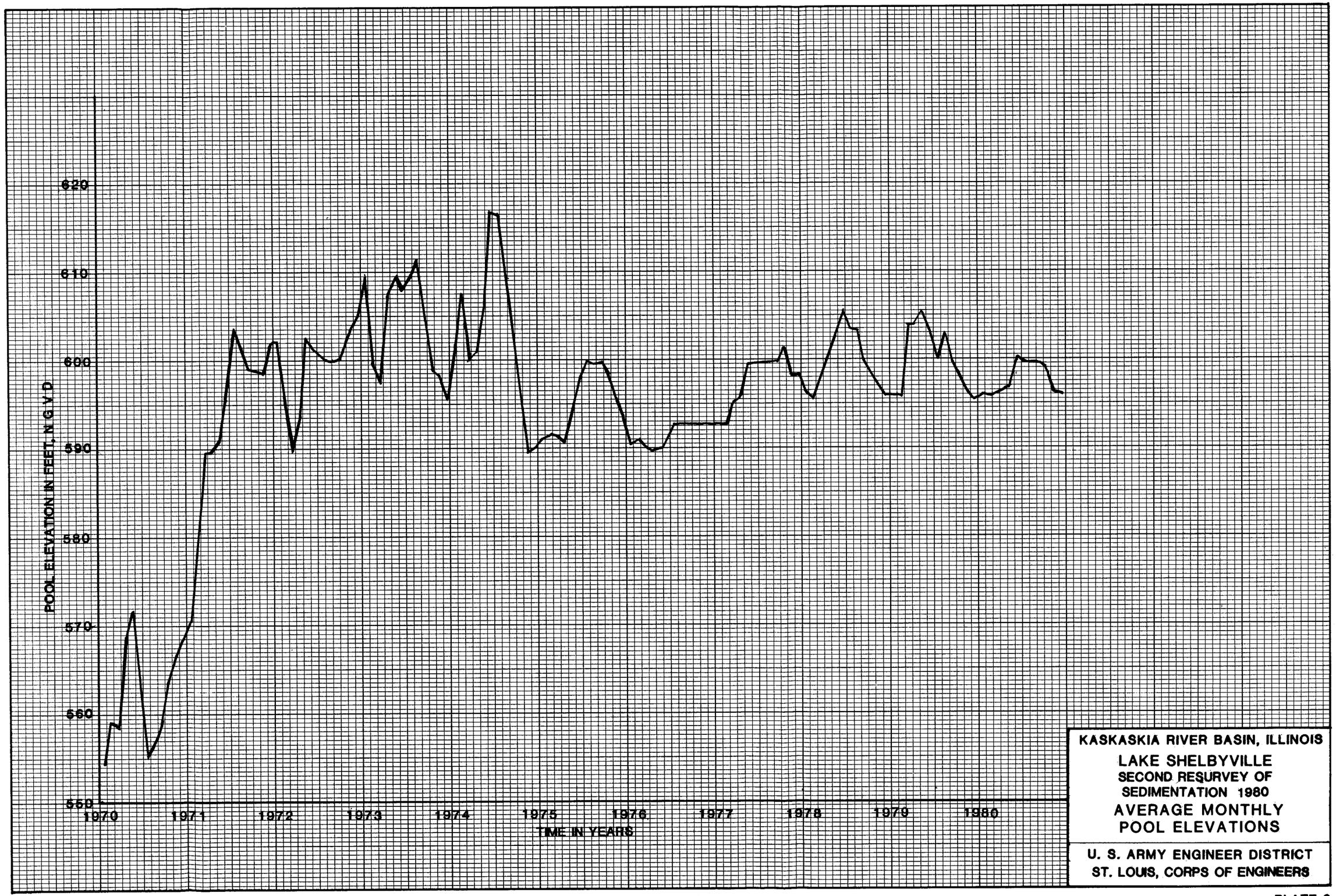


KASKASKIA RIVER BASIN, ILLINOIS
LAKE SHELBYVILLE

SECOND RESURVEY OF SEDIMENTATION
1980

DRAINAGE BASIN – GENERAL MAP

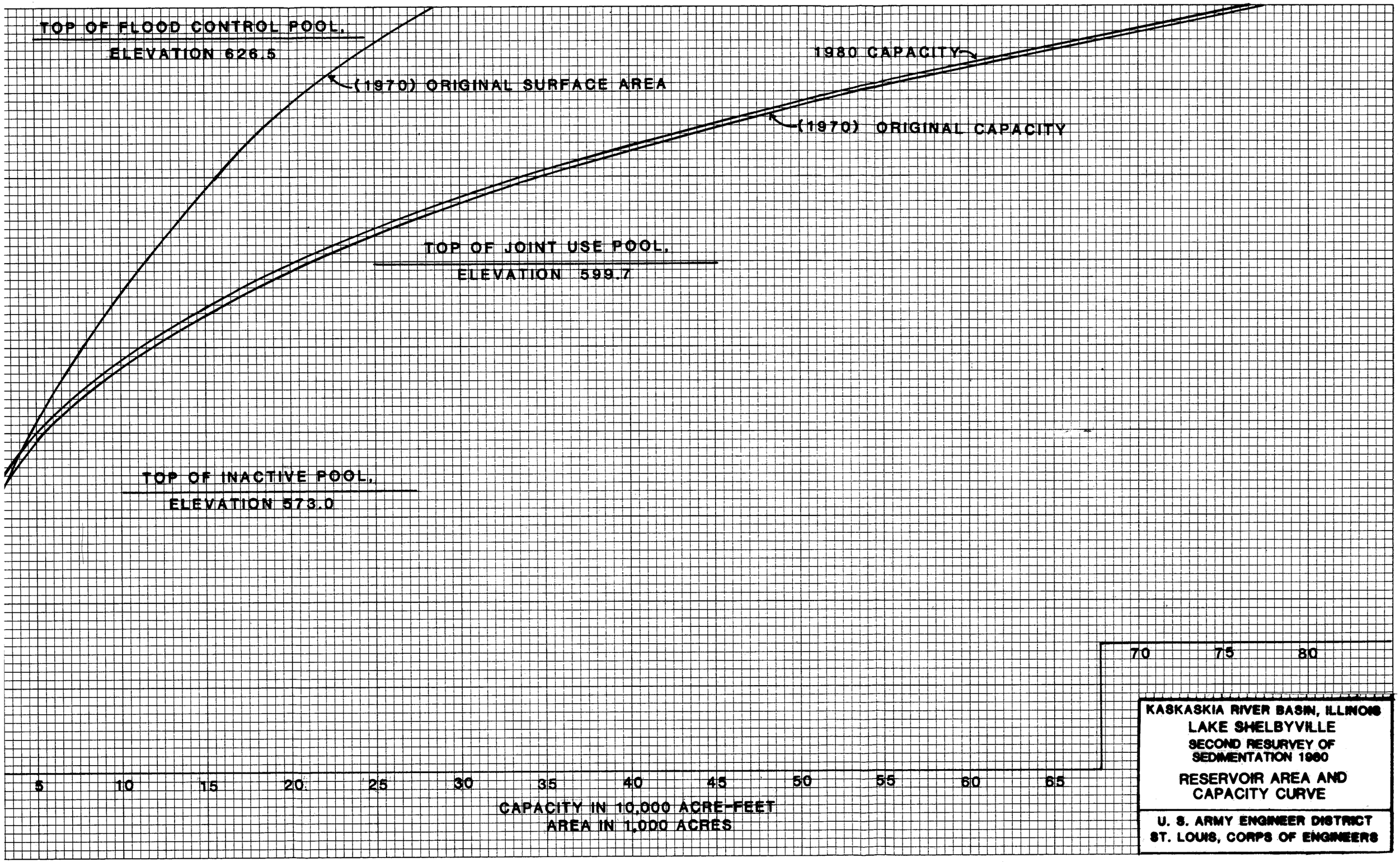
U.S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS



KASKASKIA RIVER BASIN, ILLINOIS

LAKE SHELBYVILLE
SECOND RESURVEY OF
SEDIMENTATION 1980
AVERAGE MONTHLY
POOL ELEVATIONS

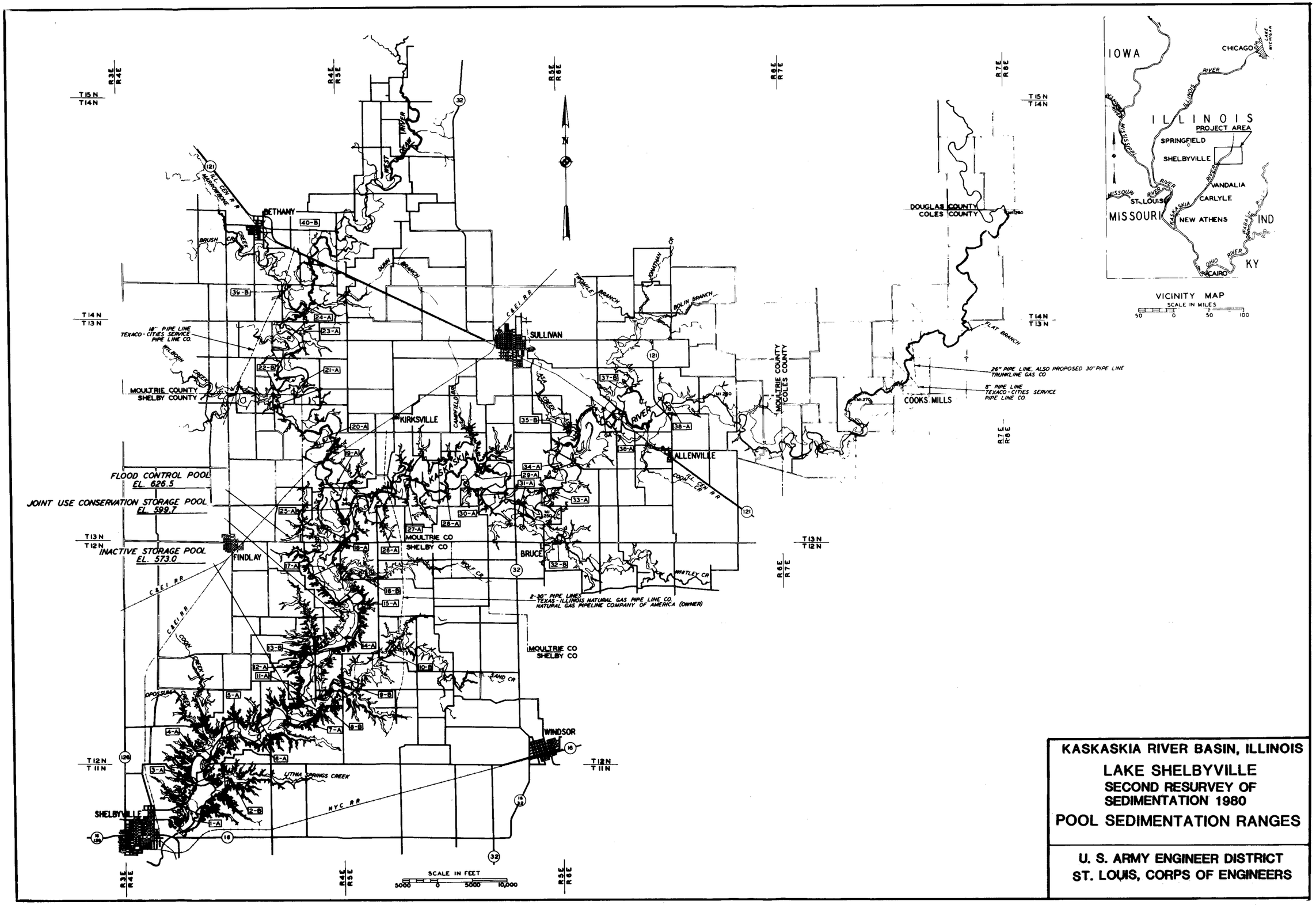
U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS



KASKASKIA RIVER BASIN, ILLINOIS
LAKE SHELBYVILLE
SECOND RESURVEY OF SEDIMENTATION 1980

RESERVOIR AREA AND CAPACITY CURVE

U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS



KASKASKIA RIVER BASIN, ILLINOIS

LAKE SHELBYVILLE

SECOND RESURVEY OF SEDIMENTATION 1980

POOL SEDIMENTATION RANGES

U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS

PLATE 5

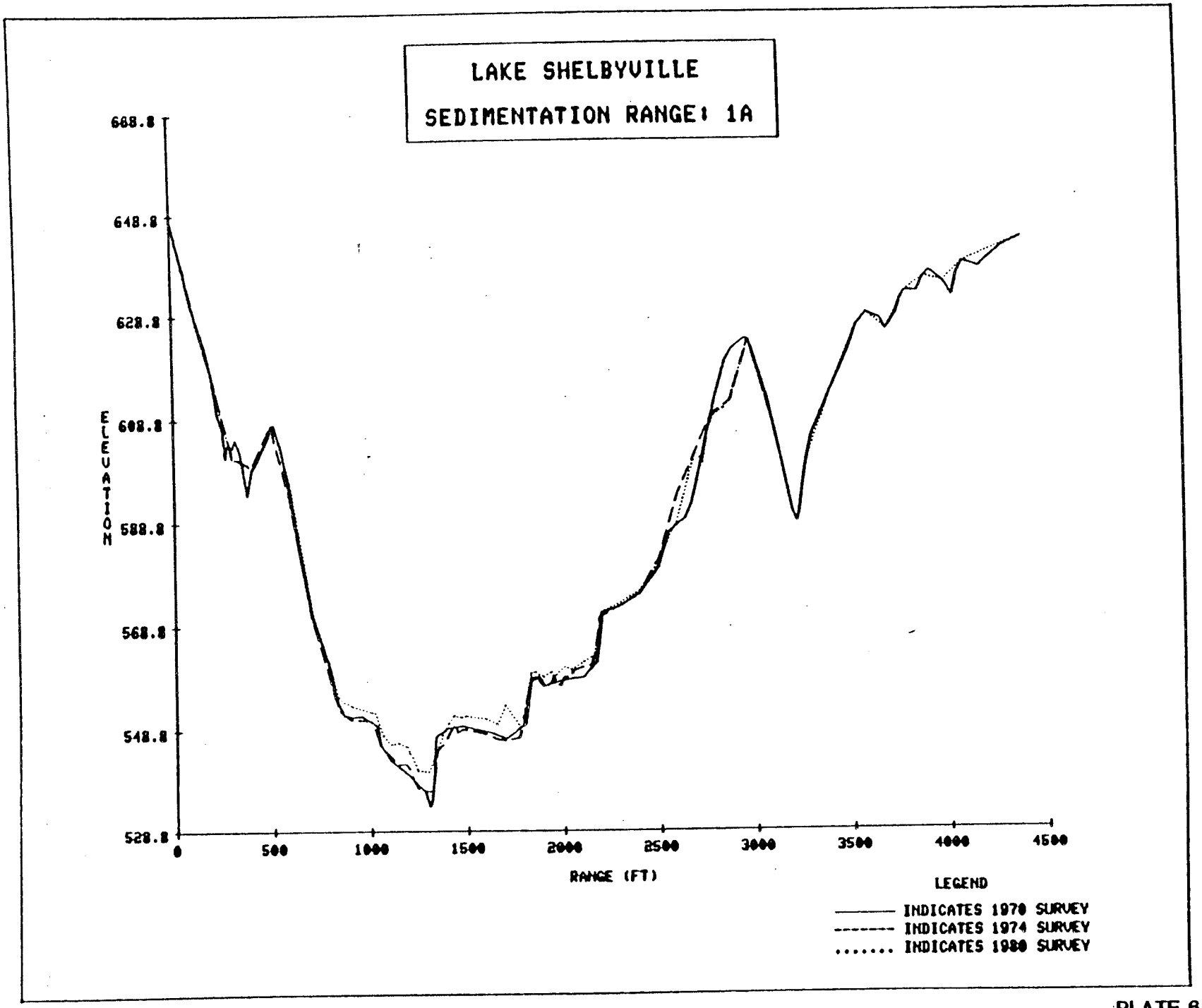

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 1A
668.0
648.0
628.0
608.0
588.0
568.0
548.0
528.0
ELEVATION
0
500
1000
1500
2000
2500
3000
3500
4000
4500
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 6

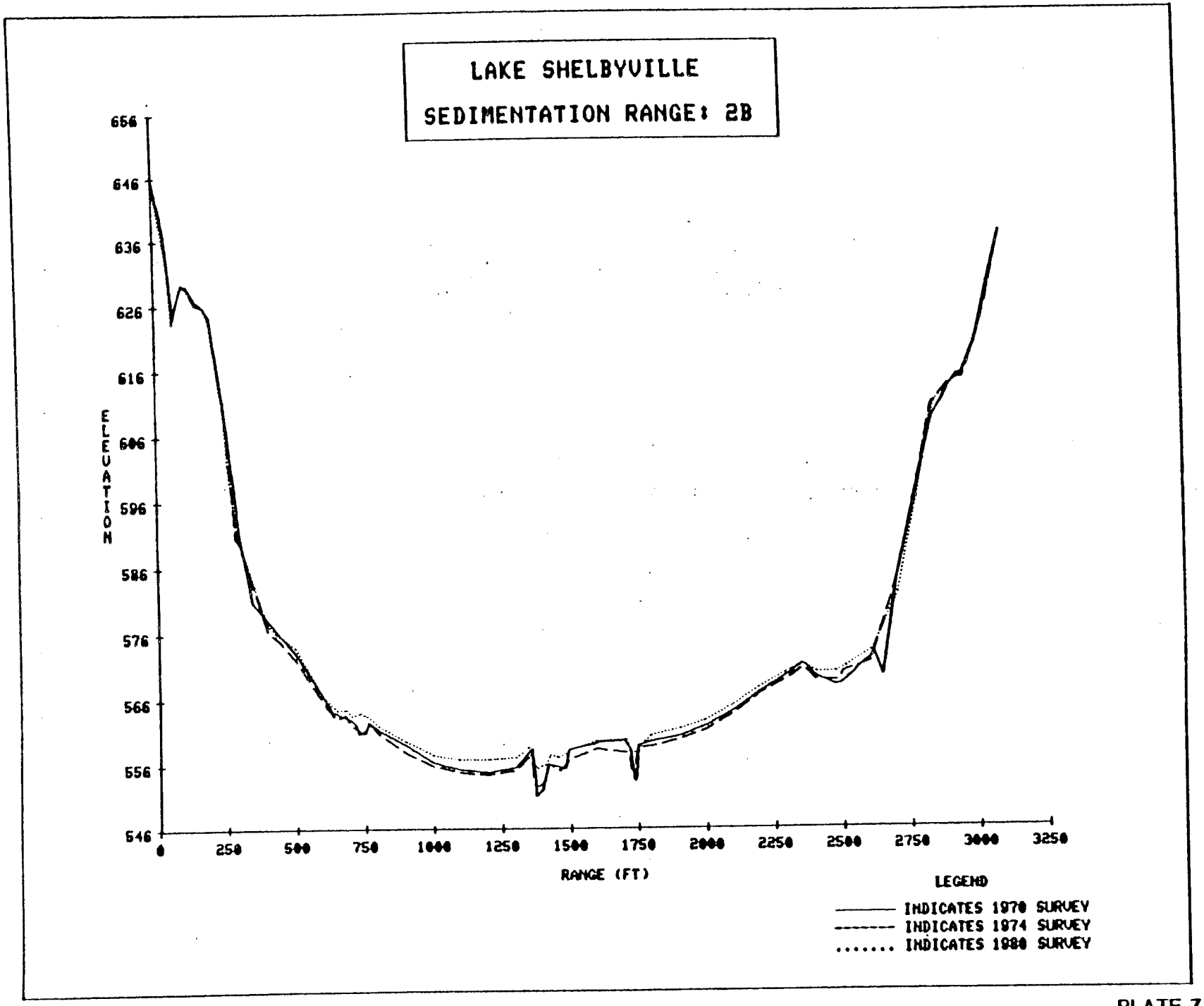

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 2B
ELEVATION
656
646
636
626
616
606
596
586
576
566
556
546
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
..... INDICATES 1980 SURVEY

PLATE 7

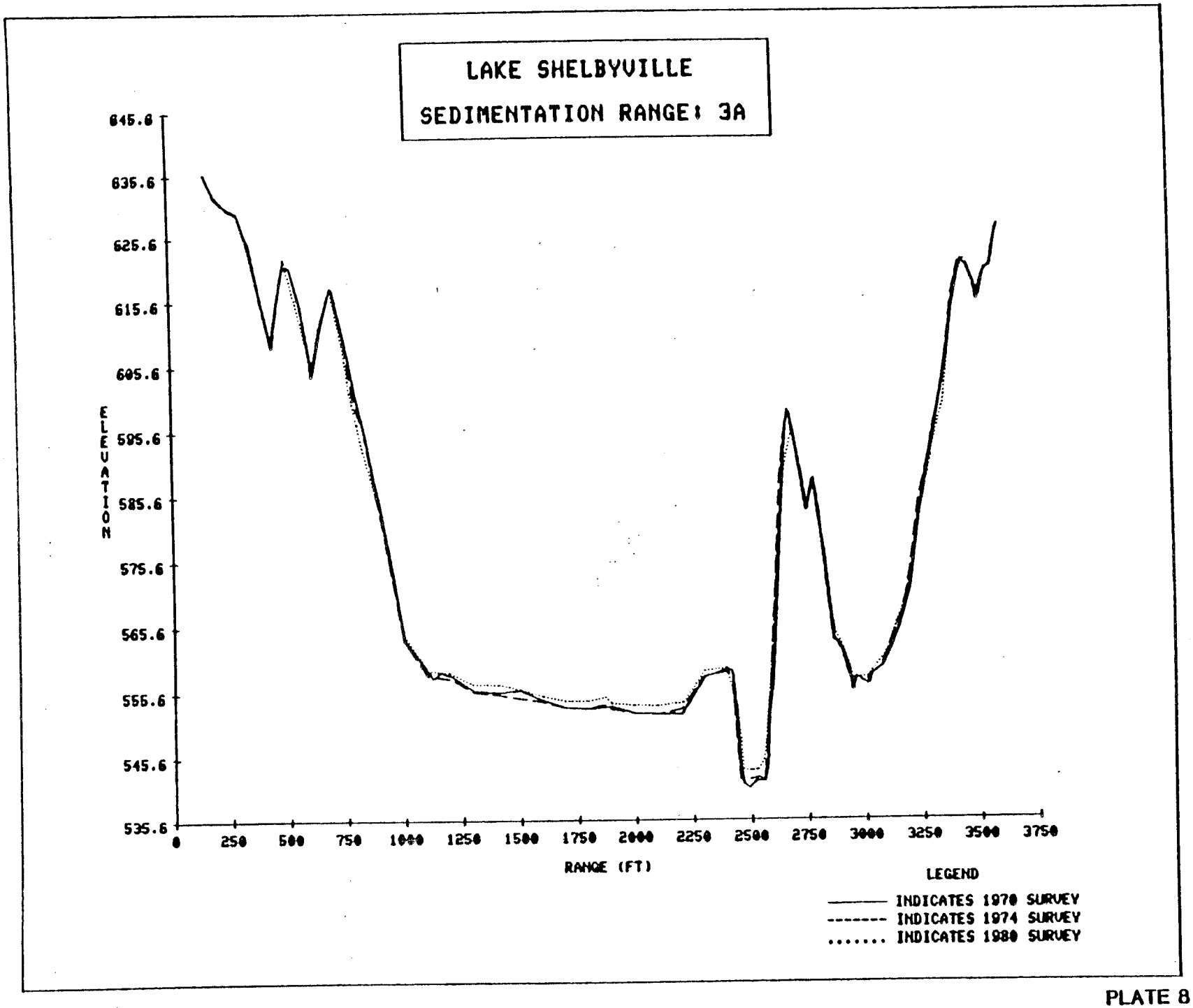

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 3A
ELEVATION
645.6
635.6
625.6
615.6
605.6
595.6
585.6
575.6
565.6
555.6
545.6
535.6
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 8

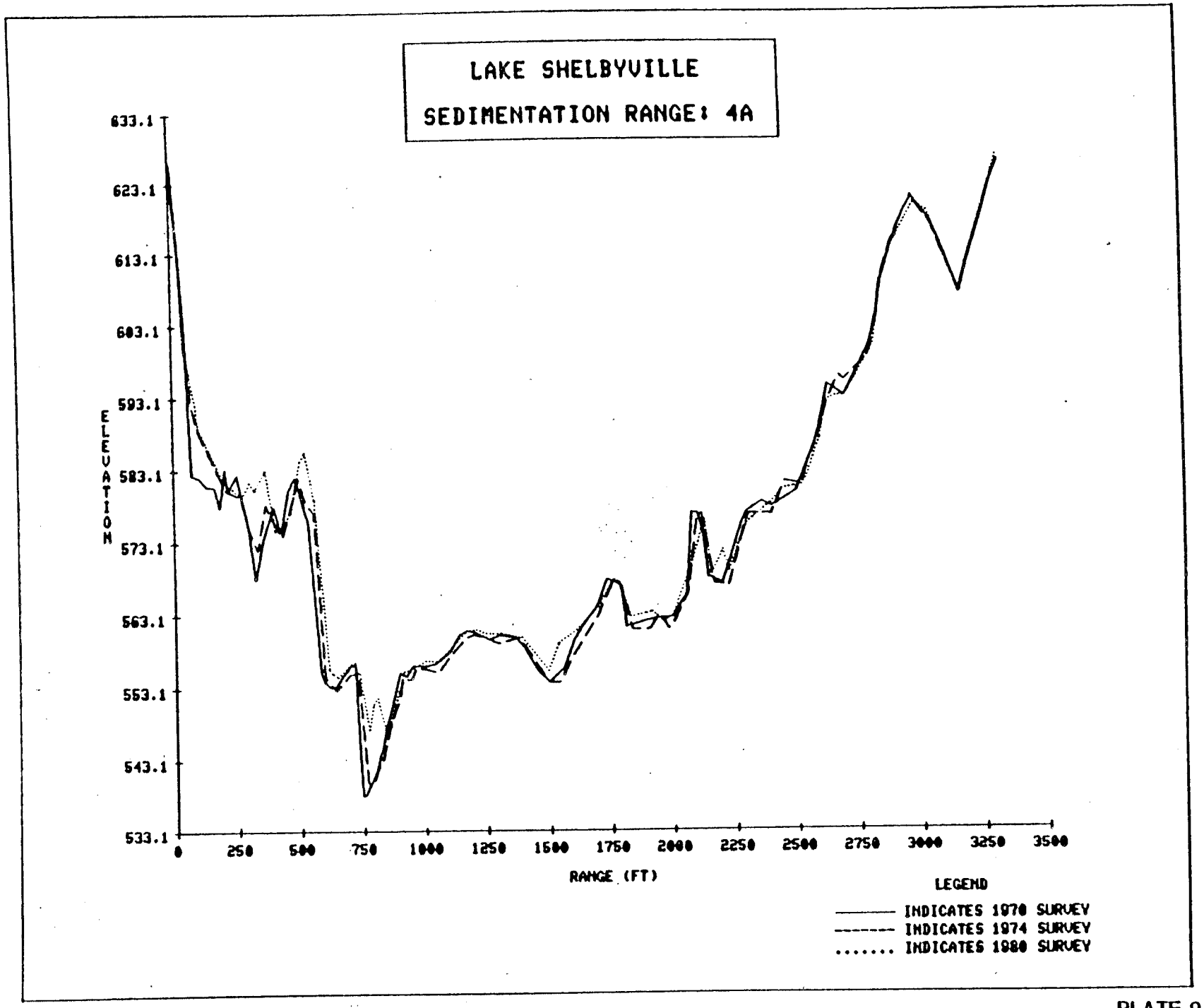

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 4A
ELEVATION
633.1
623.1
613.1
603.1
593.1
583.1
573.1
563.1
553.1
543.1
533.1
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 9

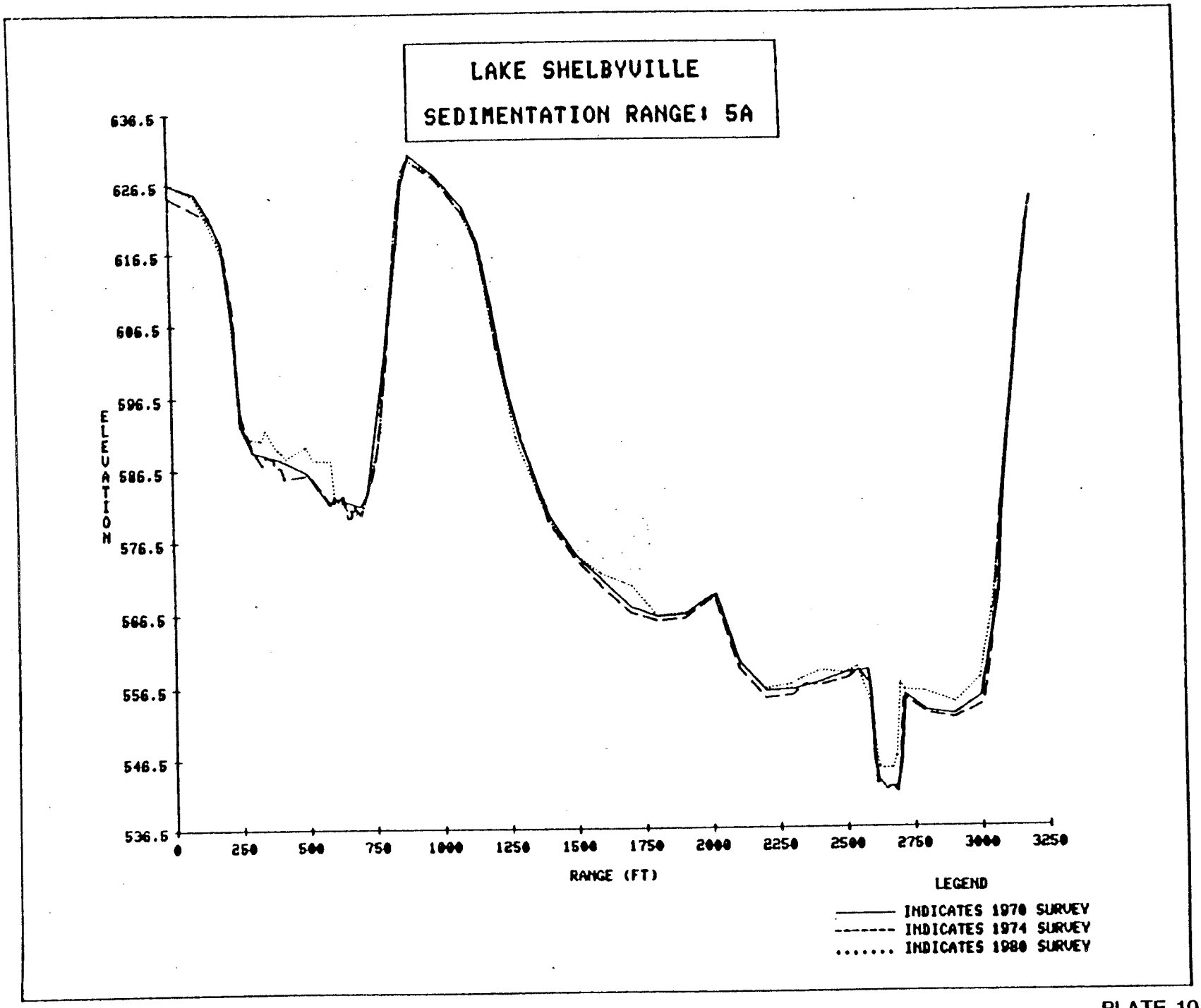

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 5A
636.5
626.5
616.5
606.5
596.5
586.5
576.5
566.5
556.5
546.5
536.5
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 10

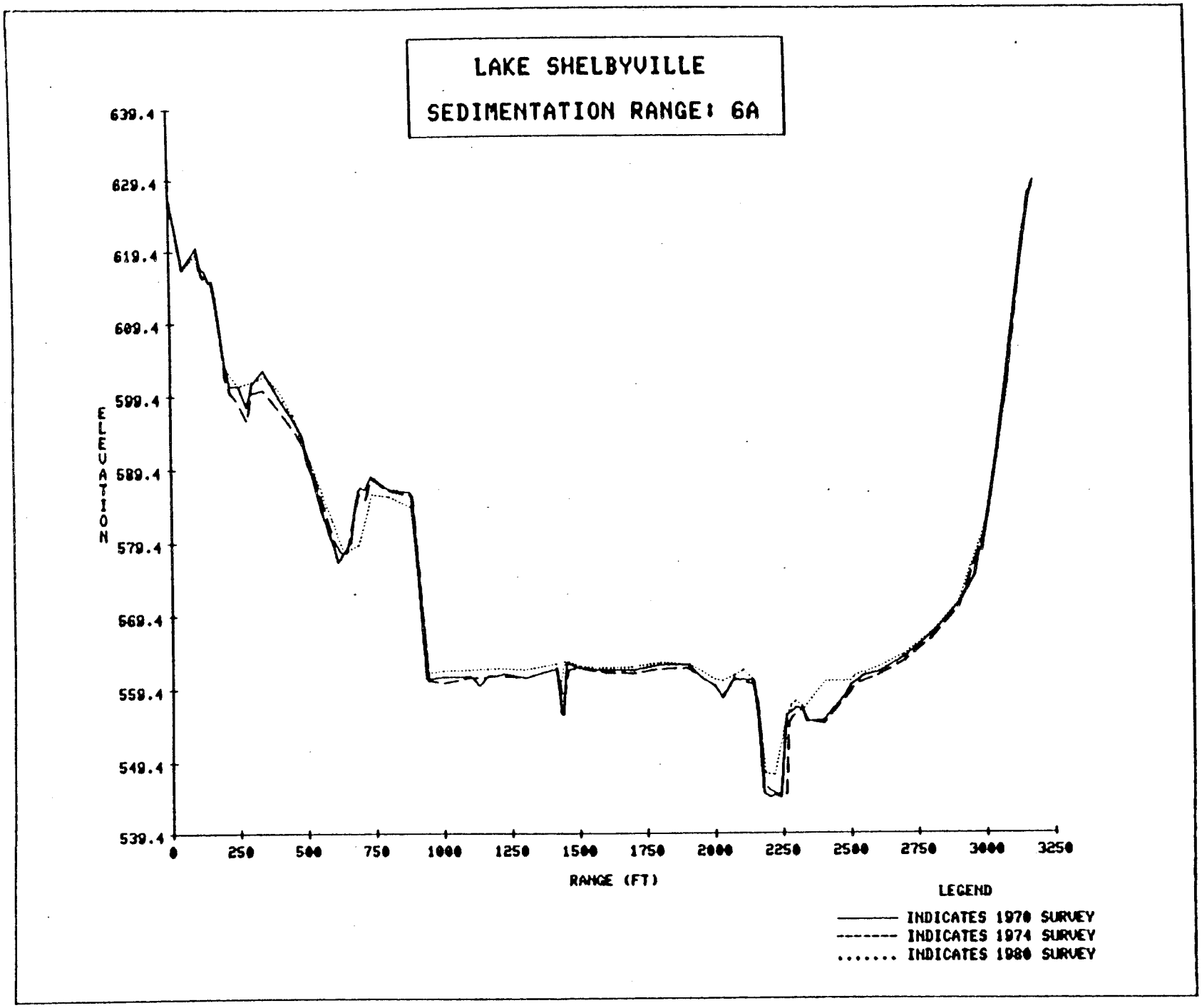

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 6A
639.4
629.4
619.4
609.4
599.4
589.4
579.4
569.4
559.4
549.4
539.4
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 11

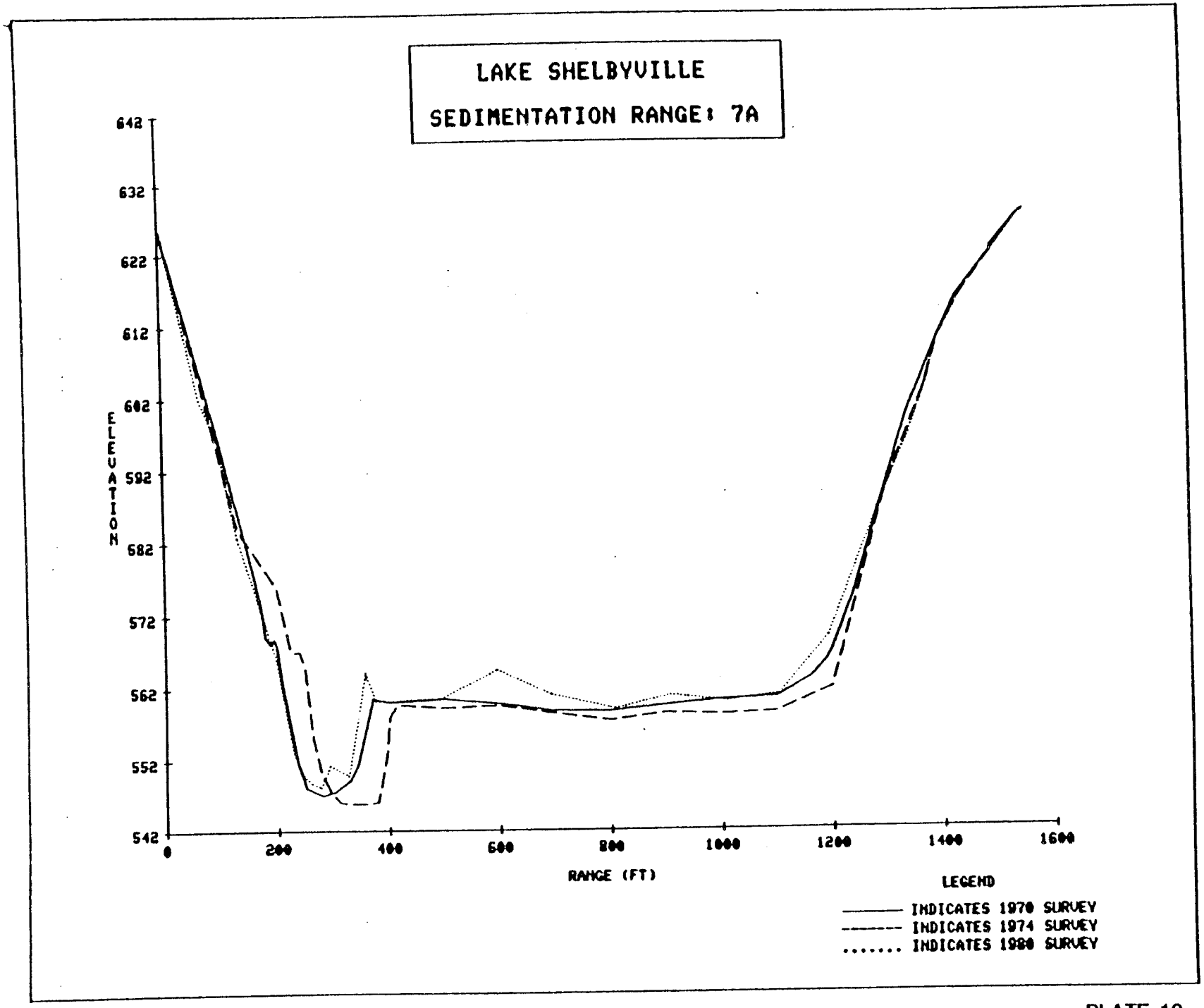

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 7A
642
632
622
612
602
592
582
572
562
552
542
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 12

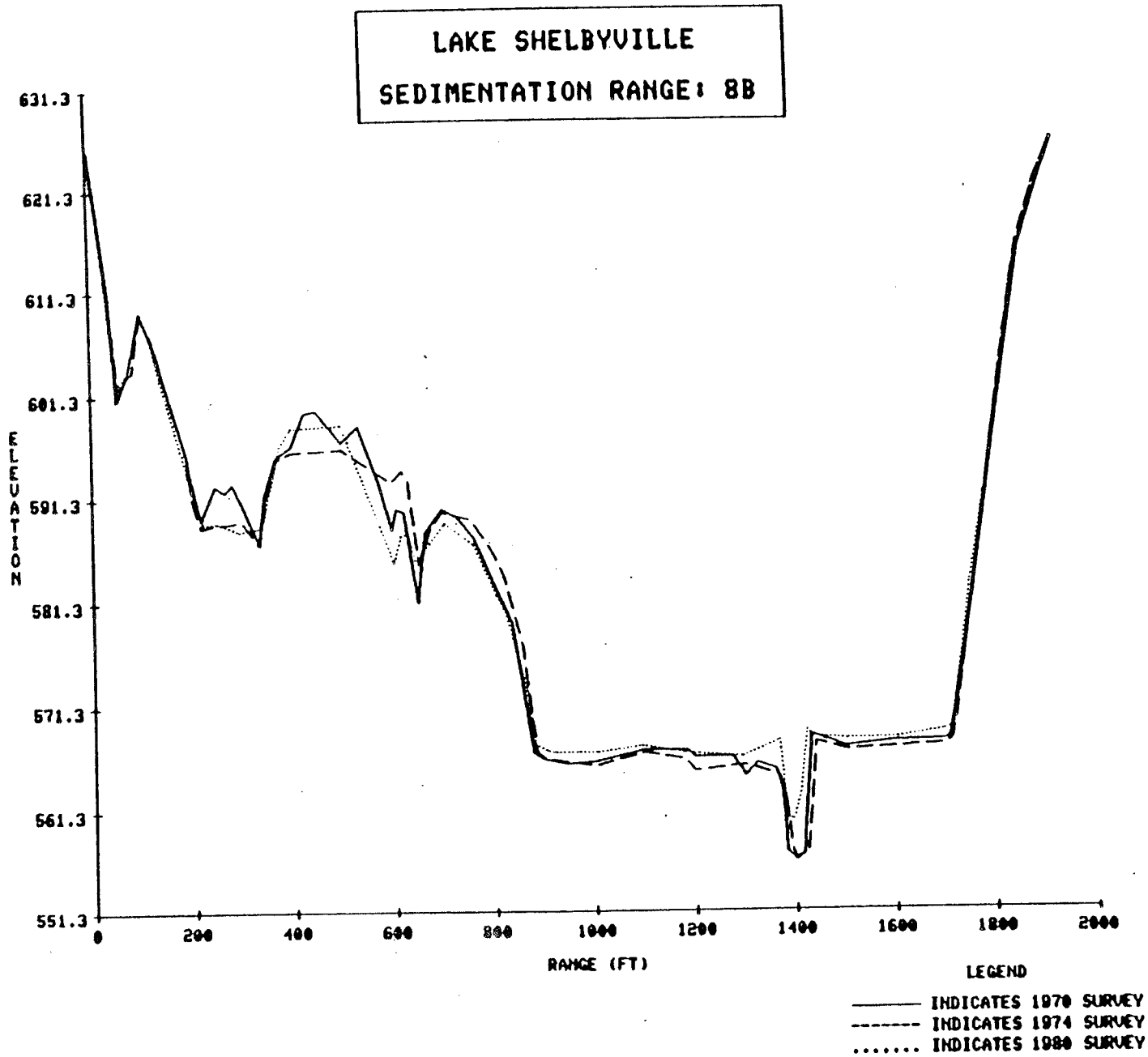

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 8B
631.3
621.3
611.3
601.3
591.3
581.3
571.3
561.3
551.3
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 13

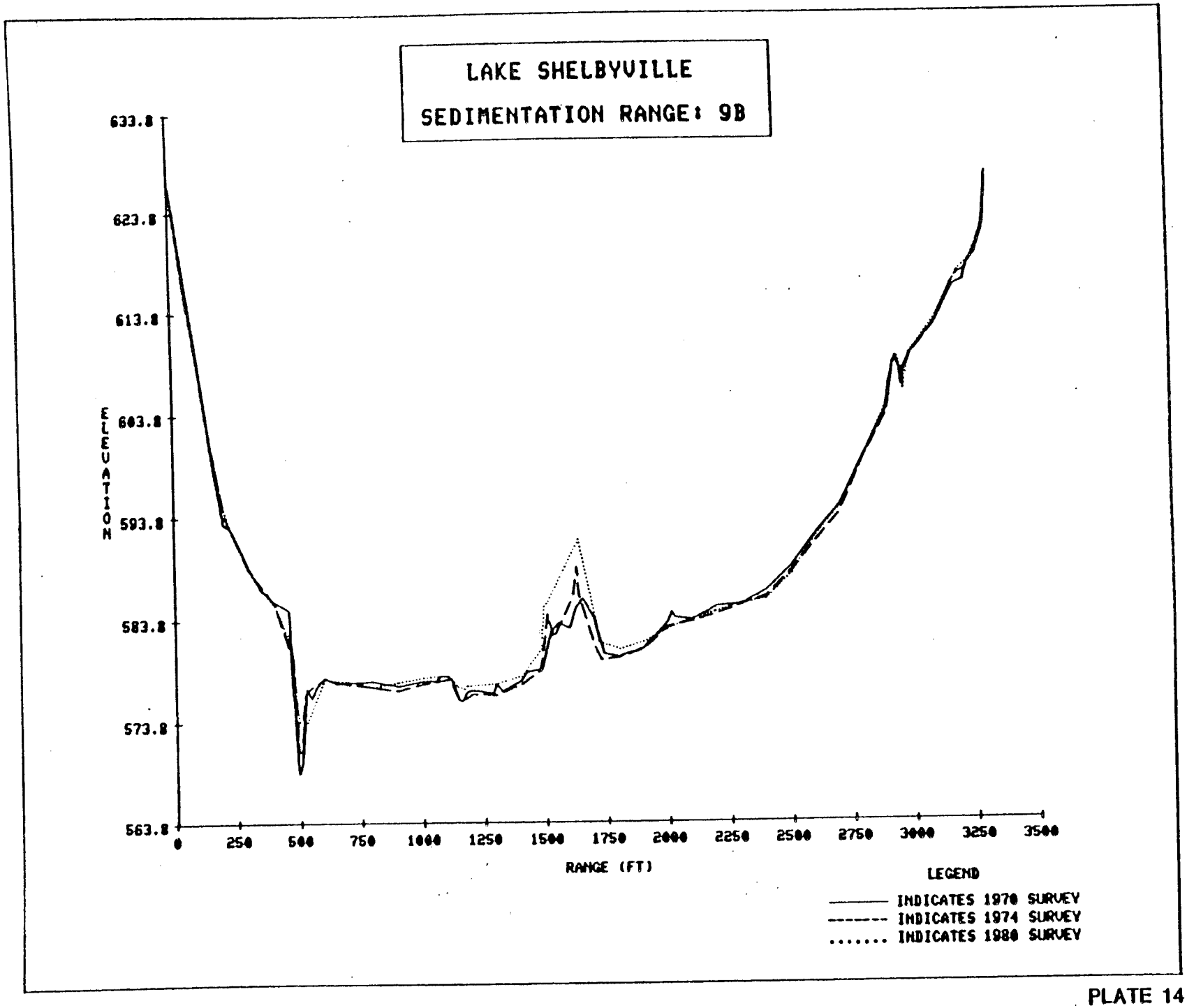

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 9B
633.8
623.8
613.8
603.8
593.8
583.8
573.8
563.8
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 14

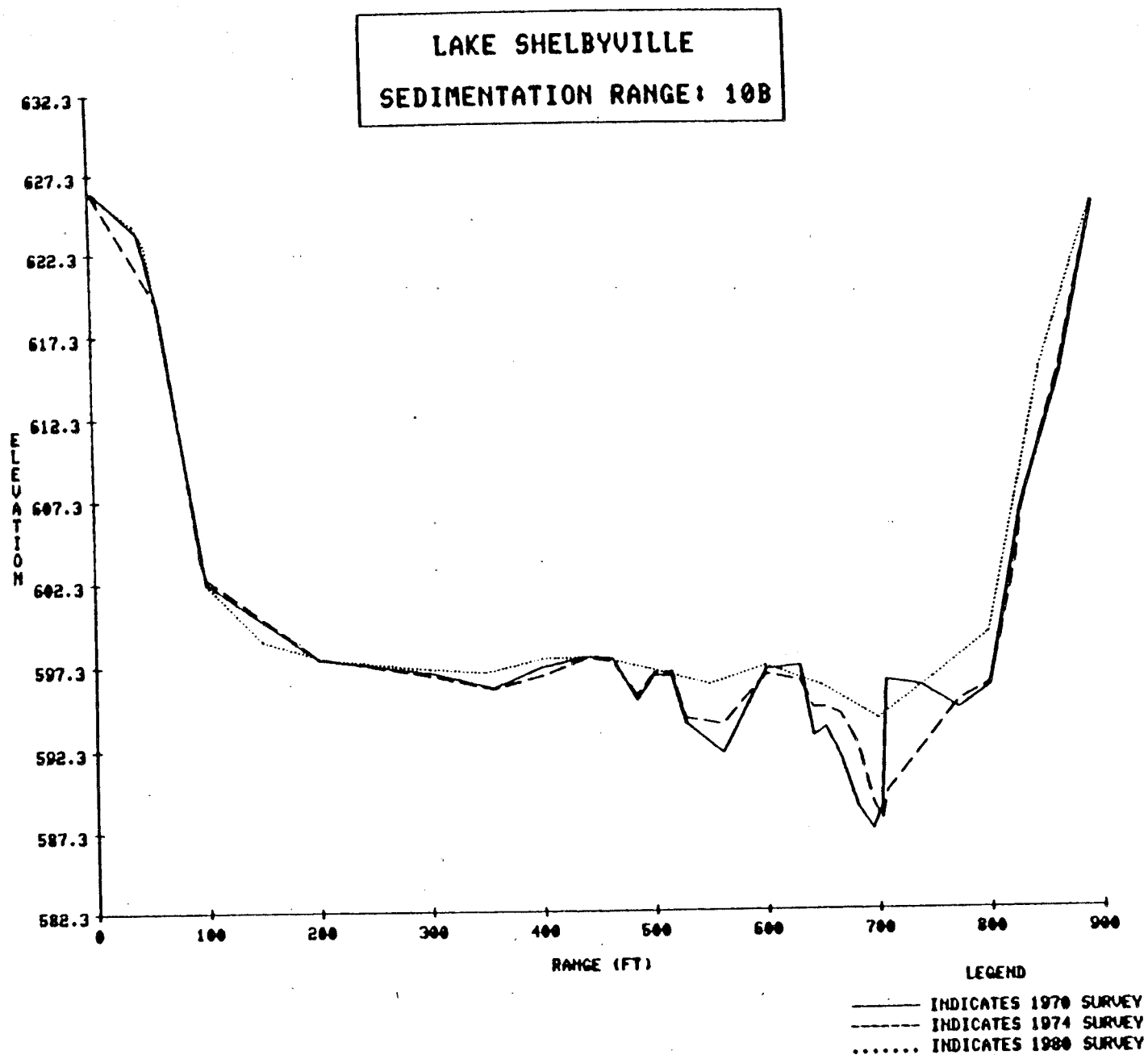

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 10B
632.3
627.3
622.3
617.3
612.3
607.3
602.3
597.3
592.3
587.3
582.3
ELEVATION
0
100
200
300
400
500
600
700
800
900
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 15

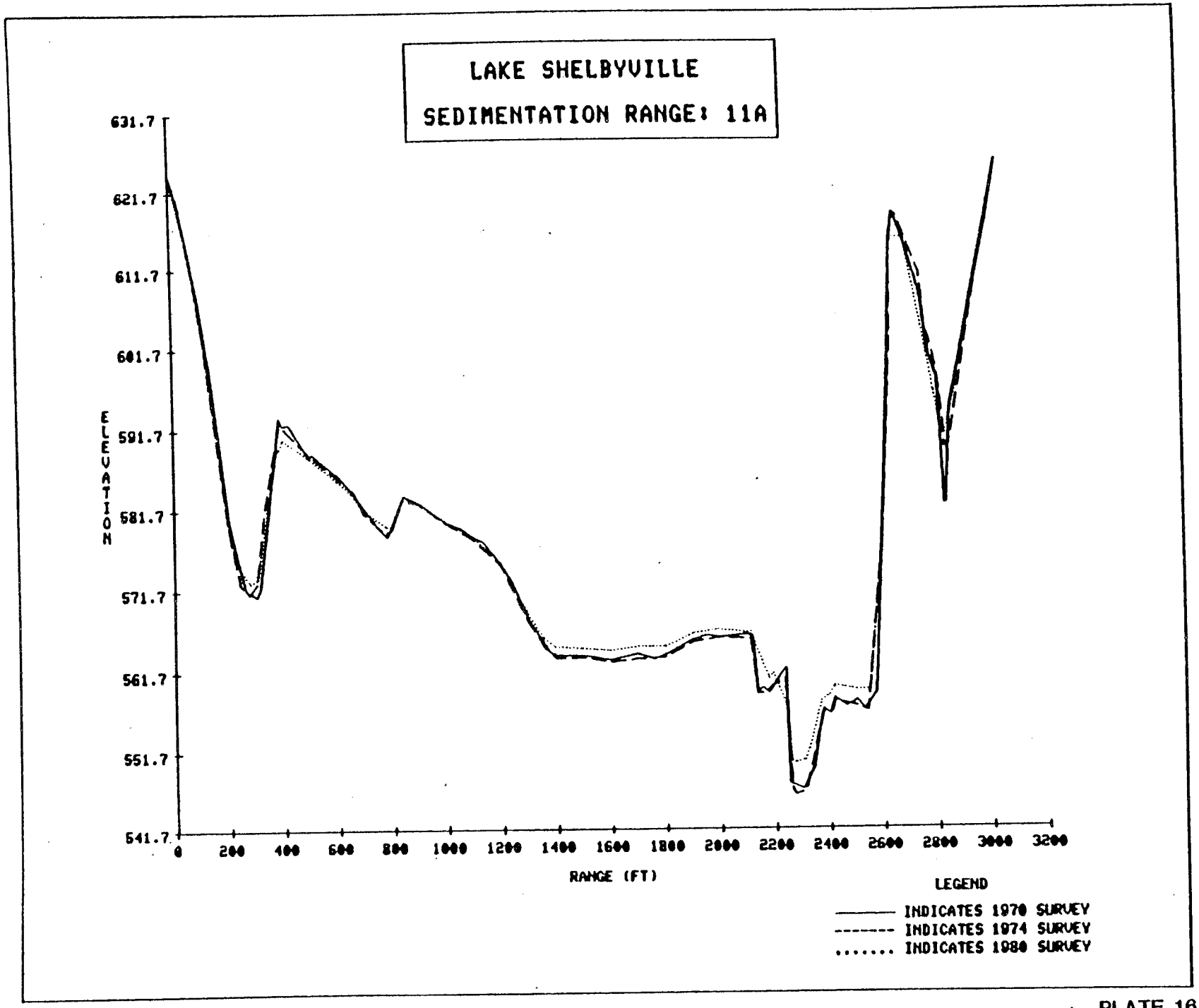

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 11A
ELEVATION
631.7
621.7
611.7
601.7
591.7
581.7
571.7
561.7
551.7
541.7
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 16

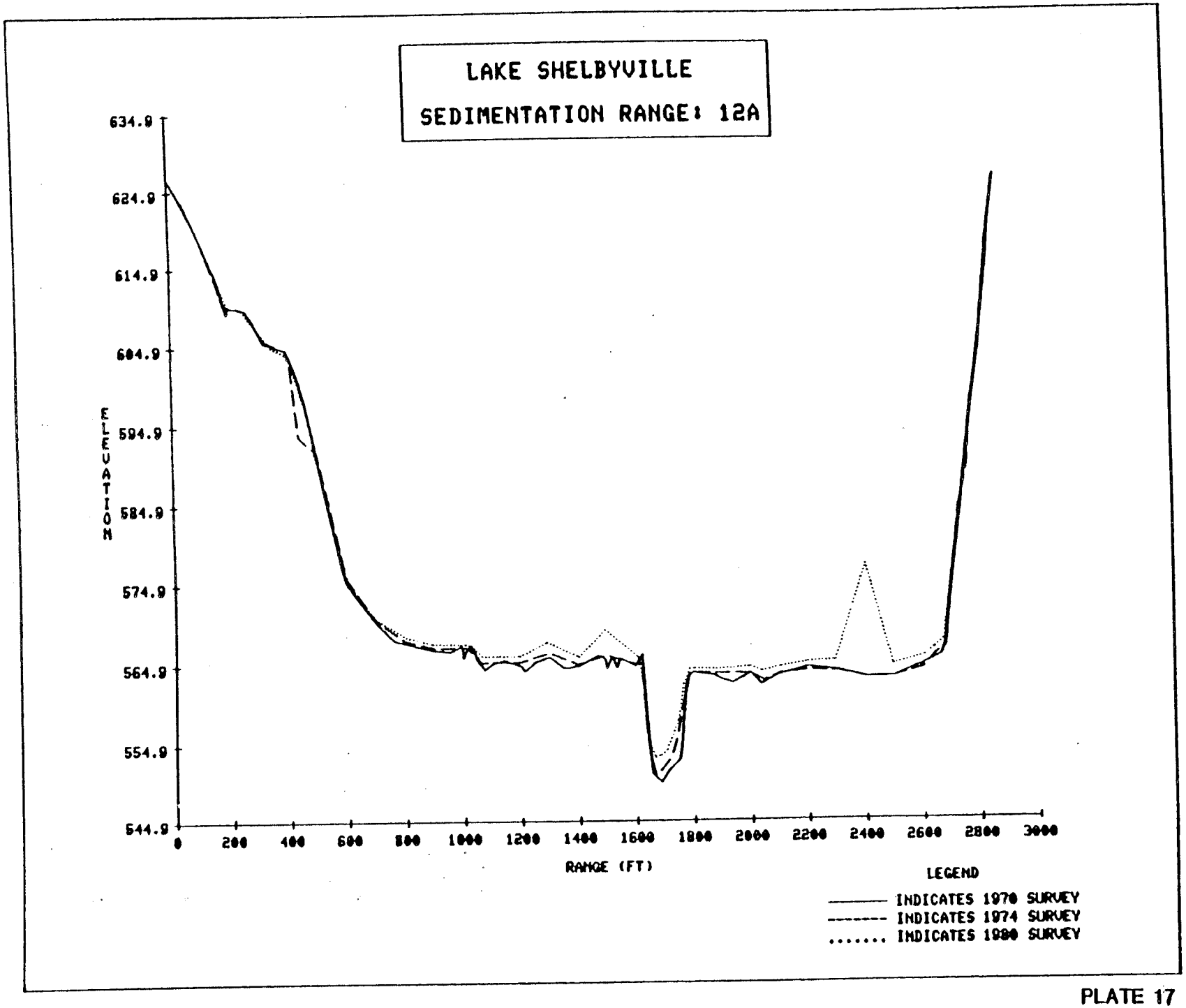

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 12A
634.9
624.9
614.9
604.9
594.9
584.9
574.9
564.9
554.9
544.9
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 17

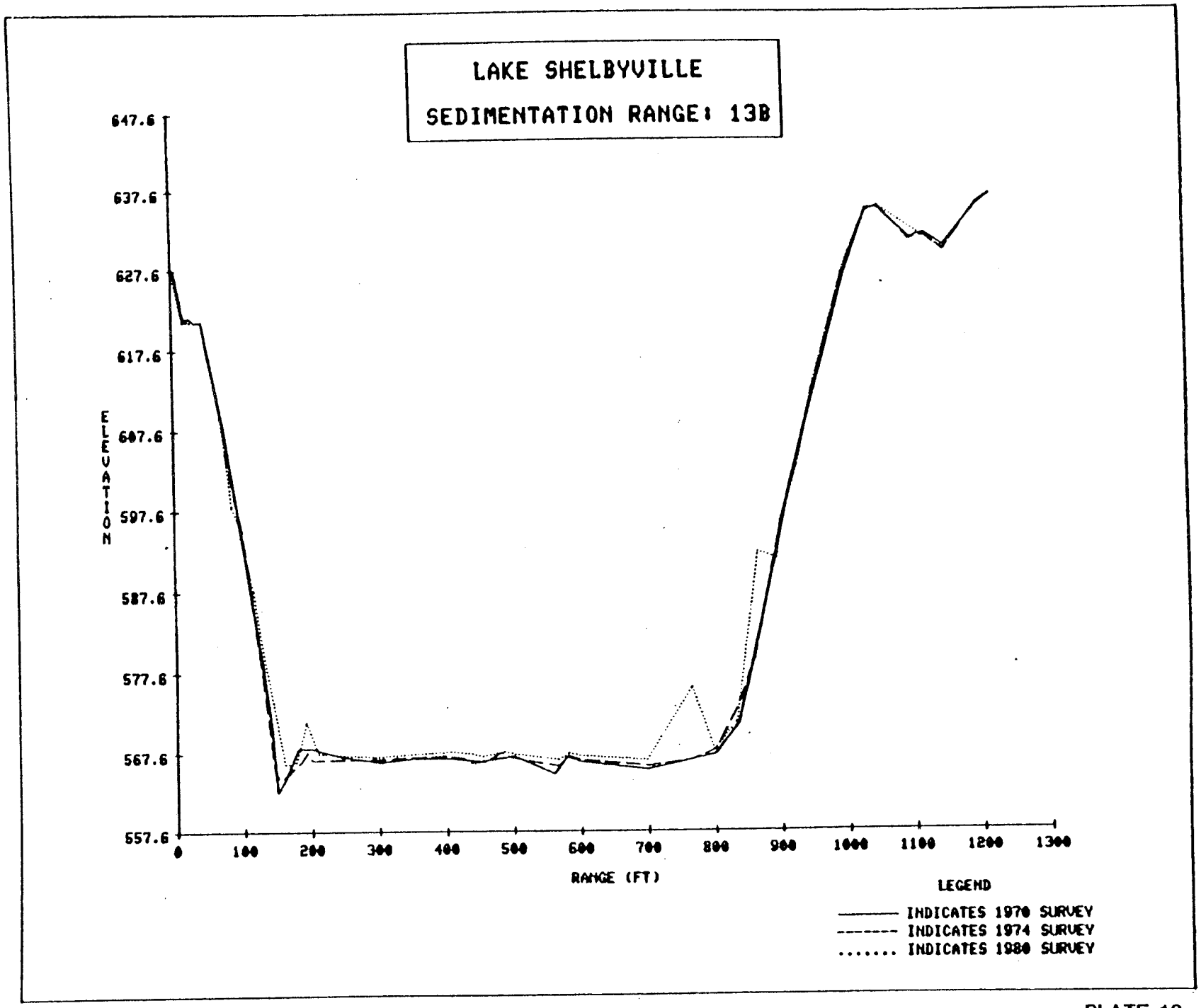

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 13B
ELEVATION
647.6
637.6
627.6
617.6
607.6
597.6
587.6
577.6
567.6
557.6
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 18

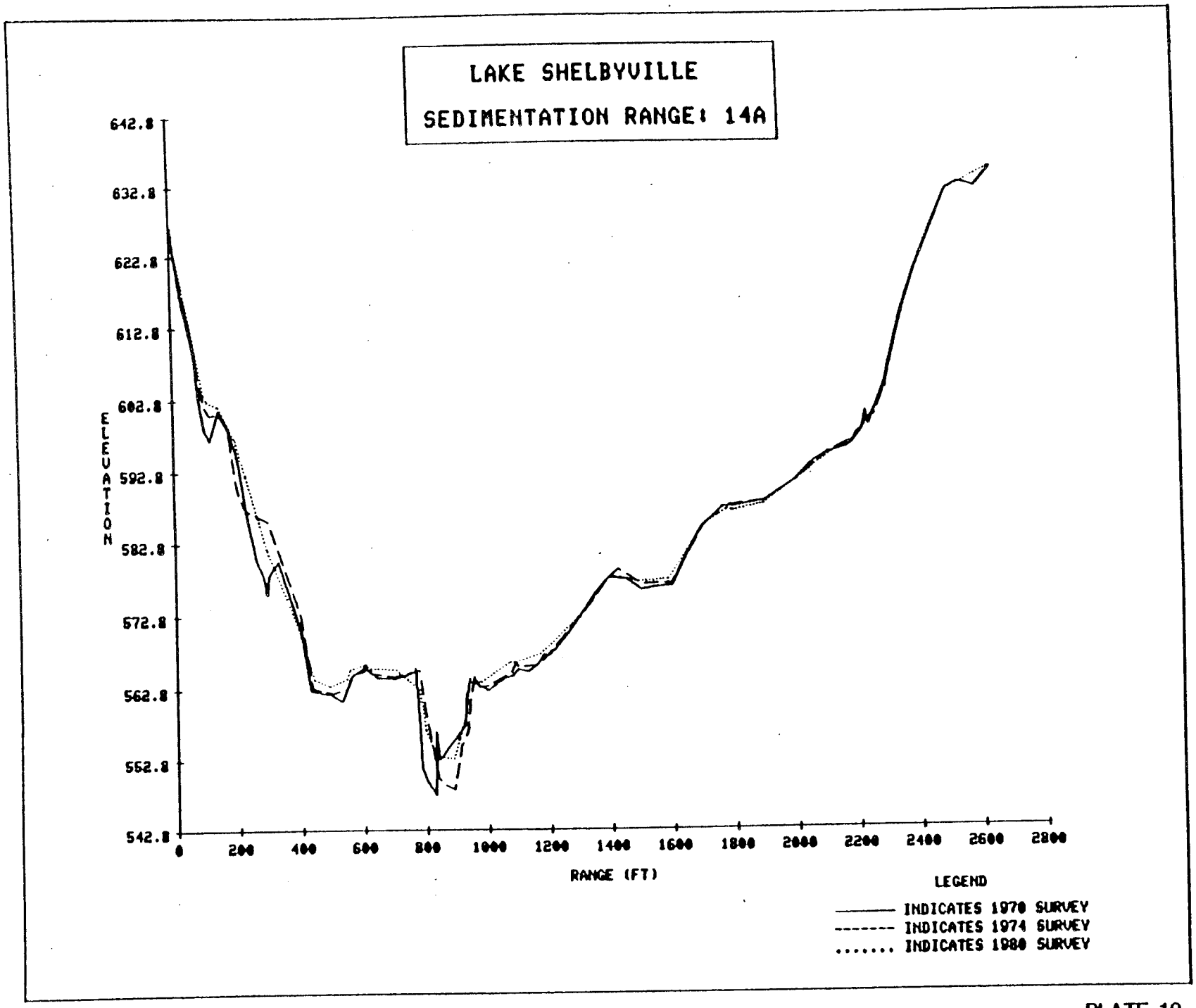

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 14A
642.8
632.8
622.8
612.8
602.8
592.8
582.8
572.8
562.8
552.8
542.8
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 19

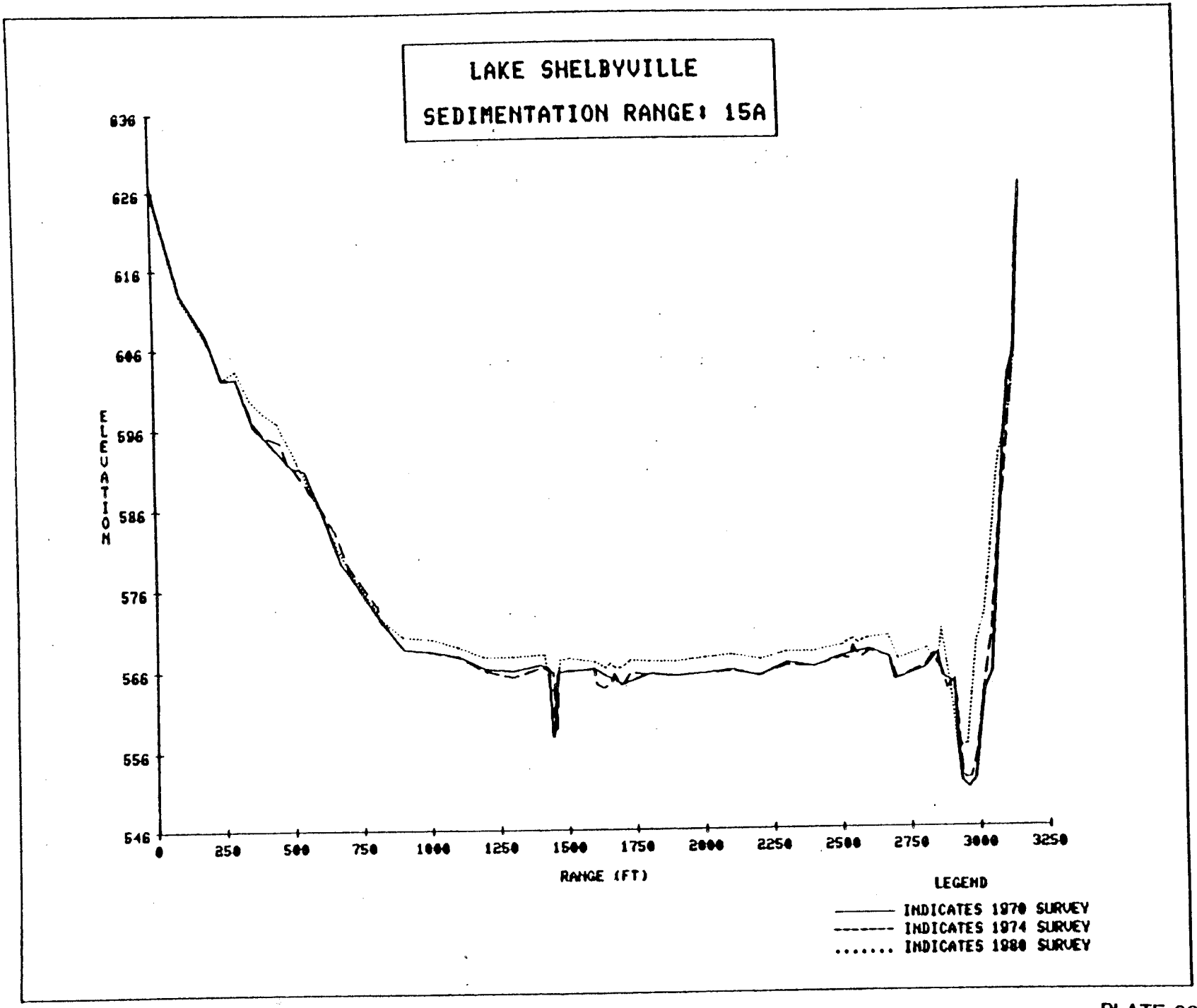

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 15A
ELEVATION
636
626
616
606
596
586
576
566
556
546
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 20

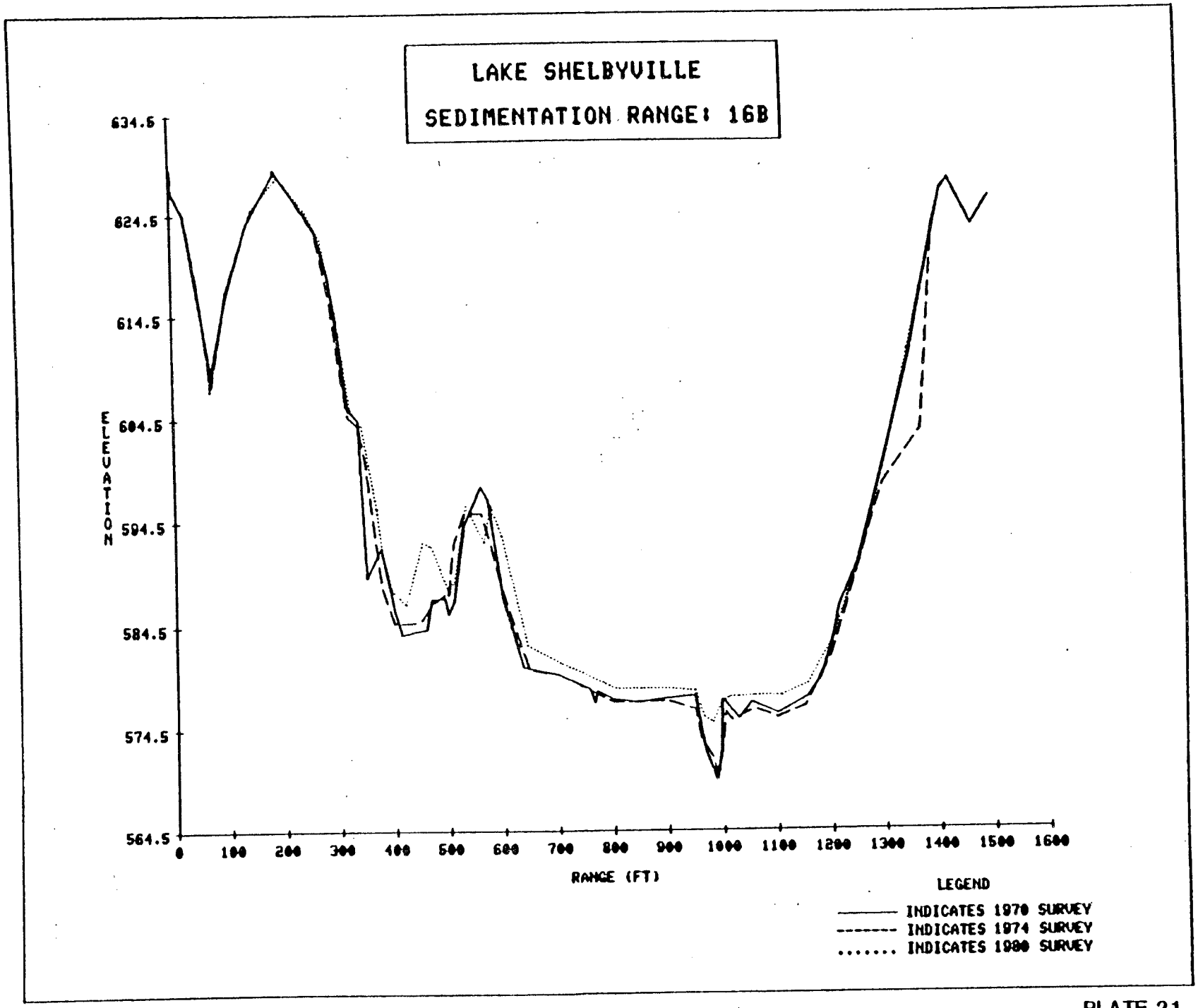

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 16B
ELEVATION
634.5
624.5
614.5
604.5
594.5
584.5
574.5
564.5
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 21

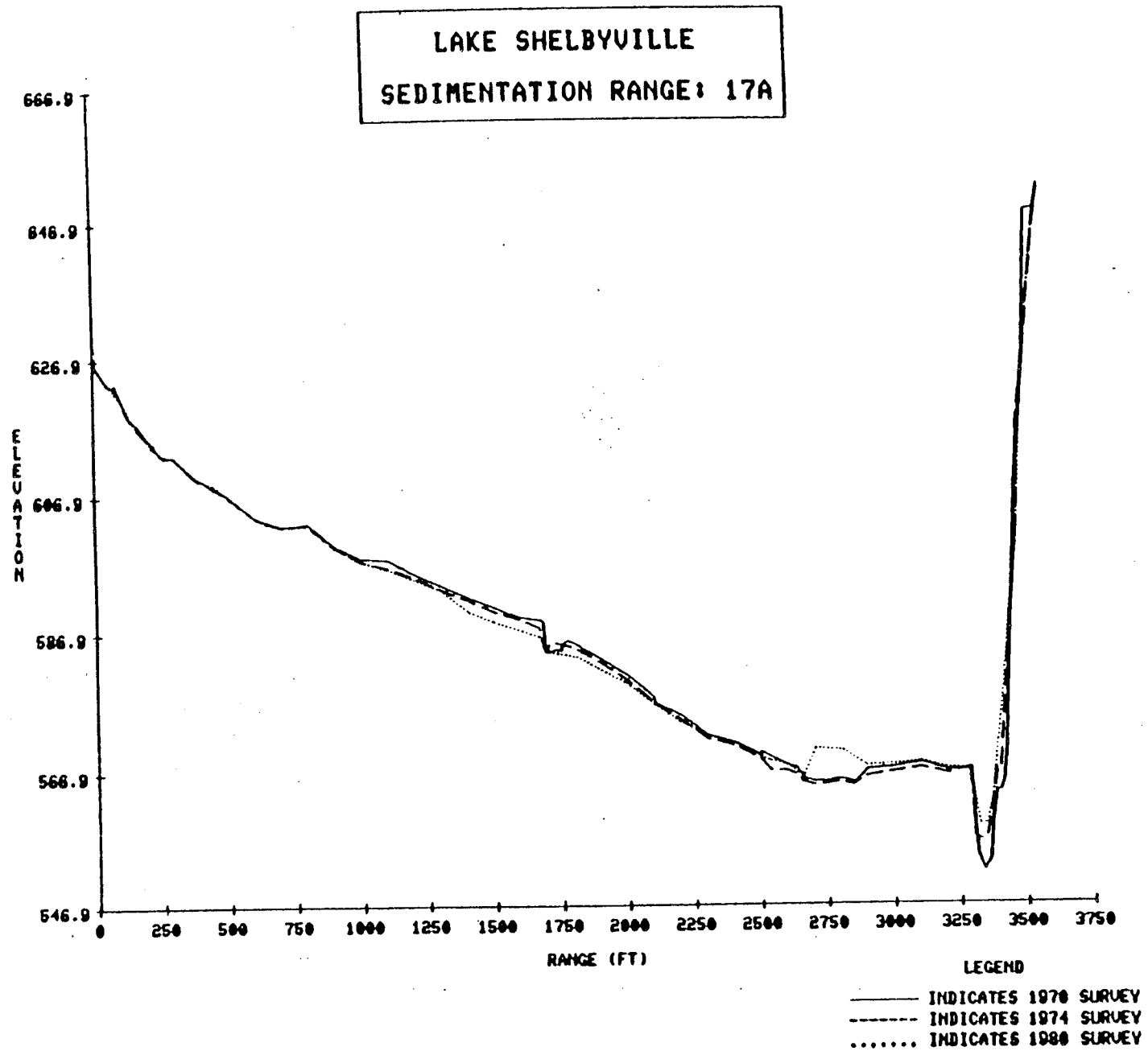

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 17A
666.9
646.9
626.9
606.9
586.9
566.9
546.9
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 22

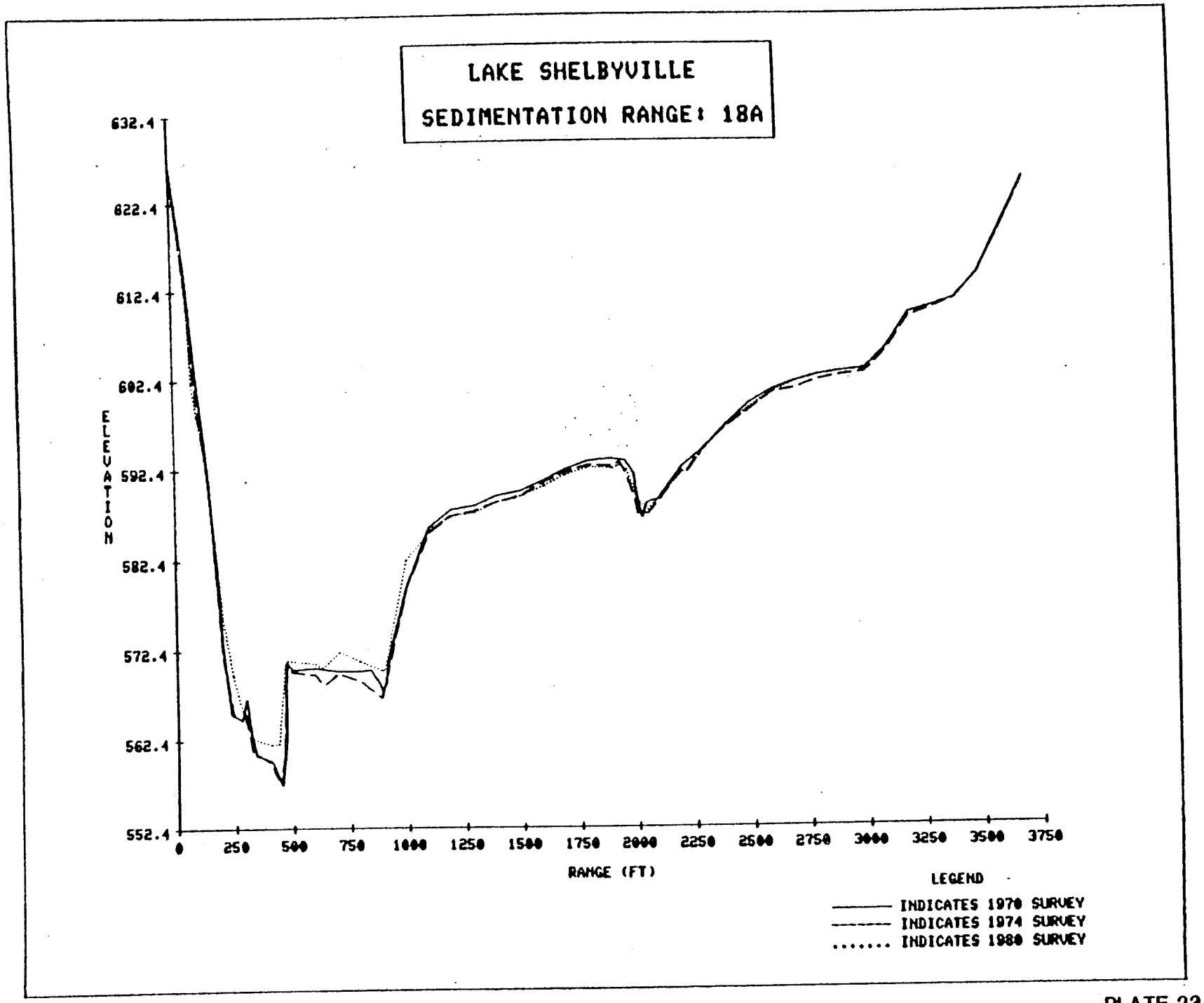

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 18A
632.4
622.4
612.4
602.4
592.4
582.4
572.4
562.4
552.4
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 23

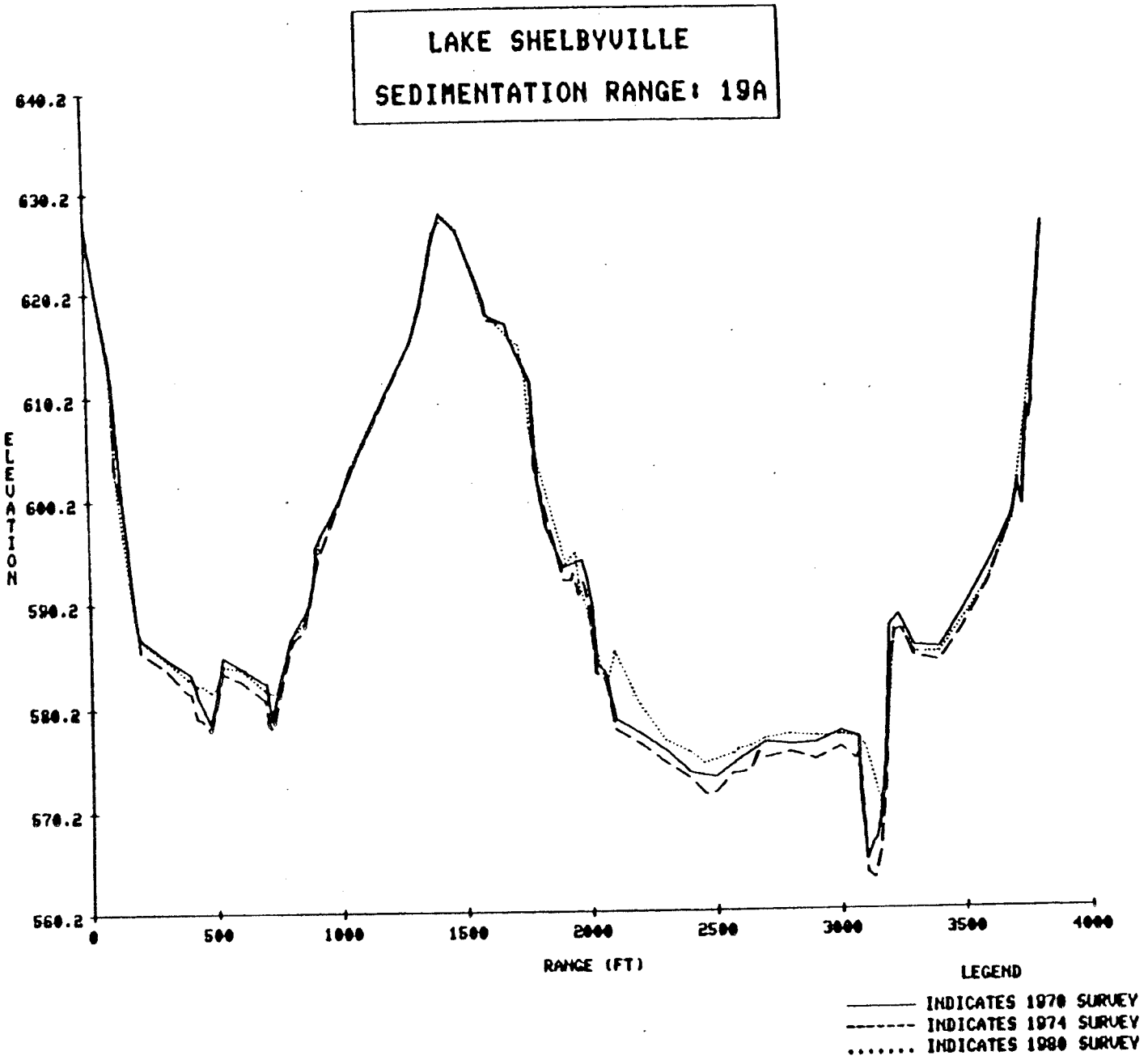

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 19A
640.2
630.2
620.2
610.2
600.2
590.2
580.2
570.2
560.2
ELEVATION
0
500
1000
1500
2000
2500
3000
3500
4000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 24

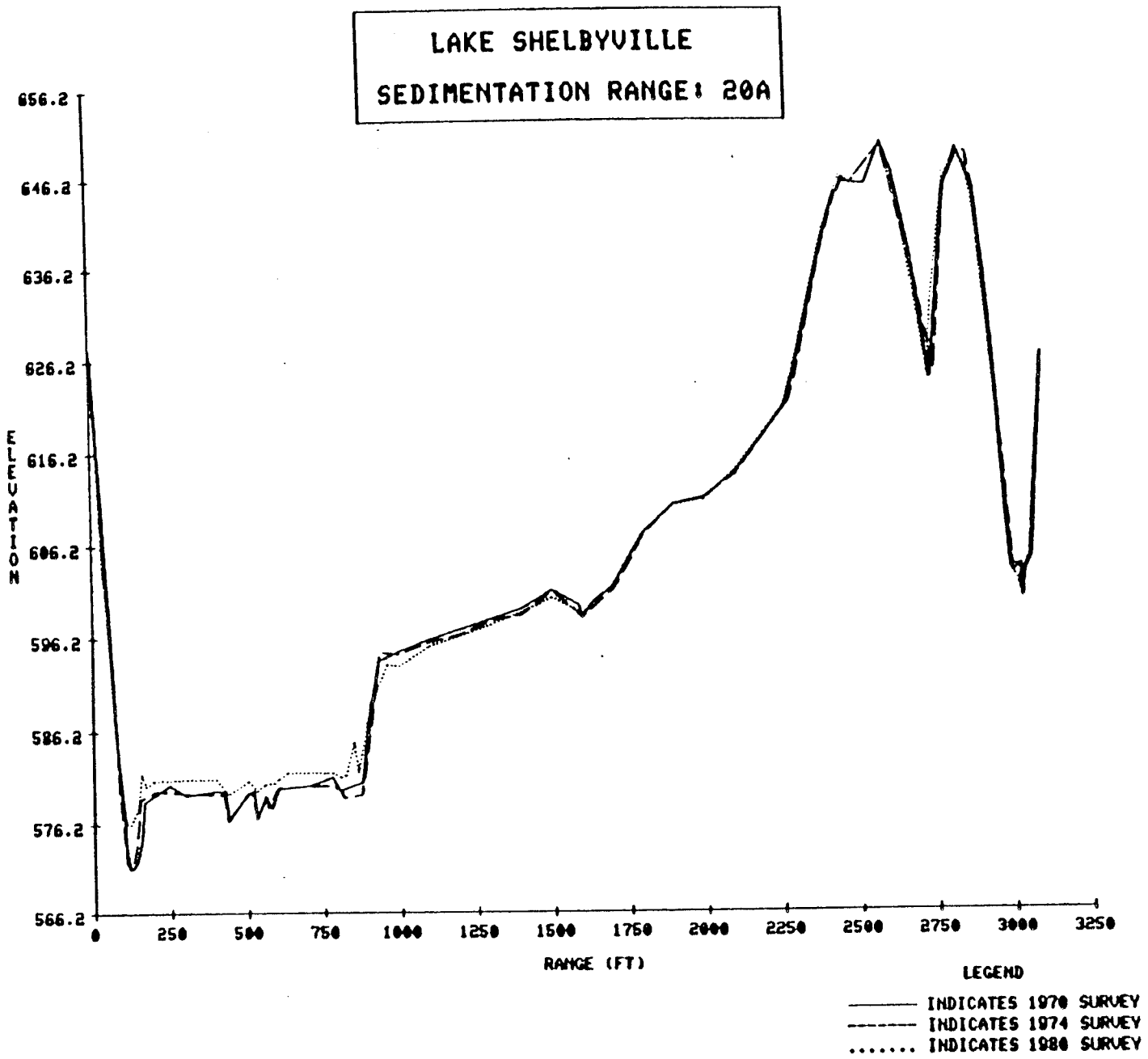

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 20A
656.2
646.2
636.2
626.2
616.2
606.2
596.2
586.2
576.2
566.2
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 26

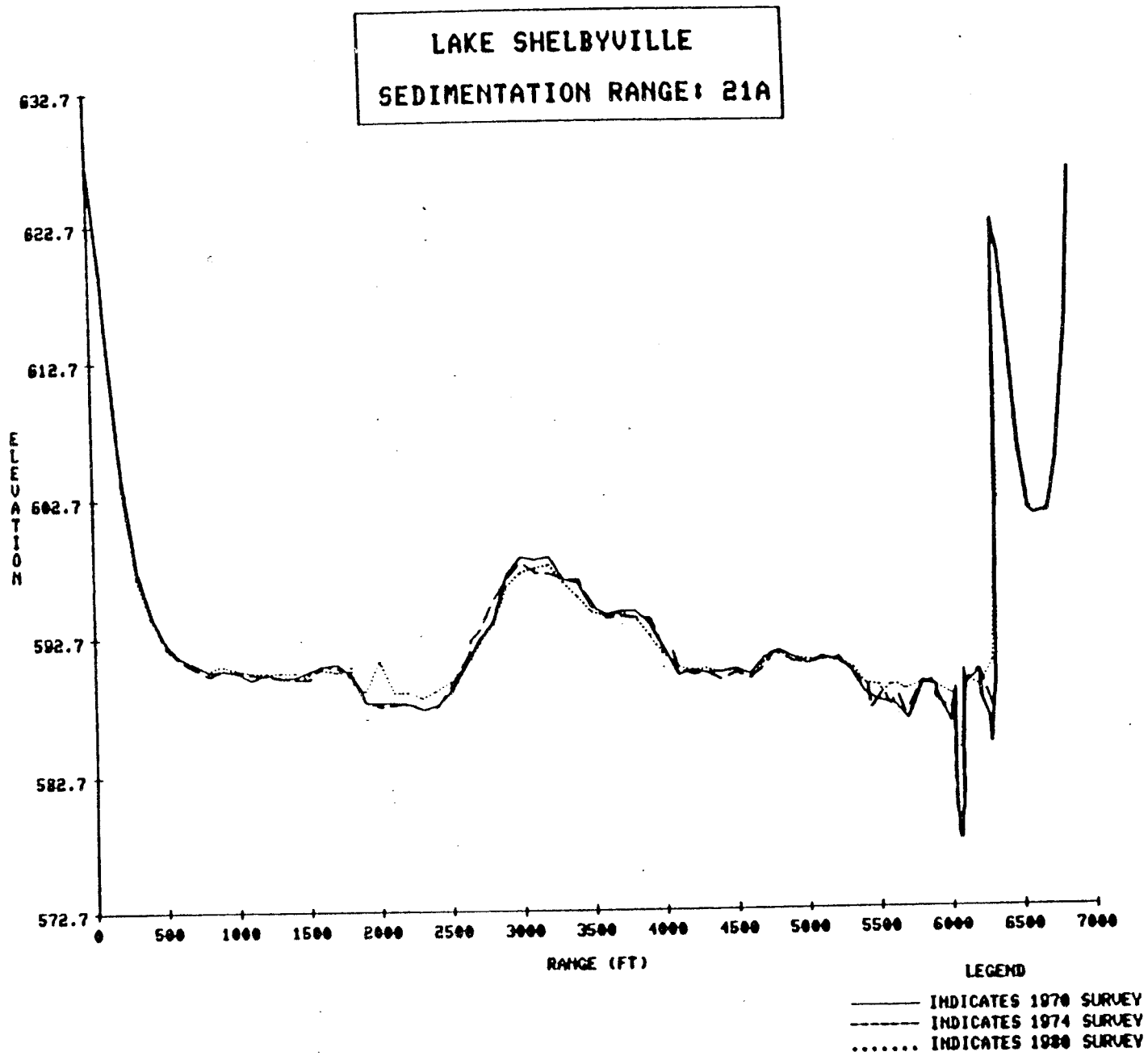

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 21A
632.7
622.7
612.7
602.7
592.7
582.7
572.7
ELEVATION
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 26

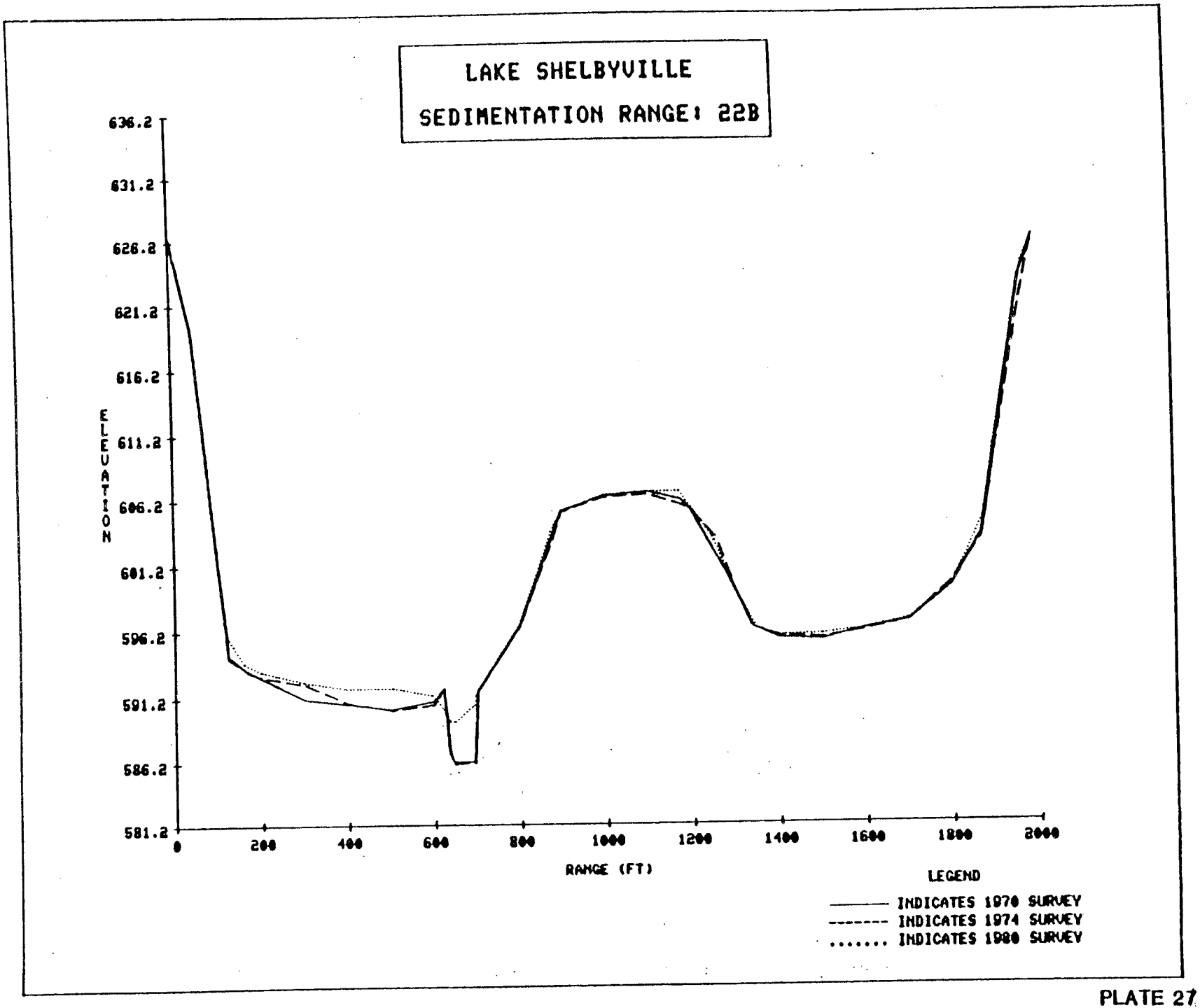
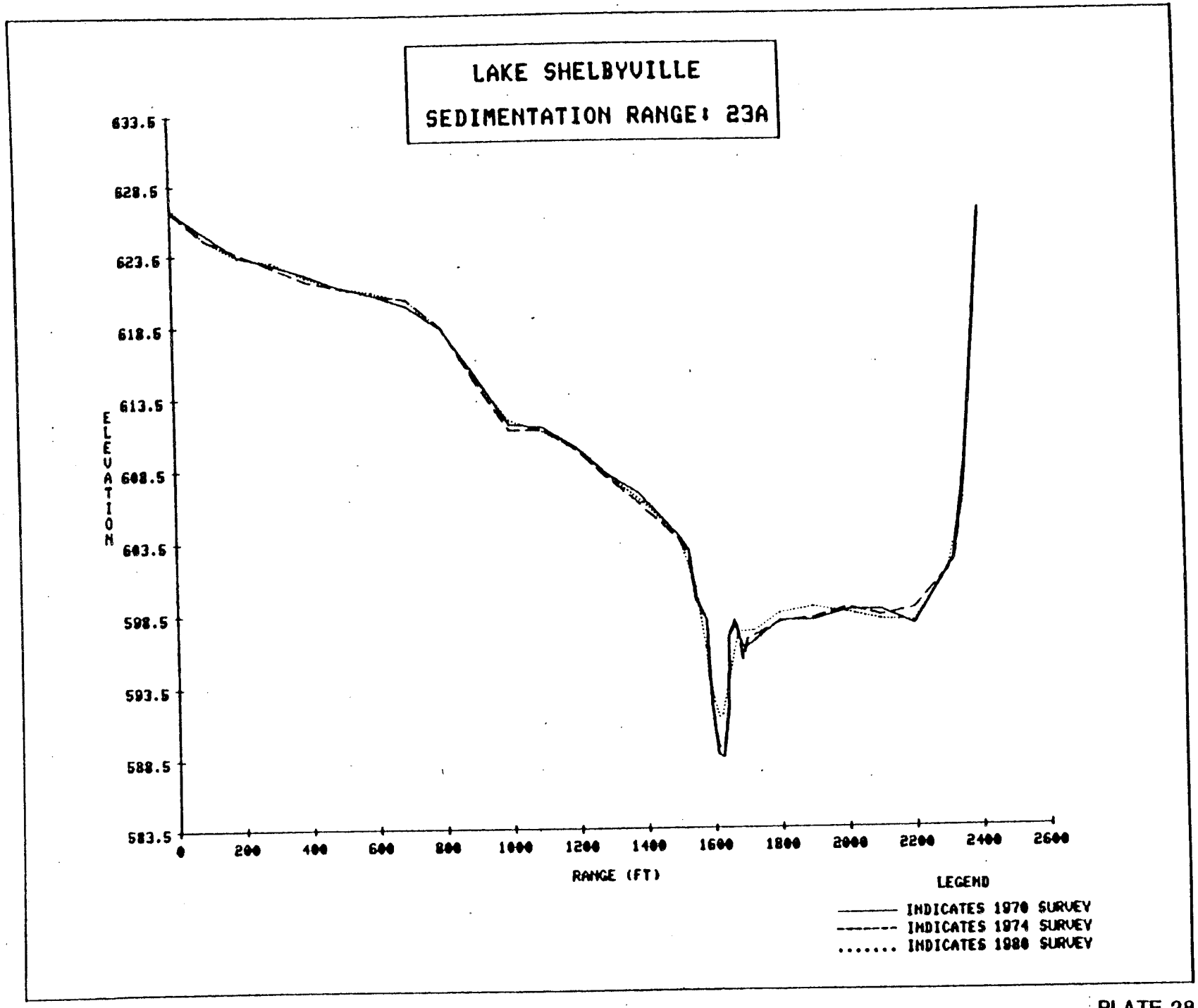
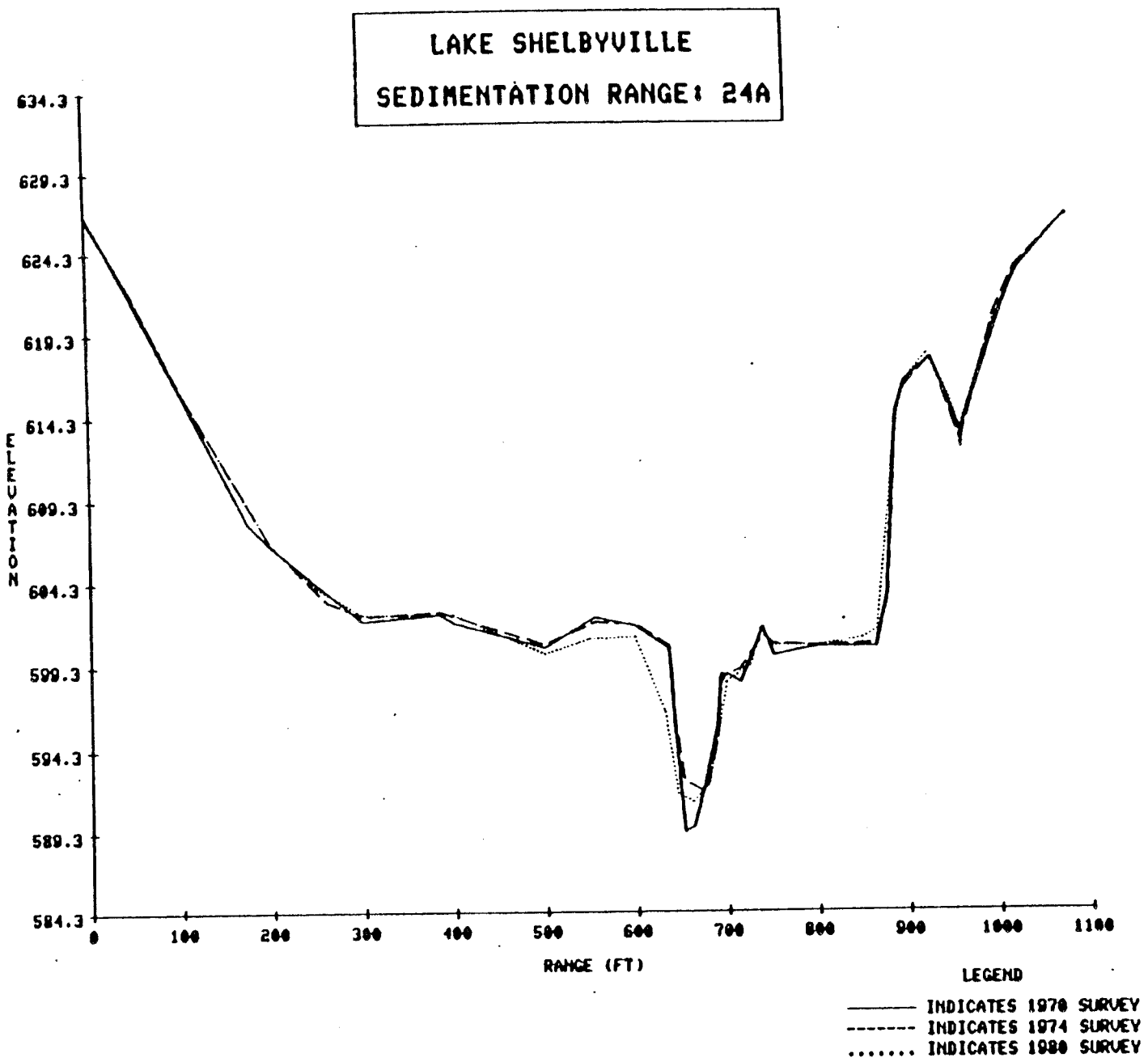
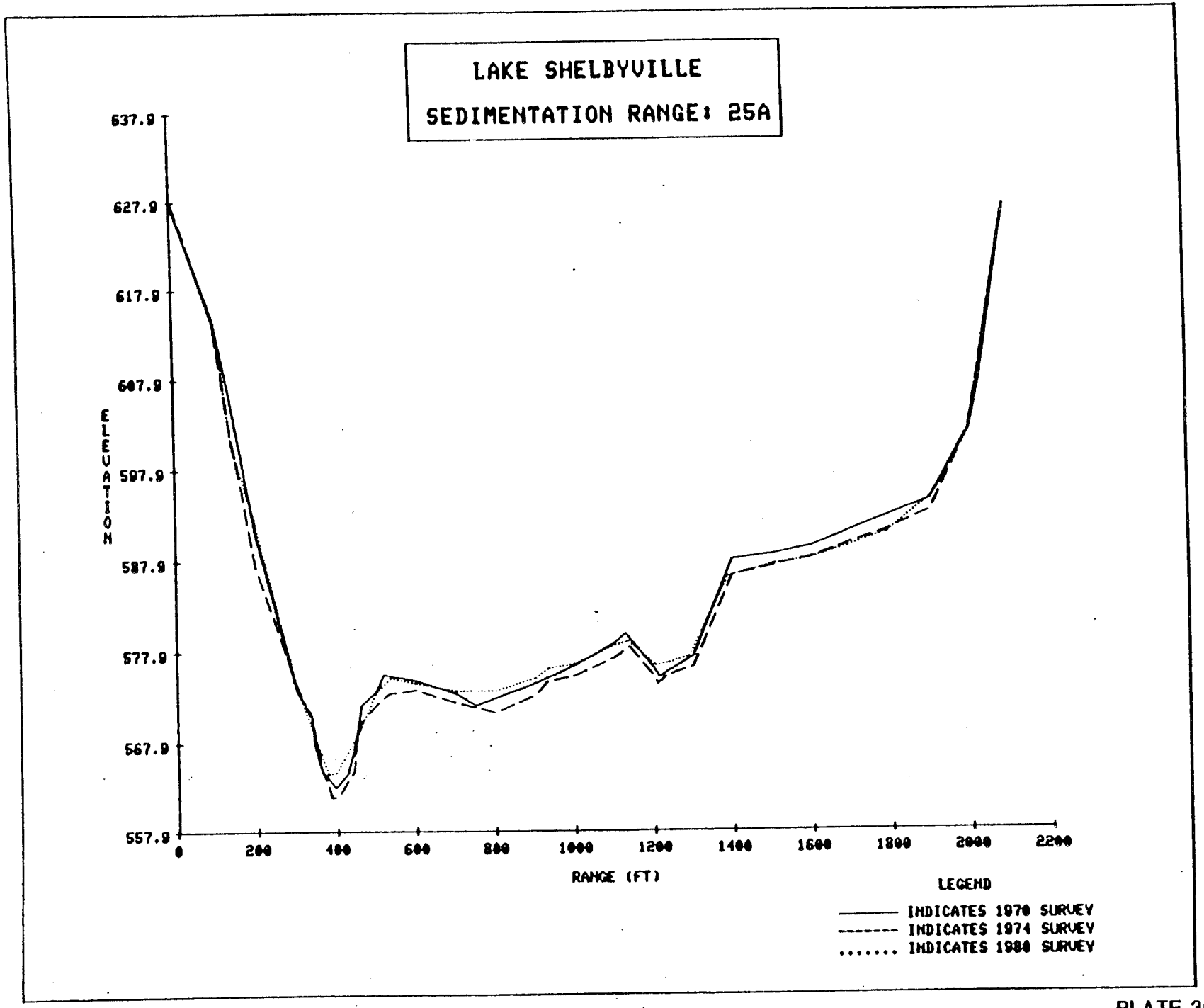

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 22B
636.2
631.2
626.2
621.2
616.2
611.2
606.2
601.2
596.2
591.2
586.2
581.2
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 27


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 23A
633.5
628.5
623.5
618.5
613.5
608.5
603.5
598.5
593.5
588.5
583.5
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 24A
ELEVATION
634.3
629.3
624.3
619.3
614.3
609.3
604.3
599.3
594.3
589.3
584.3
0
100
200
300
400
500
600
700
800
900
1000
1100
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 25A
637.9
627.9
617.9
607.9
597.9
587.9
577.9
567.9
557.9
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

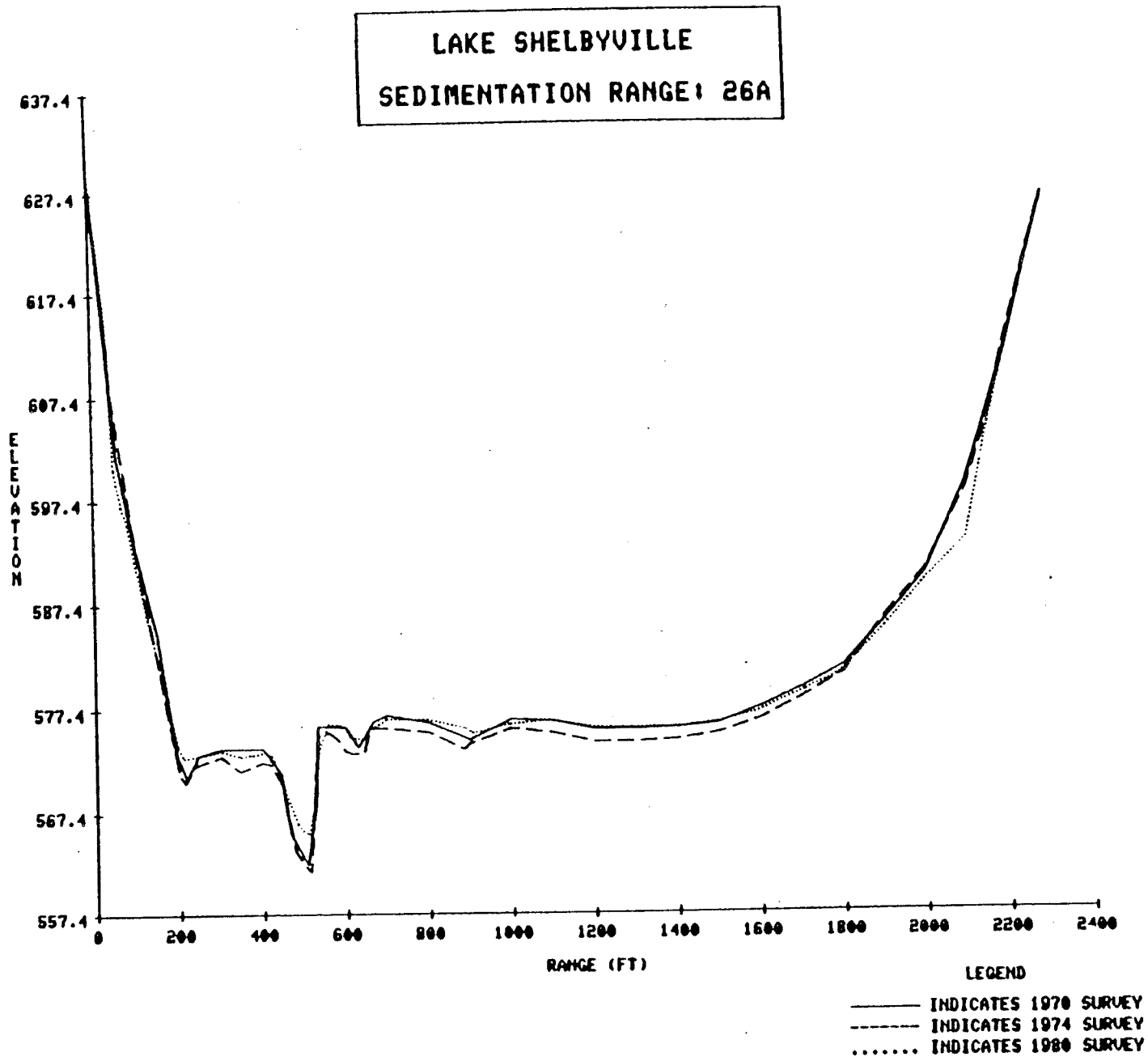
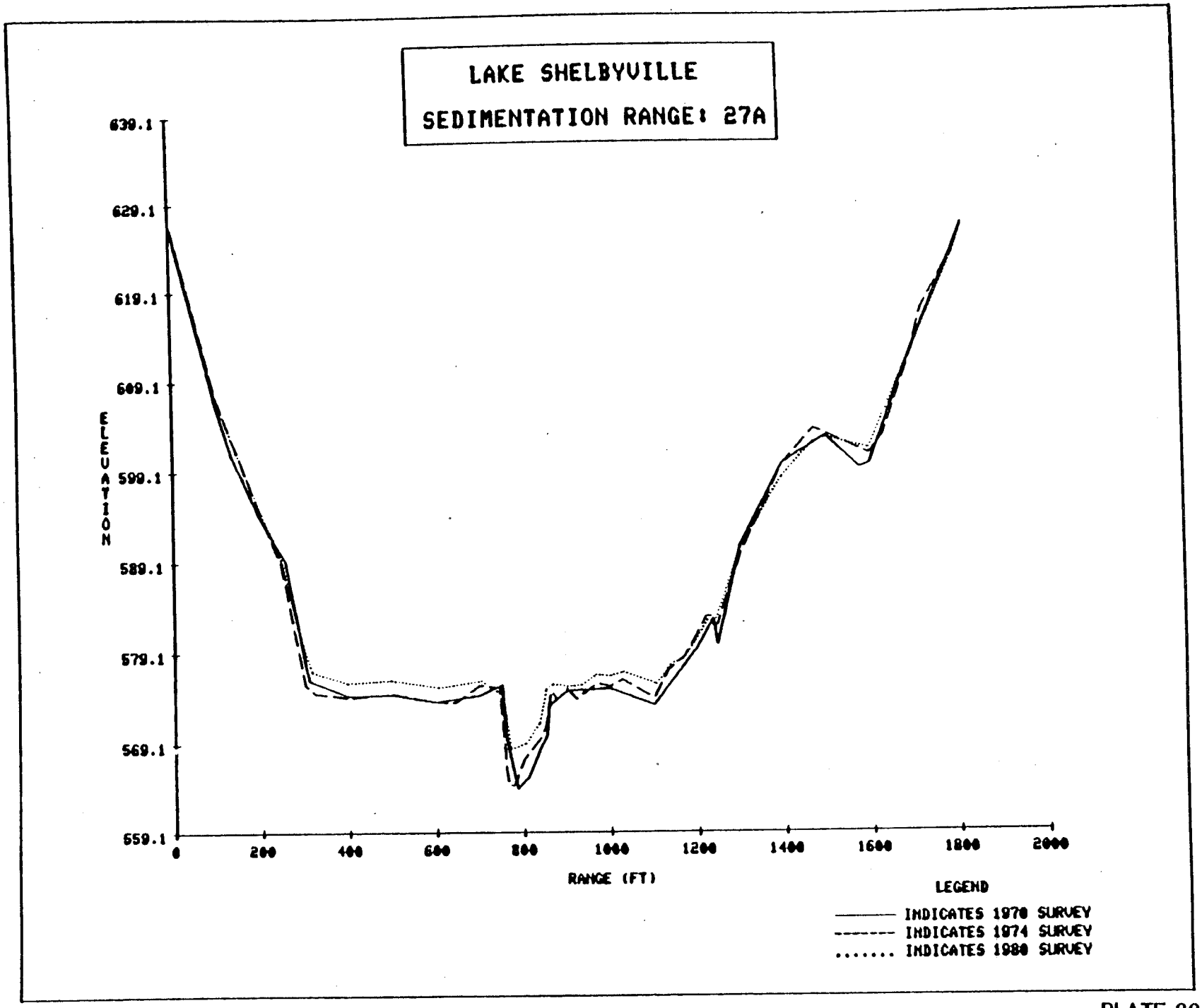

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 26A
637.4
627.4
617.4
607.4
597.4
587.4
577.4
567.4
557.4
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 31


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 27A
639.1
629.1
619.1
609.1
599.1
589.1
579.1
569.1
559.1
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

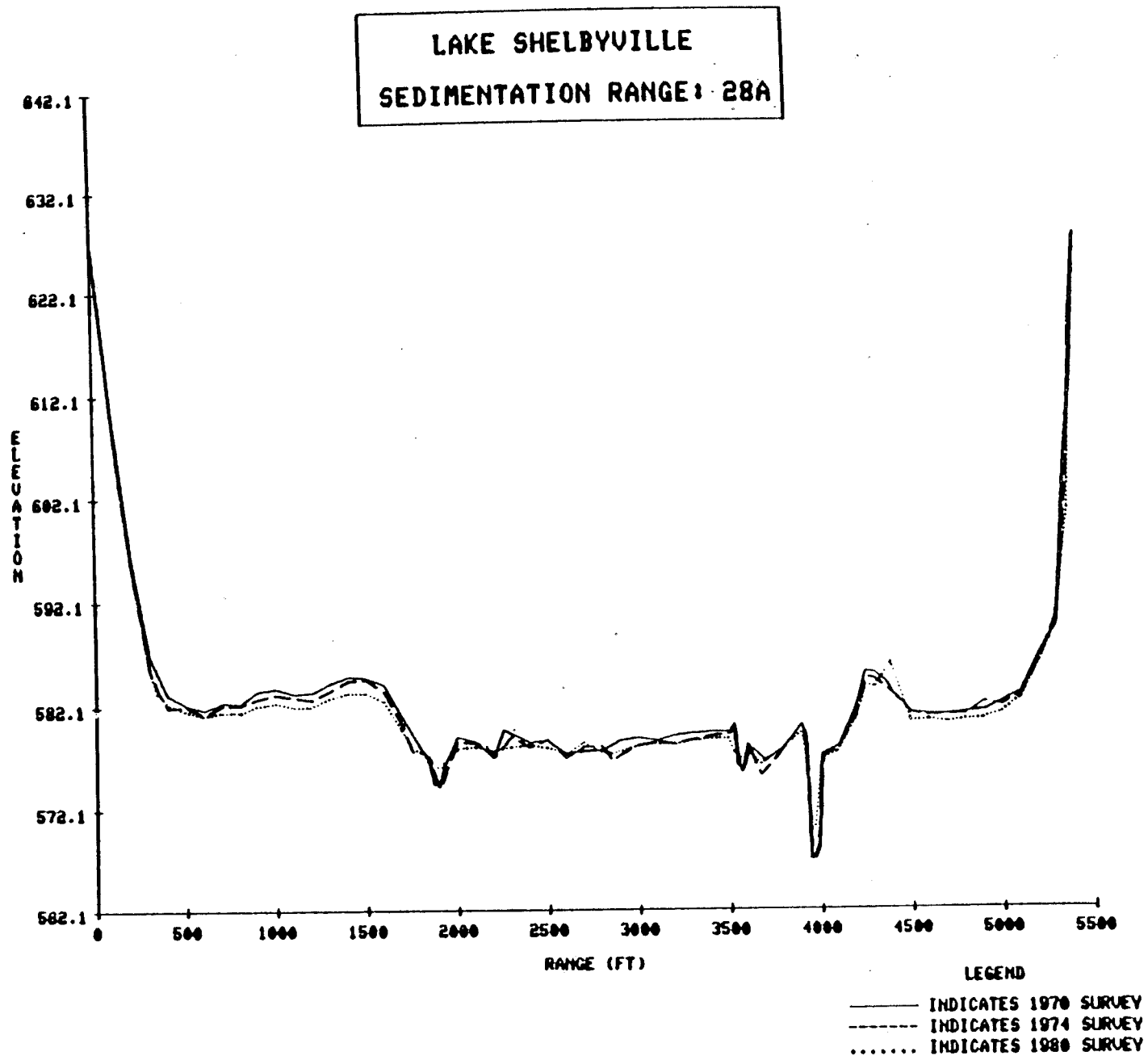

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 28A
642.1
632.1
622.1
612.1
602.1
592.1
582.1
572.1
562.1
ELEVATION
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 33

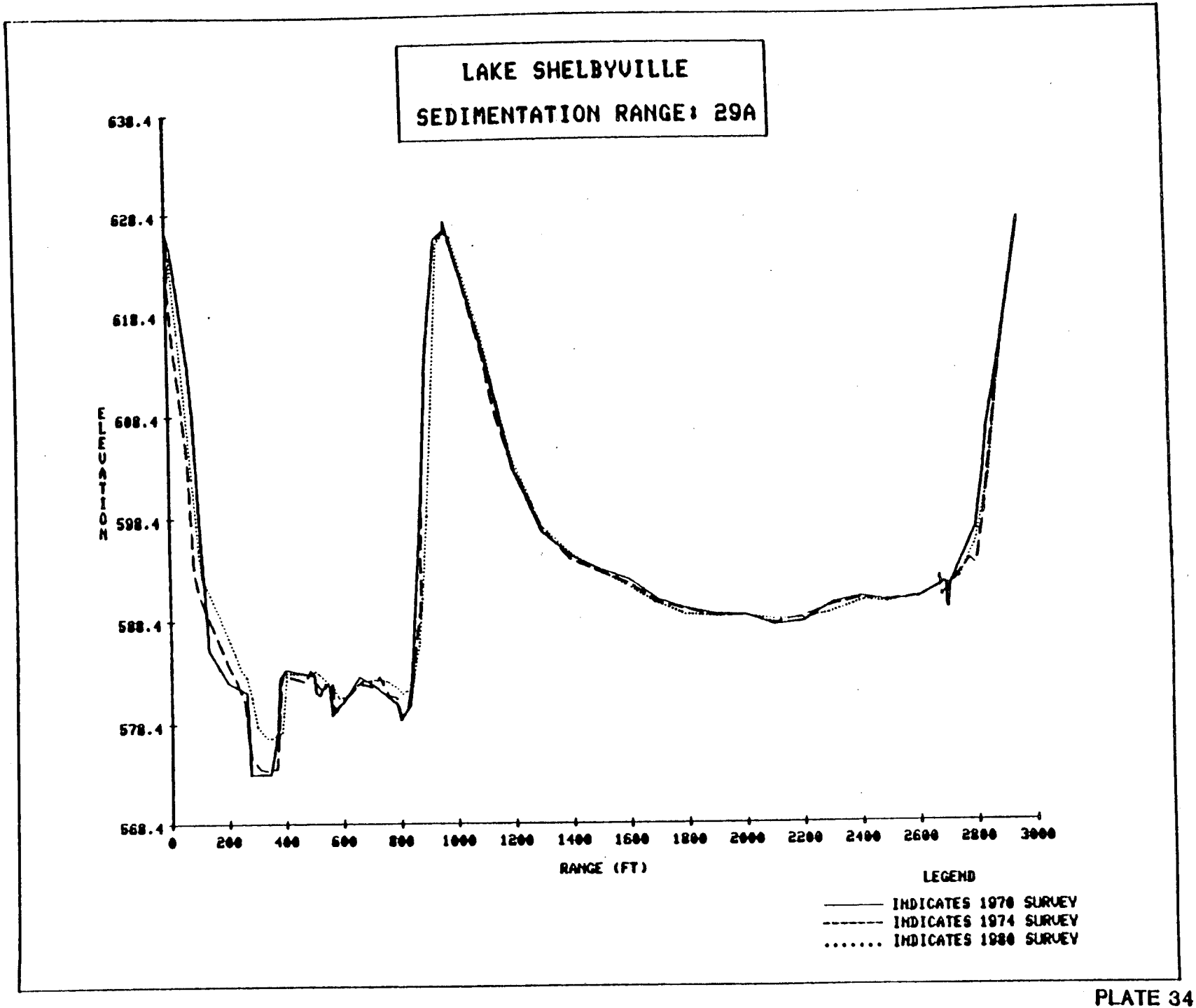
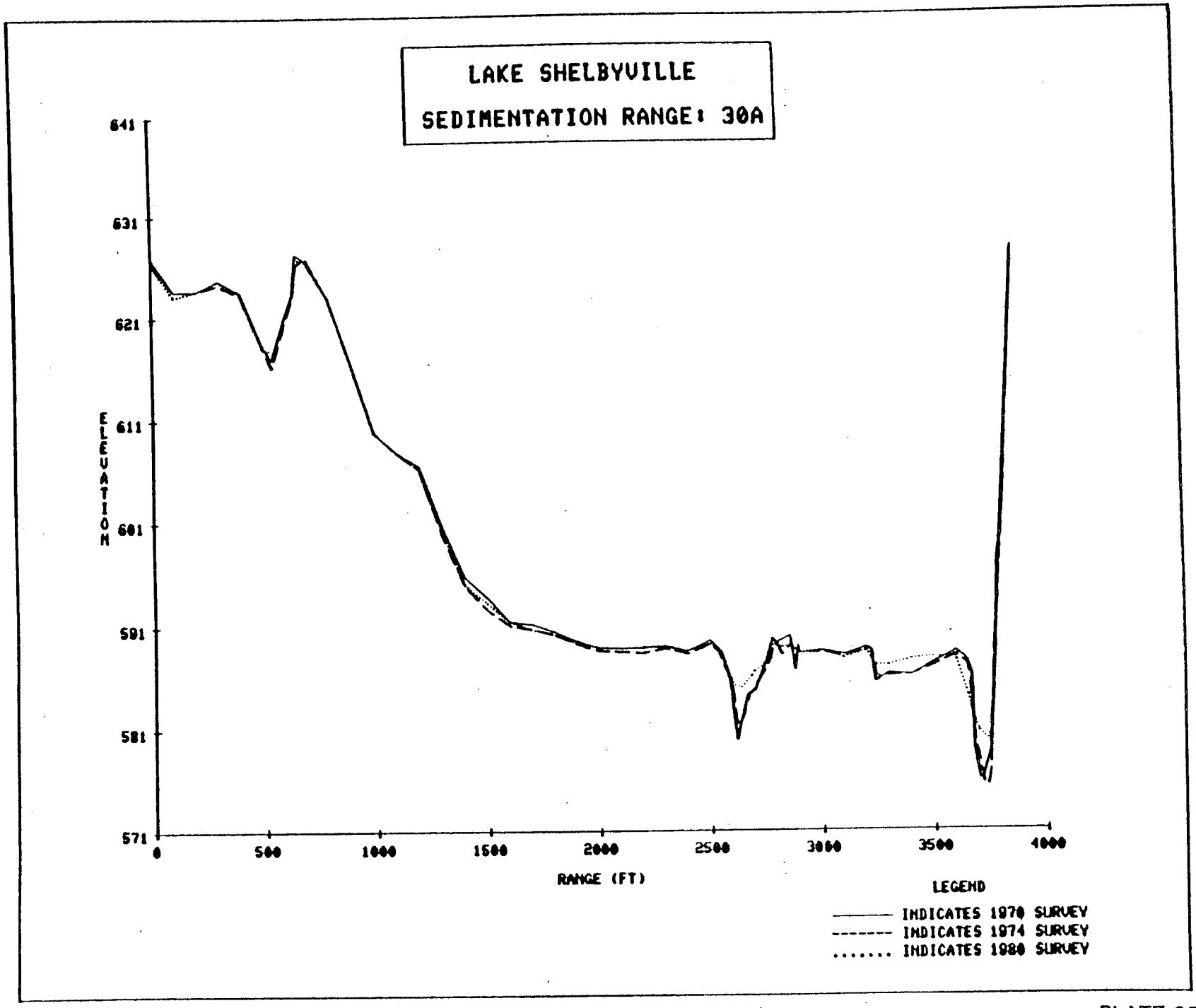
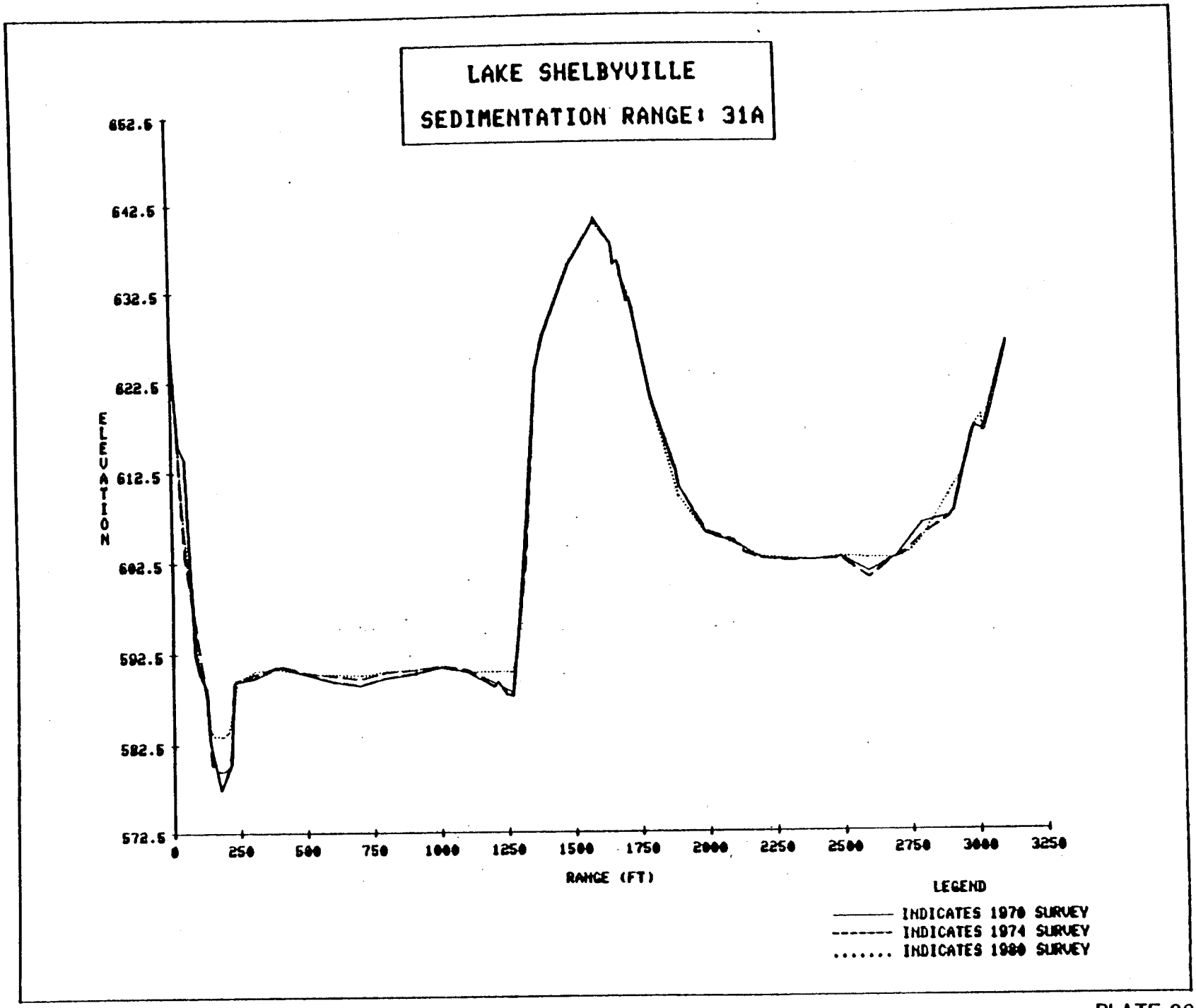
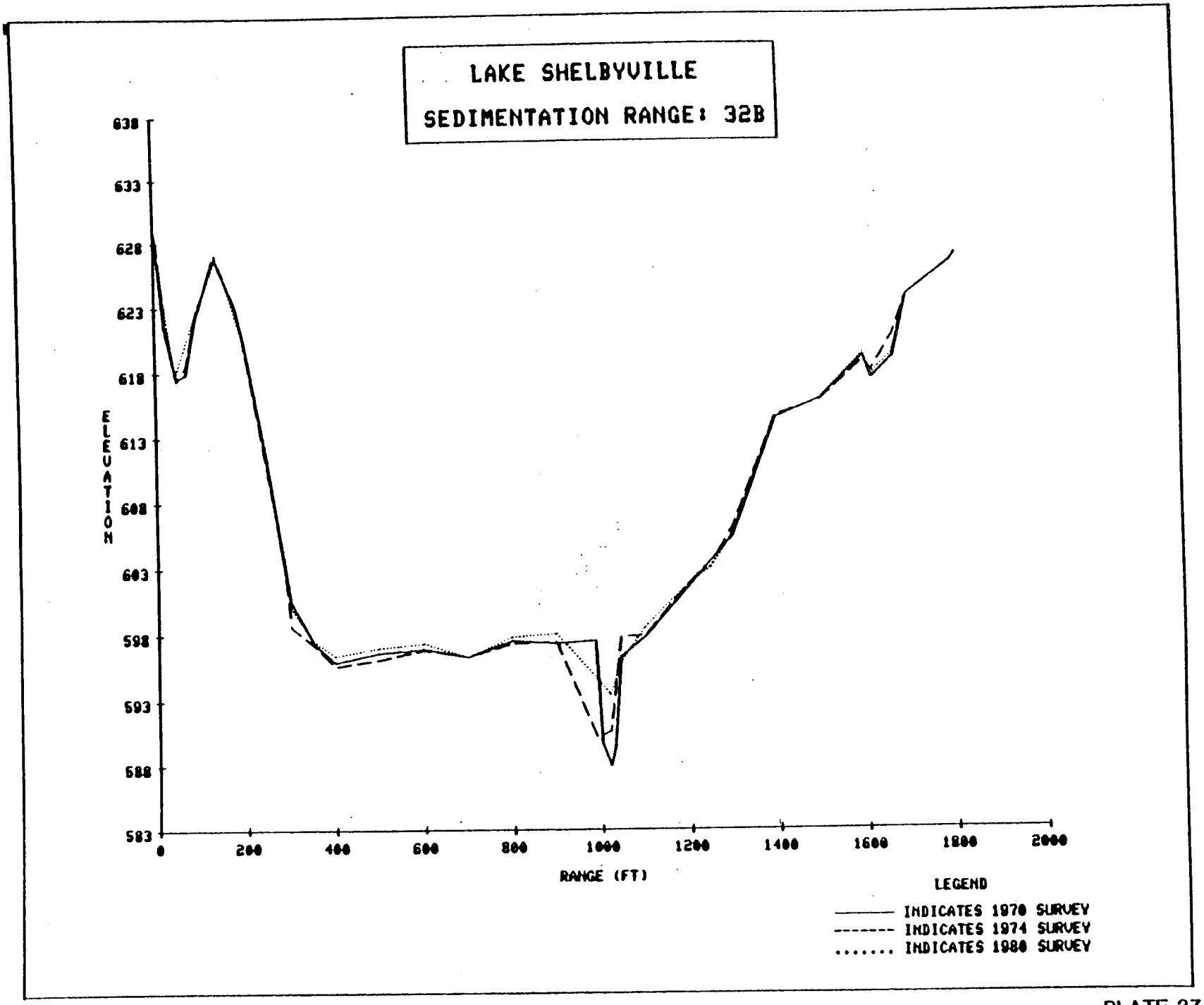
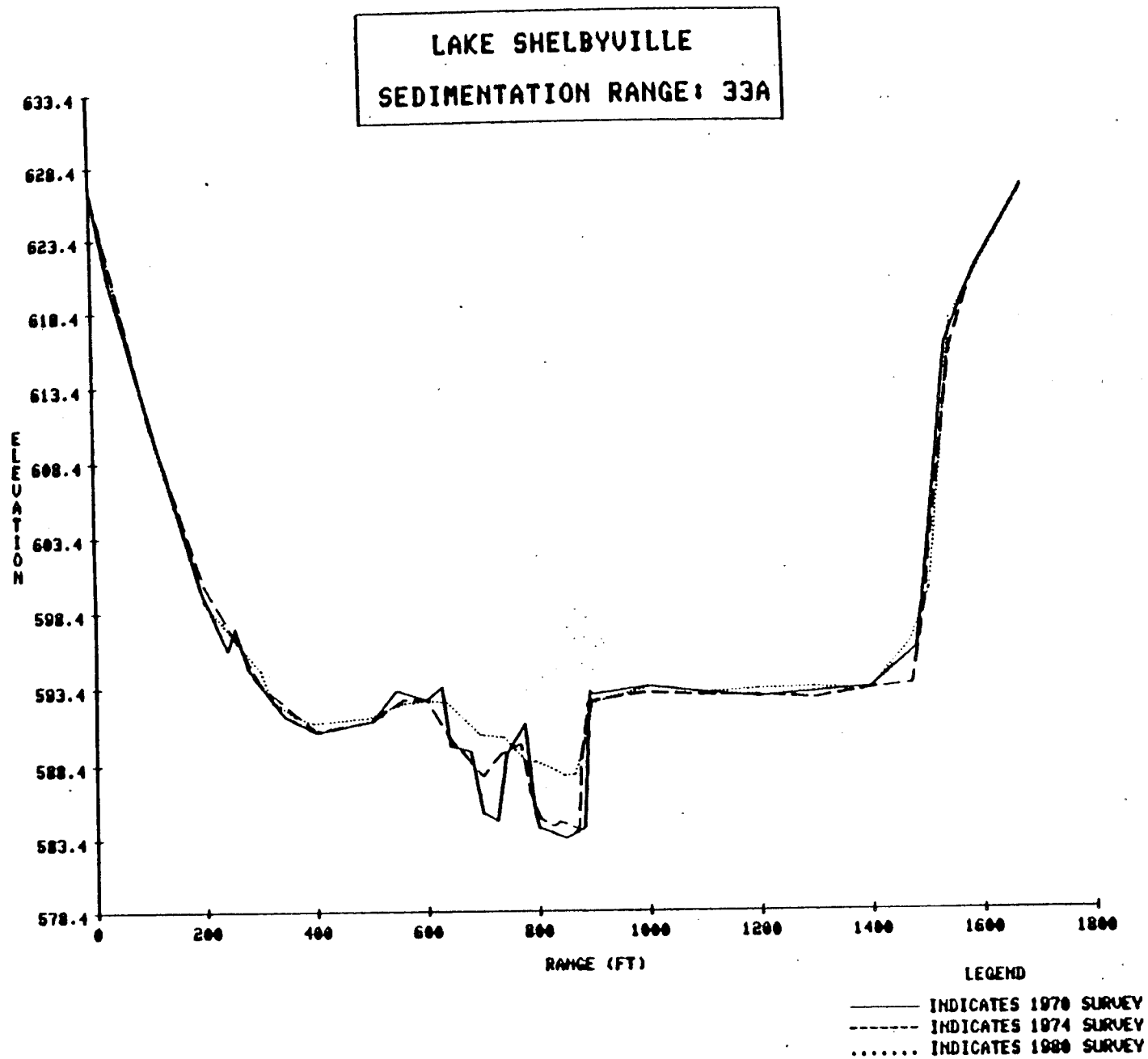

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 29A
638.4
628.4
618.4
608.4
598.4
588.4
578.4
568.4
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 34


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 30A
ELEVATION
641
631
621
611
601
591
581
571
0
500
1000
1500
2000
2500
3000
3500
4000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 31A
652.5
642.5
632.5
622.5
612.5
602.5
592.5
582.5
572.5
ELEVATION
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 32B
ELEVATION
638
633
628
623
618
613
608
603
598
593
588
583
0
200
400
600
800
1000
1200
1400
1600
1800
2000
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 33A
633.4
628.4
623.4
618.4
613.4
608.4
603.4
598.4
593.4
588.4
583.4
578.4
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

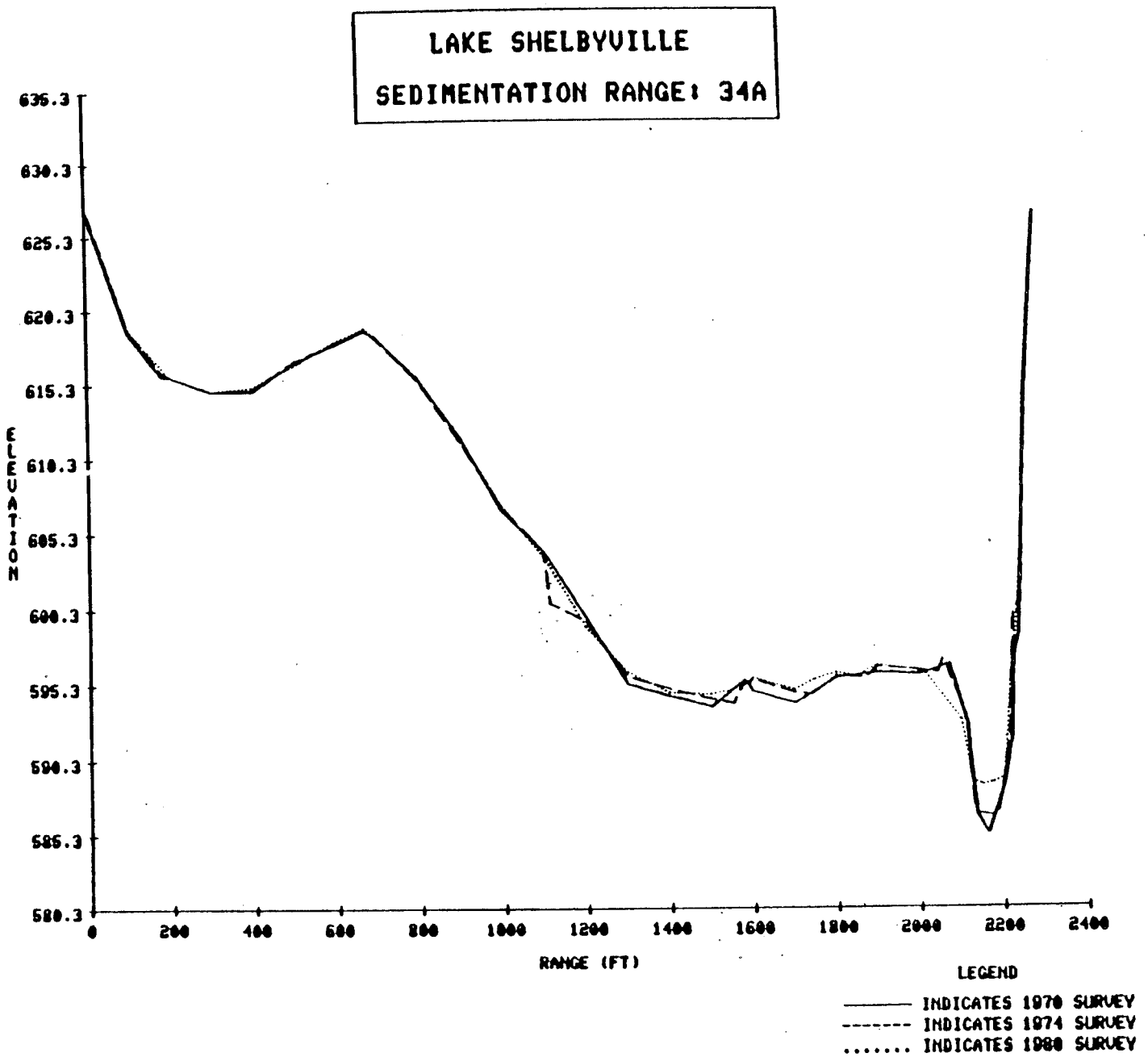

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 34A
ELEVATION
635.3
630.3
625.3
620.3
615.3
610.3
605.3
600.3
595.3
590.3
585.3
580.3
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 39

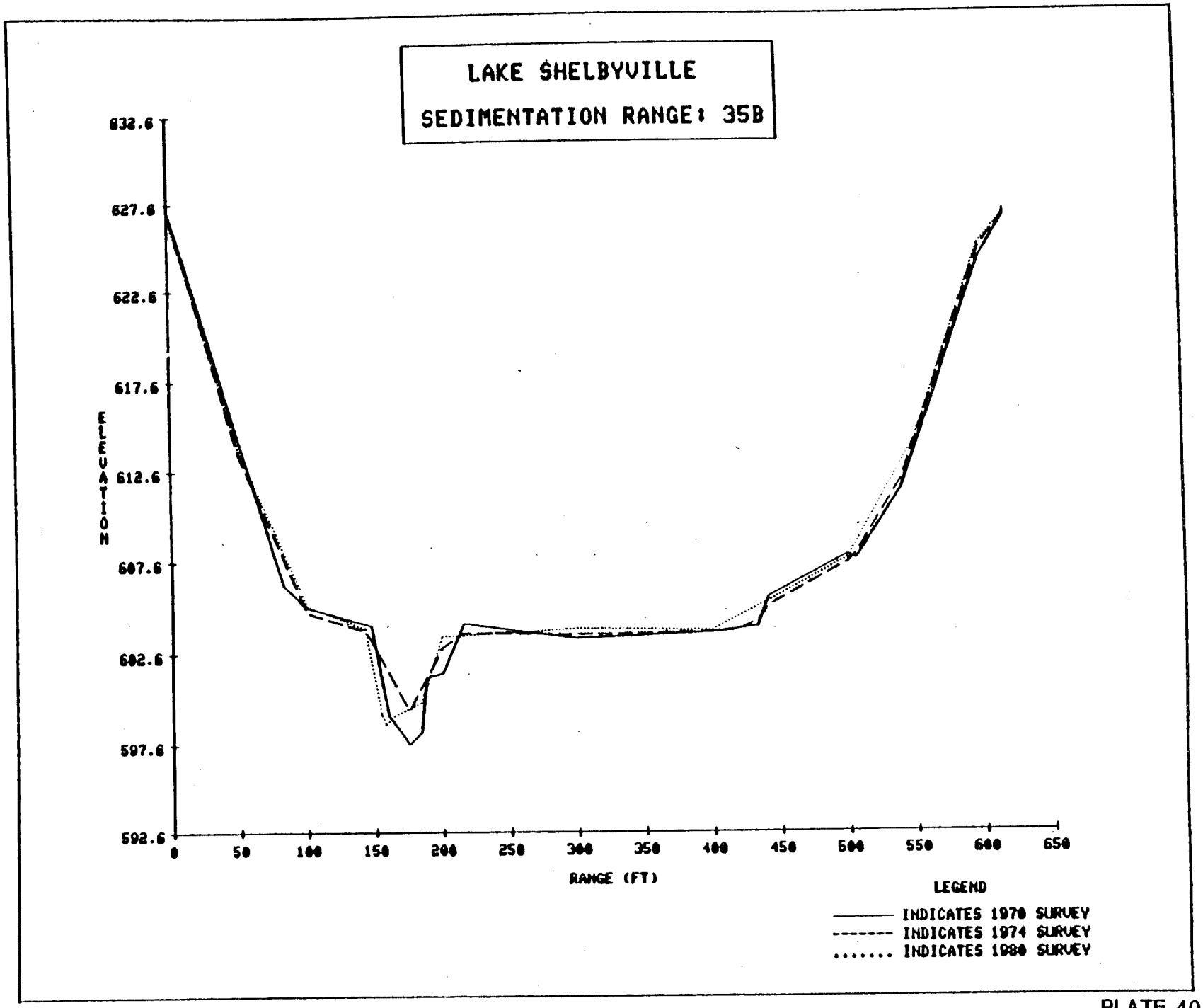

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 35B
632.6
627.6
622.6
617.6
612.6
607.6
602.6
597.6
592.6
ELEVATION
0
50
100
150
200
250
300
350
400
450
500
550
600
650
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 40

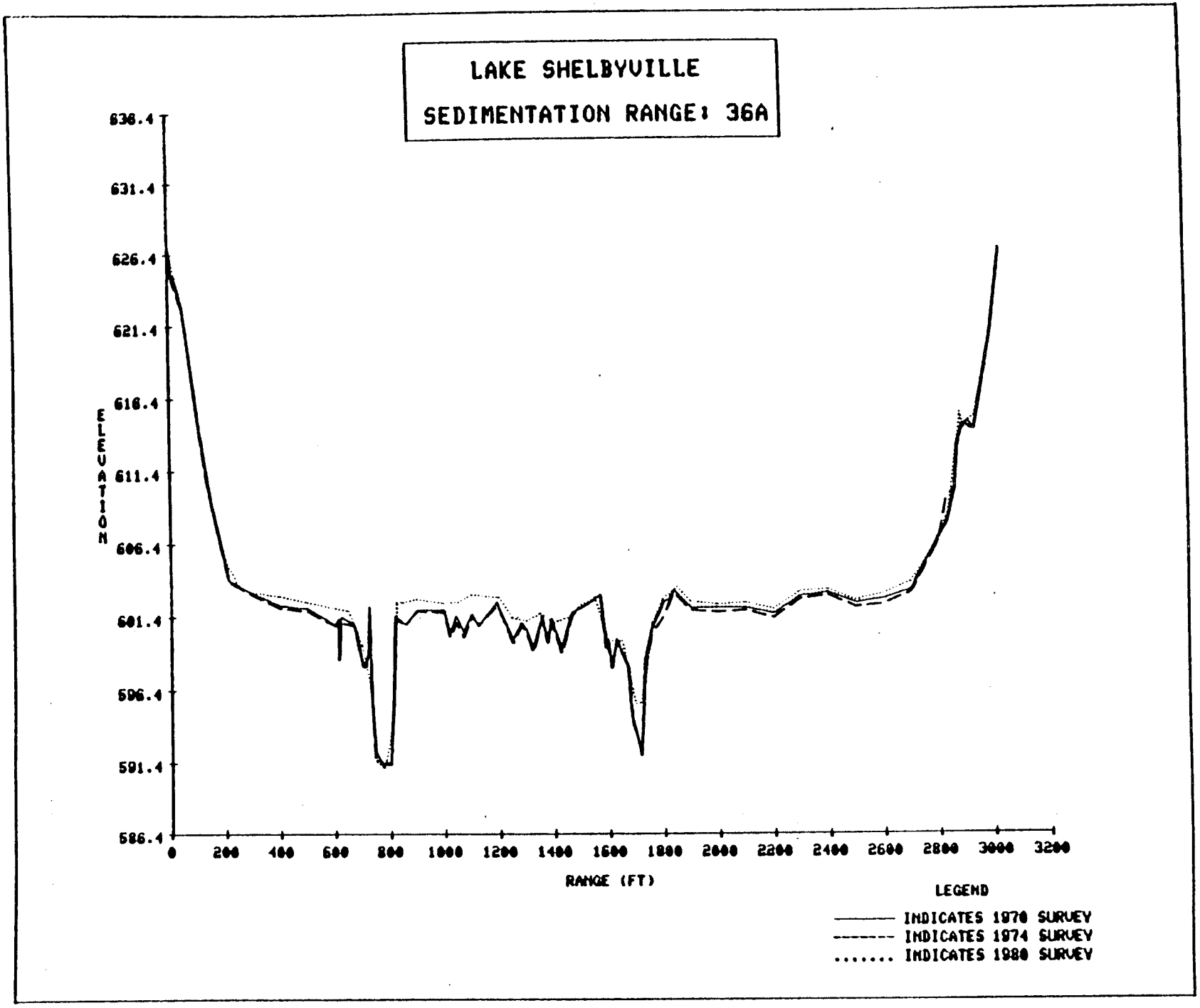
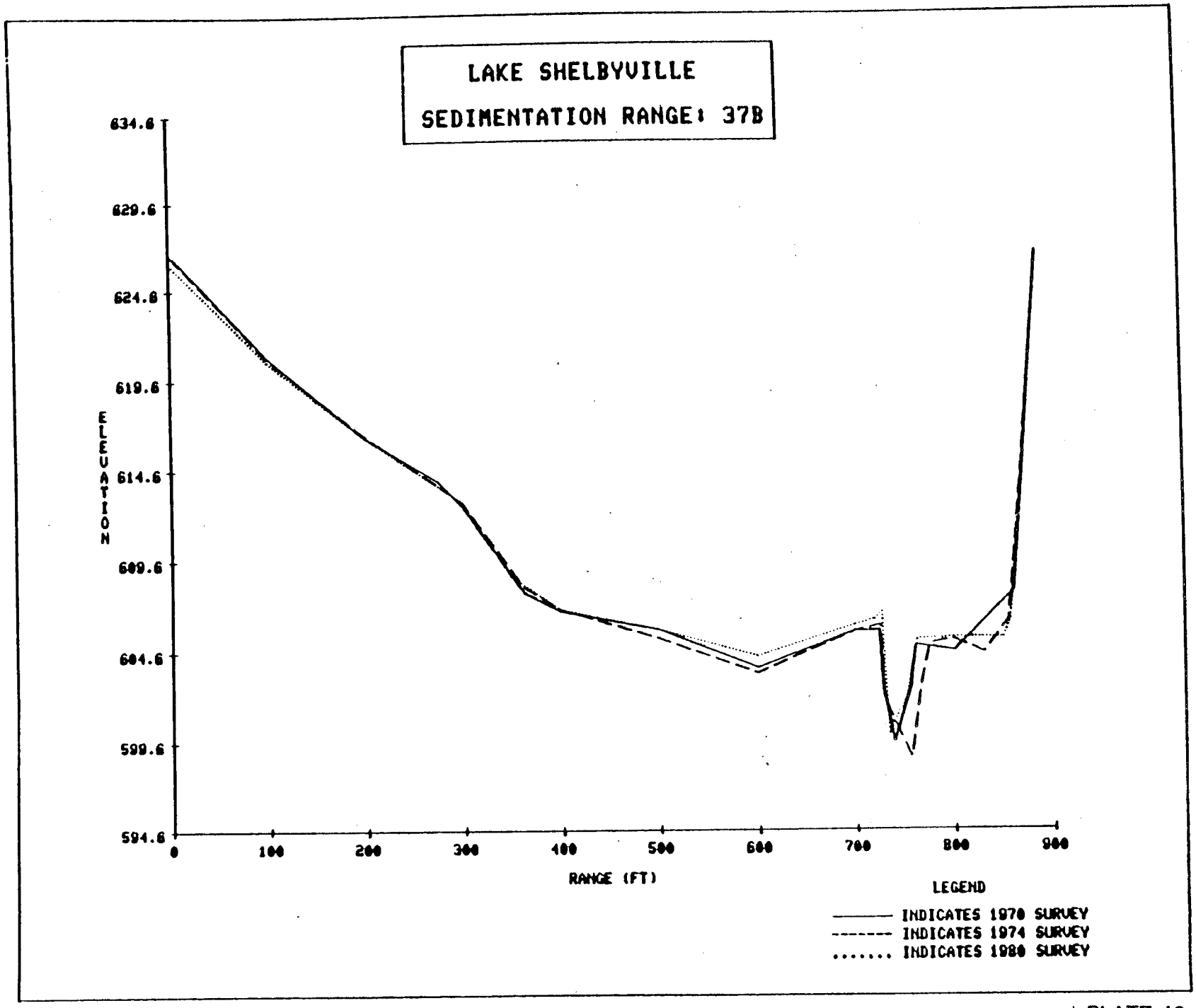

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 36A
636.4
631.4
626.4
621.4
616.4
611.4
606.4
601.4
596.4
591.4
586.4
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 41


LAKE SHELBYVILLE
SEDIMENTATION RANGE: 37B
634.6
629.6
624.6
619.6
614.6
609.6
604.6
599.6
594.6
ELEVATION
0
100
200
300
400
500
600
700
800
900
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

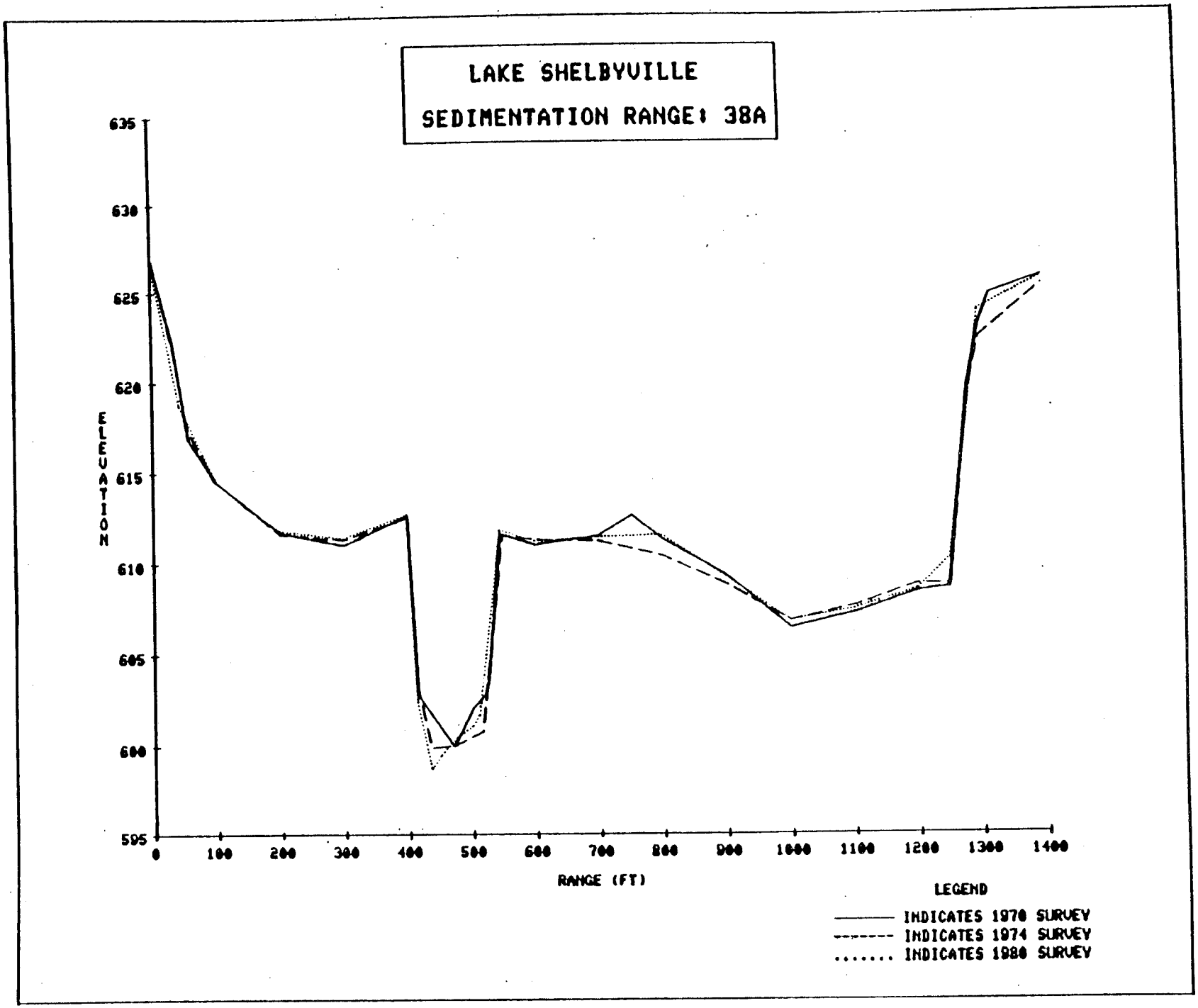

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 38A
ELEVATION
635
630
625
620
615
610
605
600
595
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 43

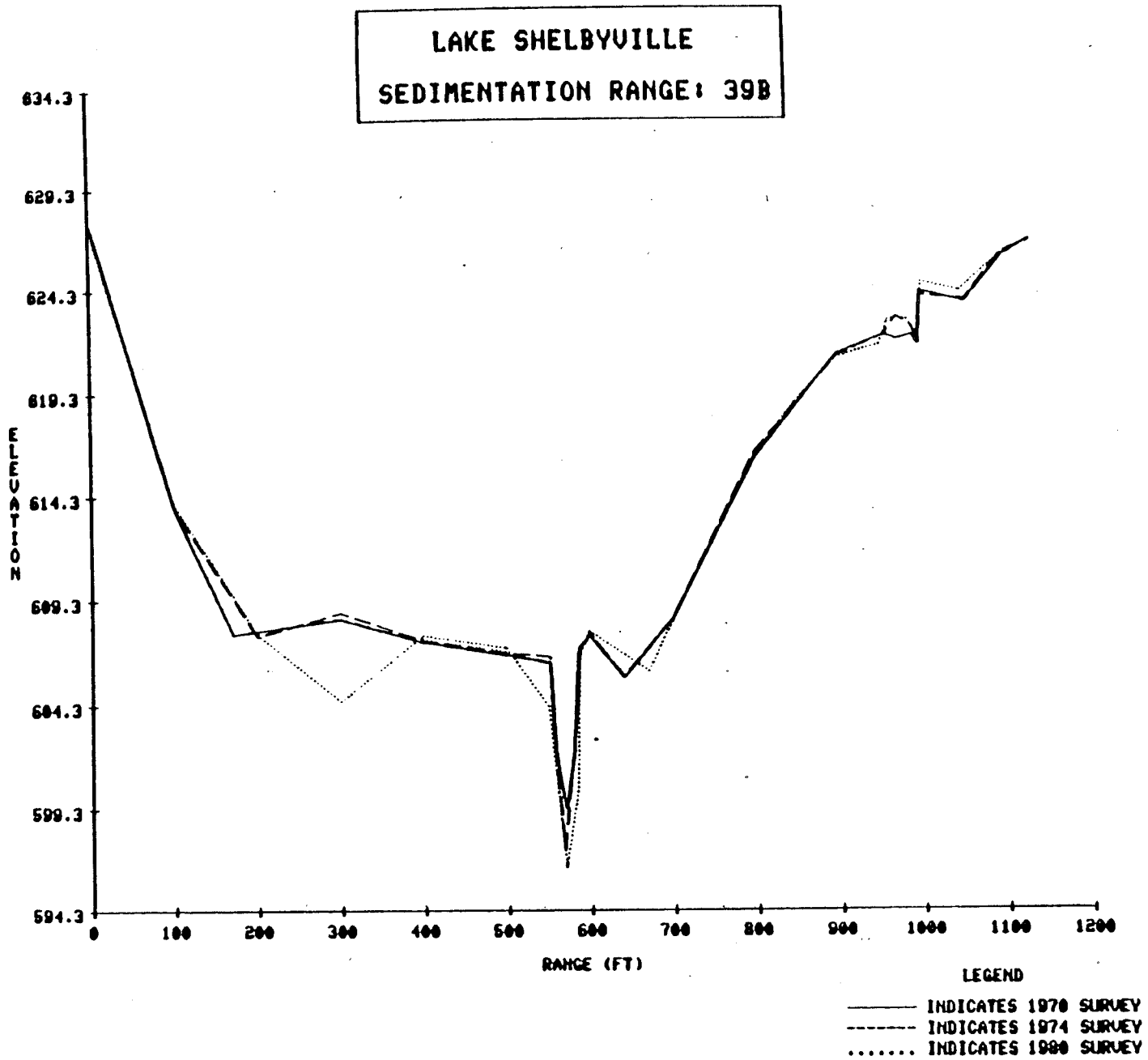

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 39B
ELEVATION
634.3
629.3
624.3
619.3
614.3
609.3
604.3
599.3
594.3
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 44

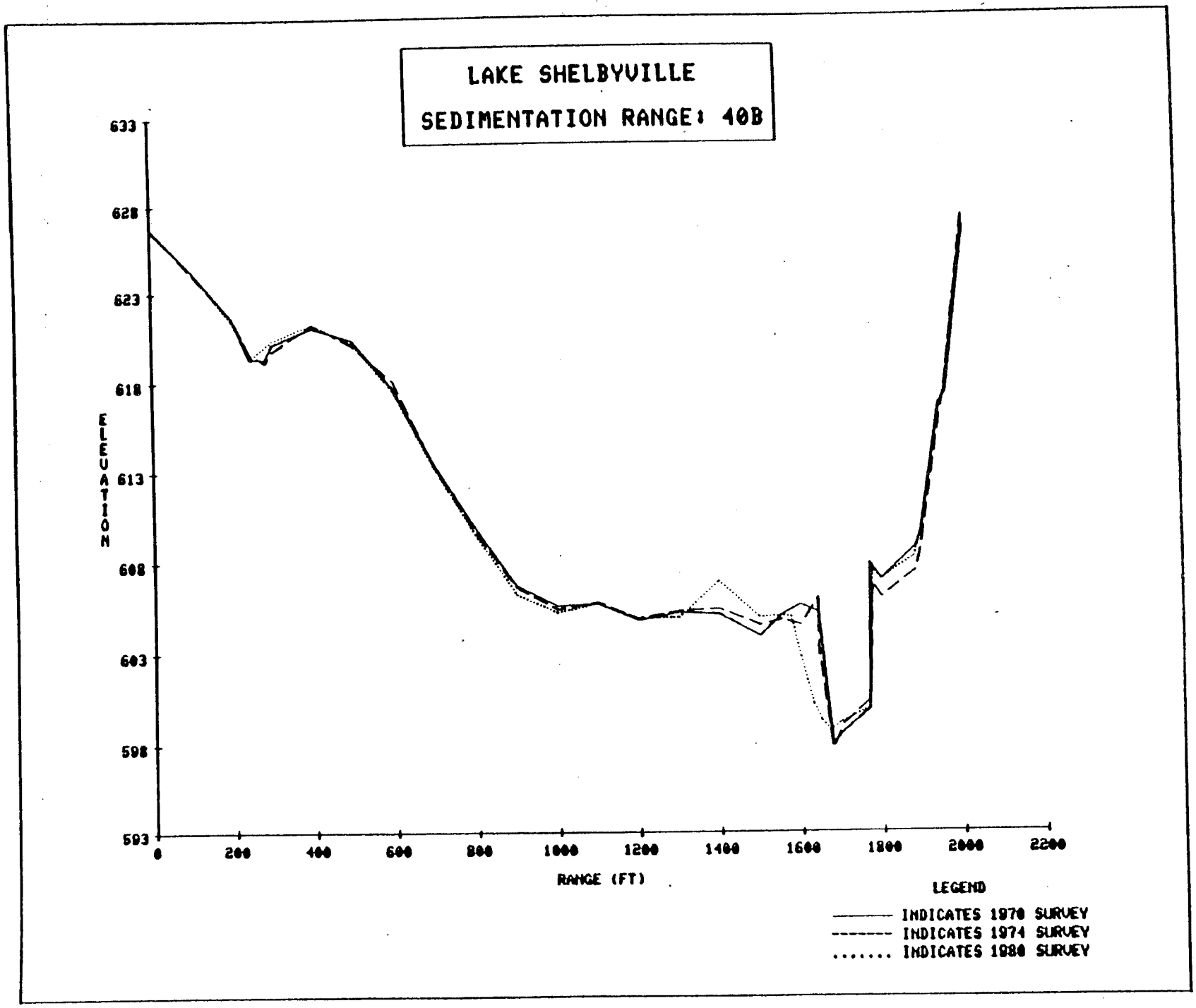
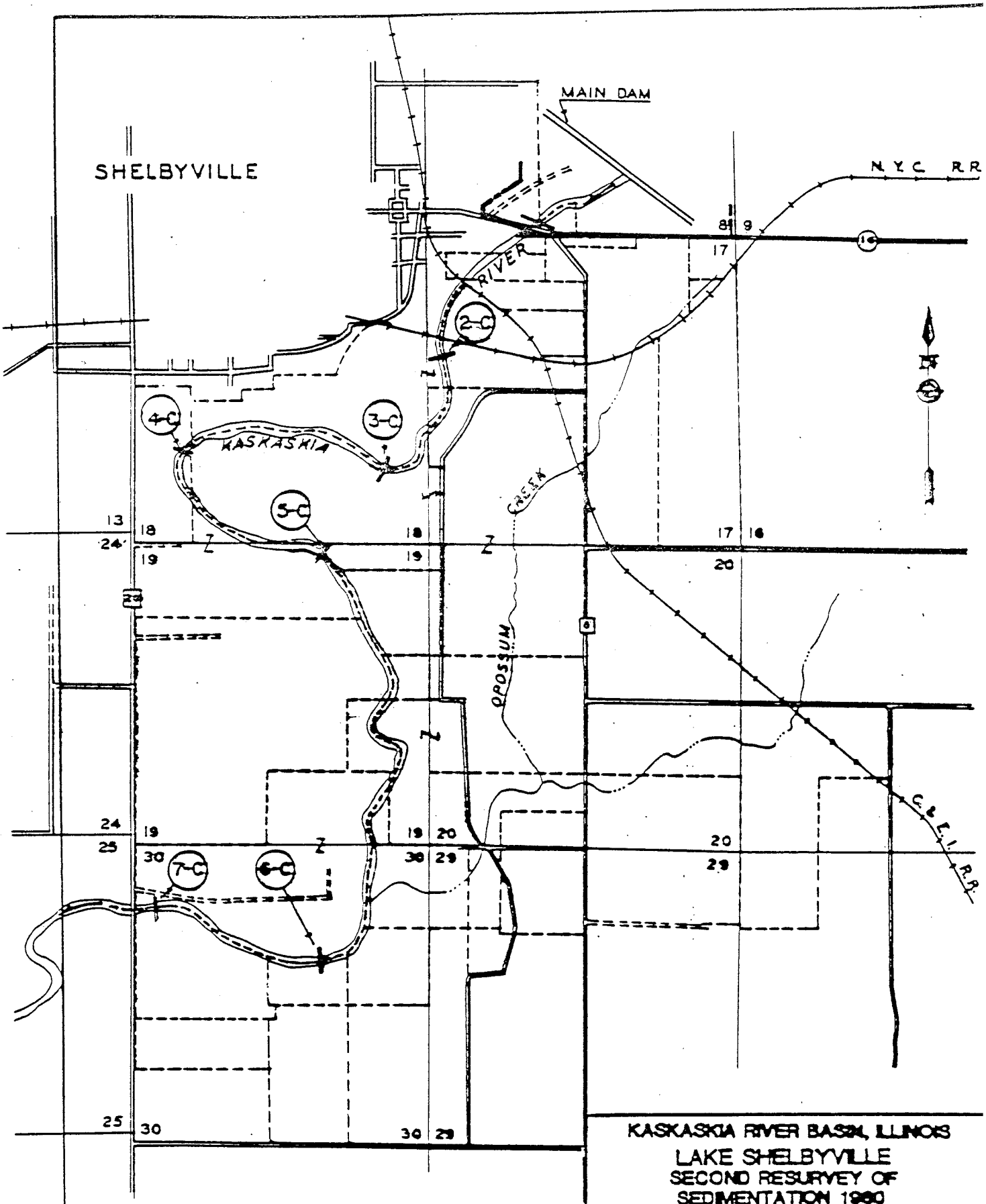

LAKE SHELBYVILLE
SEDIMENTATION RANGE: 40B
633
628
623
618
613
608
603
598
593
ELEVATION
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

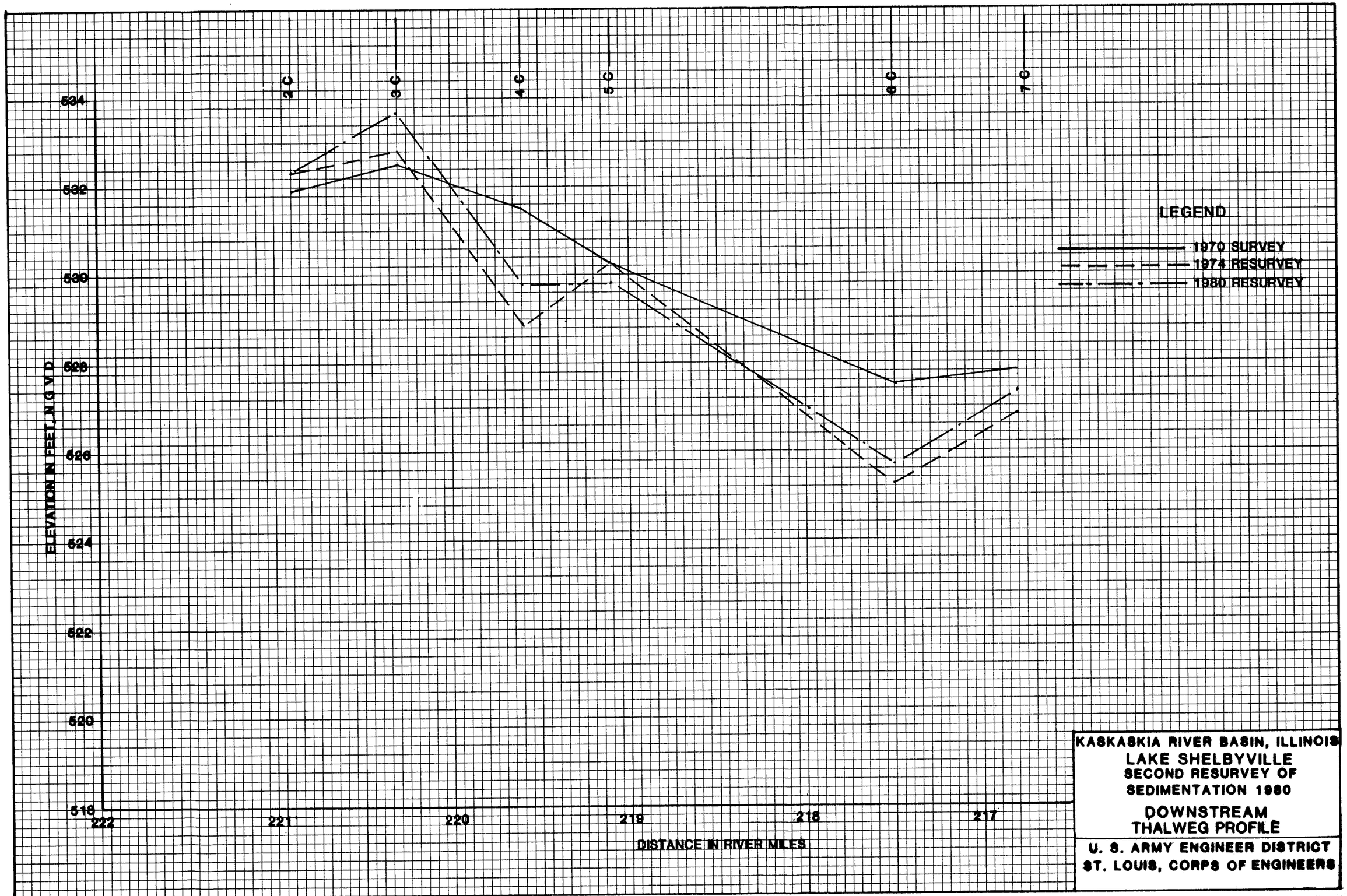
PLATE 45



KASKASKIA RIVER BASIN, ILLINOIS

LAKE SHELBYVILLE
SECOND RESURVEY OF
SEDIMENTATION 1980
DOWNSTREAM
RETROGRESSION RANGES

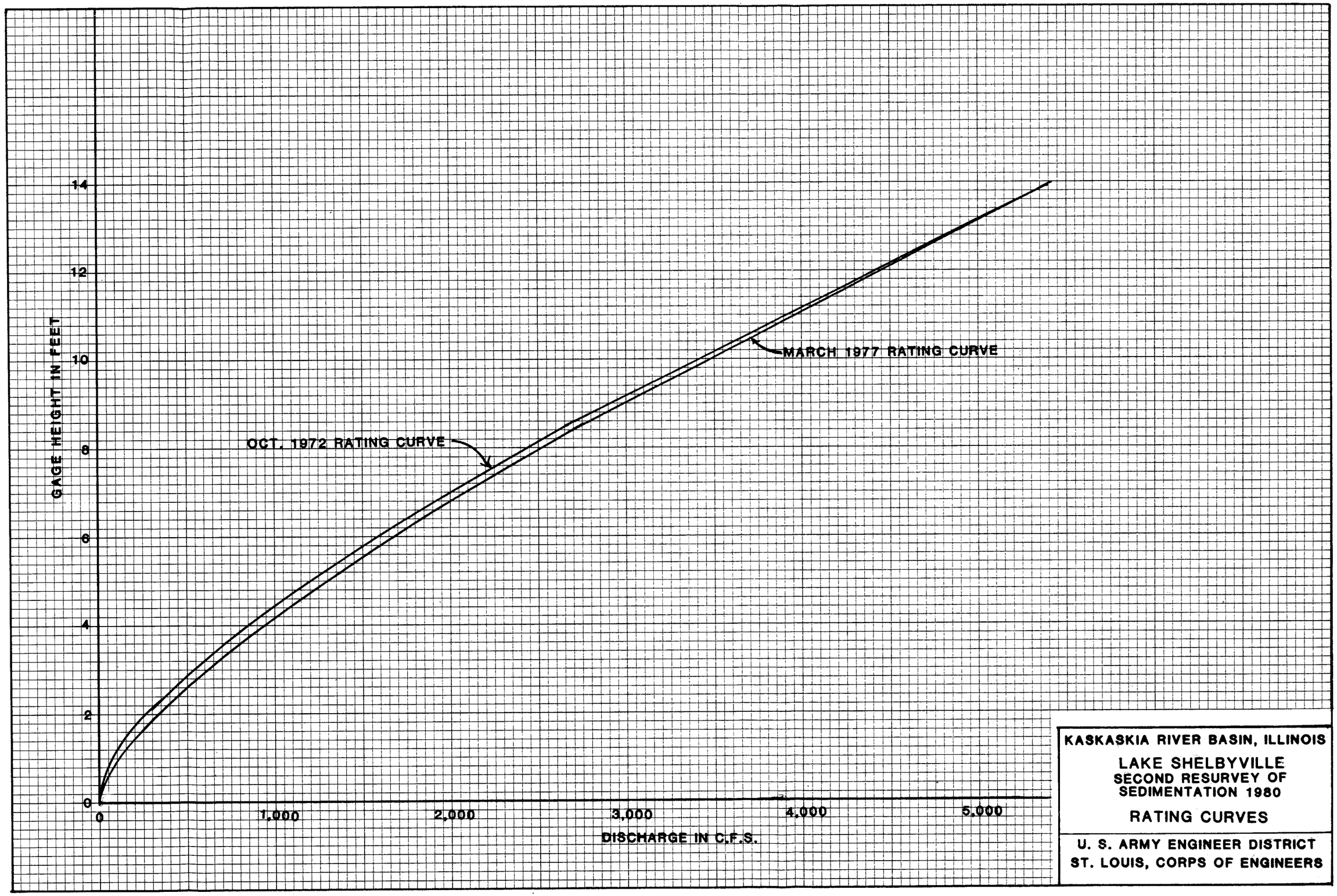
U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS



KASKASKIA RIVER BASIN, ILLINOIS
LAKE SHELBYVILLE
SECOND RESURVEY OF
SEDIMENTATION 1980

DOWNSTREAM
THALWEG PROFILE

U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS



KASKASKIA RIVER BASIN, ILLINOIS

LAKE SHELBYVILLE
SECOND RESURVEY OF
SEDIMENTATION 1980

RATING CURVES

U. S. ARMY ENGINEER DISTRICT
ST. LOUIS, CORPS OF ENGINEERS

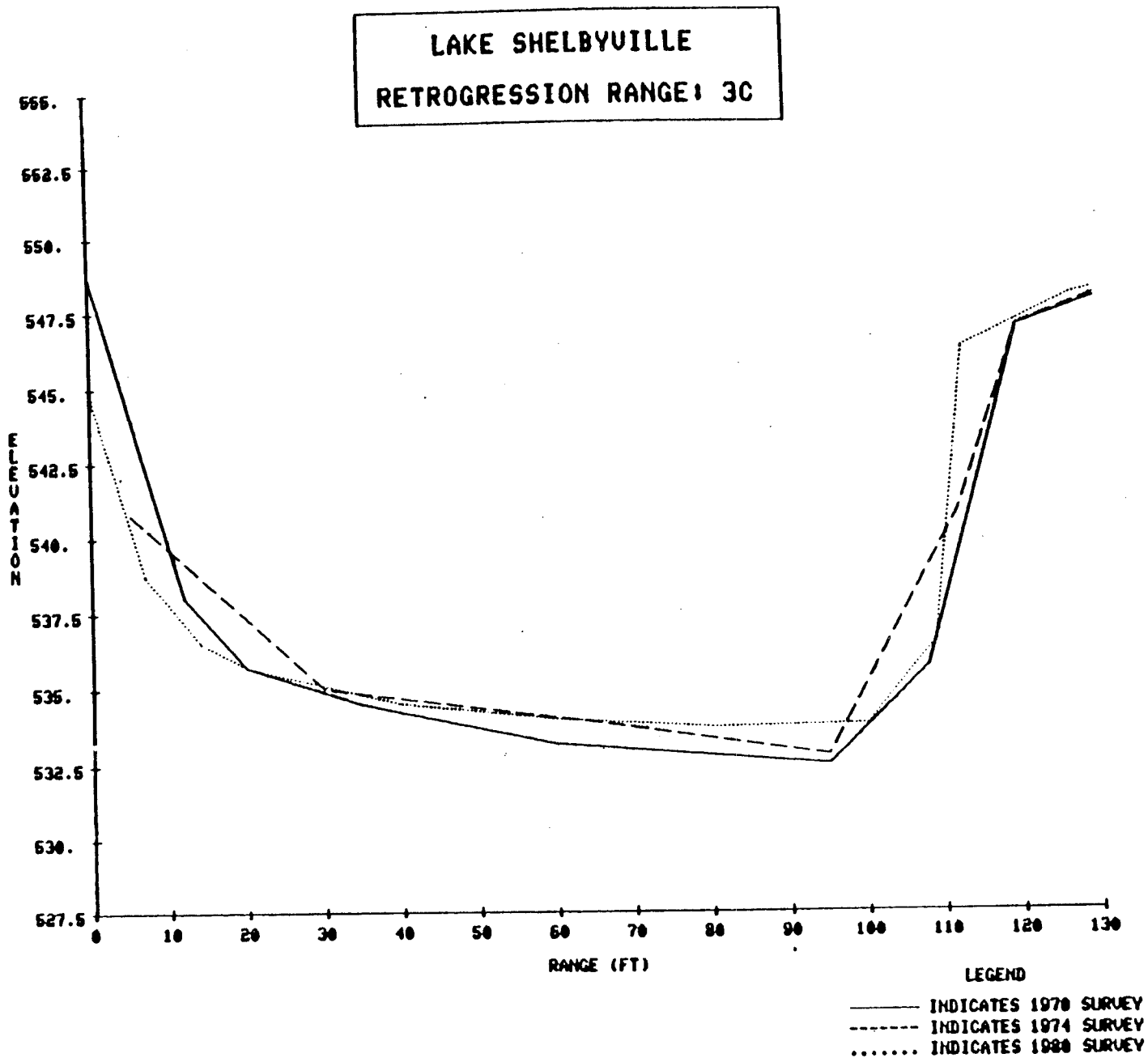

LAKE SHELBYVILLE
RETROGRESSION RANGE: 3C
ELEVATION
555.
552.5
550.
547.5
545.
542.5
540.
537.5
535.
532.5
530.
527.5
0
10
20
30
40
50
60
70
80
90
100
110
120
130
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 48

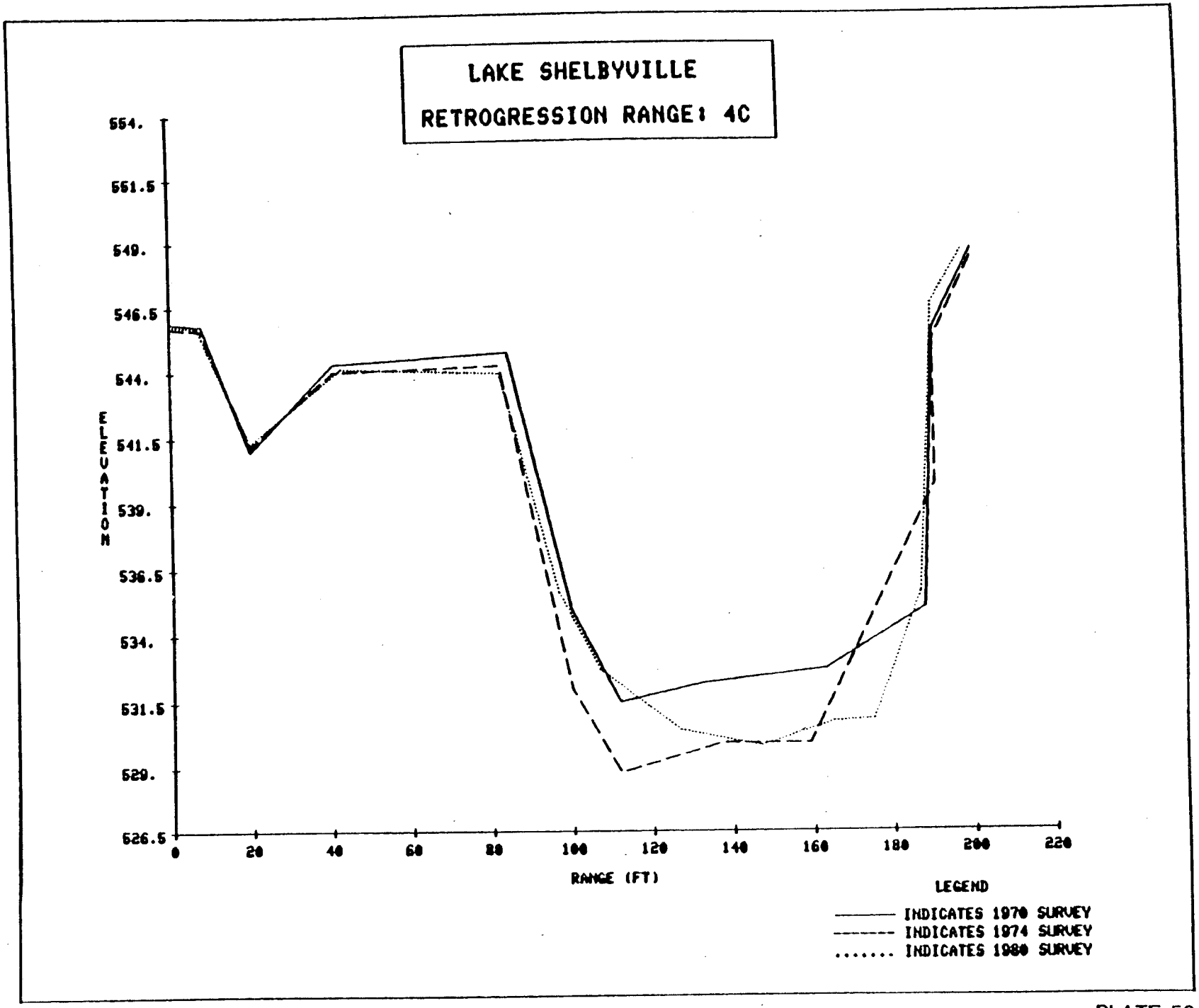

LAKE SHELBYVILLE
RETROGRESSION RANGE: 4C
ELEVATION
554.
551.5
549.
546.5
544.
541.5
539.
536.5
534.
531.5
529.
526.5
0
20
40
60
80
100
120
140
160
180
200
220
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 60

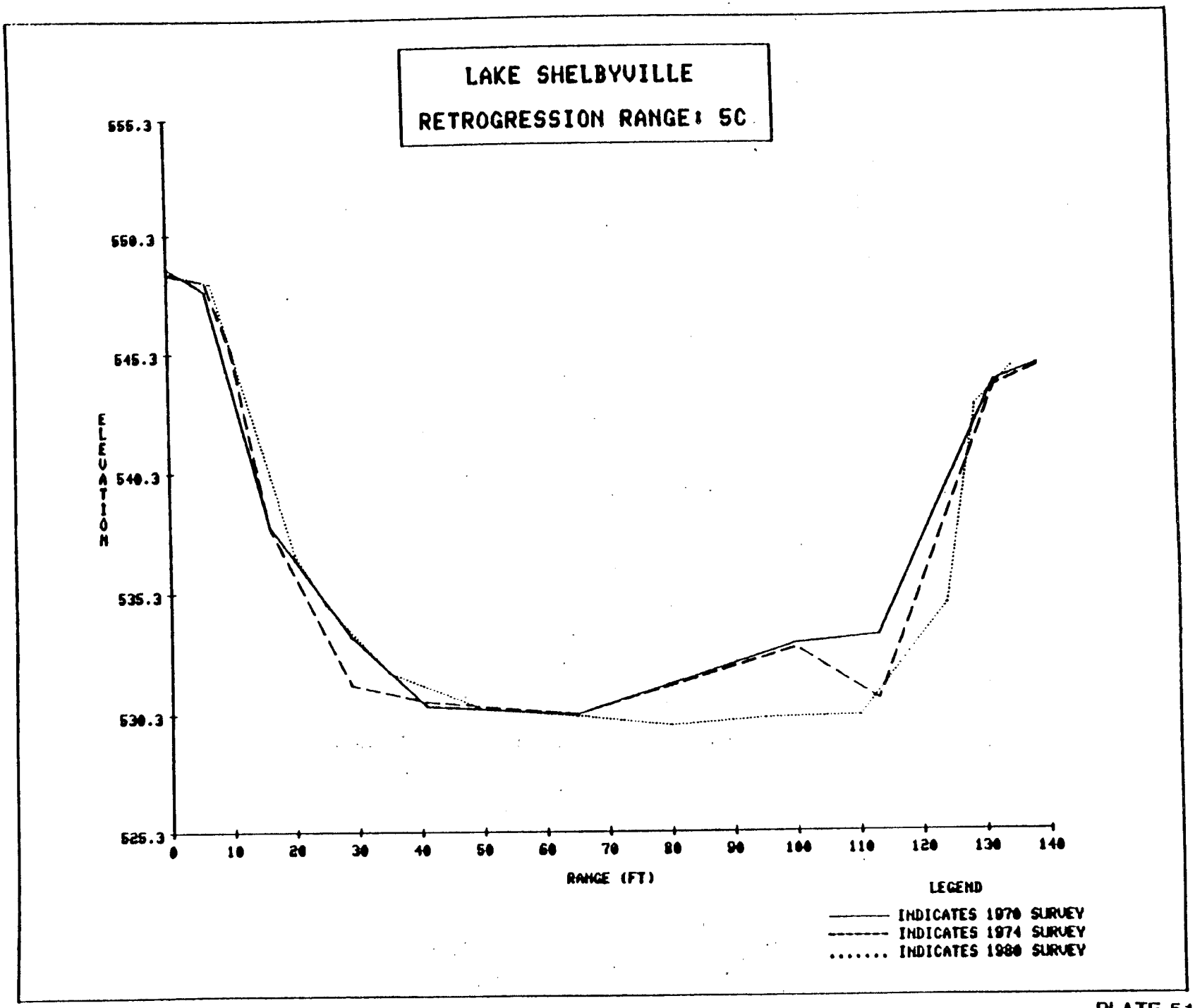

LAKE SHELBYVILLE
RETROGRESSION RANGE: 5C
555.3
550.3
545.3
540.3
535.3
530.3
525.3
ELEVATION
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 51

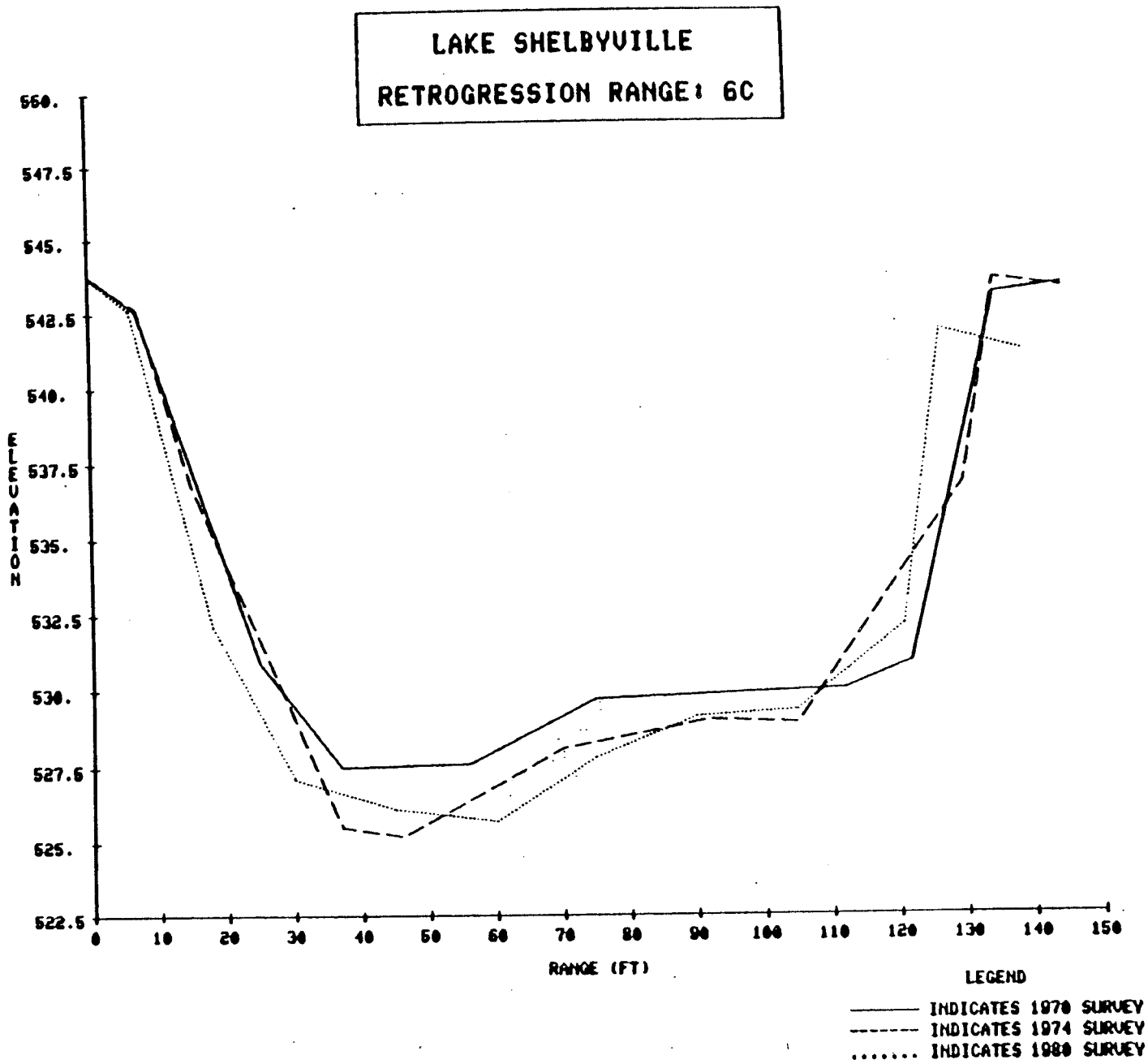

LAKE SHELBYVILLE
RETROGRESSION RANGE: 6C
ELEVATION
550.
547.5
545.
542.5
540.
537.5
535.
532.5
530.
527.5
525.
522.5
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 52

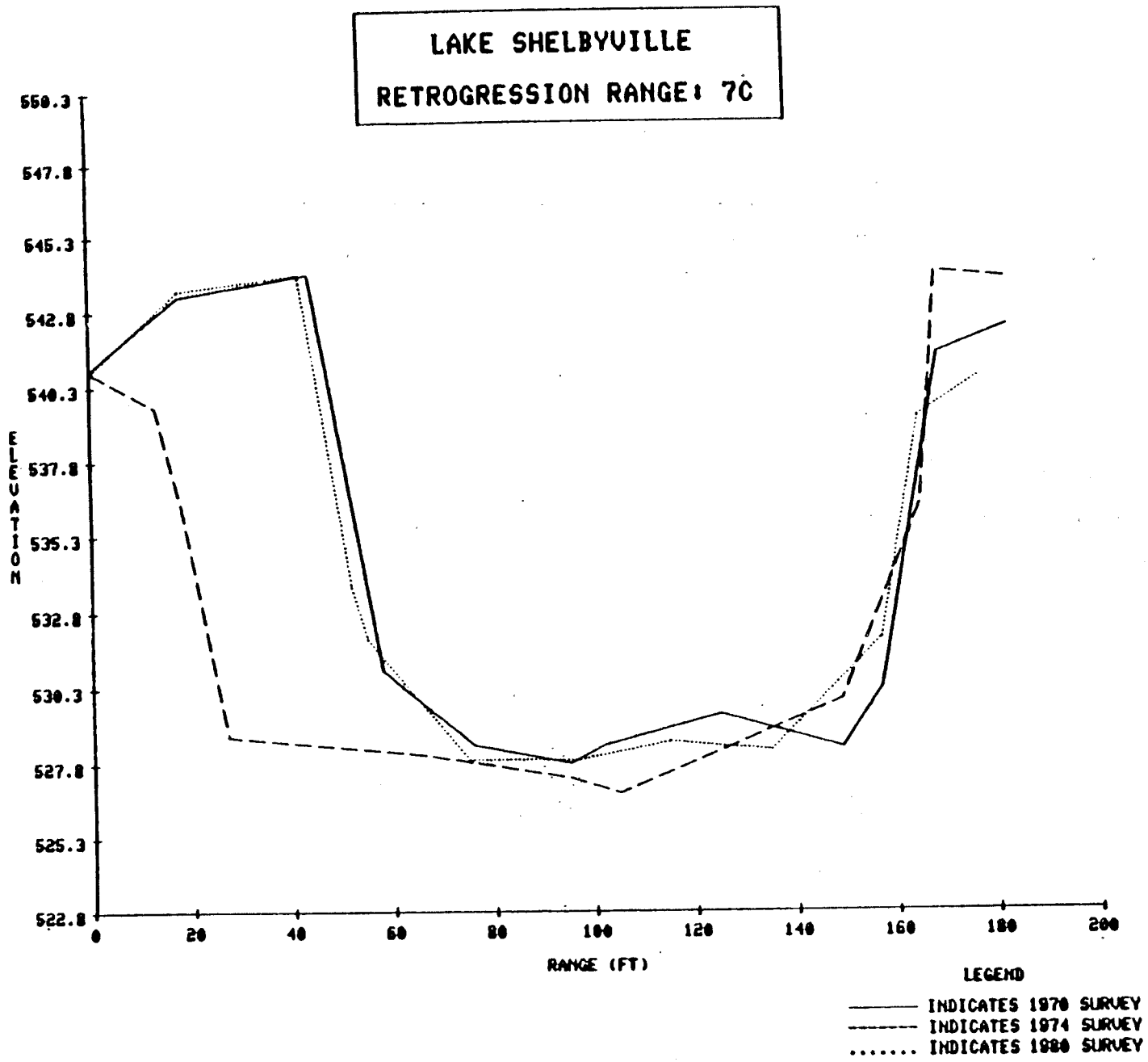

LAKE SHELBYVILLE
RETROGRESSION RANGE: 7C
550.3
547.8
545.3
542.8
540.3
537.8
535.3
532.8
530.3
527.8
525.3
522.8
ELEVATION
0
20
40
60
80
100
120
140
160
180
200
RANGE (FT)
LEGEND
INDICATES 1970 SURVEY
INDICATES 1974 SURVEY
INDICATES 1980 SURVEY

PLATE 53

RESERVOIR SEDIMENT
DATA SUMMARY

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

LAKE SHELBYVILLE
NAME OF RESERVOIR

DATA SHEET NO.

DAM

1. OWNER DA, Corps of Engineers	2. STREAM Kaskaskia River	3. STATE Illinois
4. SEC. 8 TWP. 11N RANGE 3E	5. NEAREST P.O. Shelbyville, IL	6. COUNTY Shelby
7. LAT 39 ° 24 ' 30 " LONG. 88 ° 46 ' 30 "	8. TOP OF DAM ELEVATION 643.0	9. SPILLWAY CREST ELEV. 627.5 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	626.5	25,269	468,385	676,203	1 Aug 1970
b. MULTIPLE USE	599.7	11,118	177,795	207,818	
c. POWER					16. DATE NORMAL OPER. BEGAN
d. WATER SUPPLY					
e. IRRIGATION					
f. CONSERVATION					1 Aug 1970
g. INACTIVE	573.0	2,992	30,023	30,023	

17. LENGTH OF RESERVOIR 47 3/ MILES; AV. WIDTH OF RESERVOIR 0.84 MILES

WATERSHED

18. TOTAL DRAINAGE AREA	1,054 SQ. MI.	22. MEAN ANNUAL PRECIPITATION	38.5(11) INCHES
19. NET SEDIMENT CONTRIBUTING AREA	1,015 SQ. MI.	23. MEAN ANNUAL RUNOFF	12.4(11) INCHES
20. LENGTH 58 MILES	AV. WIDTH 18.2 MILES	24. MEAN ANNUAL RUNOFF	697,002 (11) AC.-FT.
21. MAX. ELEV. 703	MIN. ELEV. 535	25. ANNUAL TEMP.: MEAN	55°F RANGE -34°F to 115°F

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
Apr '70	10.6	10.6	Range (D)	46	25,269	676,203	0.97
4/ Nov '80			Range (D)	46	25,269	667,989	0.96

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Apr '70 Nov '80	39.40	664,289	1,297,715	7,307,178	664,289	7,307,178

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Apr '70 Nov '80	8,214	775	0.76	8,214	775	0.76

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Nov '80	5/ 47.4(43)	785	785	0.11	1.21	851	851

ENG FORM NOV 66 1787 PREVIOUS EDITIONS ARE OBSOLETE.

PLATE 54

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	Bottom -85	85-75	75-65	65-55	55-45	45-35	35-25	25-15	15-5			
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Apr '70	1.2	6.5	14.5	46.4	20.4	7.6	1.5	0.9	1.0			
Nov '80												

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Apr '70	23.8	13.2	27.6	18.5	1.4	2.4	3.8	0.5	6.7	2.1					
Nov '80															

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1970	571.9	554.5	554,189				
1971	603.6	570.7	507,826				
1972	605.1	590.2	667,974				
1973	611.6	595.6	937,186				
1974	616.6	590.0	1,297,715				
1975	600.1	590.9	795,461				
1976	593.2	590.0	304,648				
1977	601.5	592.8	480,937				
1978	605.9	595.9	646,042				
1979	605.7	596.2	816,580				
1980	600.6	596.0	298,620				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
Original	Capacity	- 1970	620	20,946	532,310	600	11,233	204,921
540	41	99	630	27,940	775,118	610	15,941	339,829
550	210	1,105	1980 Capacity 6/			620	20,946	524,096
560	919	6,305	540	0	0	630	27,940	766,904
570	2,393	22,238	550	117	470			
580	4,674	56,906	560	753	4,479			
590	7,752	118,383	570	1,960	16,618			
600	11,233	212,980	580	4,578	49,594			
610	15,956	347,959	590	7,728	110,446			

47. REMARKS AND REFERENCES

1/ Elevation of top of gates in closed position. Flood control pool(626.5) was used in items 19,31,32,33,41,43.
2/ Includes 25,000 acre-feet for water supply(2 yr. supply).
3/ 25 miles Kaskaskia River and 22 miles West Okaw River.
4/ 1974 resurvey showed an increase in capacity, therefore this data is not shown.
5/ For the 1974 resurvey, no samples were taken.
6/ Based on prismoidal method.

48. AGENCY MAKING SURVEY U.S. Army Corps of Engrs. LMVD, SLD

49. AGENCY SUPPLYING DATA

50. DATE December 1981

☆ U.S. GOVERNMENT PRINTING OFFICE: 1967 306-071 (95)

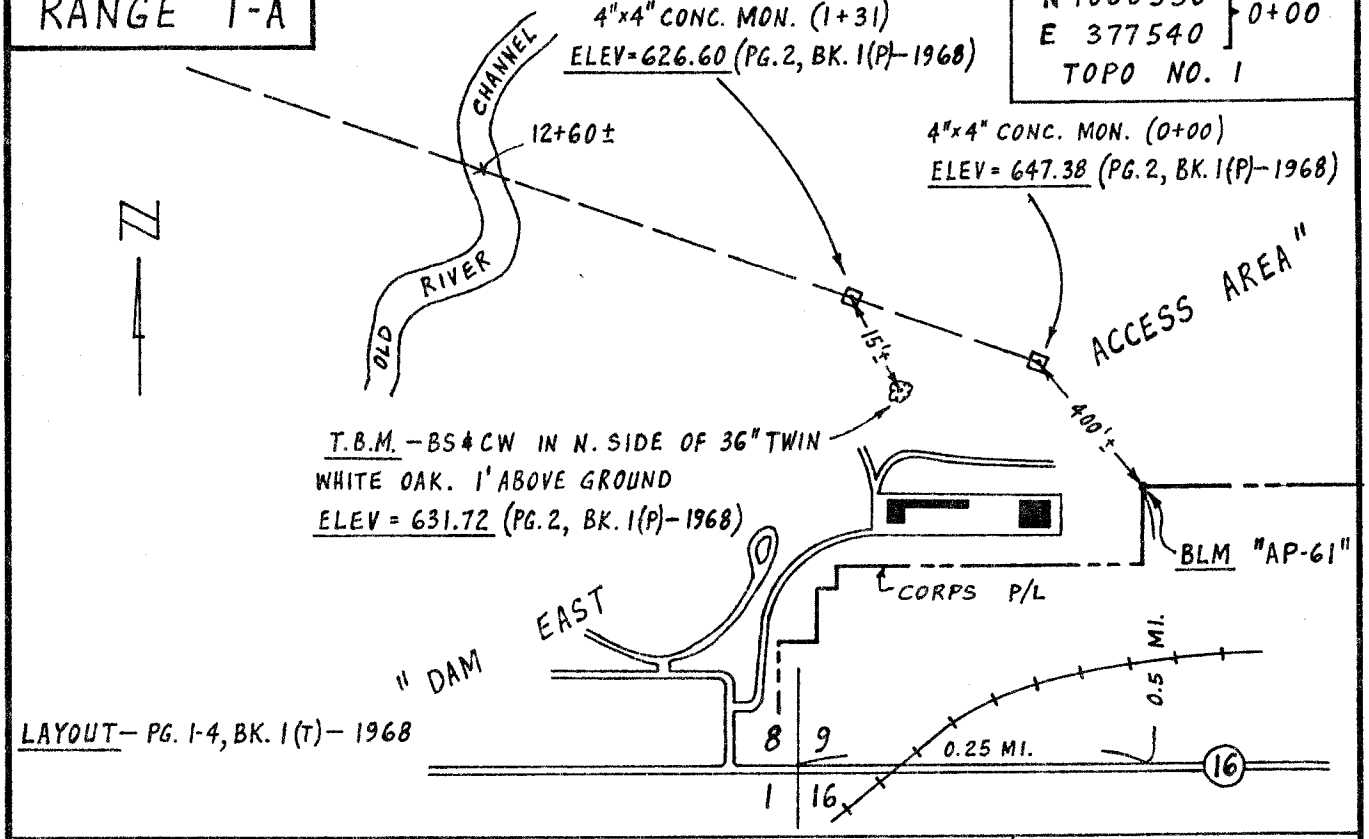
Appendix A

COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 1 OF 40	COMPUTED BY WJM	DATE 5-19-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 1-A

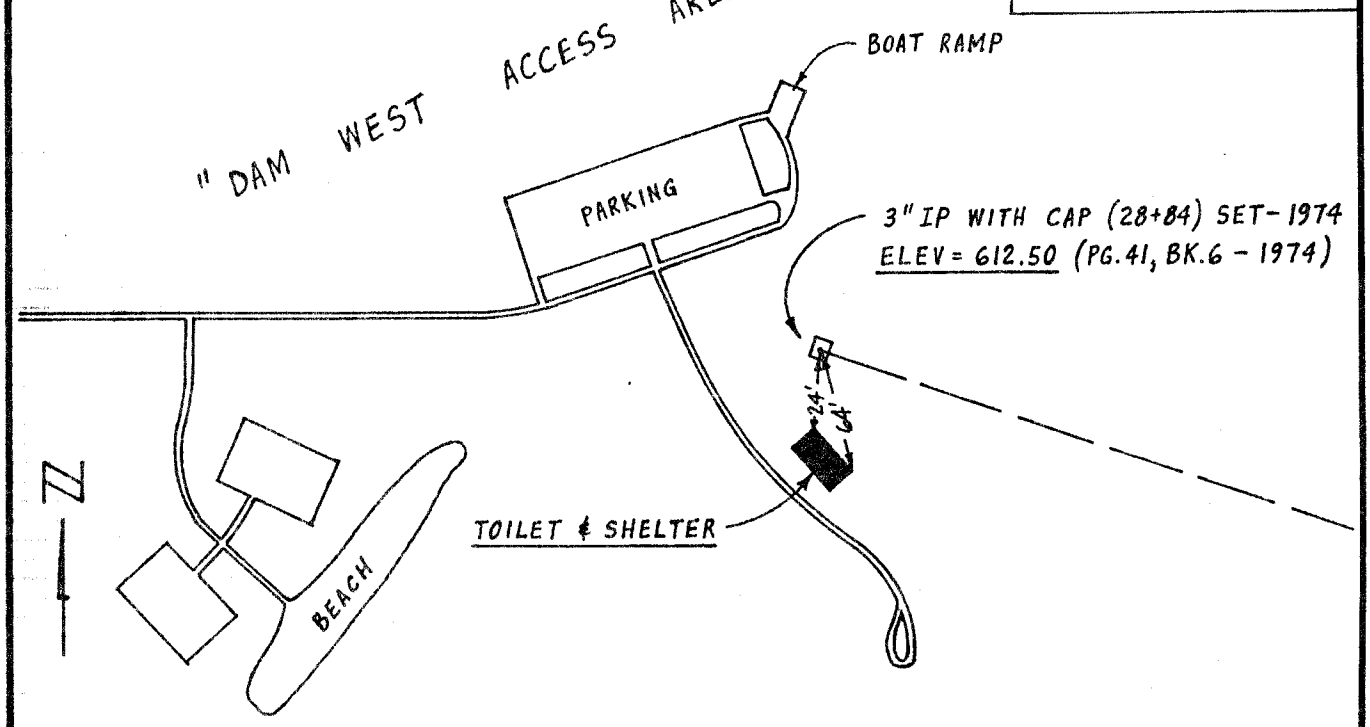
N 1000530
E 377540
TOPO NO. 1
0+00



LAYOUT - PG. 1-4, BK. 1(T) - 1968

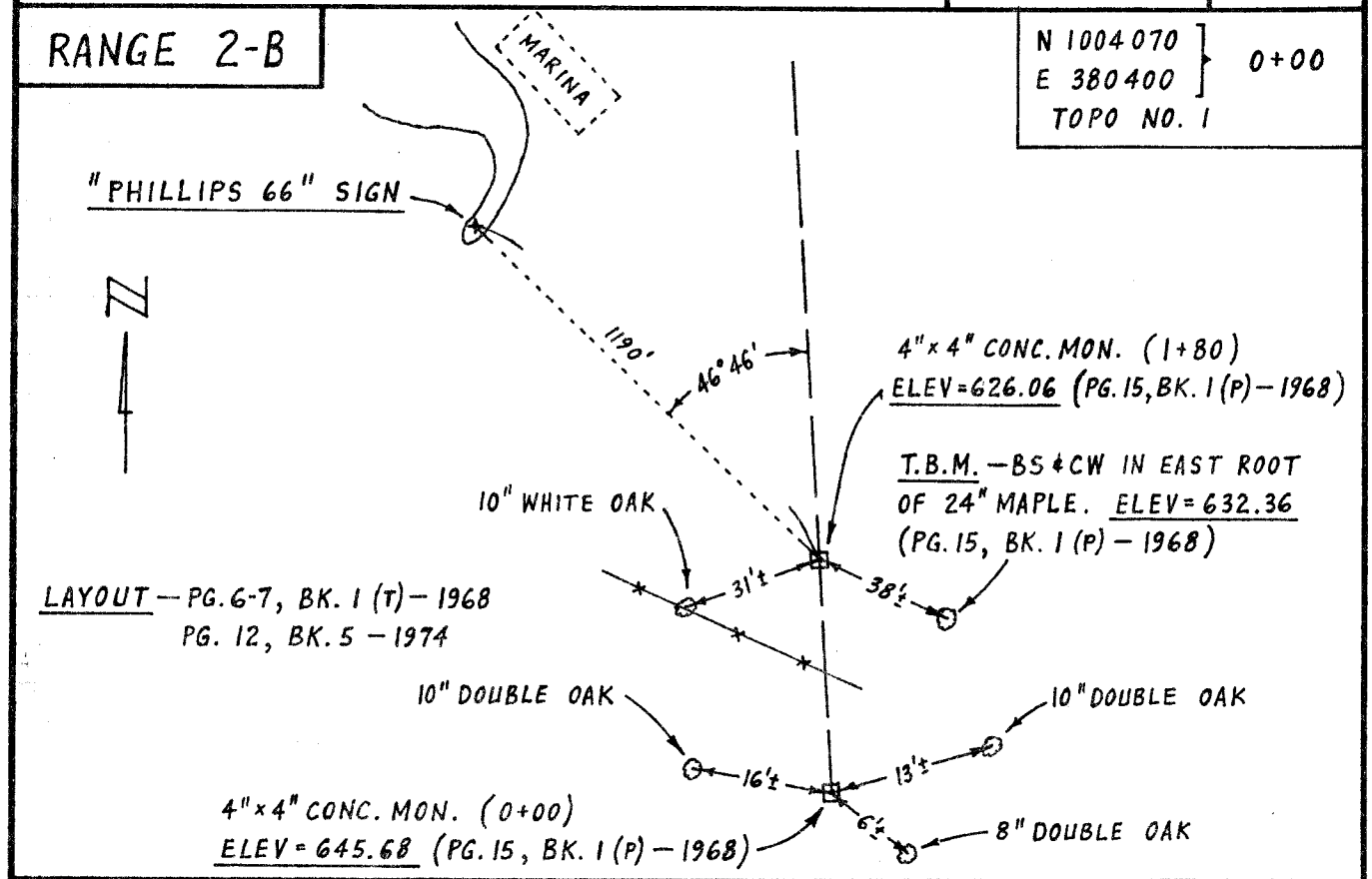
LAYOUT - PG. 1-4, BK. 1 (T) - 1968
PG. 42, BK. 6 - 1974

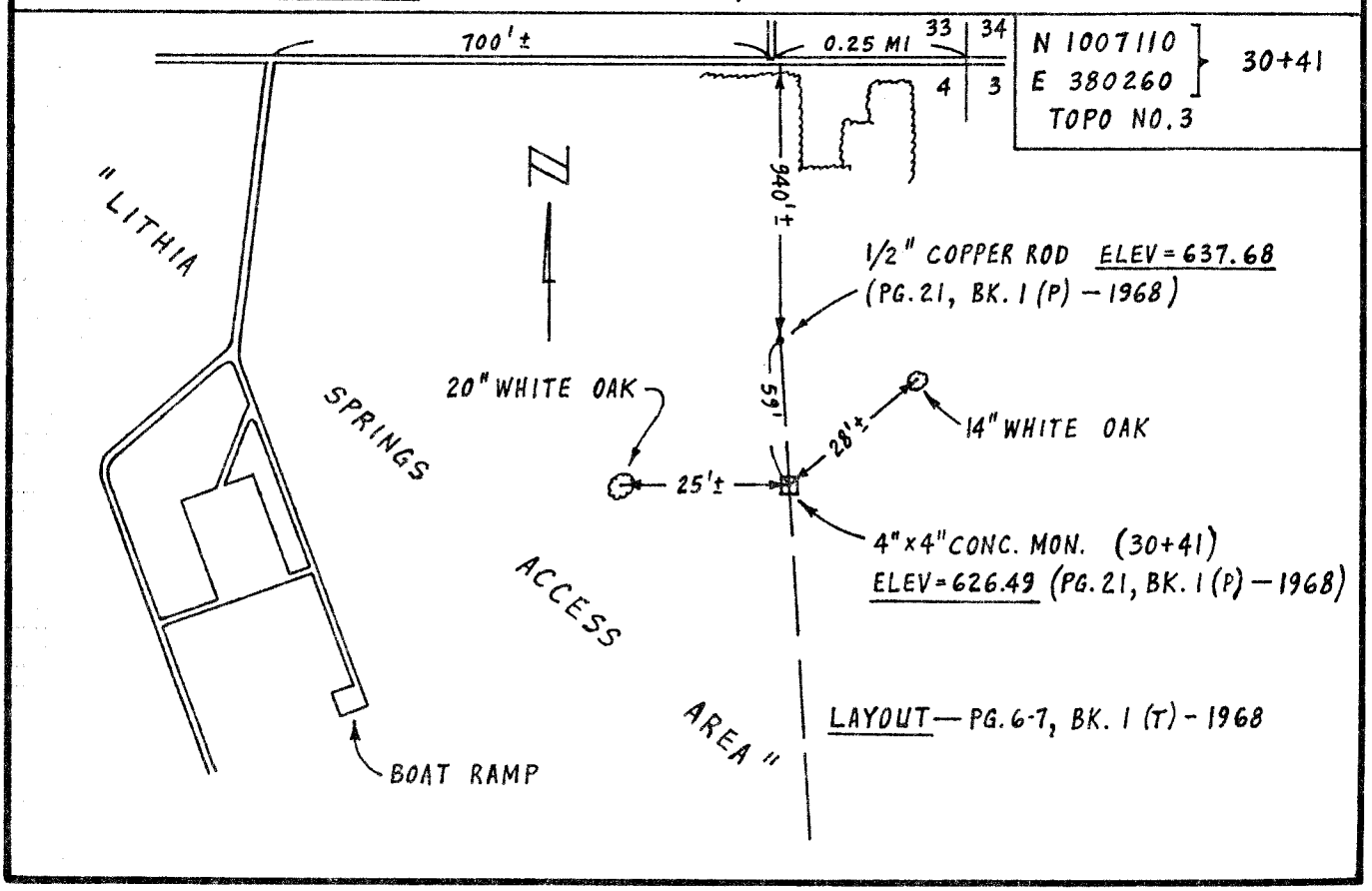
N 1001400
E 374790
TOPO NO. 1
28+84



COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 2 OF 40	COMPUTED BY W&M	DATE 5-20-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE



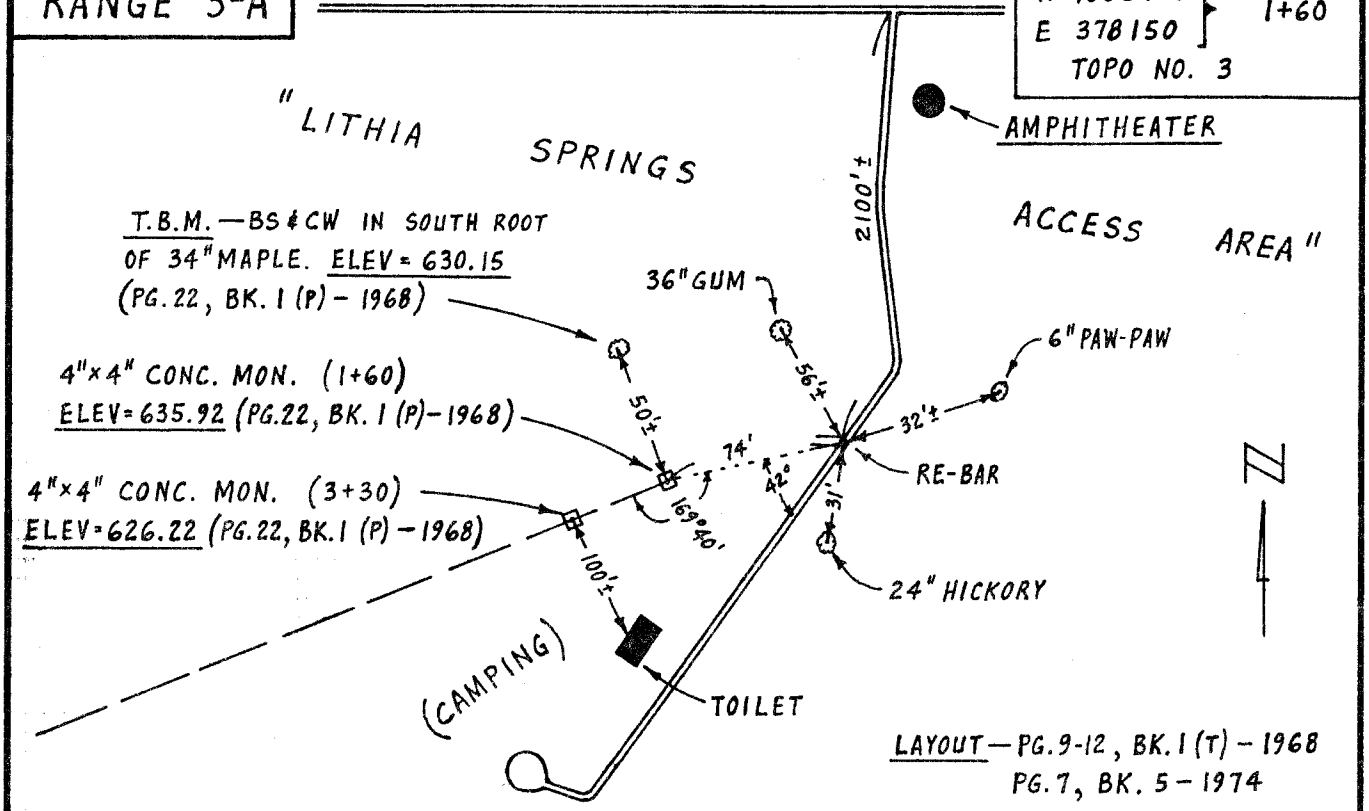


COMPUTATION SHEET

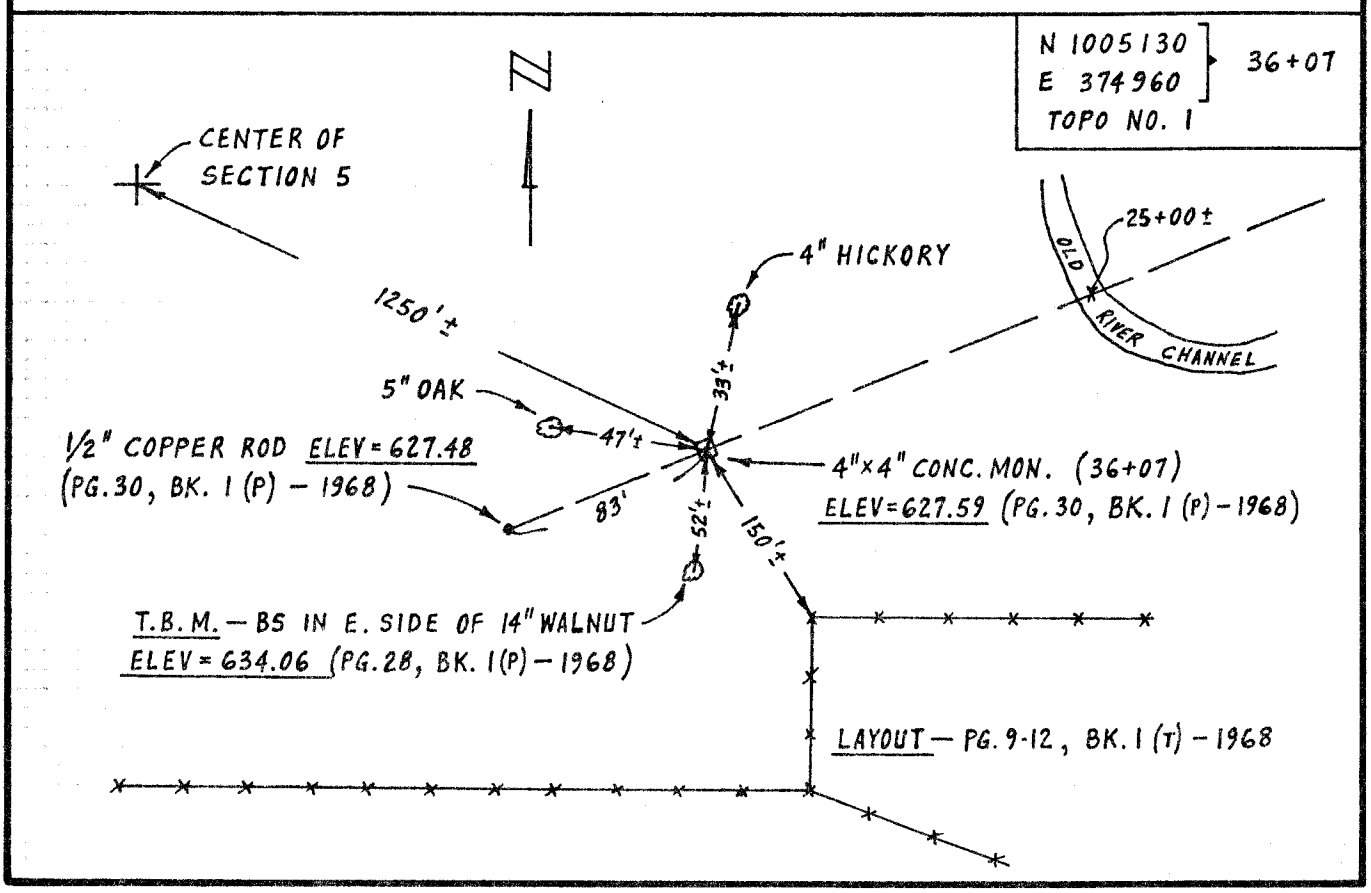
PROJECT	LAKE SHELBYVILLE	PAGE 3 OF 40	COMPUTED BY WJM	DATE 5-20-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 3-A

N 1006450
E 378150
TOPO NO. 3
1+60



N 1005130
E 374960
TOPO NO. 1
36+07

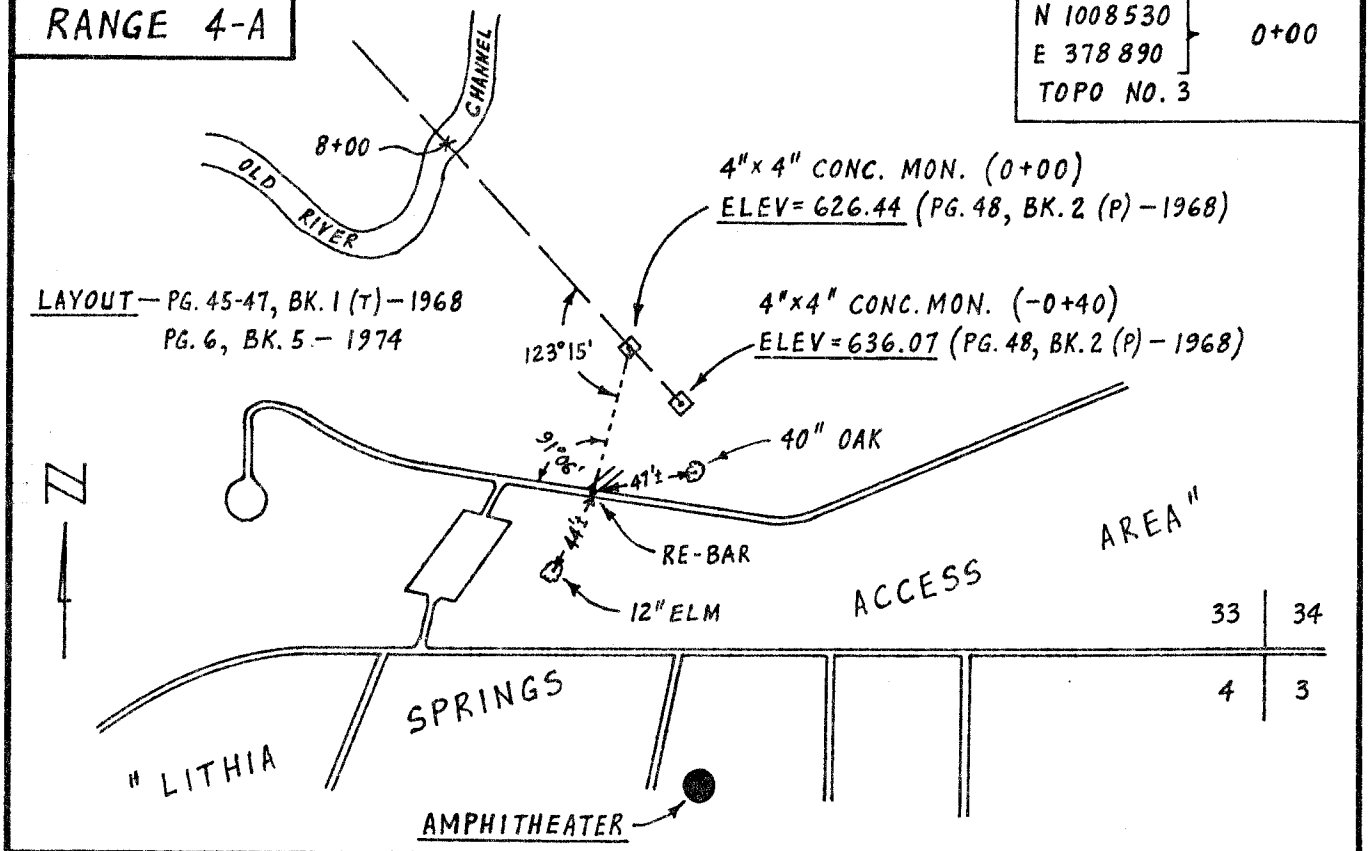


COMPUTATION SHEET

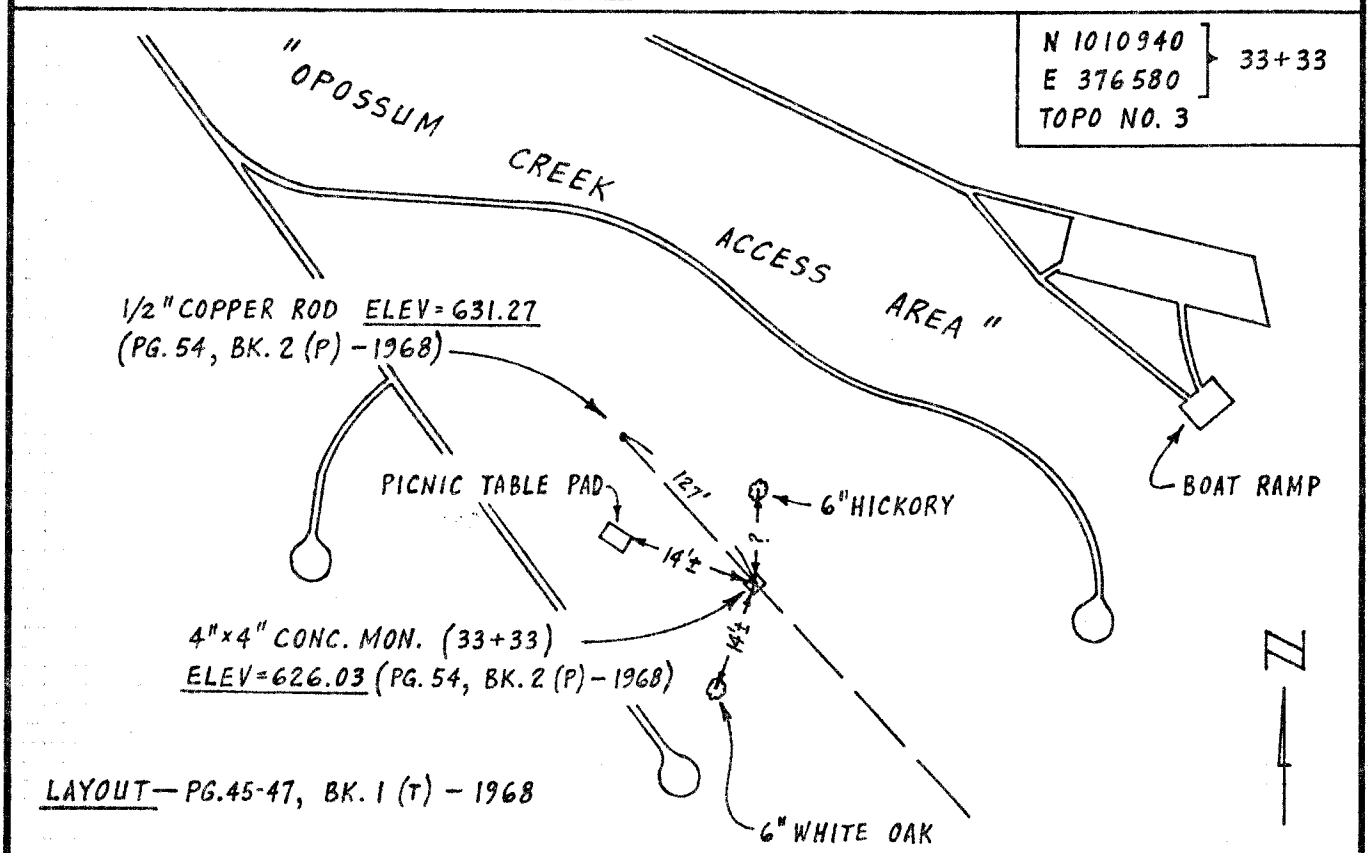
PROJECT	LAKE SHELBYVILLE	PAGE 4 OF 40	COMPUTED BY WJM	DATE 5-21-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 4-A

N 1008530
E 378890
TOPO NO. 3
0+00



N 1010940
E 376580
TOPO NO. 3
33+33

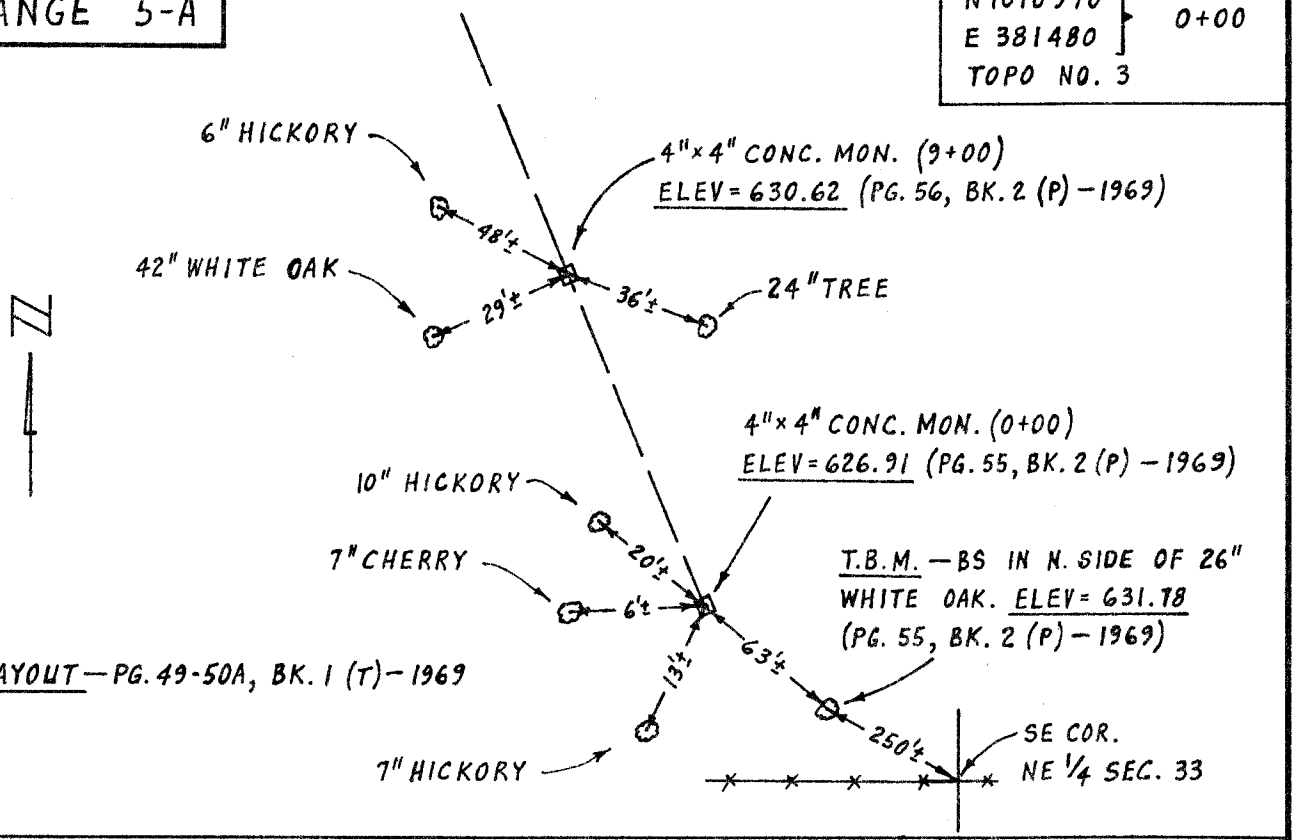


COMPUTATION SHEET

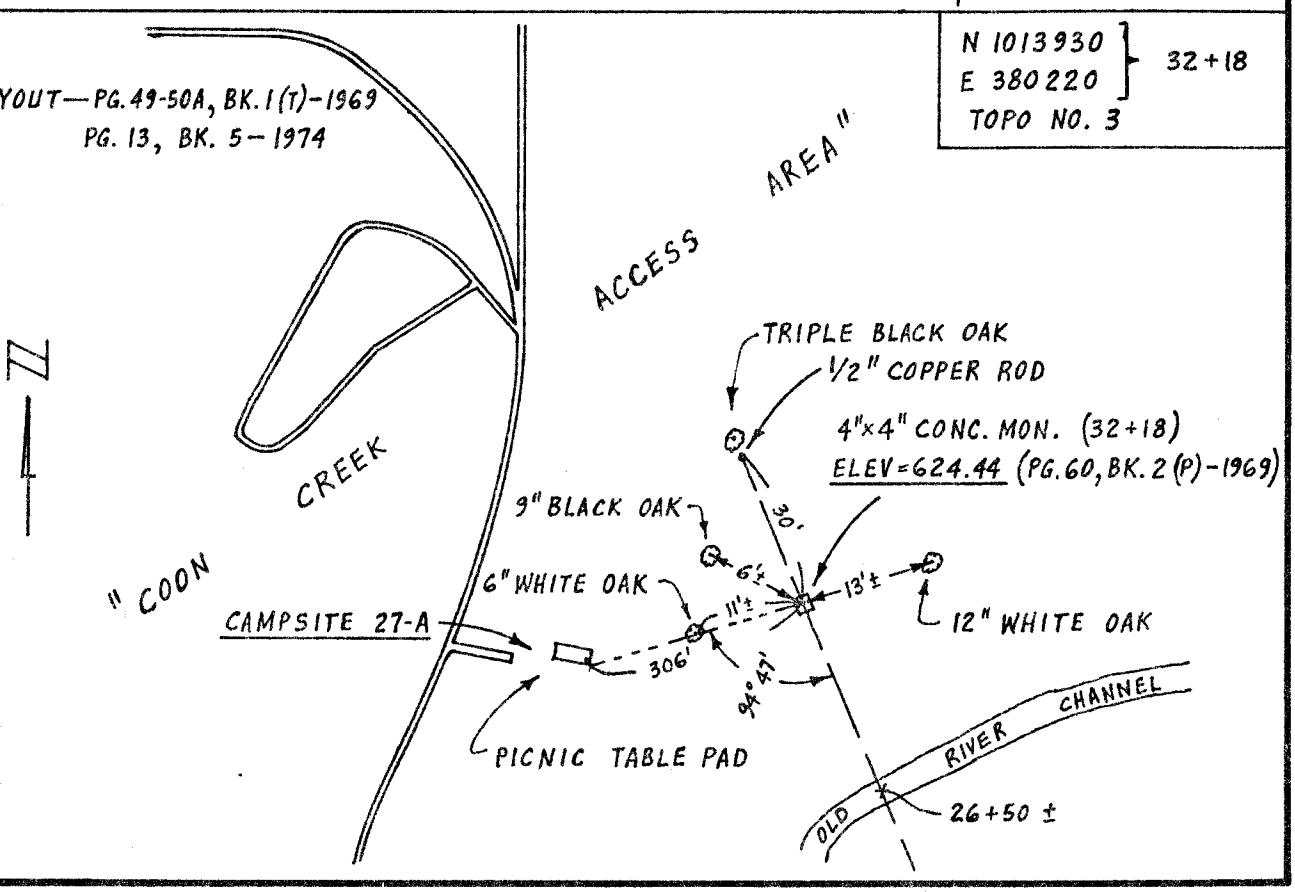
PROJECT	LAKE SHELBYVILLE	PAGE 5 OF 40	COMPUTED BY W&M	DATE 5-22-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 5-A

N 1010970
E 381480
TOPO NO. 3
0+00



N 1013930
E 380220
TOPO NO. 3
32+18



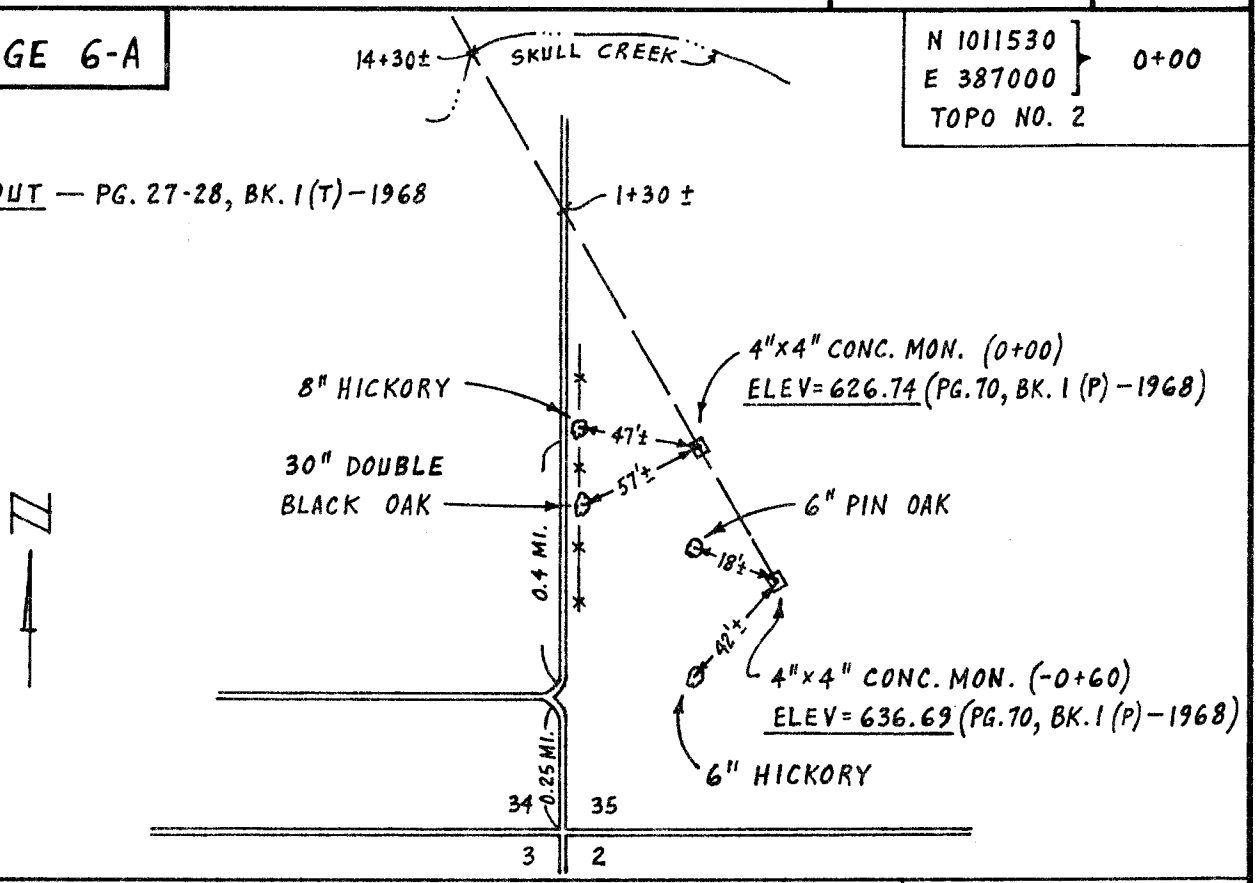
COMPUTATION SHEET

PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	6 OF 40	WJM	5-22-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 6-A

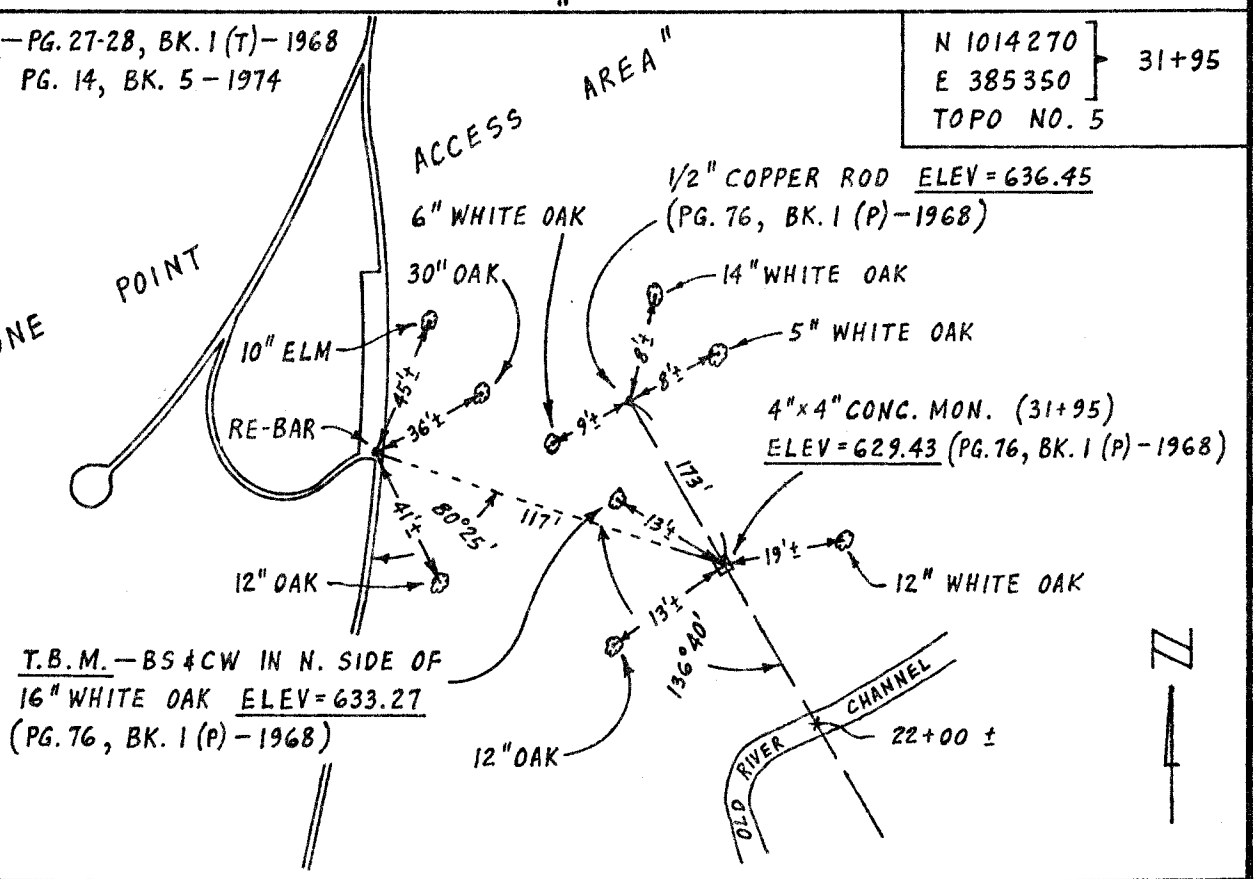
N 1011530
E 387000
TOPO NO. 2
0+00

LAYOUT — PG. 27-28, BK. 1 (T) – 1968



N 1014270
E 385350
TOPO NO. 5
31+95

LAYOUT – PG. 27-28, BK. 1 (T) – 1968
PG. 14, BK. 5 – 1974

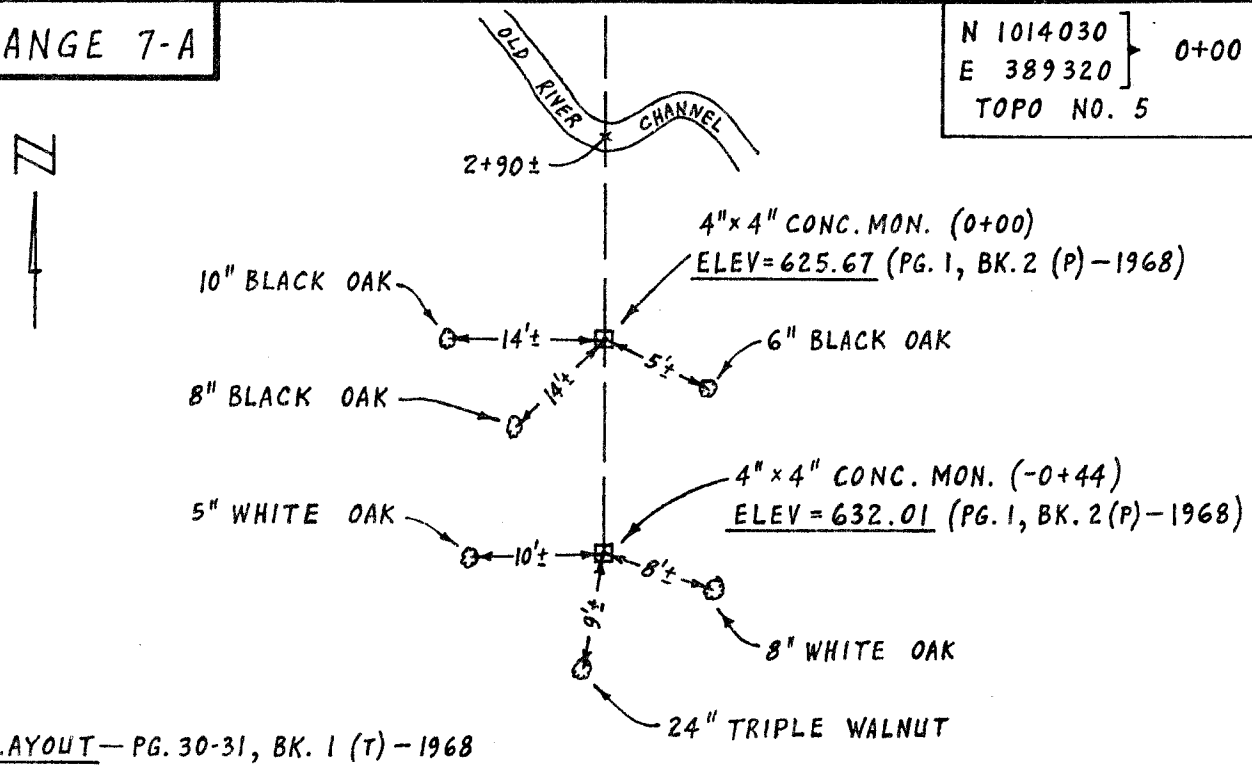


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 7 OF 40	COMPUTED BY WJM	DATE 5-27-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

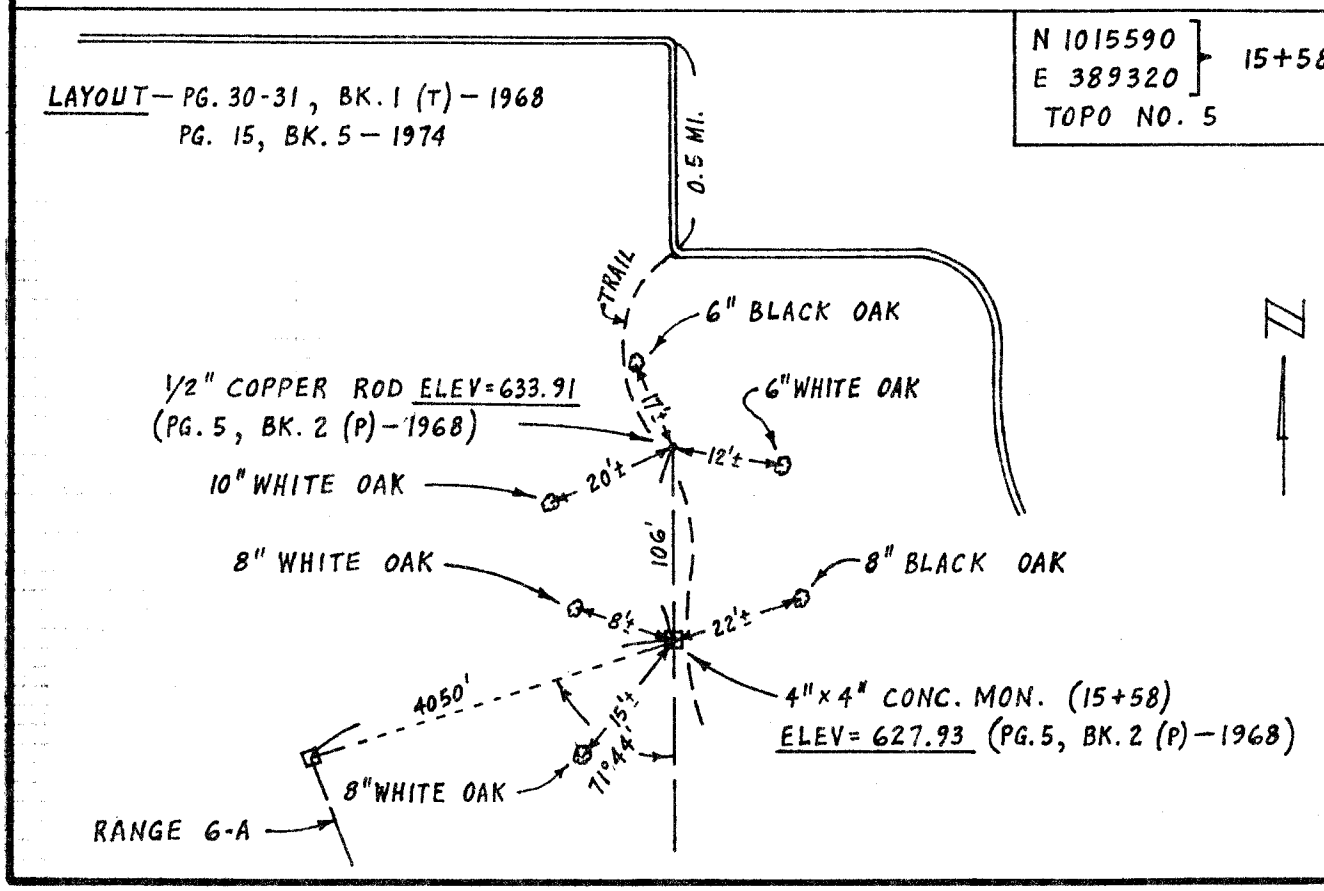
RANGE 7-A

N 1014030
E 389320
TOPO NO. 5
0+00



LAYOUT — PG. 30-31, BK. 1 (T) - 1968

N 1015590
E 389320
TOPO NO. 5
15+58

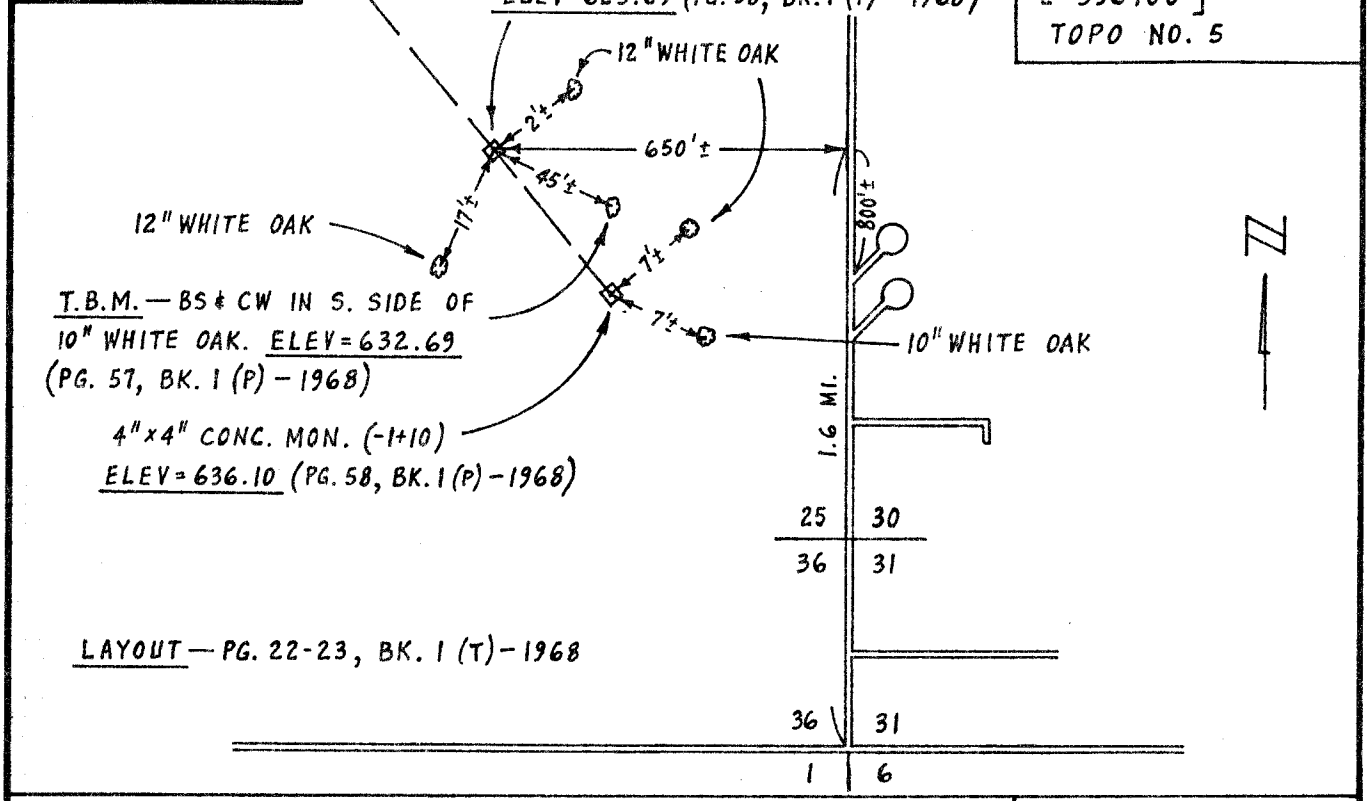


COMPUTATION SHEET

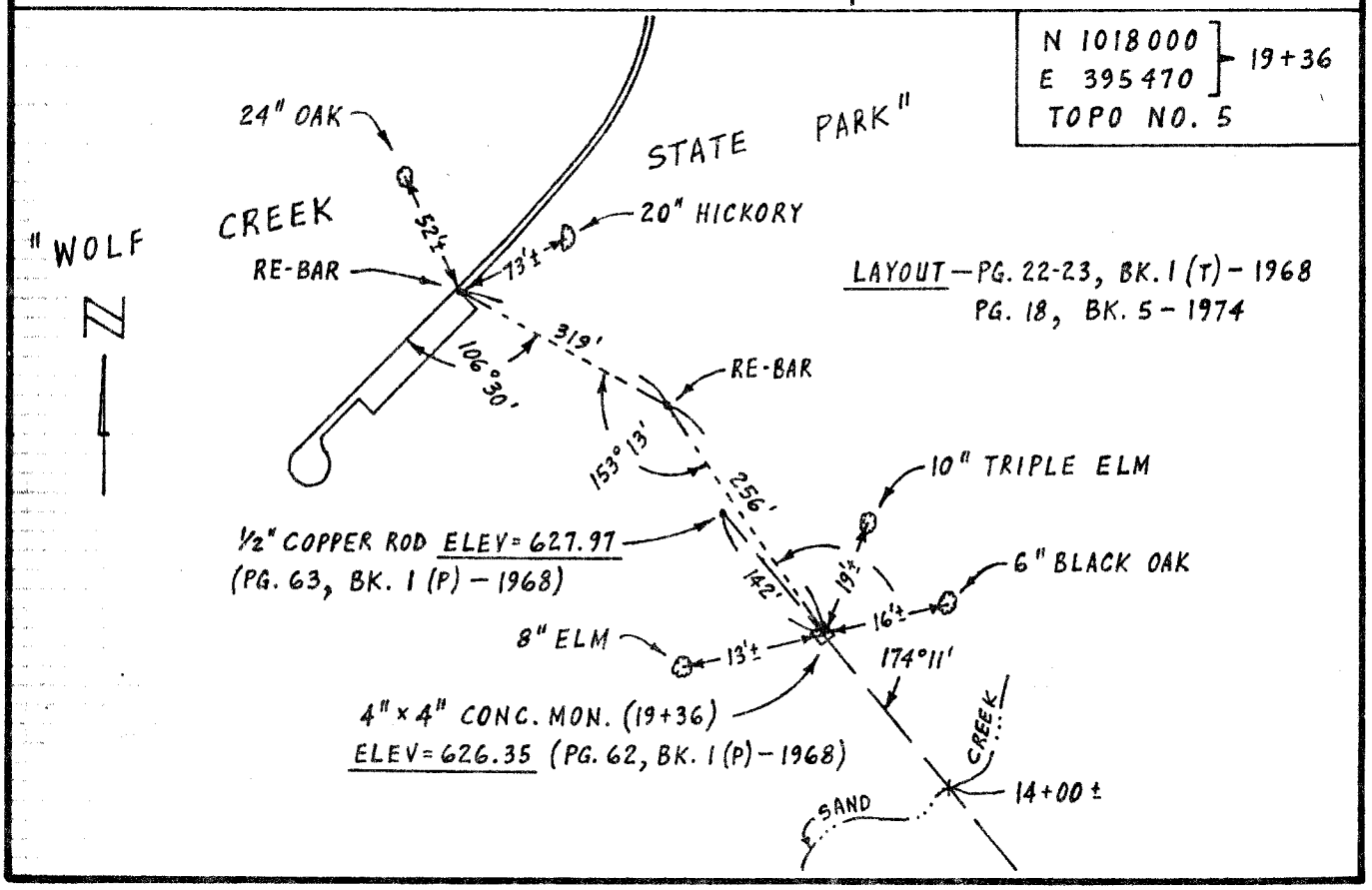
PROJECT LAKE SHELBYVILLE	PAGE 8 OF 40	COMPUTED BY WDM	DATE 5-27-81
SUBJECT SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 8-B

N 1016500
E 396700
TOPO NO. 5
0+00



N 1018000
E 395470
TOPO NO. 5
19+36

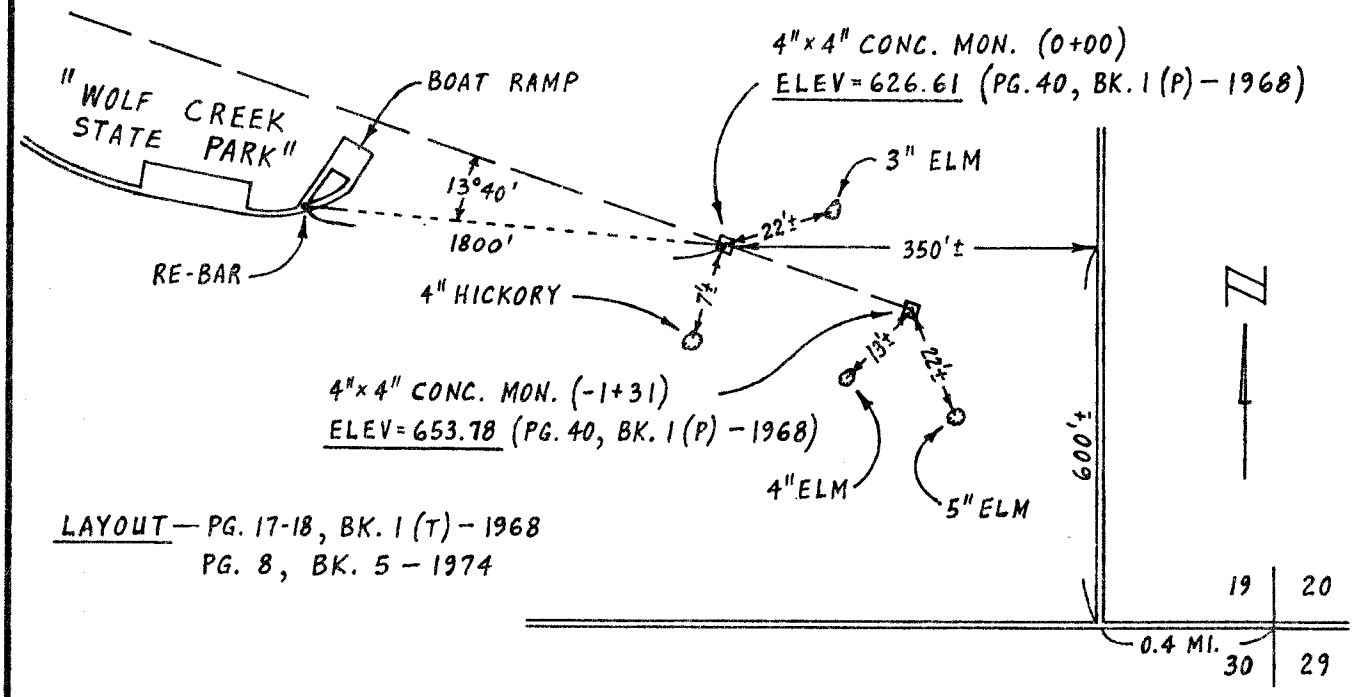


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 9 OF 40	COMPUTED BY WBM	DATE 5-28-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

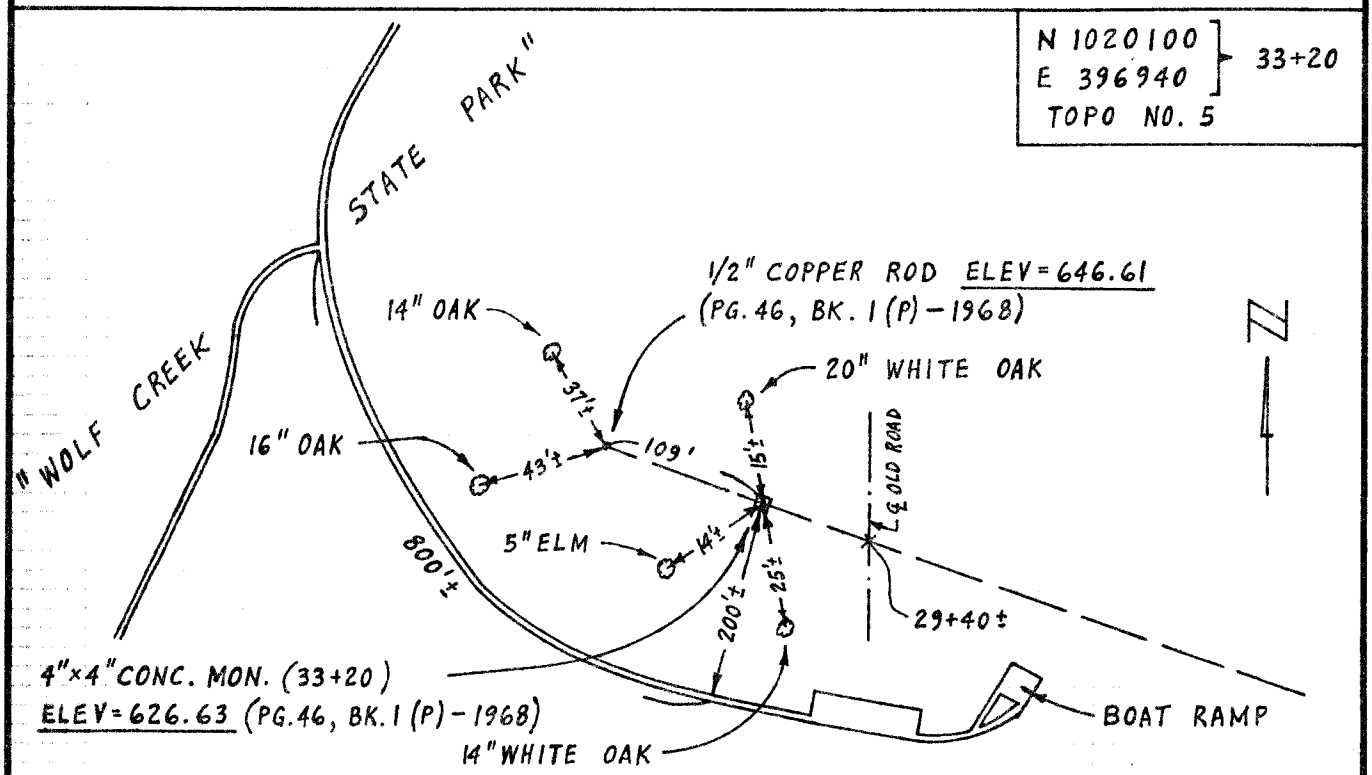
RANGE 9-B

N 1019000
E 400 080 } 0+00
TOPO NO. 6



LAYOUT — PG. 17-18, BK. 1 (T) – 1968
PG. 8, BK. 5 – 1974

N 1020100
E 396940 } 33+20
TOPO NO. 5



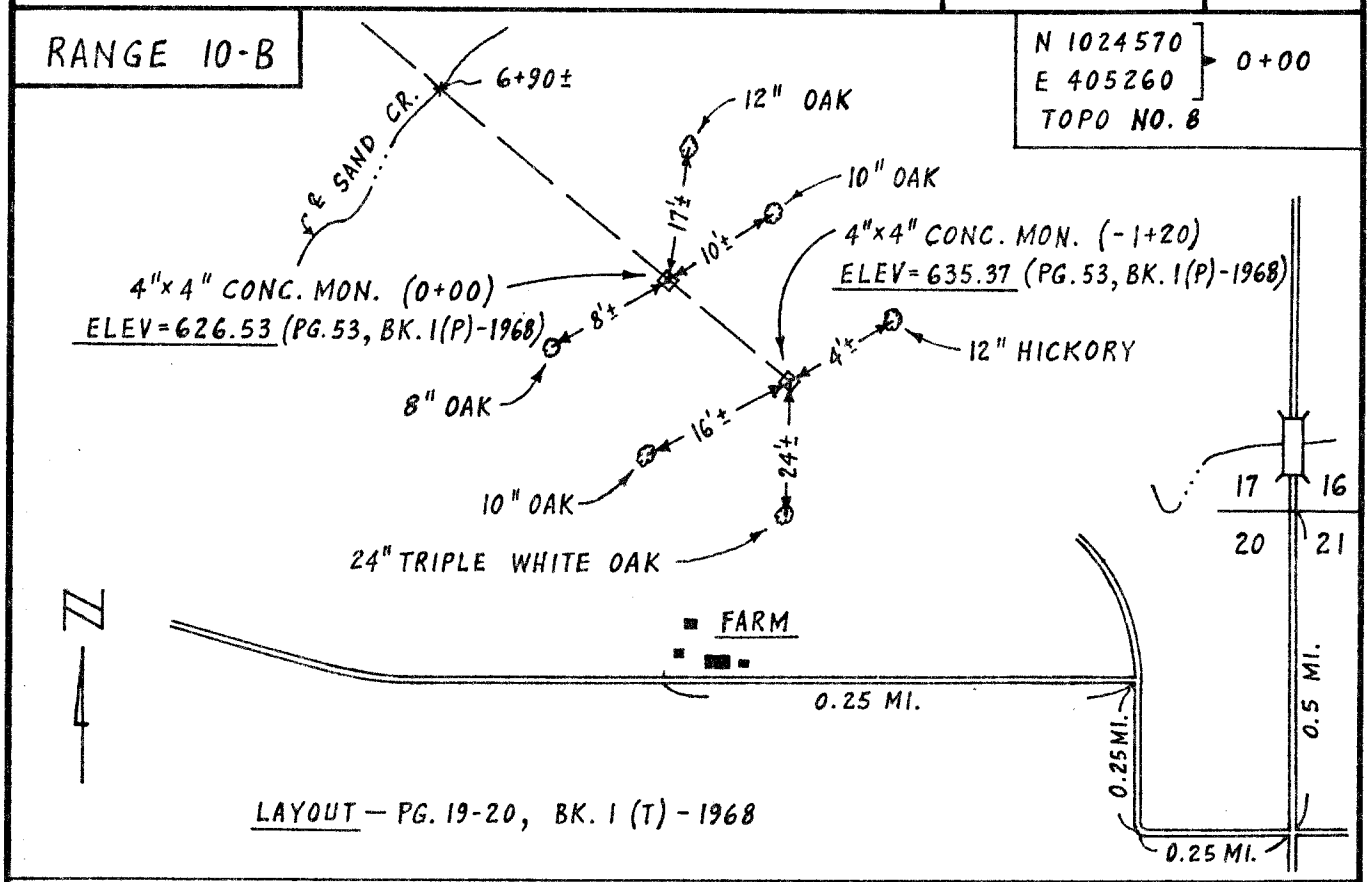
LAYOUT — PG. 17-18, BK. 1 (T) – 1968

COMPUTATION SHEET

PROJECT LAKE SHELBYVILLE	PAGE 10 OF 40	COMPUTED BY W&M	DATE 5-29-81
SUBJECT SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

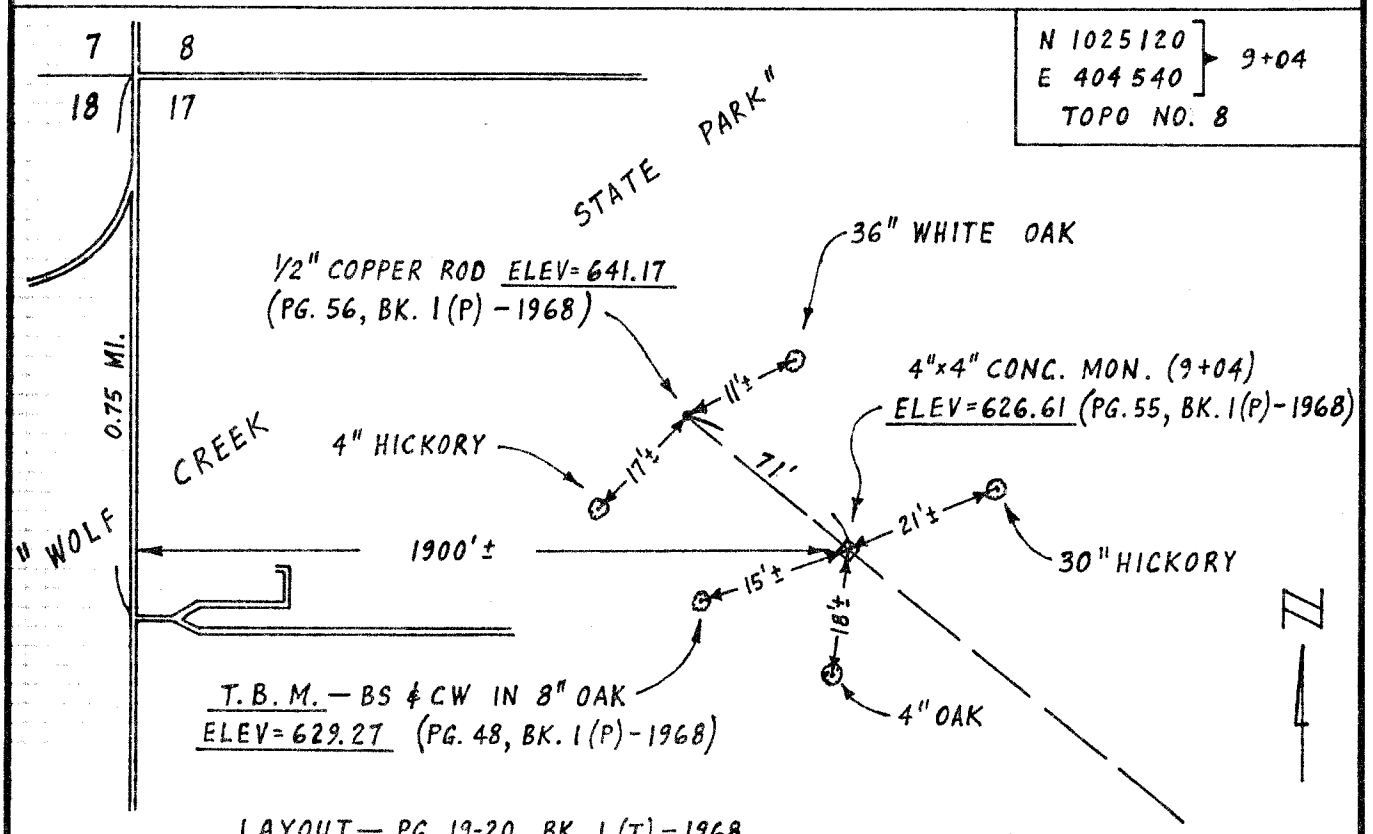
RANGE 10-B

N 1024570
E 405260 } 0+00
TOPO NO. 8



LAYOUT — PG. 19-20, BK. 1 (T) - 1968

N 1025120
E 404540 } 9+04
TOPO NO. 8



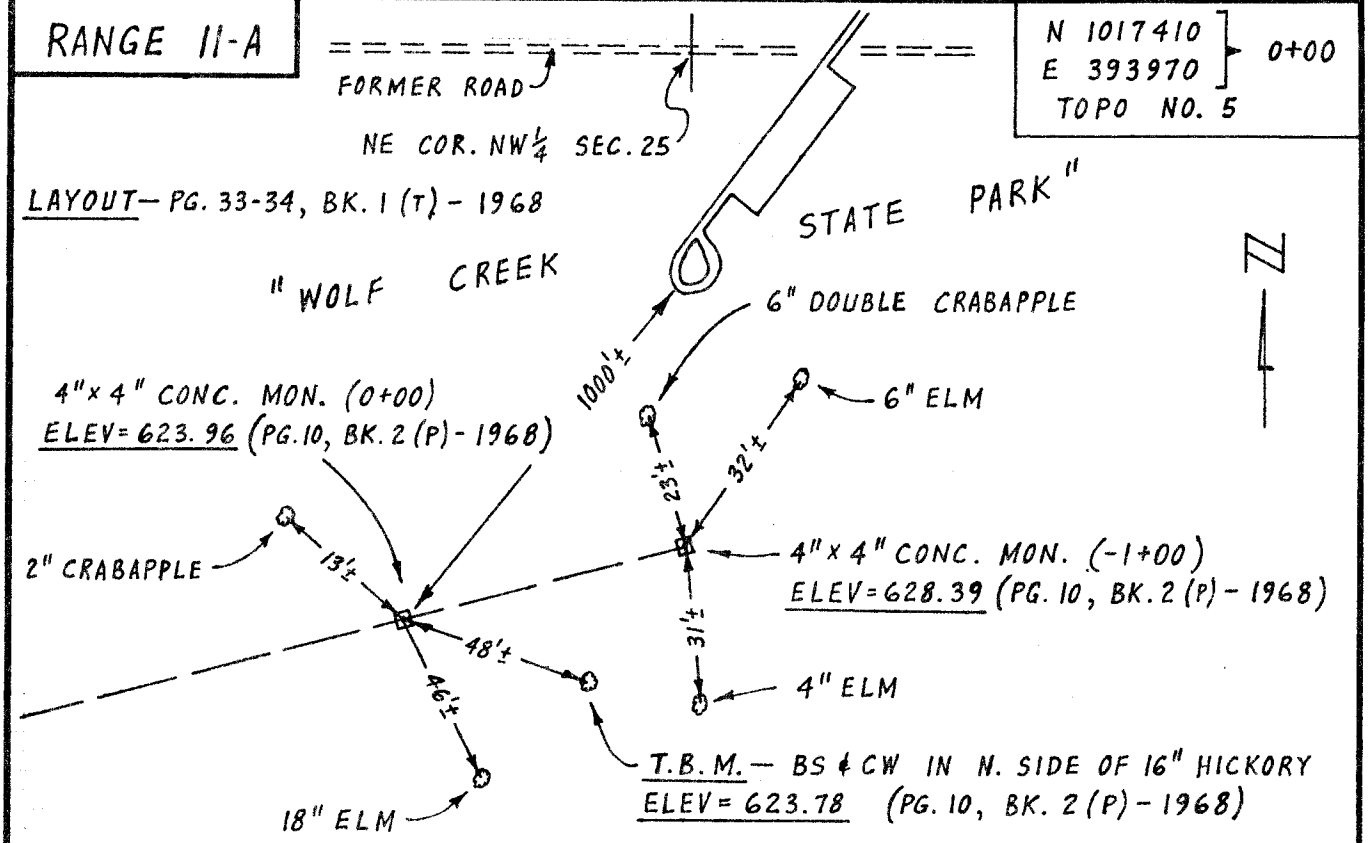
LAYOUT — PG. 19-20, BK. 1 (T) - 1968

COMPUTATION SHEET

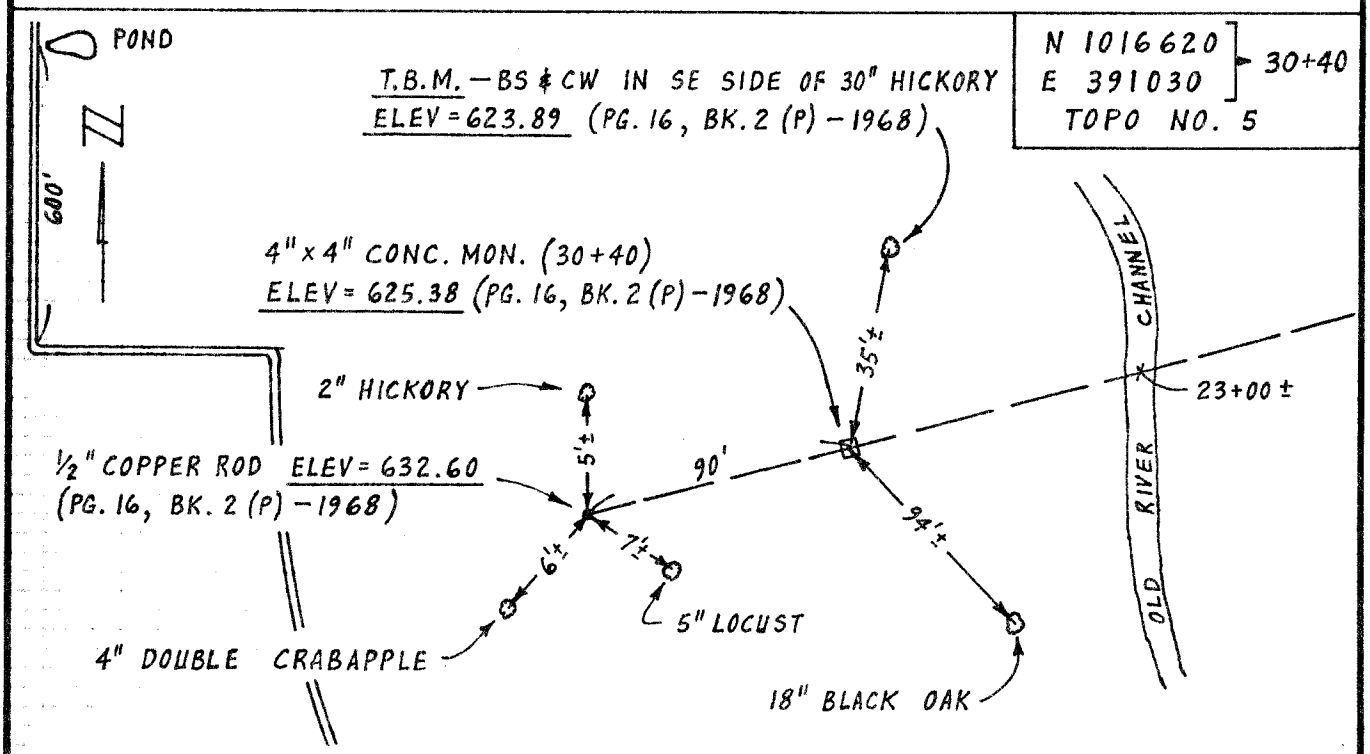
PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	11 OF 40	WDM	6-29-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 11-A

N 1017410
E 393970 → 0+00
TOPO NO. 5



N 1016620
E 391030 → 30+40
TOPO NO. 5

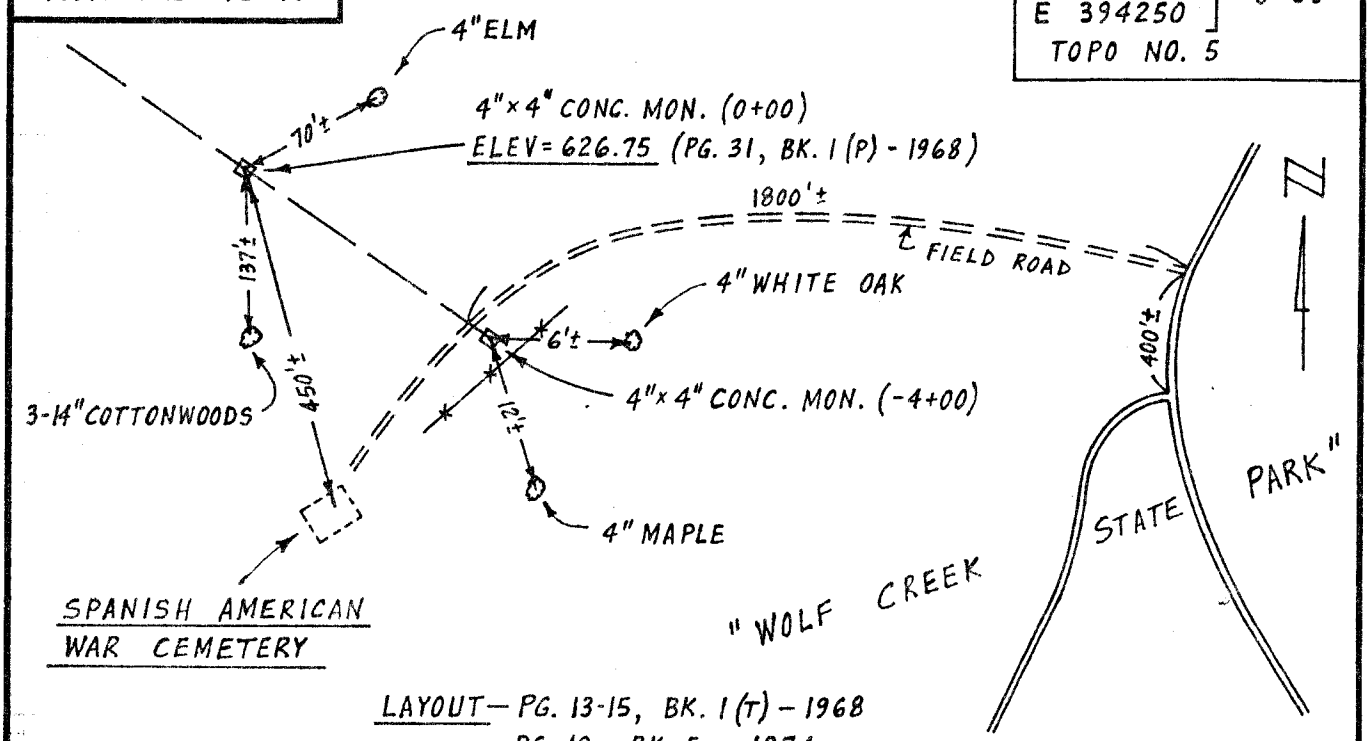


COMPUTATION SHEET

PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	12 OF 40	WJM	6-30-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 12-A

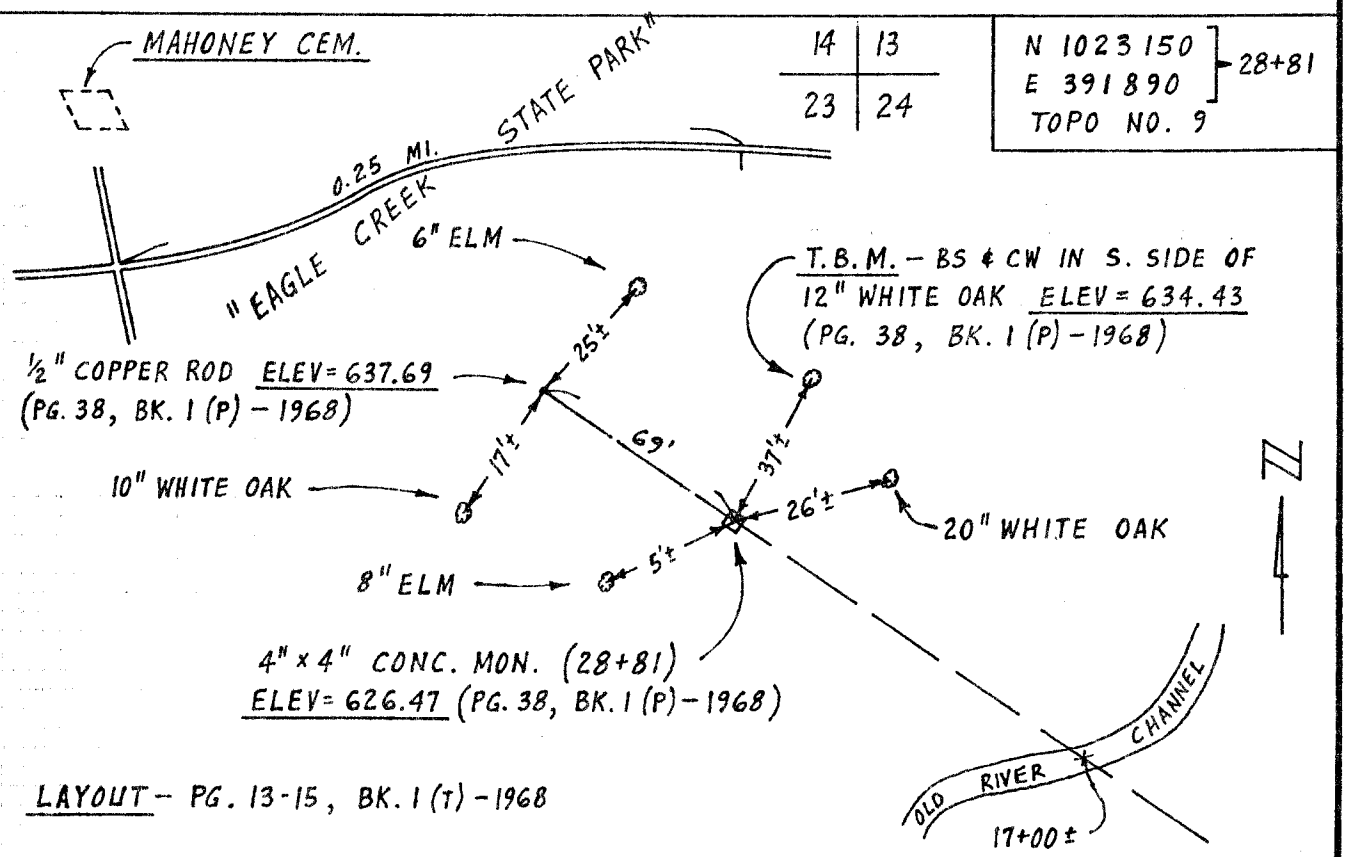
N 1021500
E 394250 } 0+00
TOPO NO. 5



LAYOUT — PG. 13-15, BK. 1 (T) - 1968
PG. 19, BK. 5 - 1974

14	13
23	24

N 1023150
E 391890 } 28+81
TOPO NO. 9



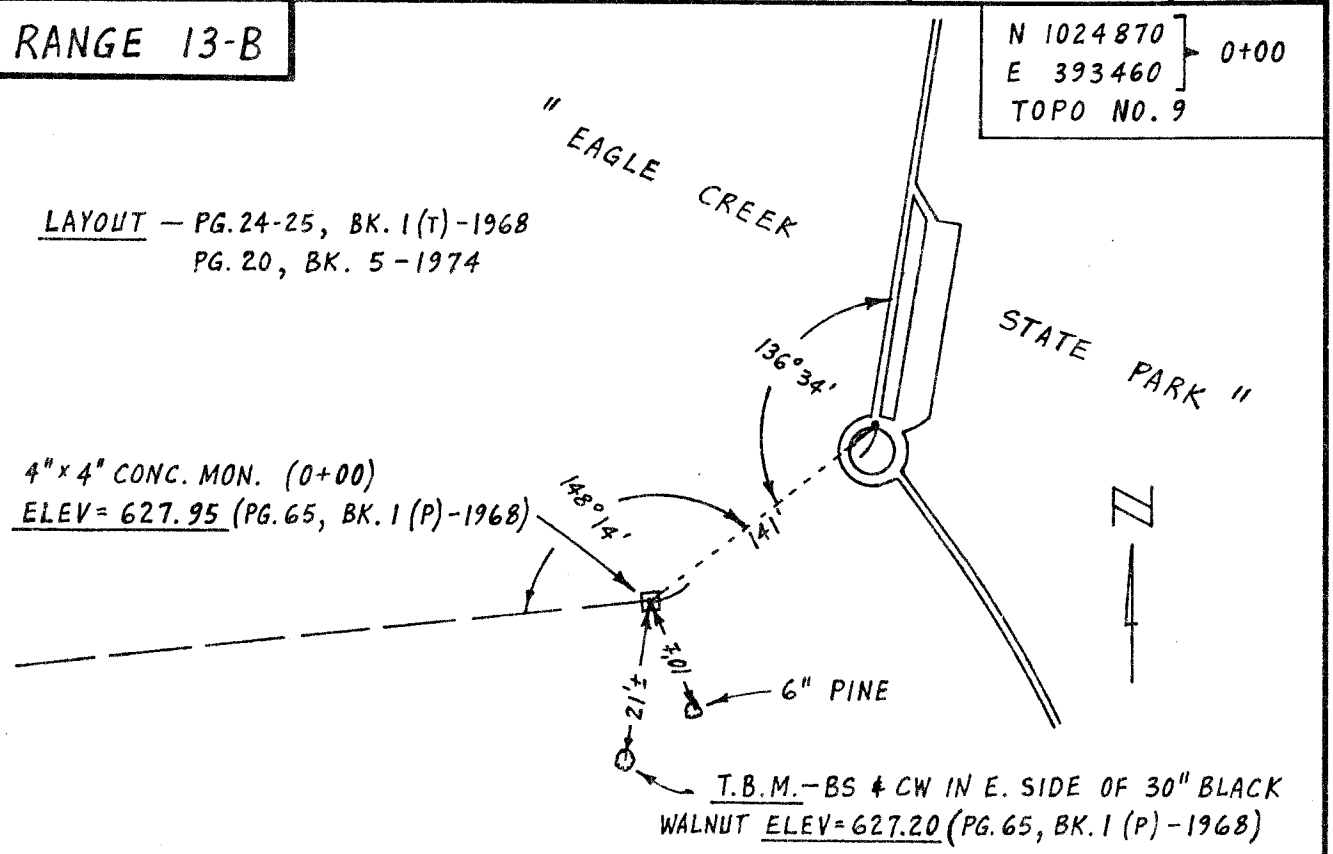
LAYOUT — PG. 13-15, BK. 1 (T) - 1968

COMPUTATION SHEET

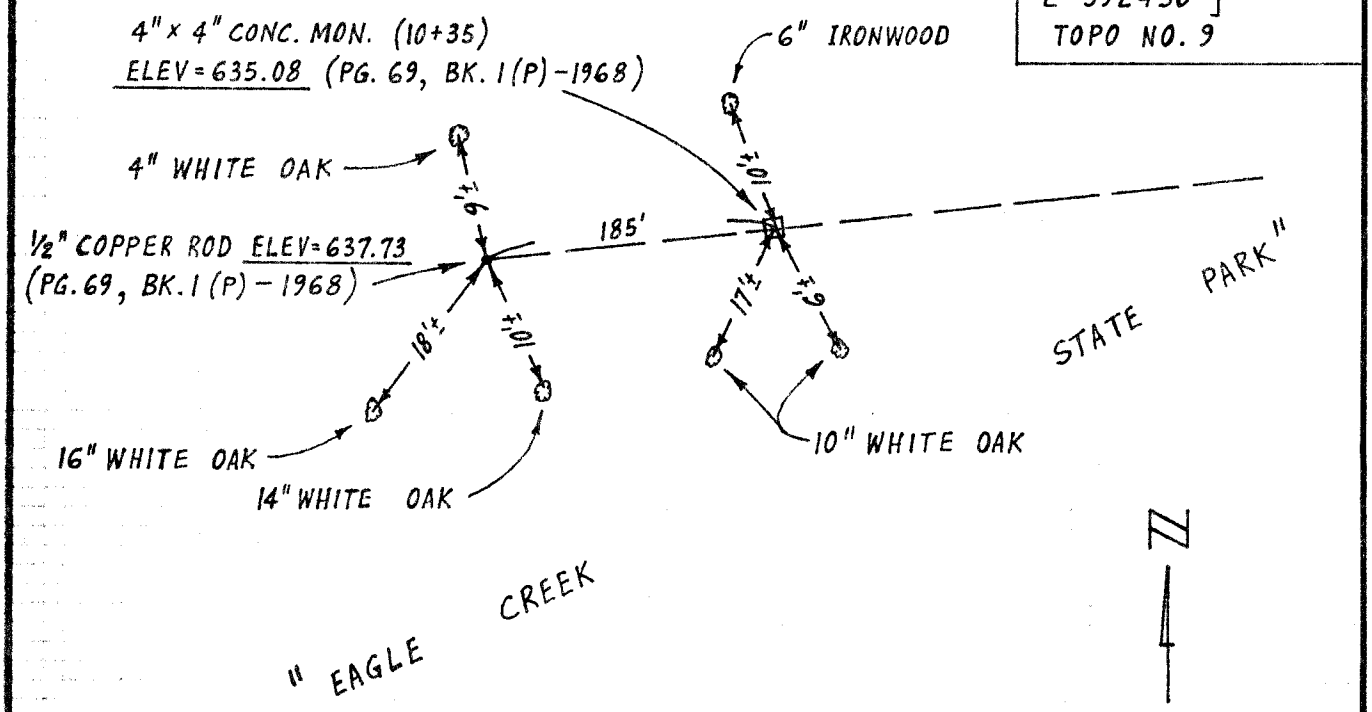
PROJECT	LAKE SHELBYVILLE	PAGE 13 OF 40	COMPUTED BY WDM	DATE 7-10-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 13-B

N 1024870
E 393460
TOPO NO. 9
0+00



N 1024780
E 392430
TOPO NO. 9
10+35

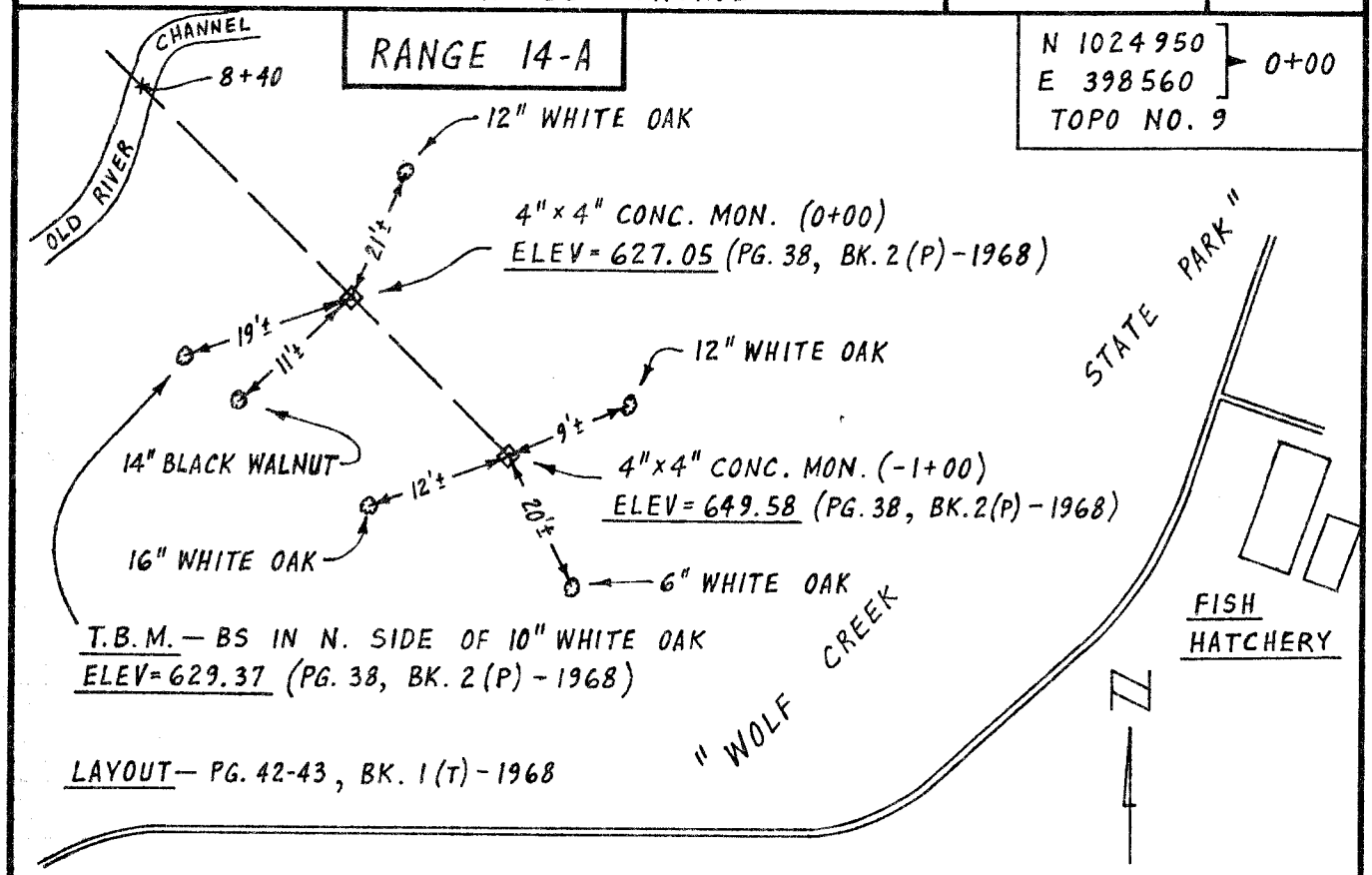


COMPUTATION SHEET

PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	14 OF 40	W&M	7-13-81
SUBJECT		**CHECKED BY**	**DATE**
SEDIMENTATION RANGE CONTROL			

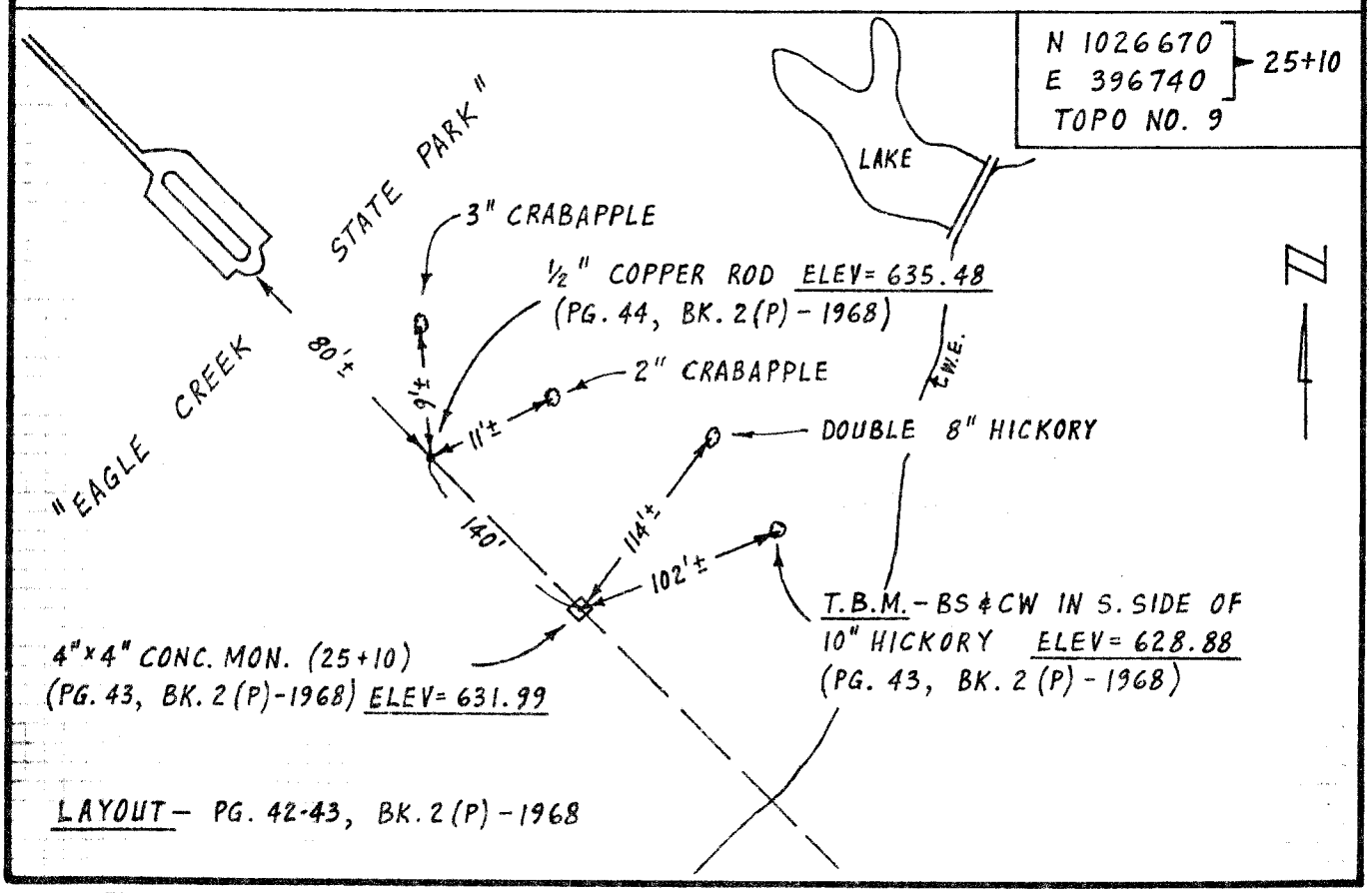
RANGE 14-A

N 1024950
E 398560
TOPO NO. 9
0+00



LAYOUT — PG. 42-43, BK. 1(T)-1968

N 1026670
E 396740
TOPO NO. 9
25+10



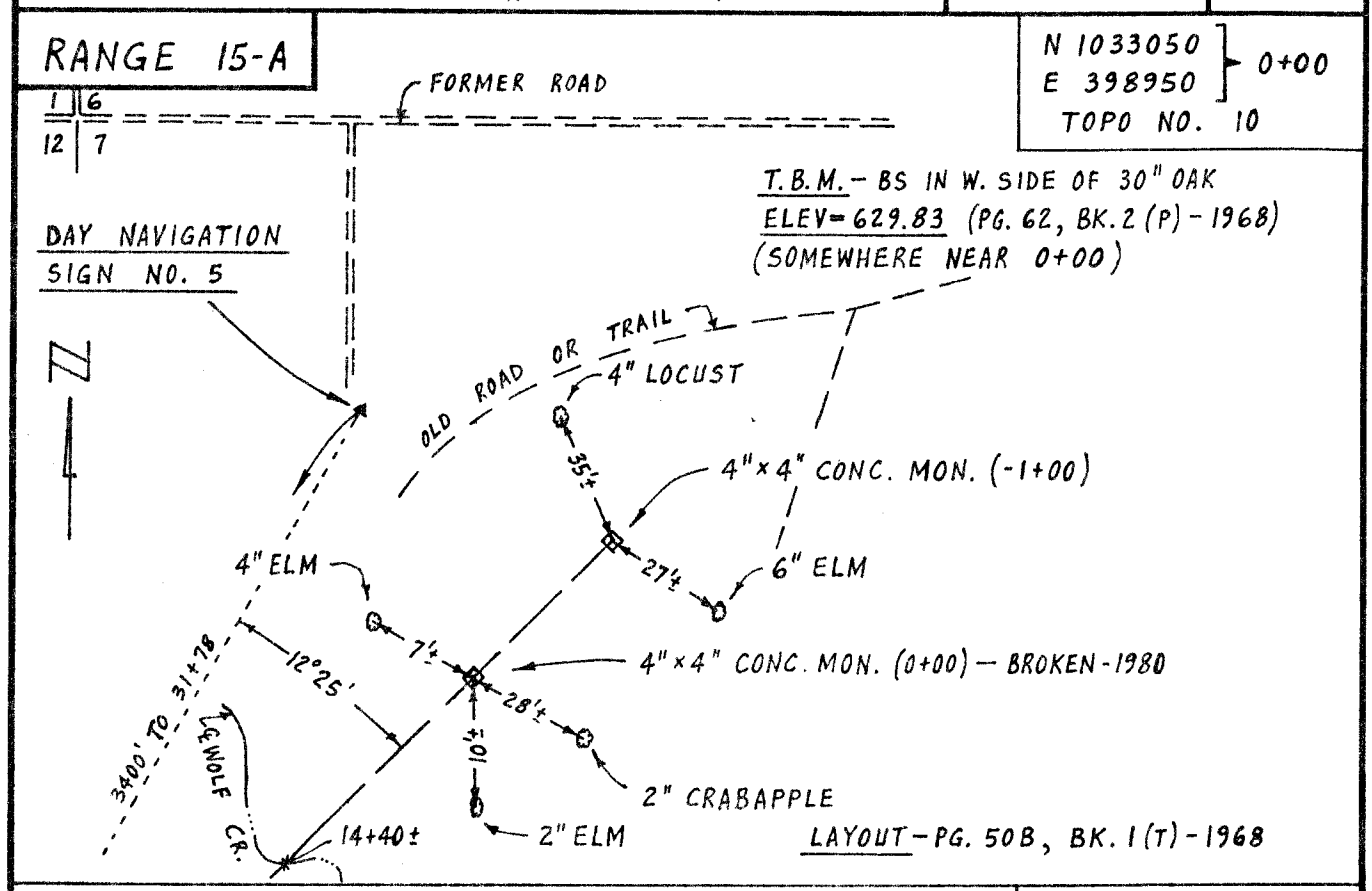
LAYOUT — PG. 42-43, BK. 2(P)-1968

COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 15 OF 40	COMPUTED BY WSM	DATE 7-13-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

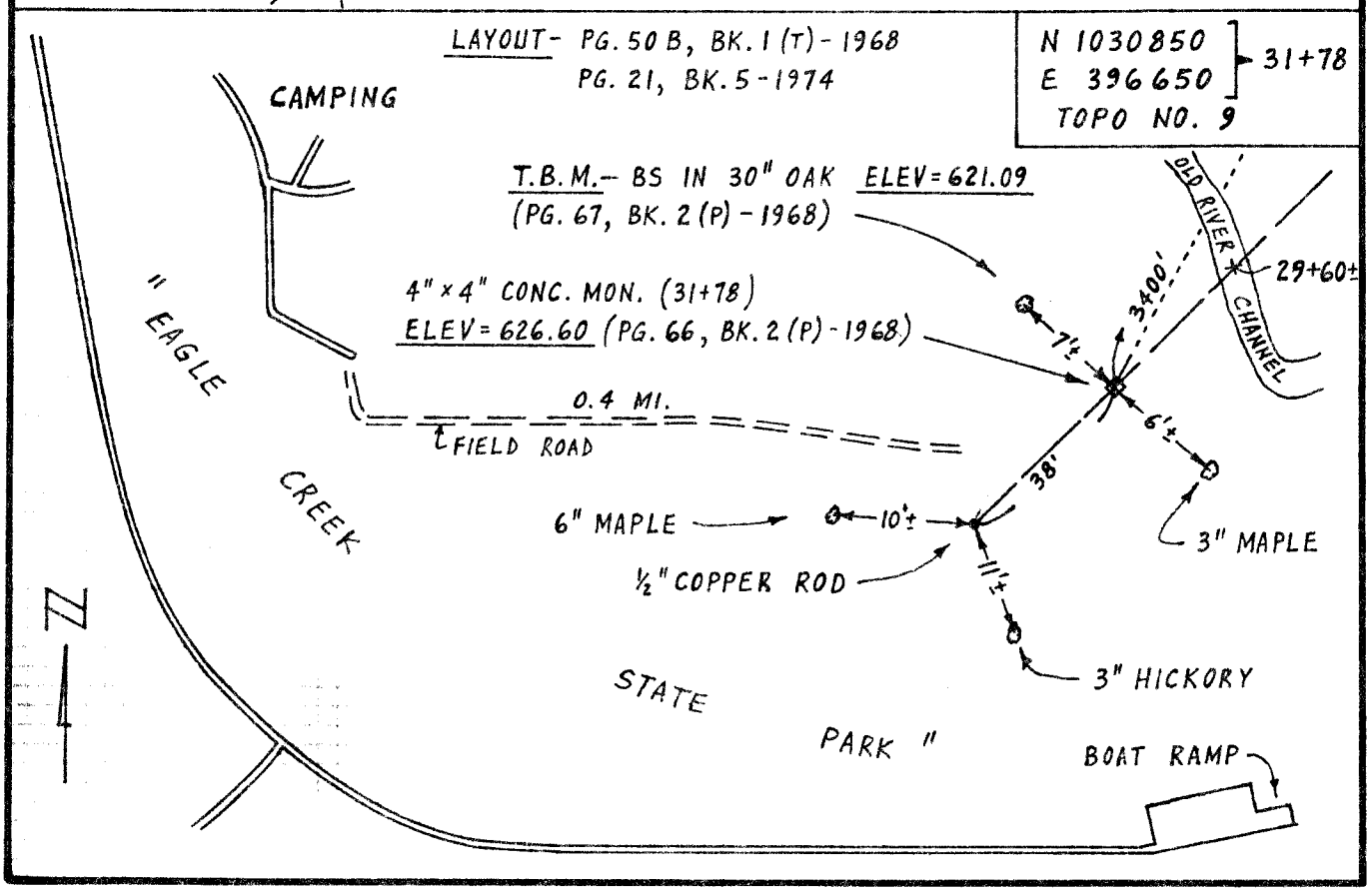
RANGE 15-A

N 1033050
E 398950 } 0+00
TOPO NO. 10



LAYOUT – PG. 50 B, BK. 1 (T) – 1968
PG. 21, BK. 5 – 1974

N 1030850
E 396650 } 31+78
TOPO NO. 9

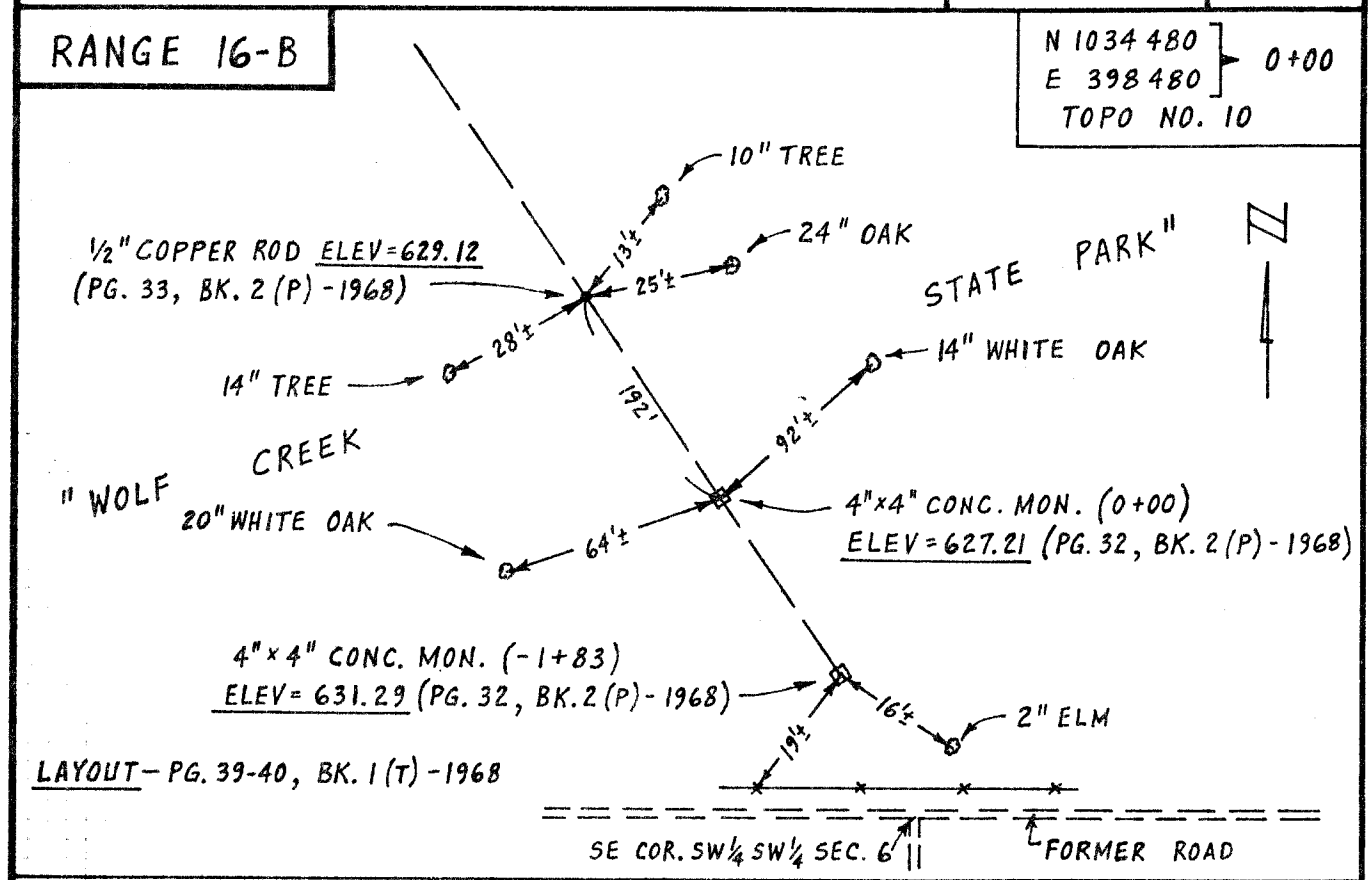


COMPUTATION SHEET

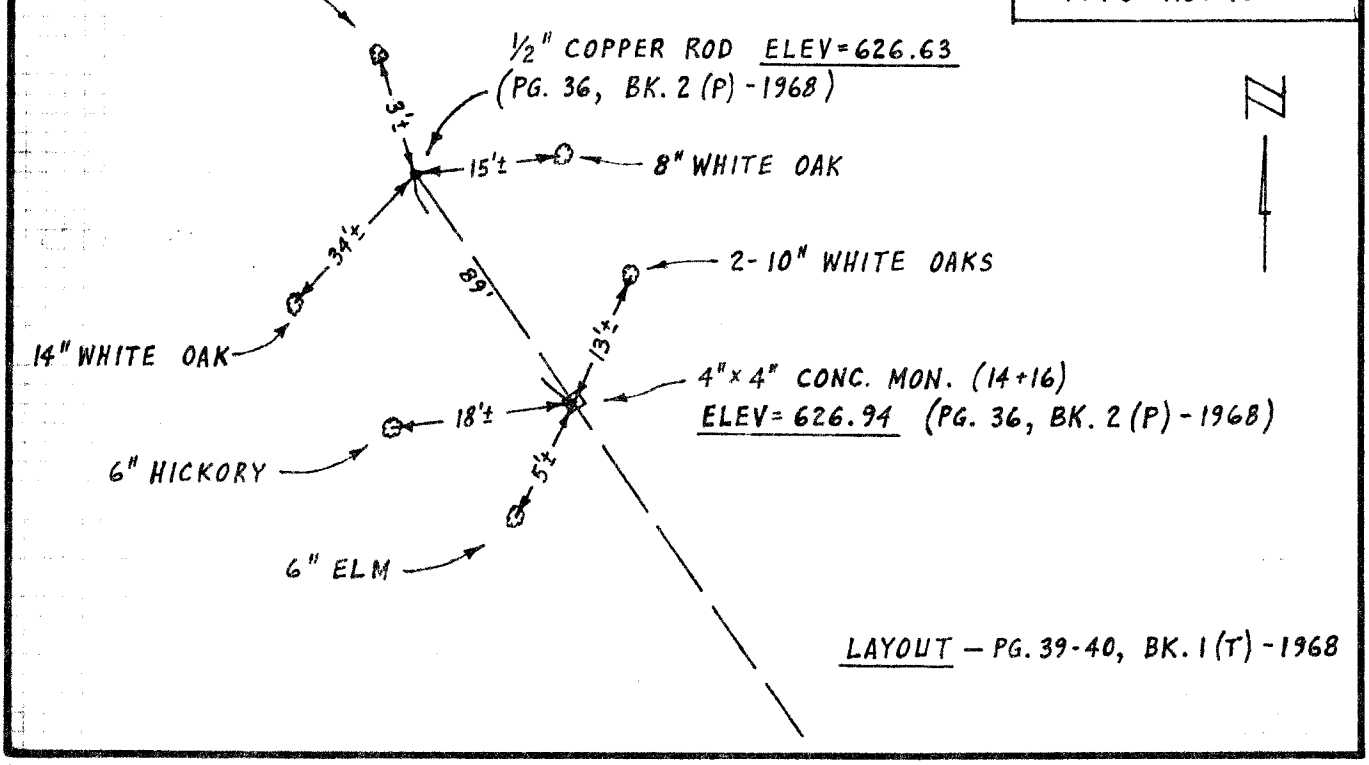
PROJECT	LAKE SHELBYVILLE	PAGE 16 OF 40	COMPUTED BY WBM	DATE 7-14-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 16-B

N 1034480
E 398480
TOPO NO. 10
0+00



N 1035670
E 397700
TOPO NO. 10
14+16

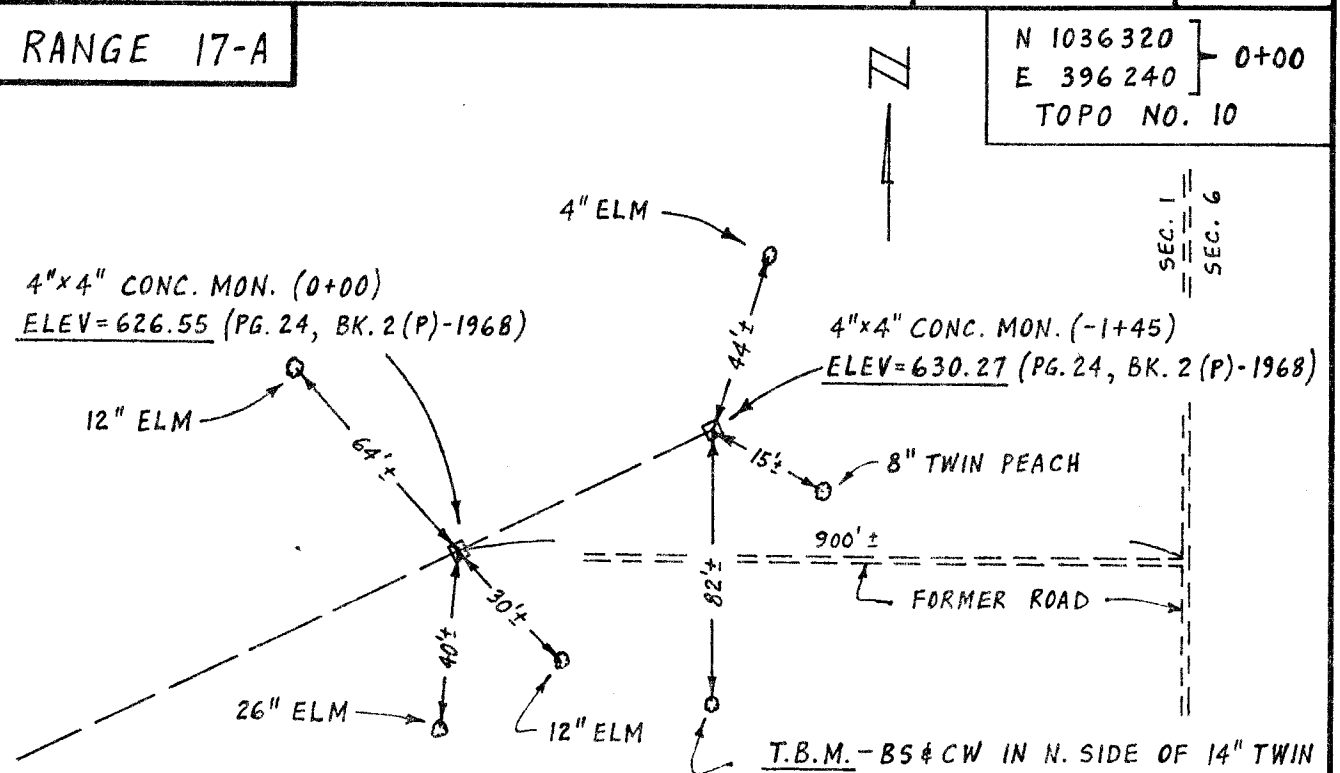


COMPUTATION SHEET

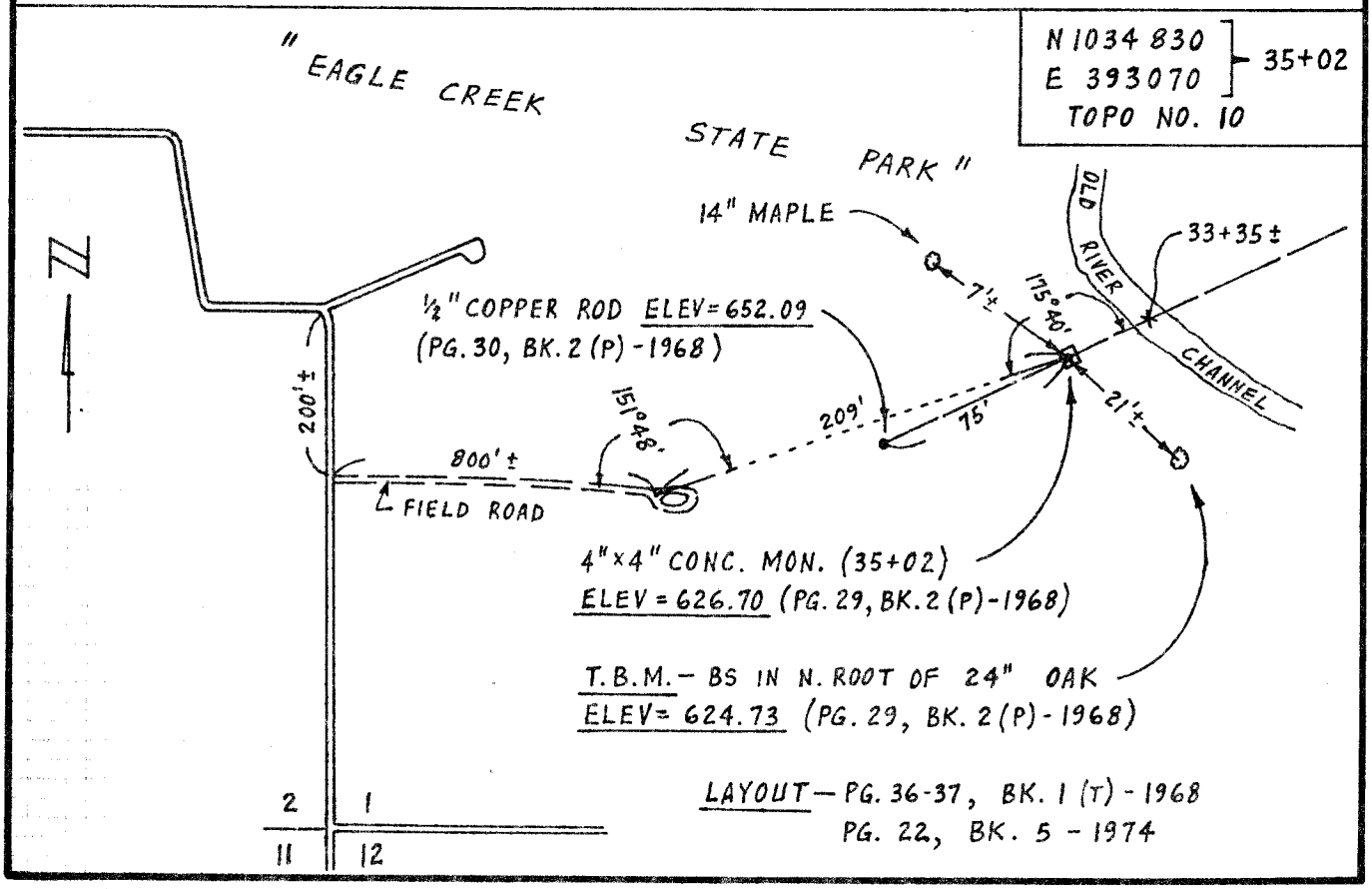
PROJECT	LAKE SHELBYVILLE	PAGE 17 OF 40	COMPUTED BY W&M	DATE 7-15-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 17-A

N 1036320
E 396240 } 0+00
TOPO NO. 10



N 1034830
E 393070 } 35+02
TOPO NO. 10

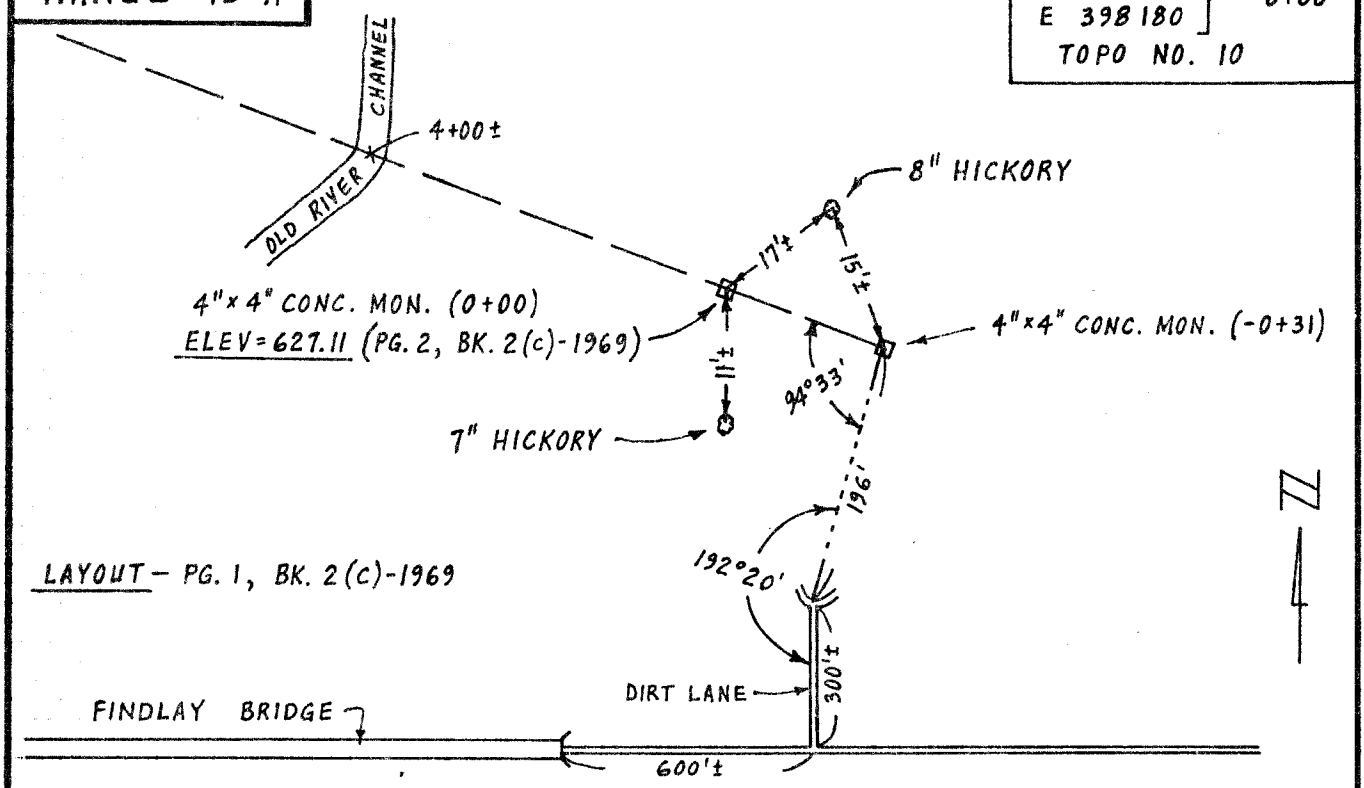


COMPUTATION SHEET

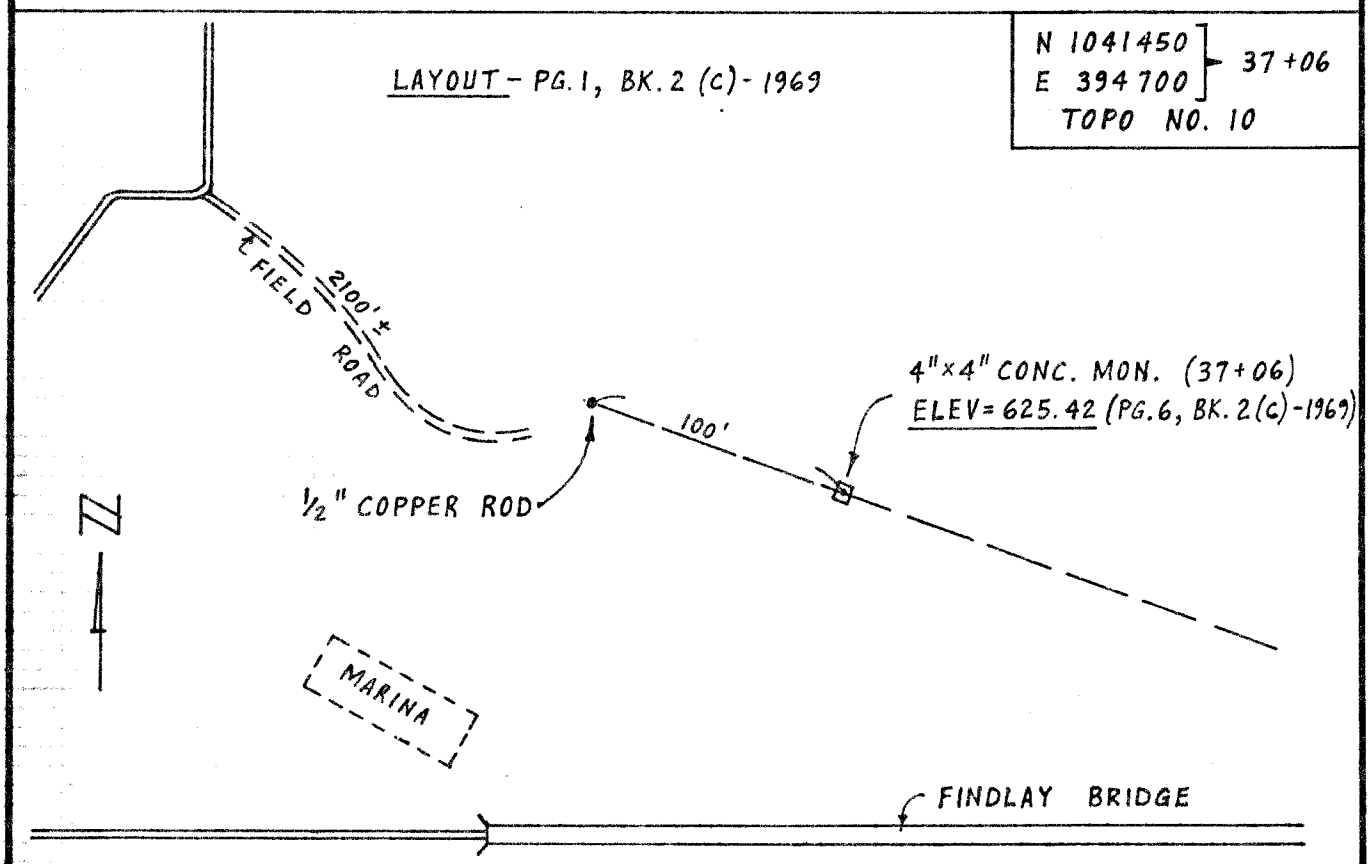
PROJECT	LAKE SHELBYVILLE	PAGE 18 OF 40	COMPUTED BY WSM	DATE 7-16-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 18-A

N 1040180
E 398180 } 0+00
TOPO NO. 10



N 1041450
E 394700 } 37+06
TOPO NO. 10



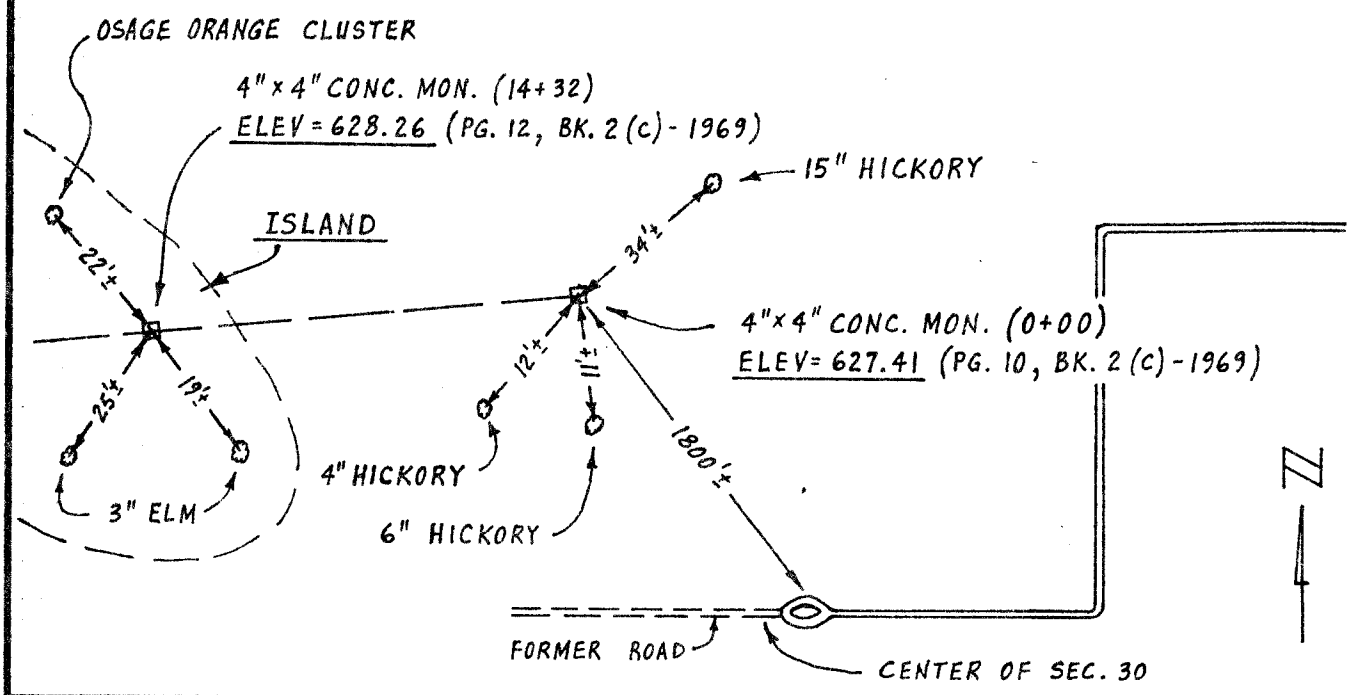
COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 19 OF 40	COMPUTED BY WBM	DATE 7-17-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 19-A

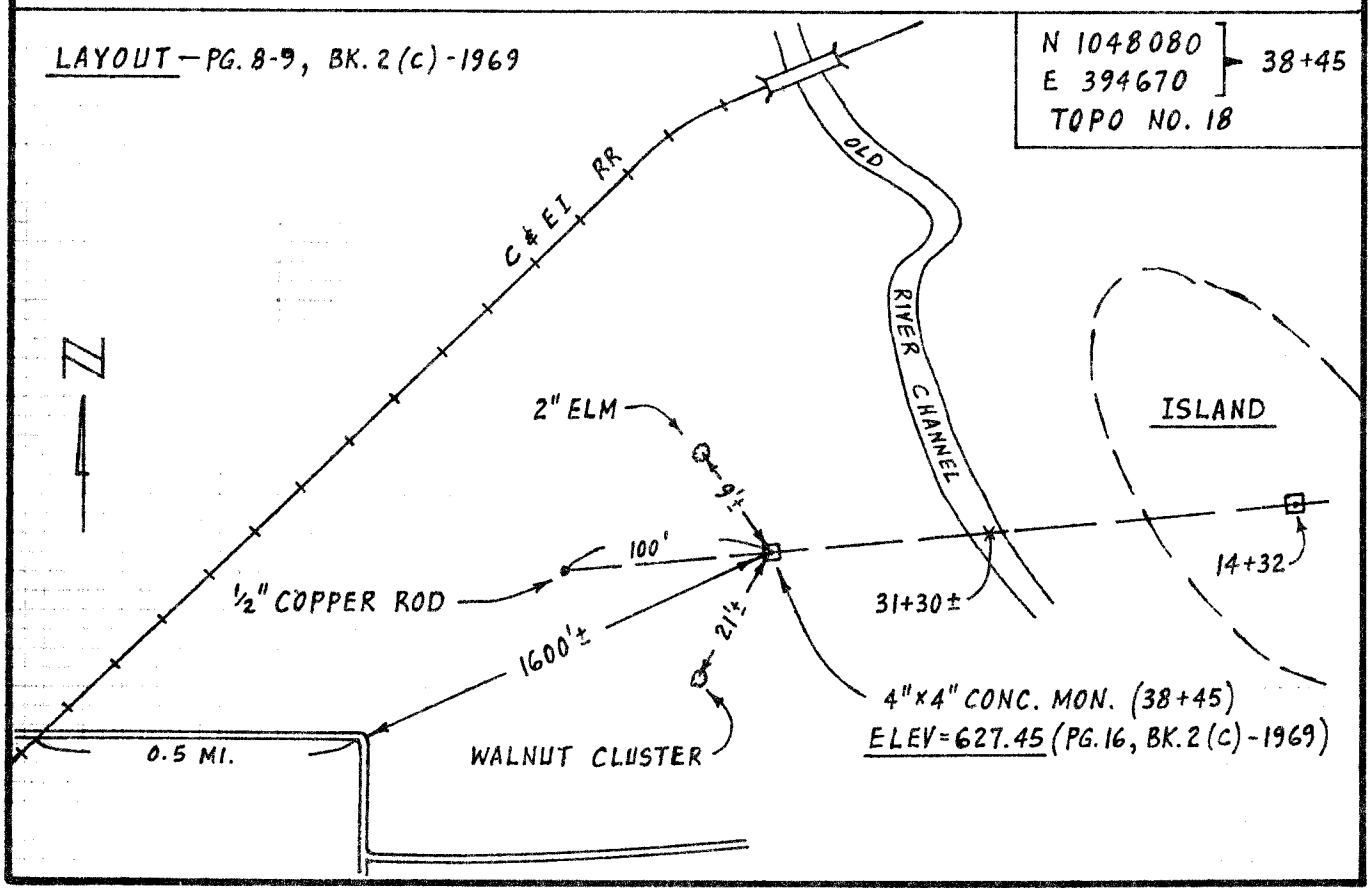
LAYOUT—PG. 8-9, BK. 2(c)-1969

N 1048370
E 398500
TOPO NO. 18
0+00



LAYOUT—PG. 8-9, BK. 2(c)-1969

N 1048080
E 394670
TOPO NO. 18
38+45



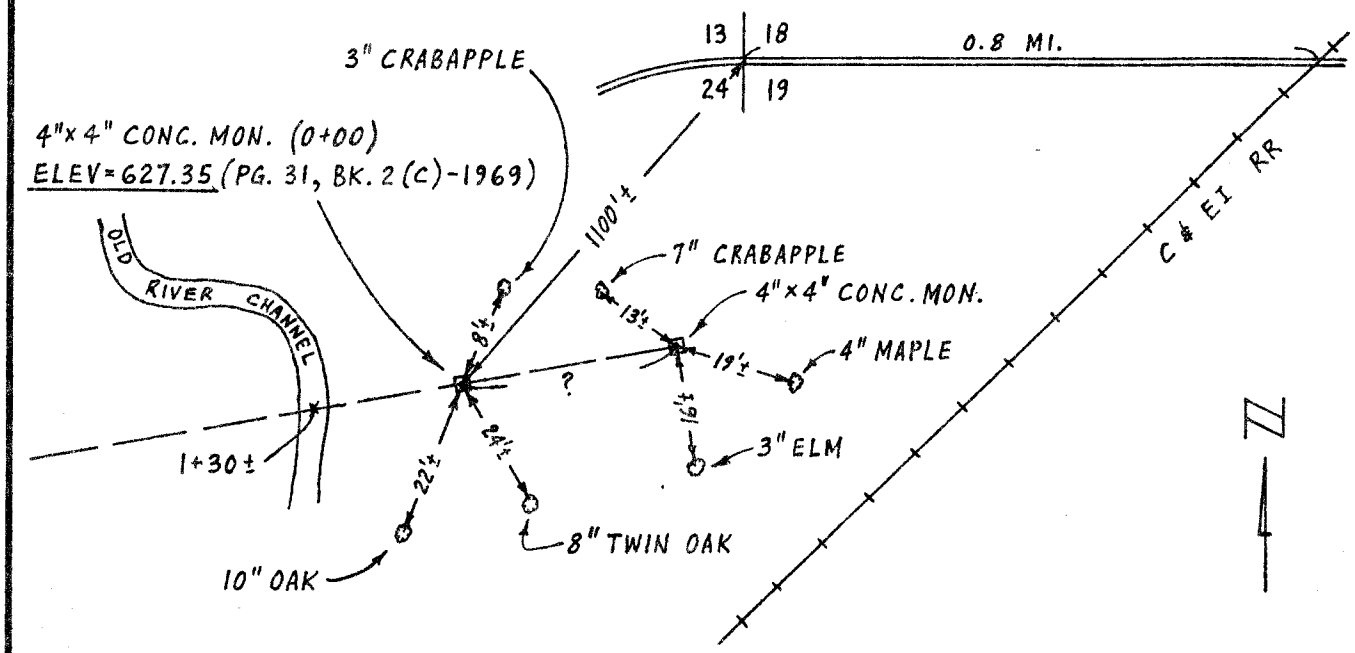
COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 20 OF 40	COMPUTED BY WJM	DATE 7-17-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

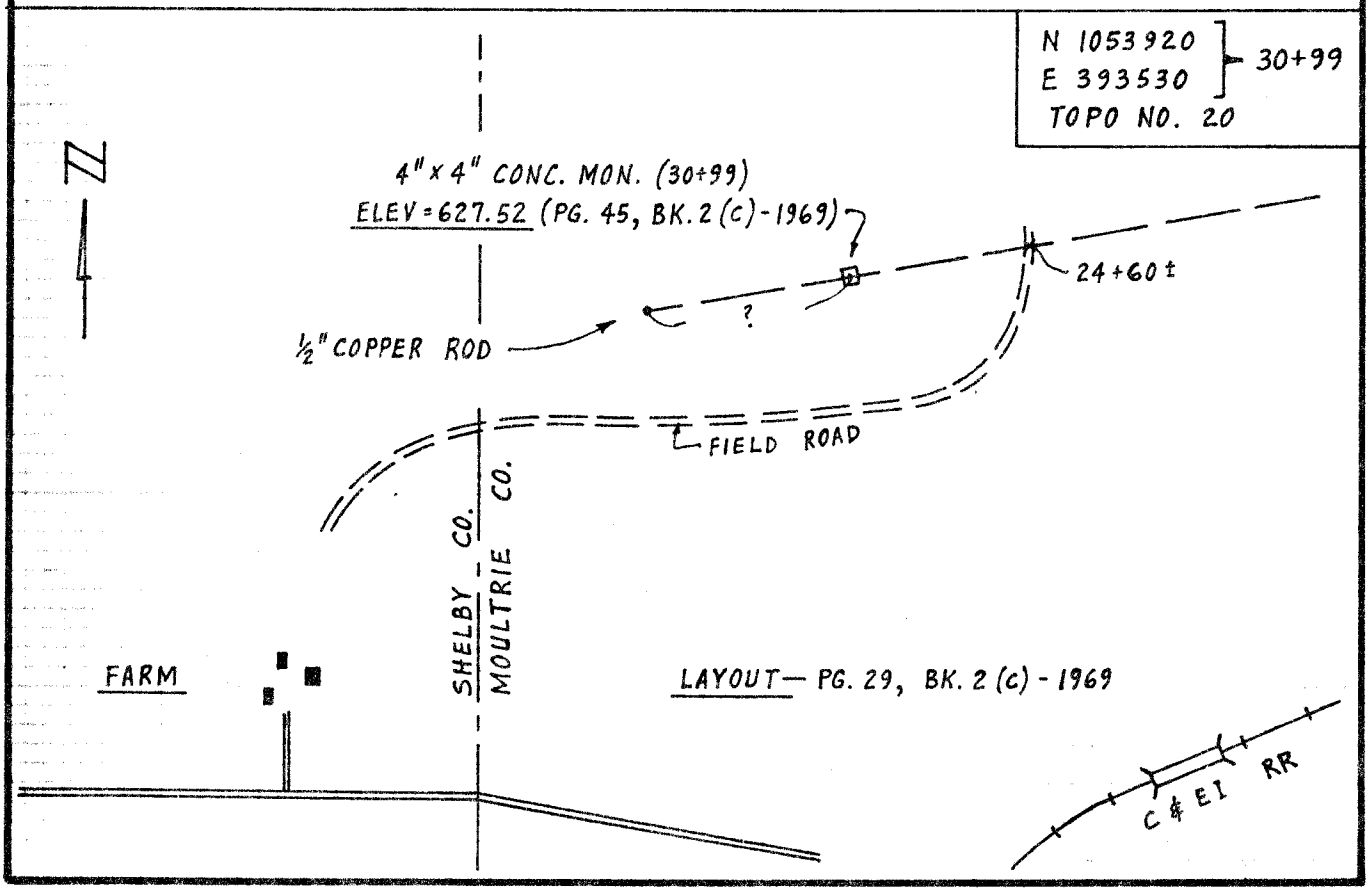
RANGE 20-A

LAYOUT— PG. 29, BK. 2(c)-1969

N 1054500
E 396580
TOPO NO. 20
0+00



N 1053920
E 393530
TOPO NO. 20
30+99



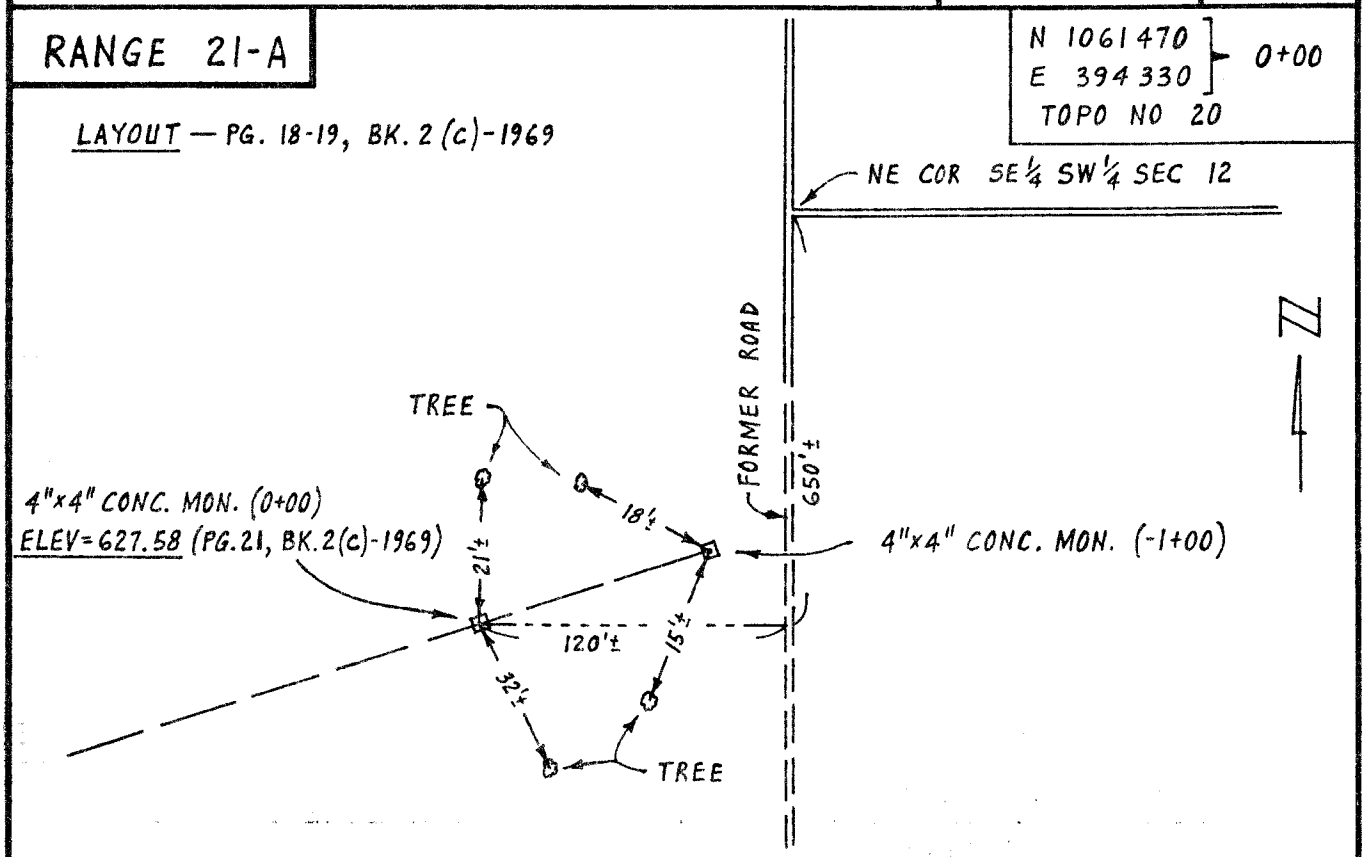
COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 21 OF 40	COMPUTED BY WDM	DATE 7-20-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

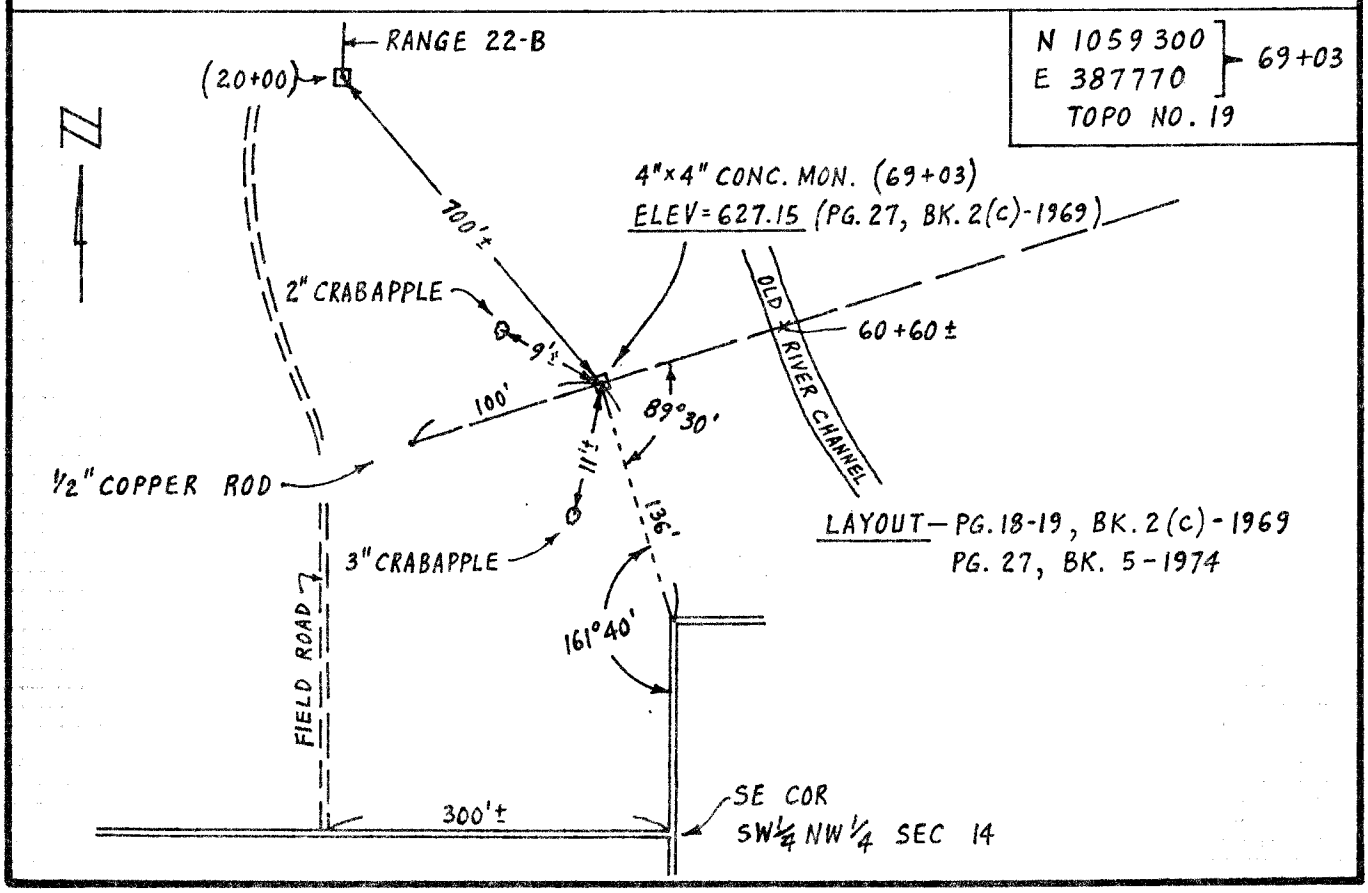
RANGE 21-A

N 1061470
E 394330 } 0+00
TOPO NO 20

LAYOUT — PG. 18-19, BK. 2 (c)-1969



N 1059300
E 387770 } 69+03
TOPO NO. 19



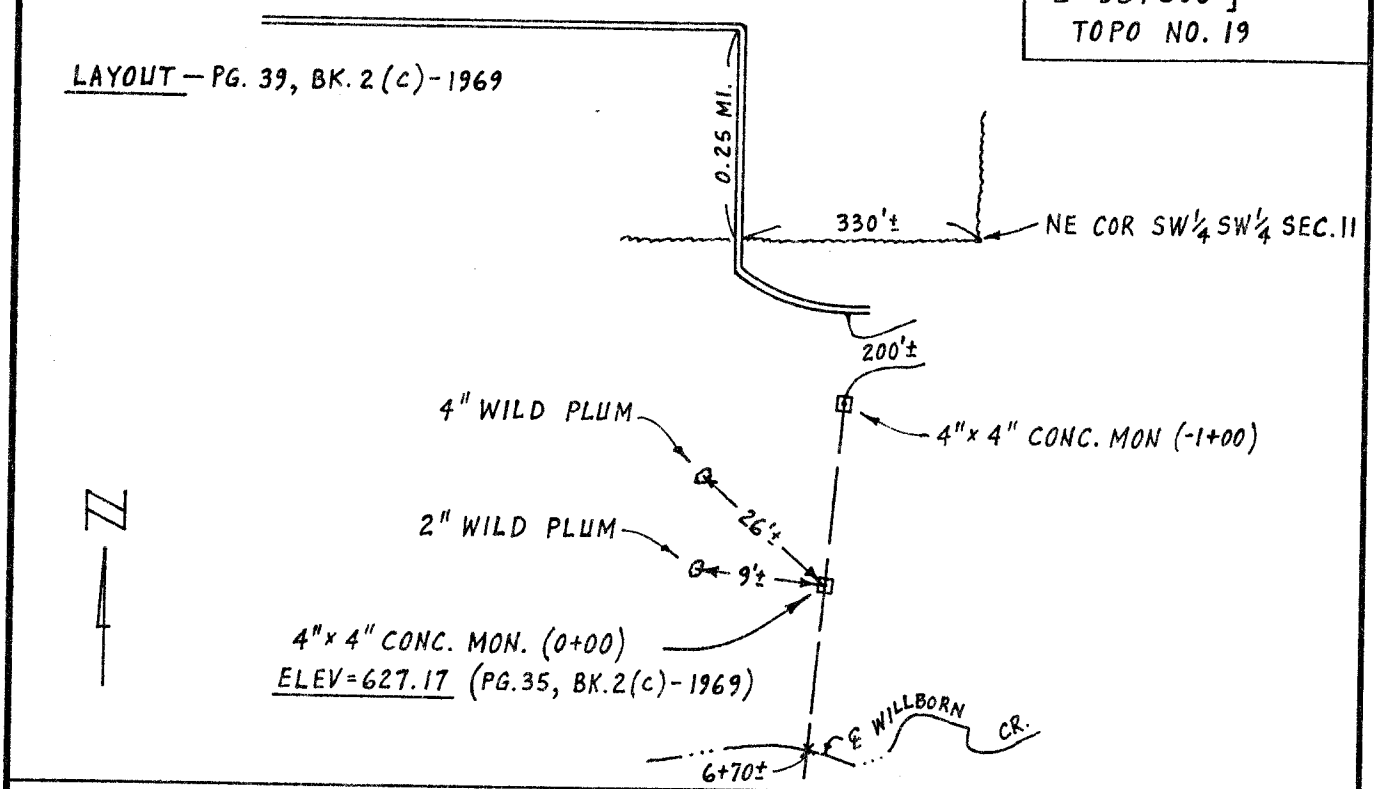
LAYOUT — PG. 18-19, BK. 2 (c)-1969
PG. 27, BK. 5-1974

COMPUTATION SHEET

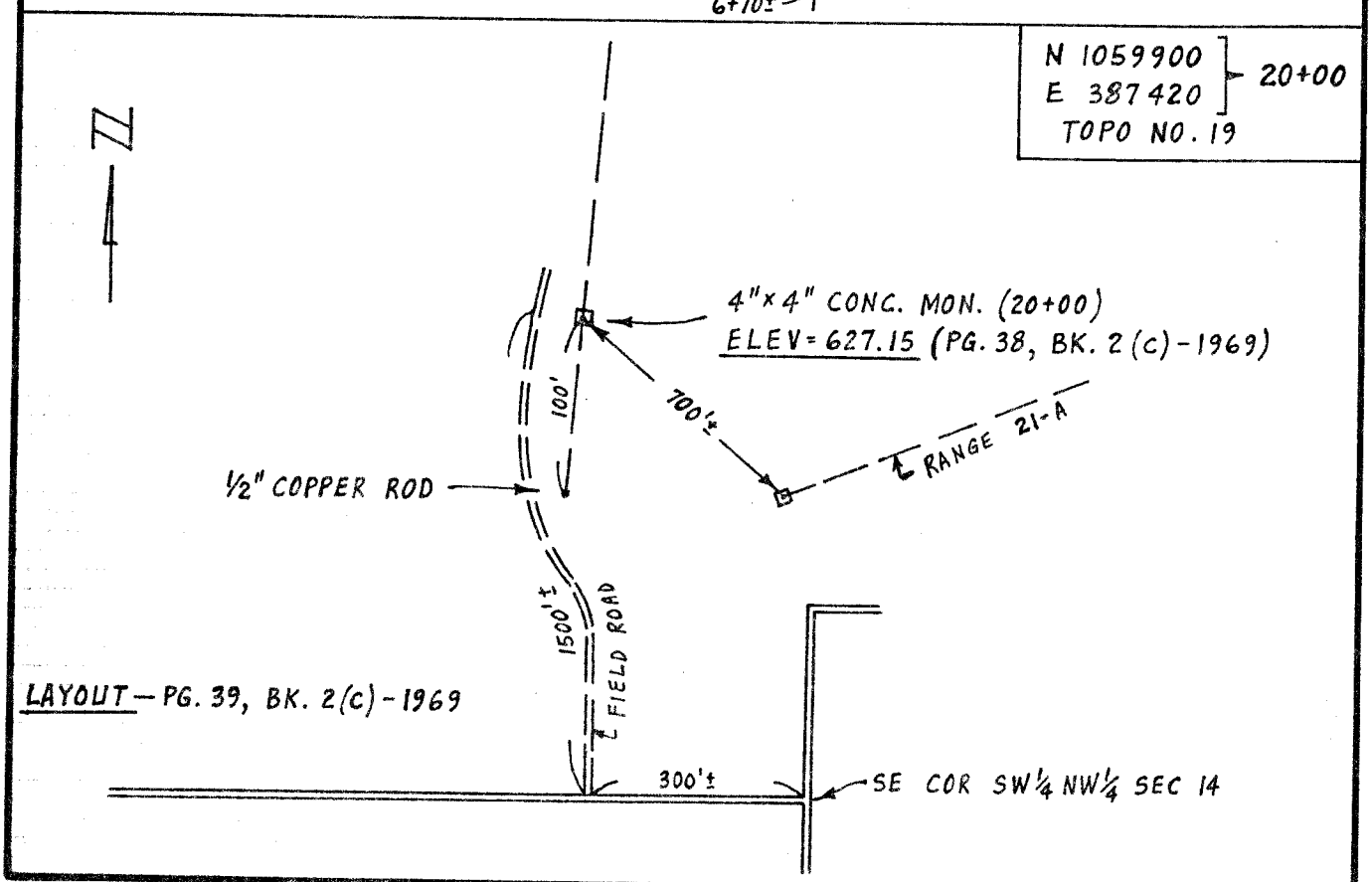
PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	22 OF 40	WJM	7-20-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 22-B

N 1061 900
E 387600 } 0+00
TOPO NO. 19



N 1059900
E 387420 } 20+00
TOPO NO. 19

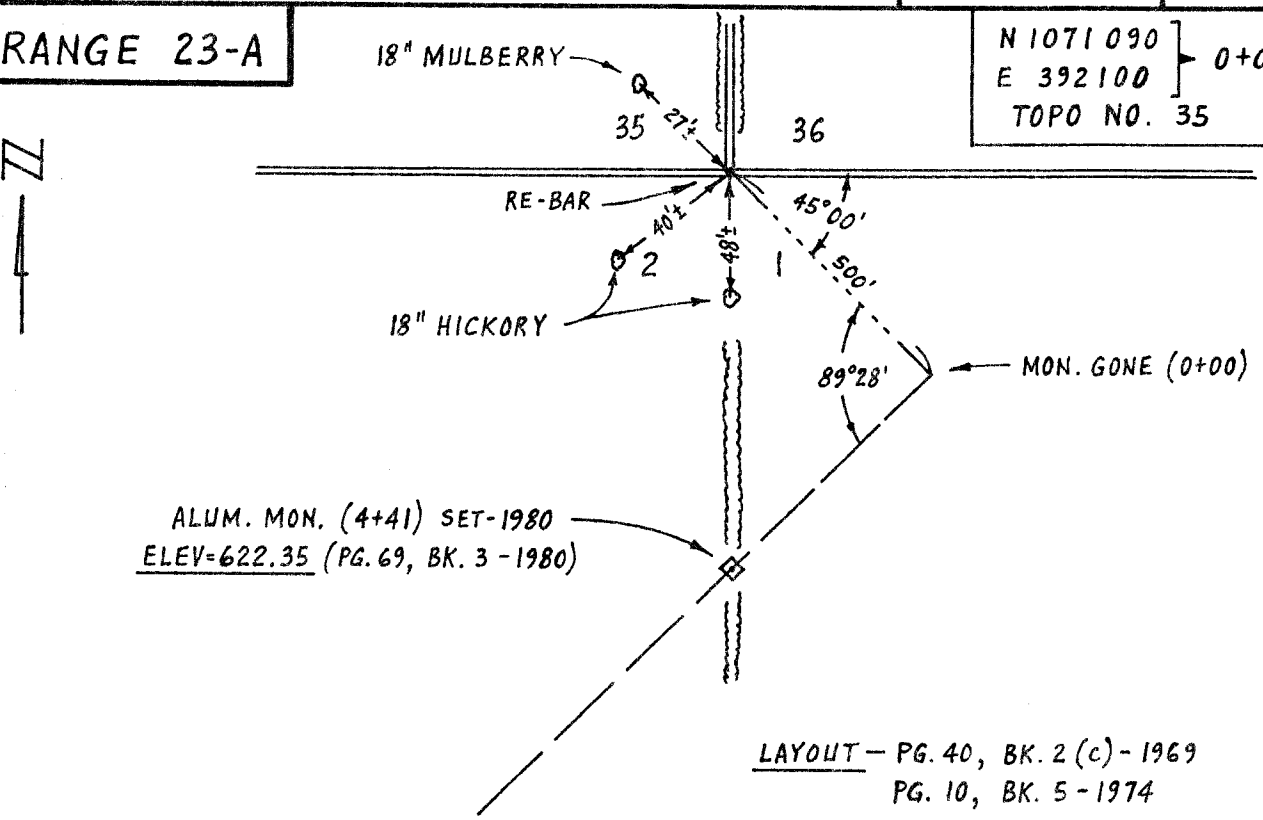


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 23 OF 40	COMPUTED BY W&M	DATE 7-23-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

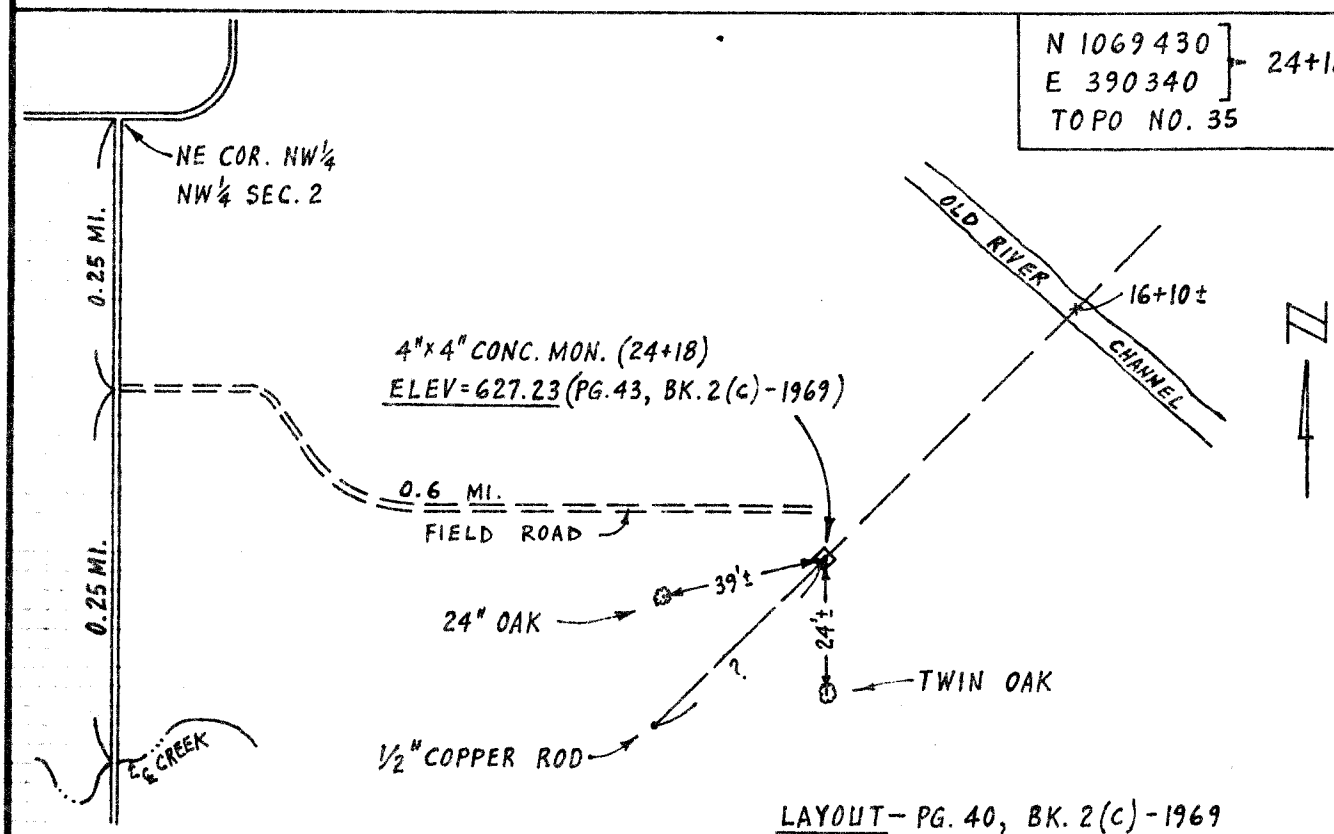
RANGE 23-A

N 1071 090
E 392 100 } 0+00
TOPO NO. 35



LAYOUT — PG. 40, BK. 2 (c) - 1969
PG. 10, BK. 5 - 1974

N 1069 430
E 390 340 } 24+18
TOPO NO. 35



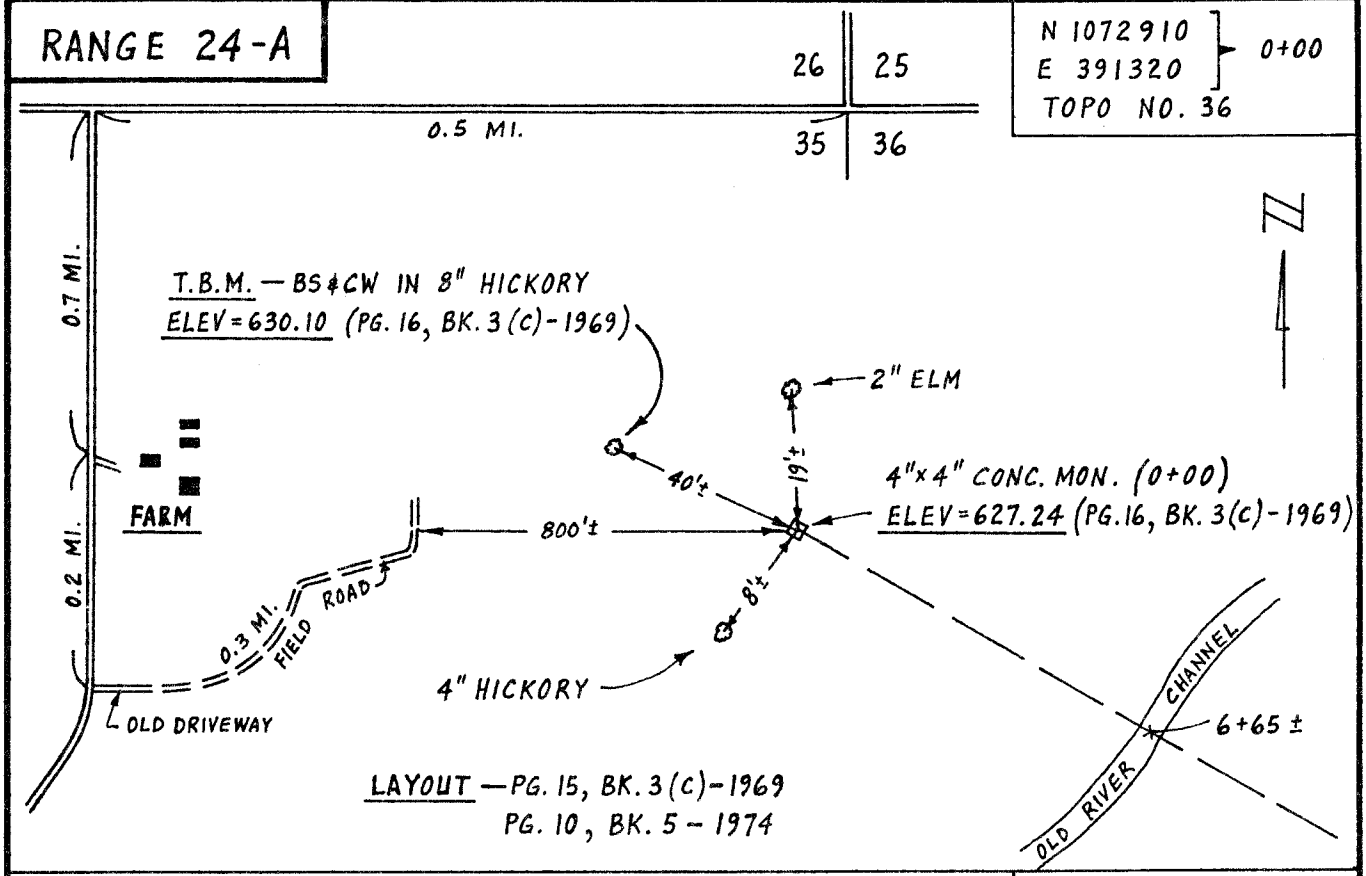
LAYOUT — PG. 40, BK. 2(c) - 1969

COMPUTATION SHEET

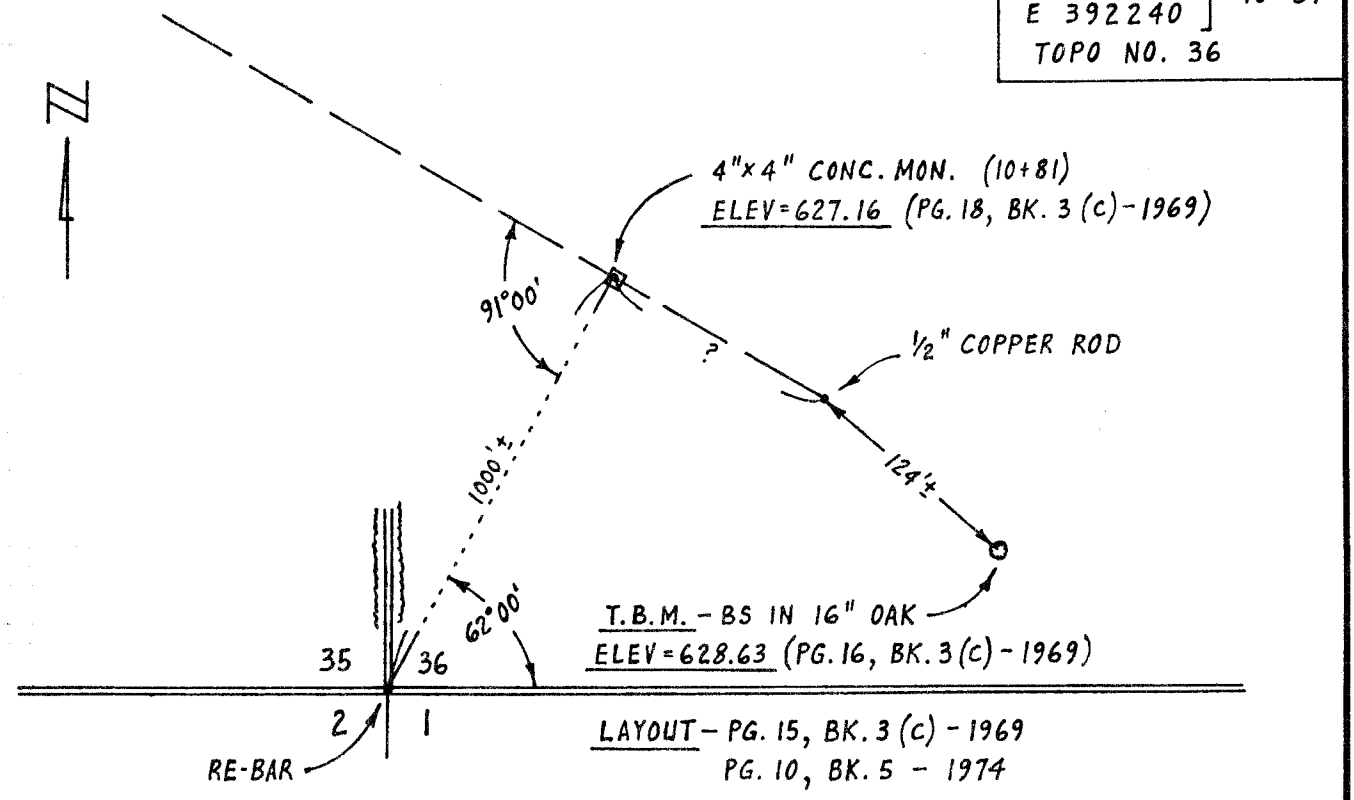
PROJECT	LAKE SHELBYVILLE	PAGE 24 OF 40	COMPUTED BY WJM	DATE 7-27-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 24-A

N 1072910
E 391320
TOPO NO. 36
0+00



N 1072340
E 392240
TOPO NO. 36
10+81

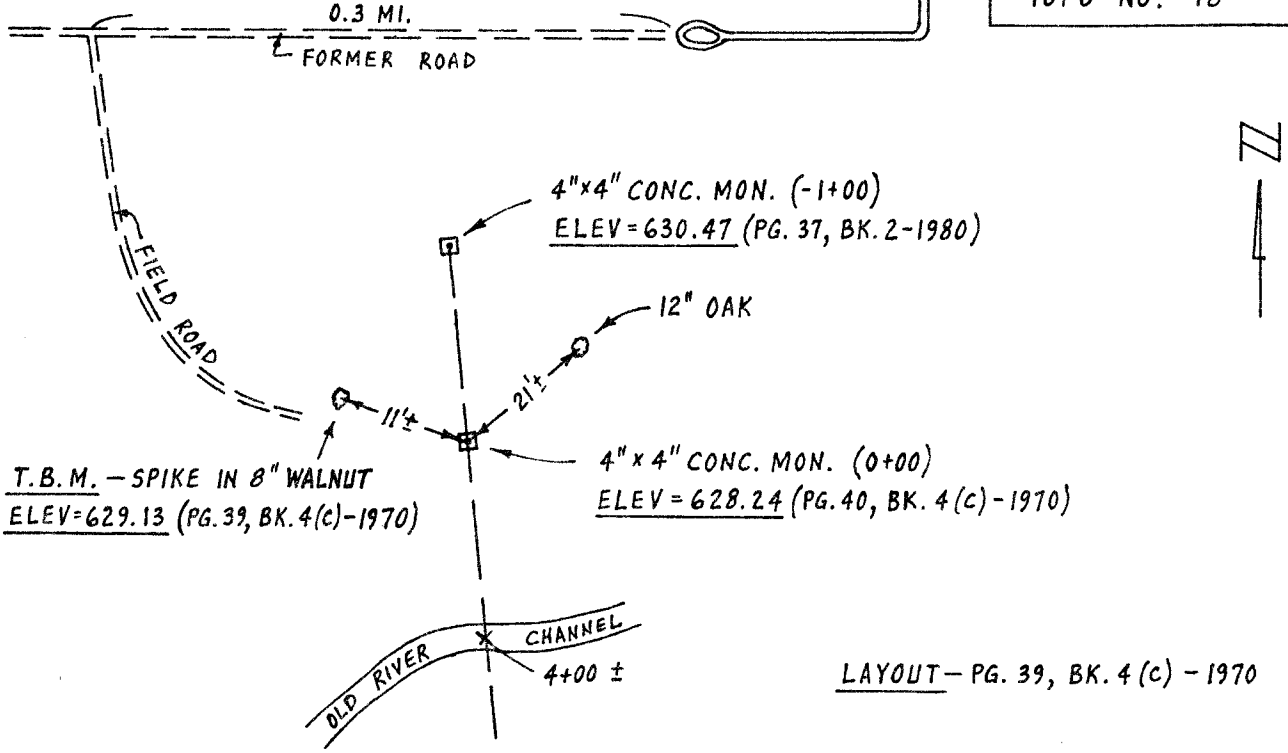


COMPUTATION SHEET

PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	25 OF 40	WJM	7-28-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

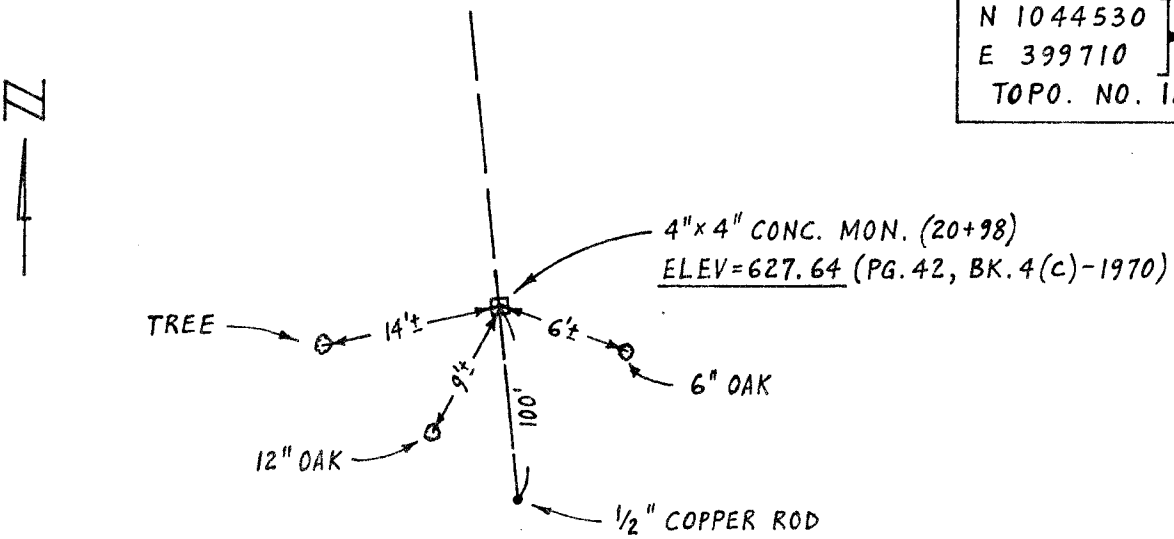
RANGE 25-A

N 1046620
E 399470 } 0+00
TOPO NO. 18



LAYOUT — PG. 39, BK. 4(c) - 1970

N 1044530
E 399710 } 20+98
TOPO. NO. 18



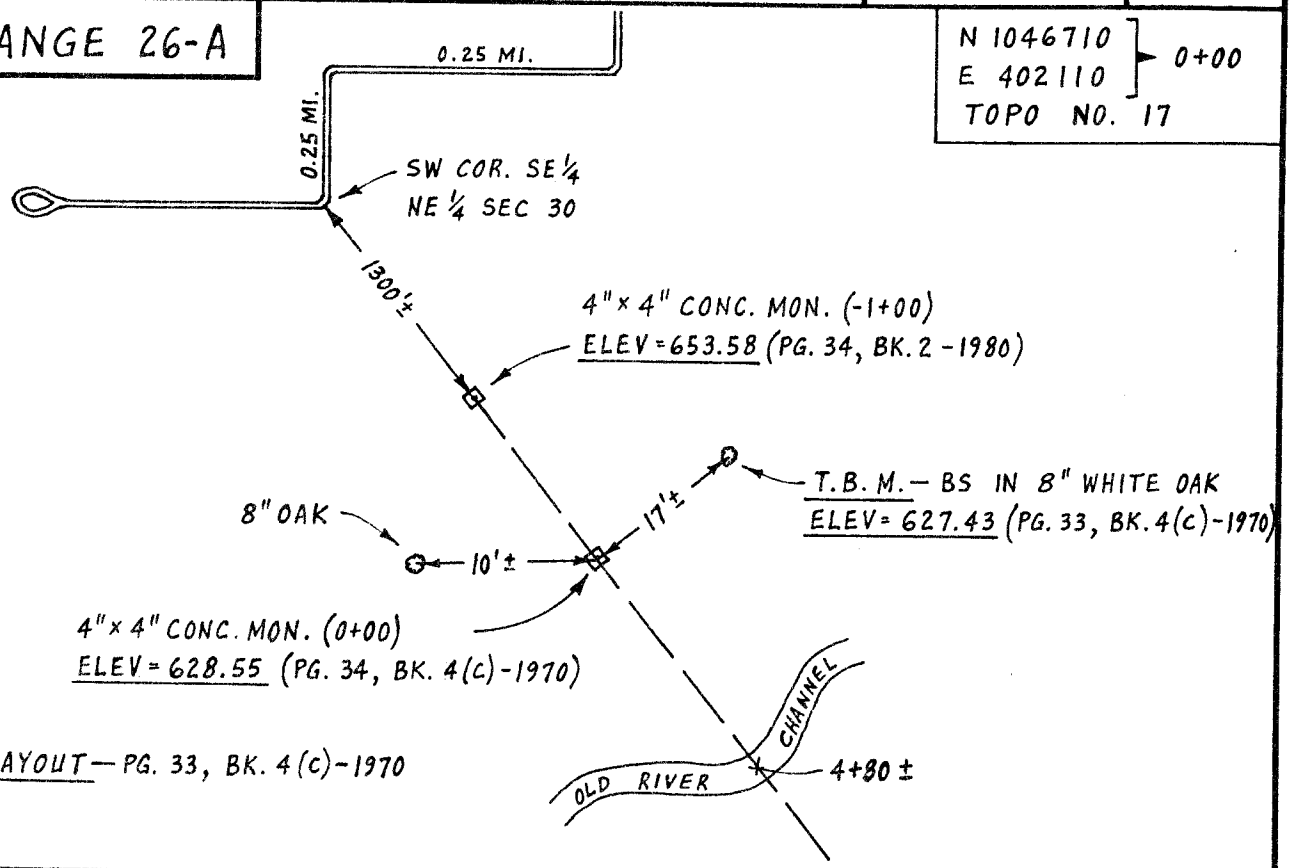
LAYOUT — PG. 39, BK. 4(c) - 1970

COMPUTATION SHEET

PROJECT LAKE SHELBYVILLE	PAGE 26 OF 40	COMPUTED BY WJM	DATE 7-29-81
SUBJECT SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

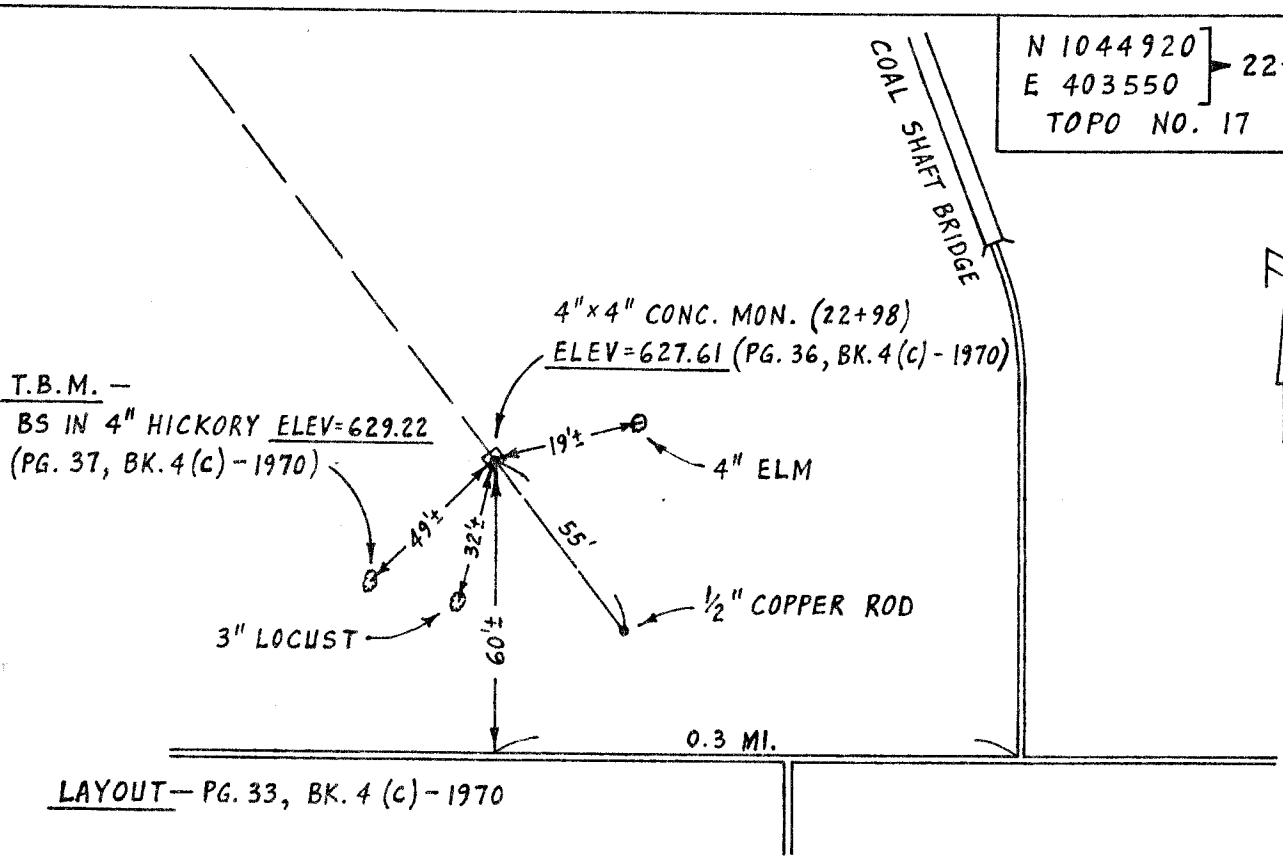
RANGE 26-A

N 1046710
E 402110
TOPO NO. 17
0+00



LAYOUT— PG. 33, BK. 4(c)-1970

N 1044920
E 403550
TOPO NO. 17
22+98



LAYOUT— PG. 33, BK. 4(c)-1970

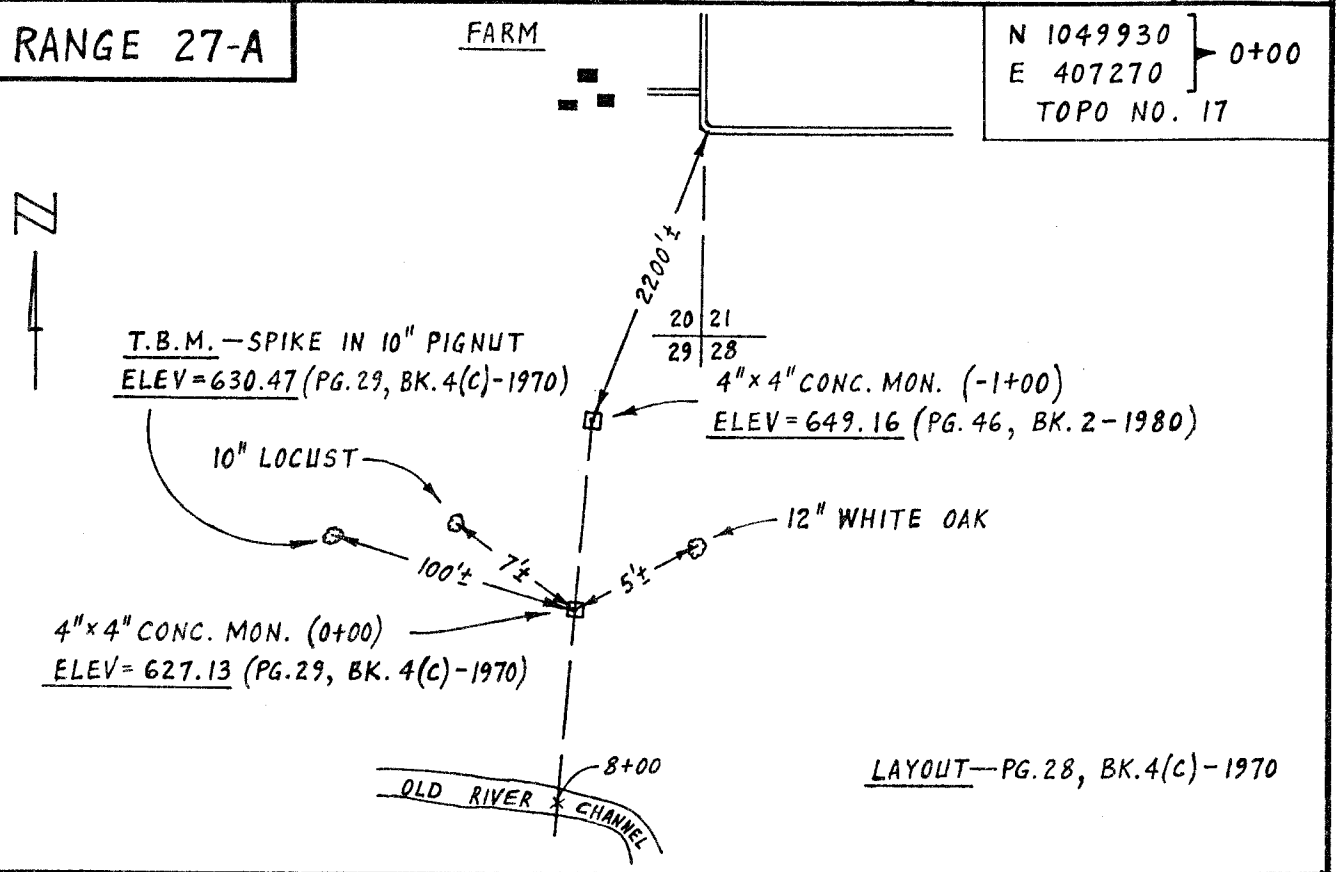
Z-4

COMPUTATION SHEET

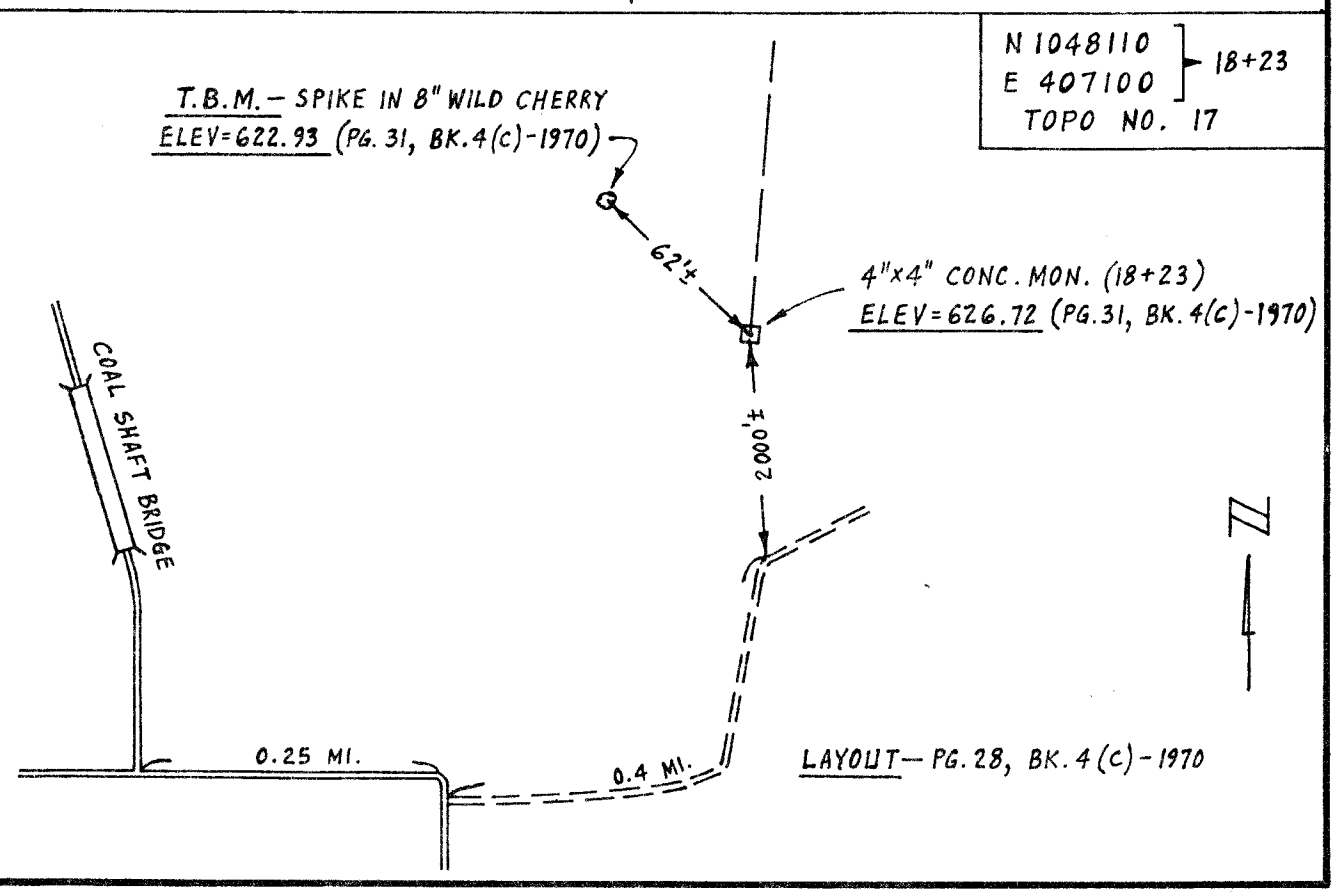
PROJECT	PAGE	COMPUTED BY	DATE
LAKE SHELBYVILLE	27 OF 40	W&M	7-30-81
SUBJECT: SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 27-A

N 1049930
E 407270 } 0+00
TOPO NO. 17



N 1048110
E 407100 } 18+23
TOPO NO. 17

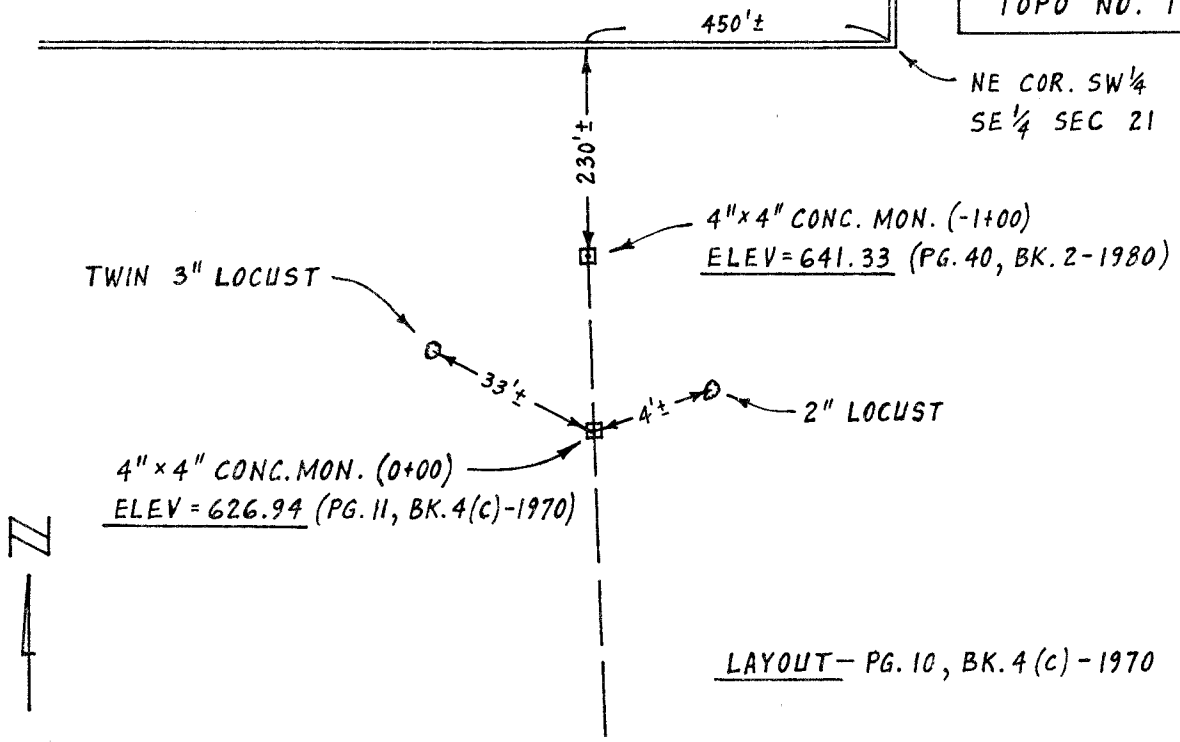


COMPUTATION SHEET

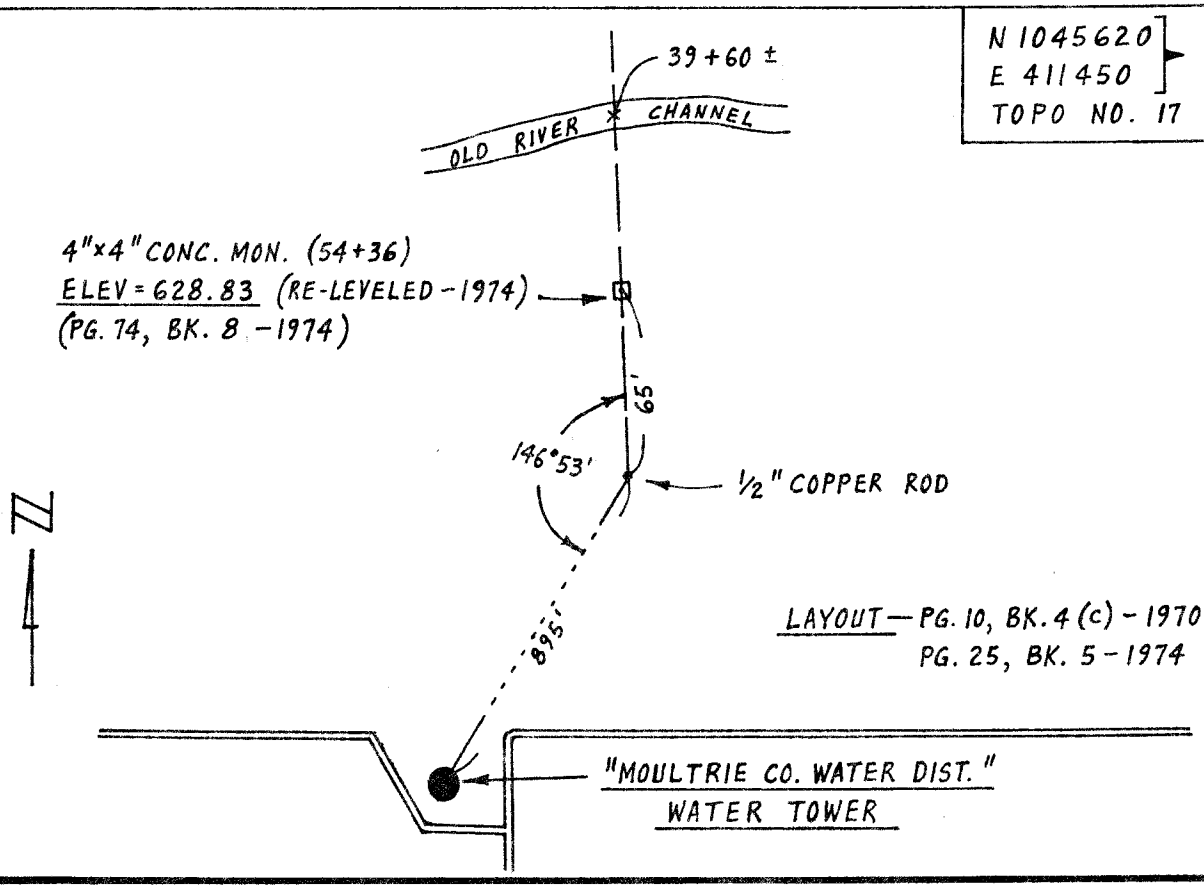
PROJECT	LAKE SHELBYVILLE	PAGE 28 OF 40	COMPUTED BY WJM	DATE 8-03-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 28-A

N 1051050
E 411250 } 0+00
TOPO NO. 17



N 1045620
E 411450 } 54+36
TOPO NO. 17

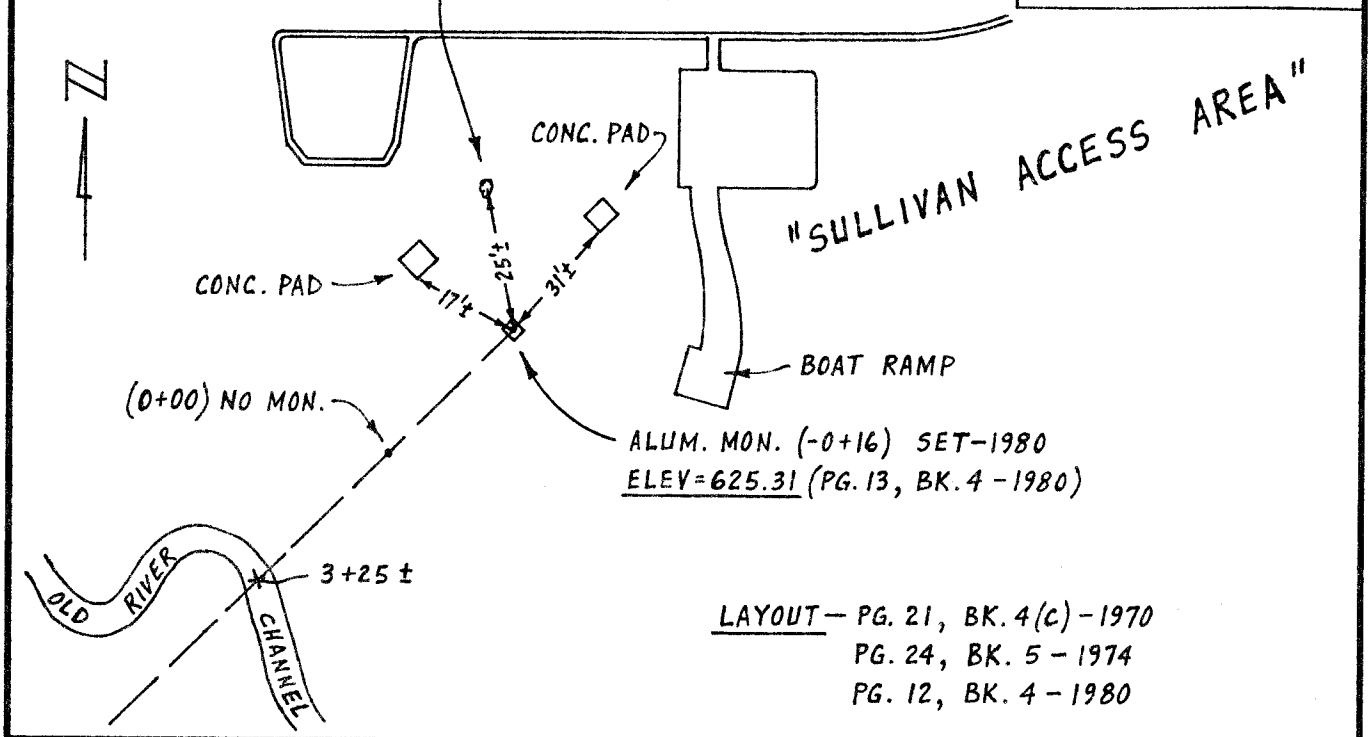


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 29 OF 40	COMPUTED BY WJM	DATE 8-03-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

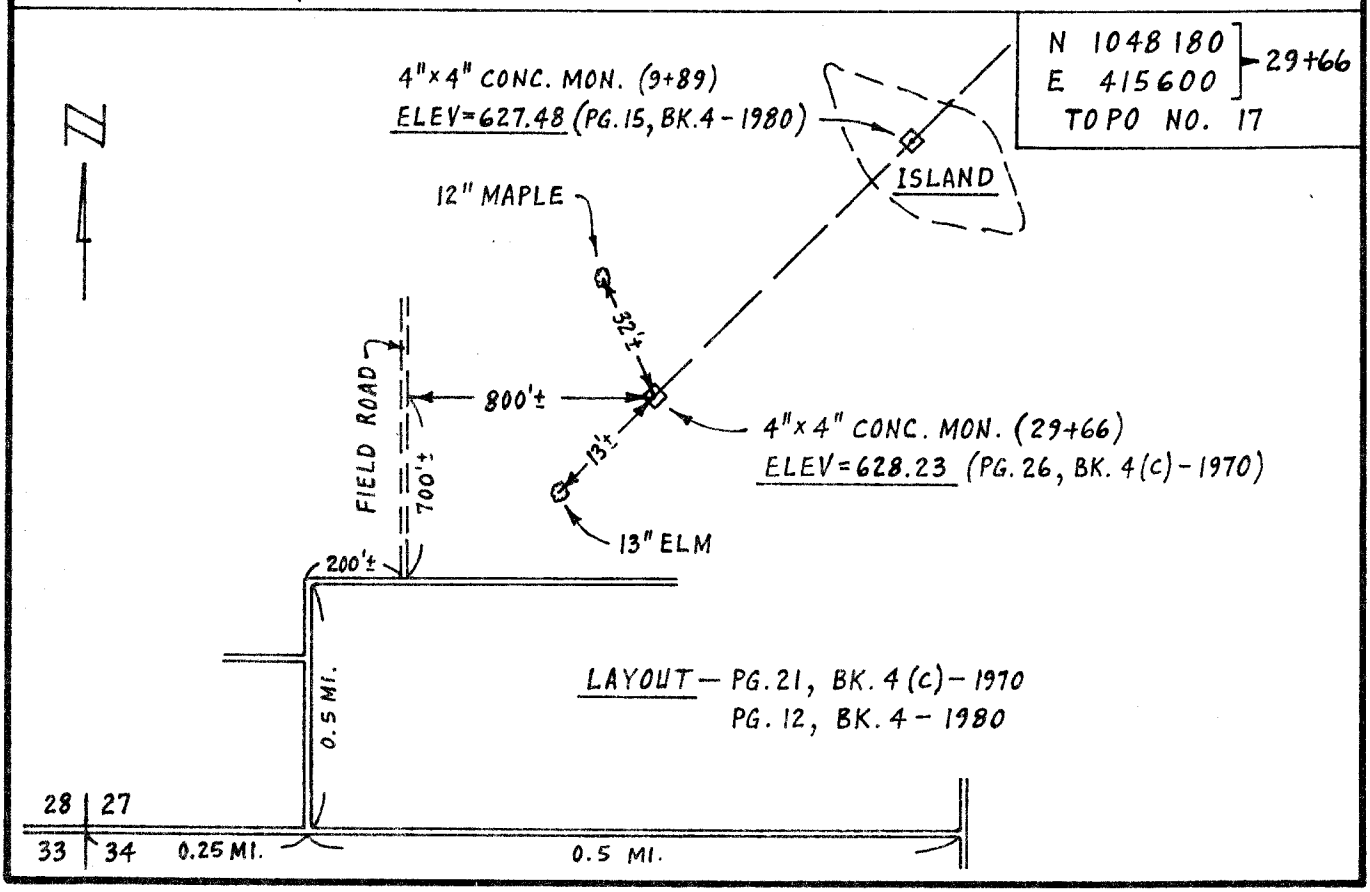
RANGE 29-A

N 1050270
E 417700
TOPO NO. 16
0+00



LAYOUT – PG. 21, BK. 4(c) – 1970
PG. 24, BK. 5 – 1974
PG. 12, BK. 4 – 1980

N 1048180
E 415600
TOPO NO. 17
29+66



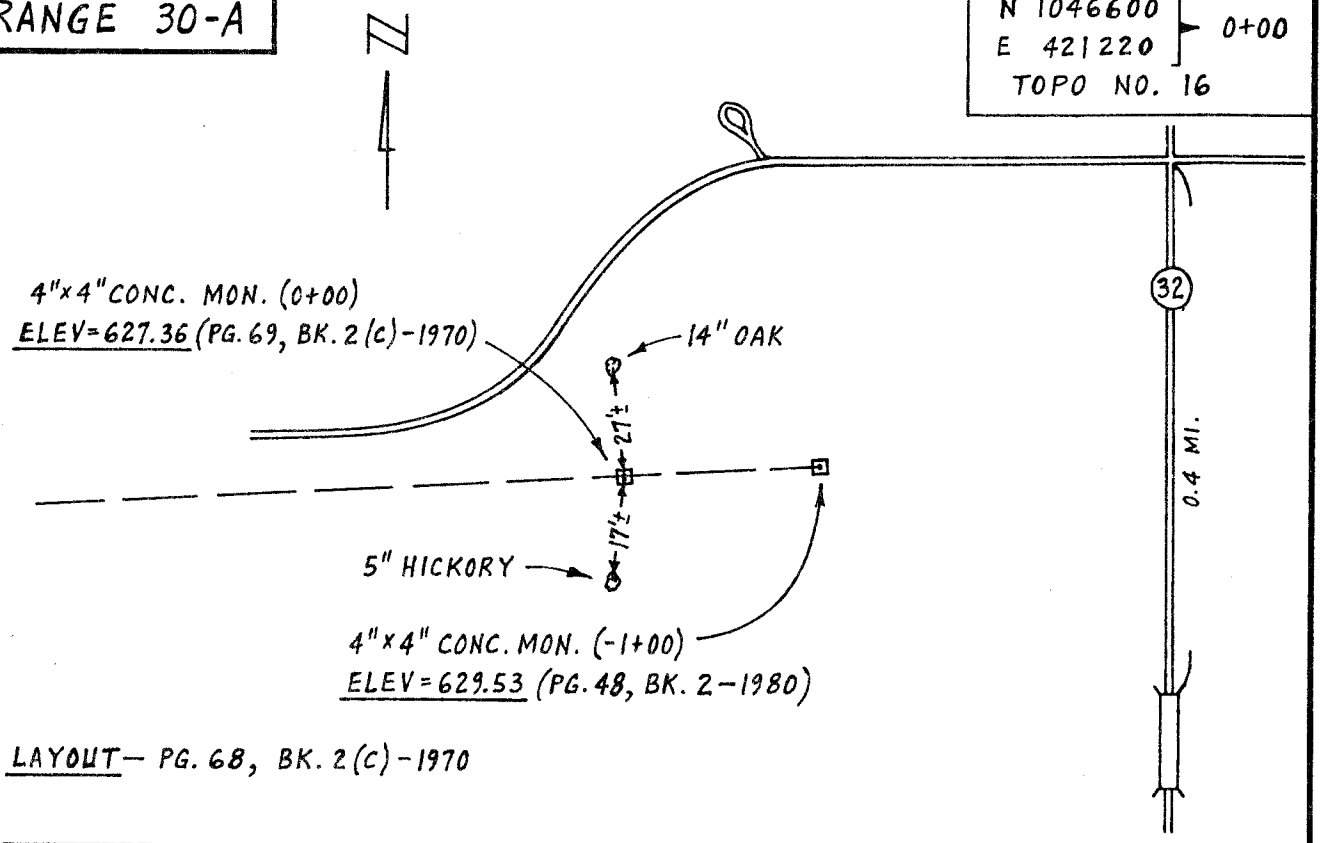
LAYOUT – PG. 21, BK. 4 (c) – 1970
PG. 12, BK. 4 – 1980

COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 30 OF 40	COMPUTED BY WJM	DATE 8-05-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

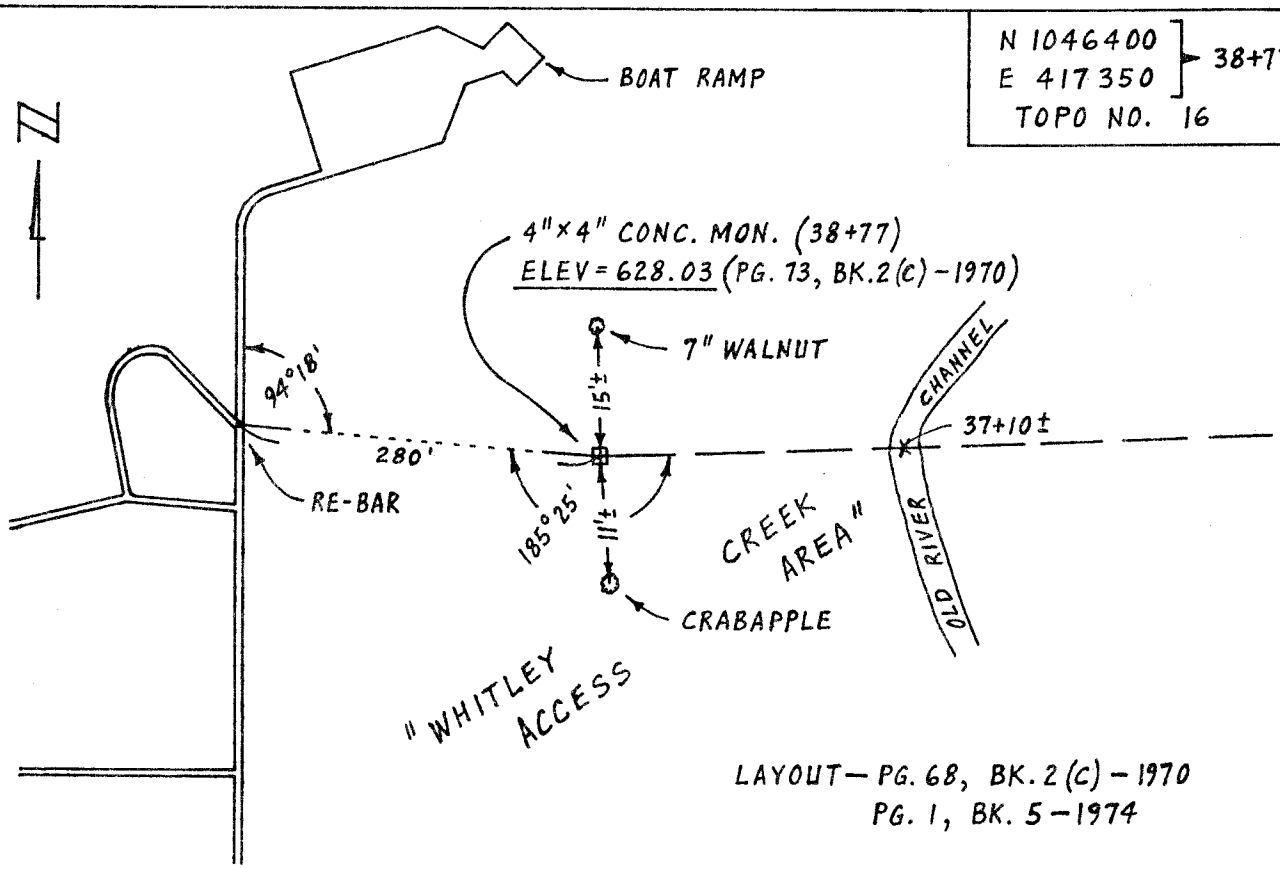
RANGE 30-A

N 1046600
E 421220 → 0+00
TOPO NO. 16



LAYOUT— PG. 68, BK. 2(C)-1970

N 1046400
E 417350 → 38+77
TOPO NO. 16



LAYOUT— PG. 68, BK. 2(C)-1970
PG. 1, BK. 5-1974

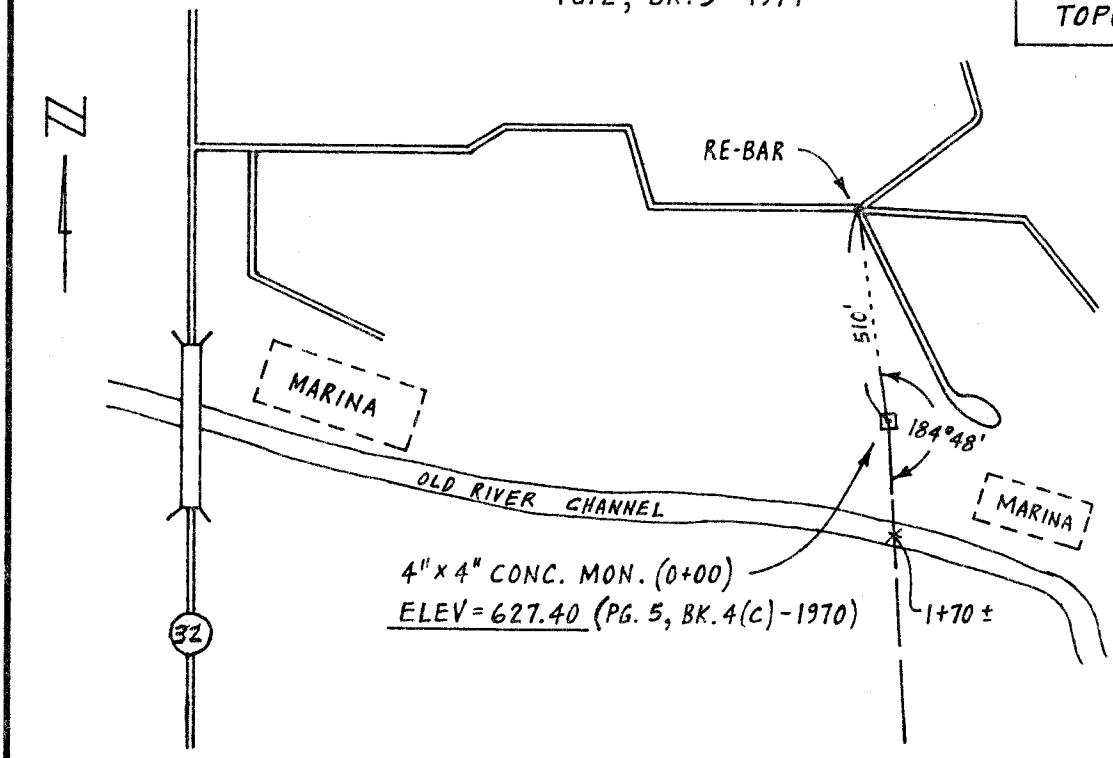
COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 31 OF 40	COMPUTED BY WJM	DATE 8-06-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

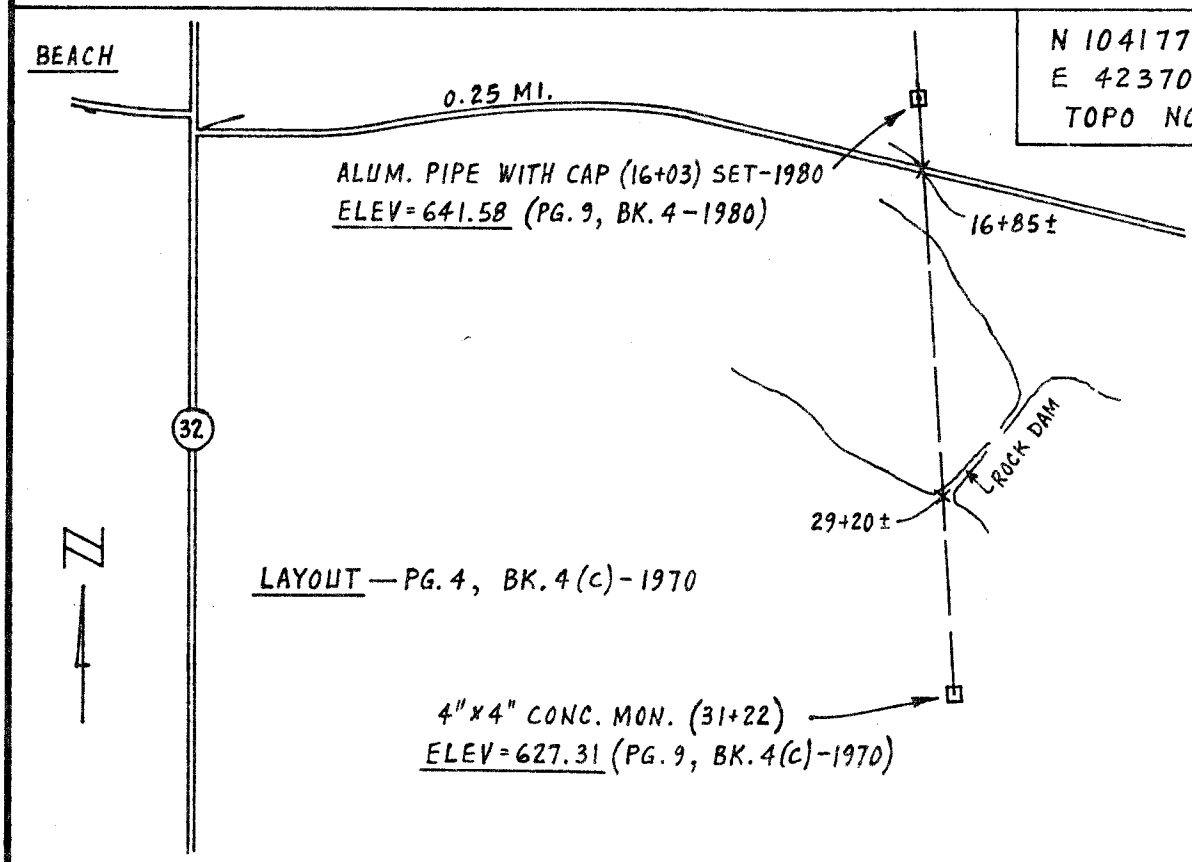
RANGE 31-A

LAYOUT– PG. 4, BK. 4(c)-1970
PG. 2, BK. 5-1974

N 1044890
E 423500
TOPO NO. 16
0+00



N 1041770
E 423700
TOPO NO. 12
31+22

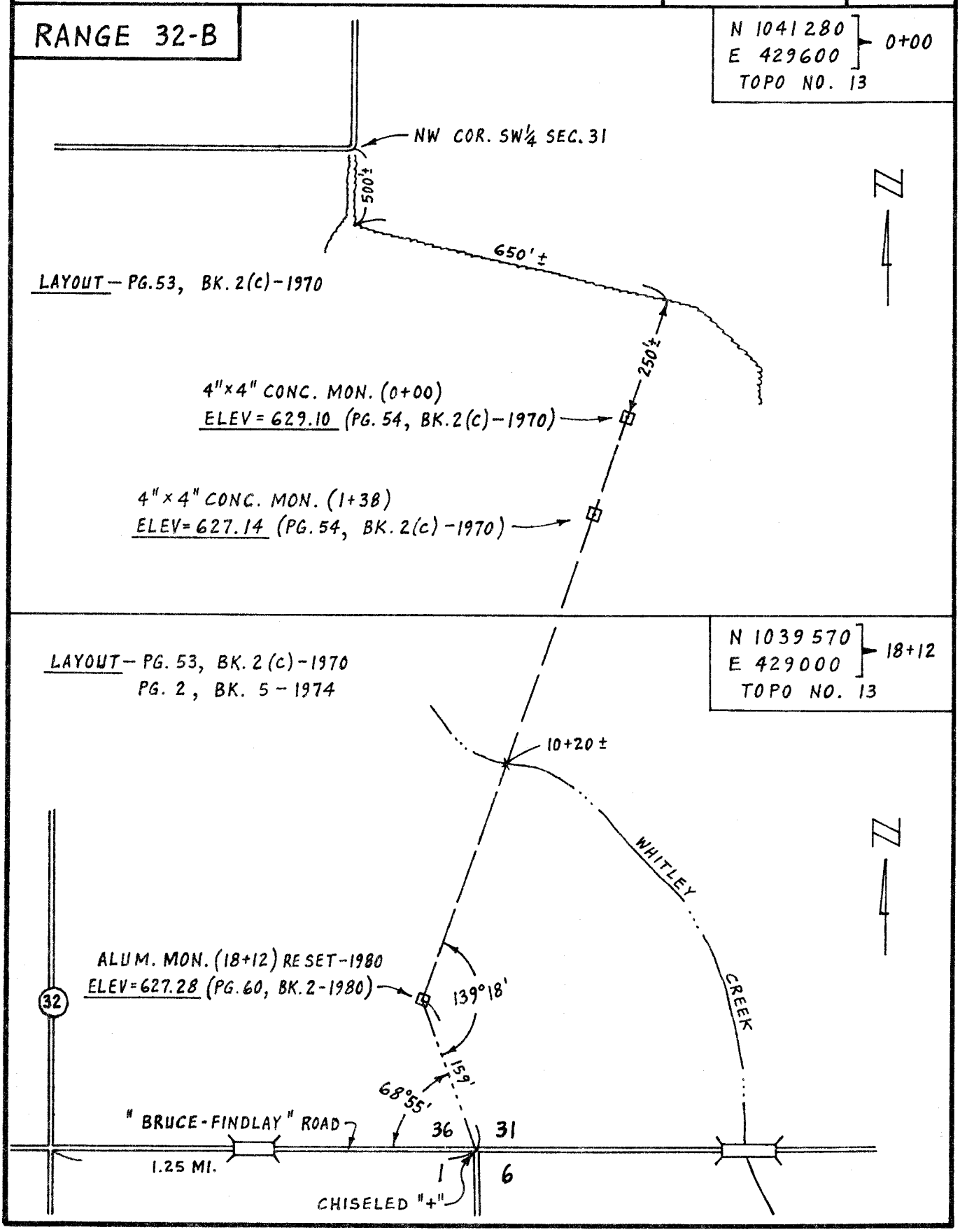


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 32 OF 40	COMPUTED BY WJM	DATE 8-06-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 32-B

N 1041280
E 429600
TOPO NO. 13
0+00

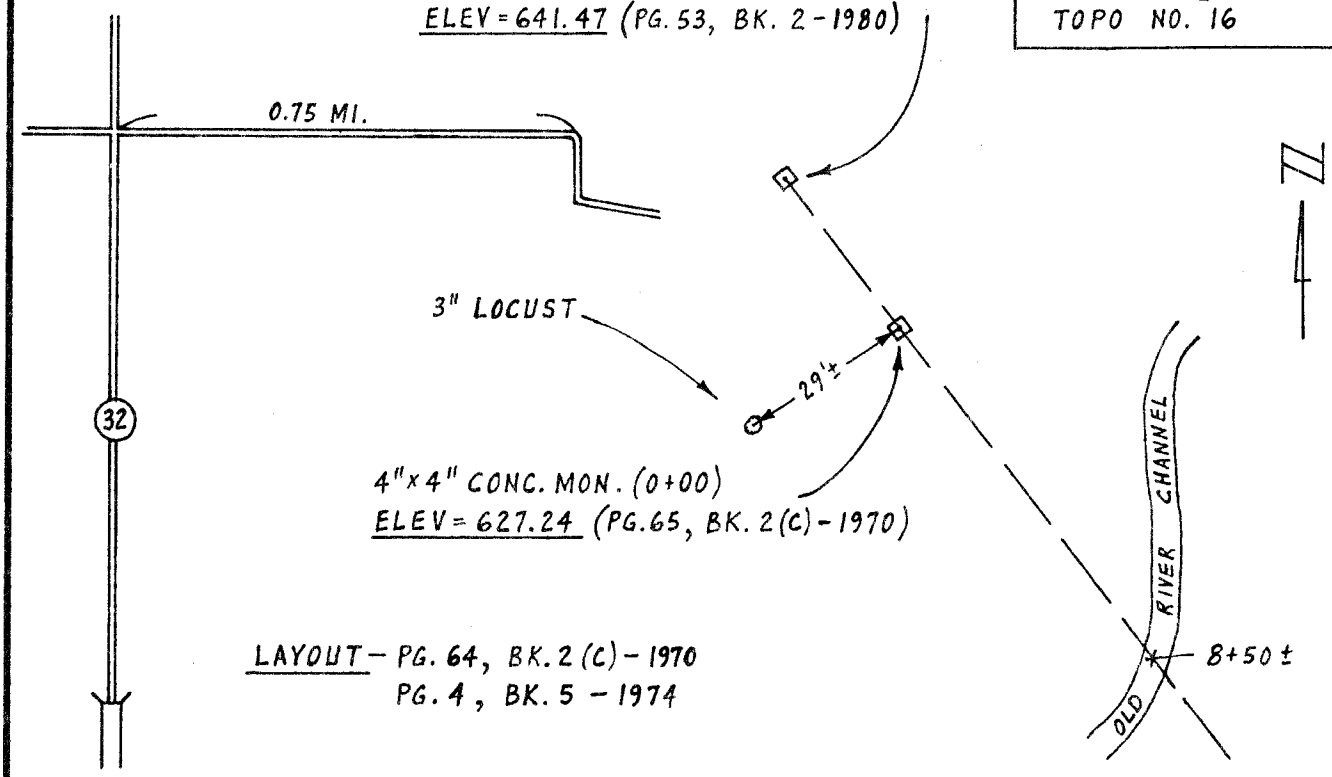


COMPUTATION SHEET

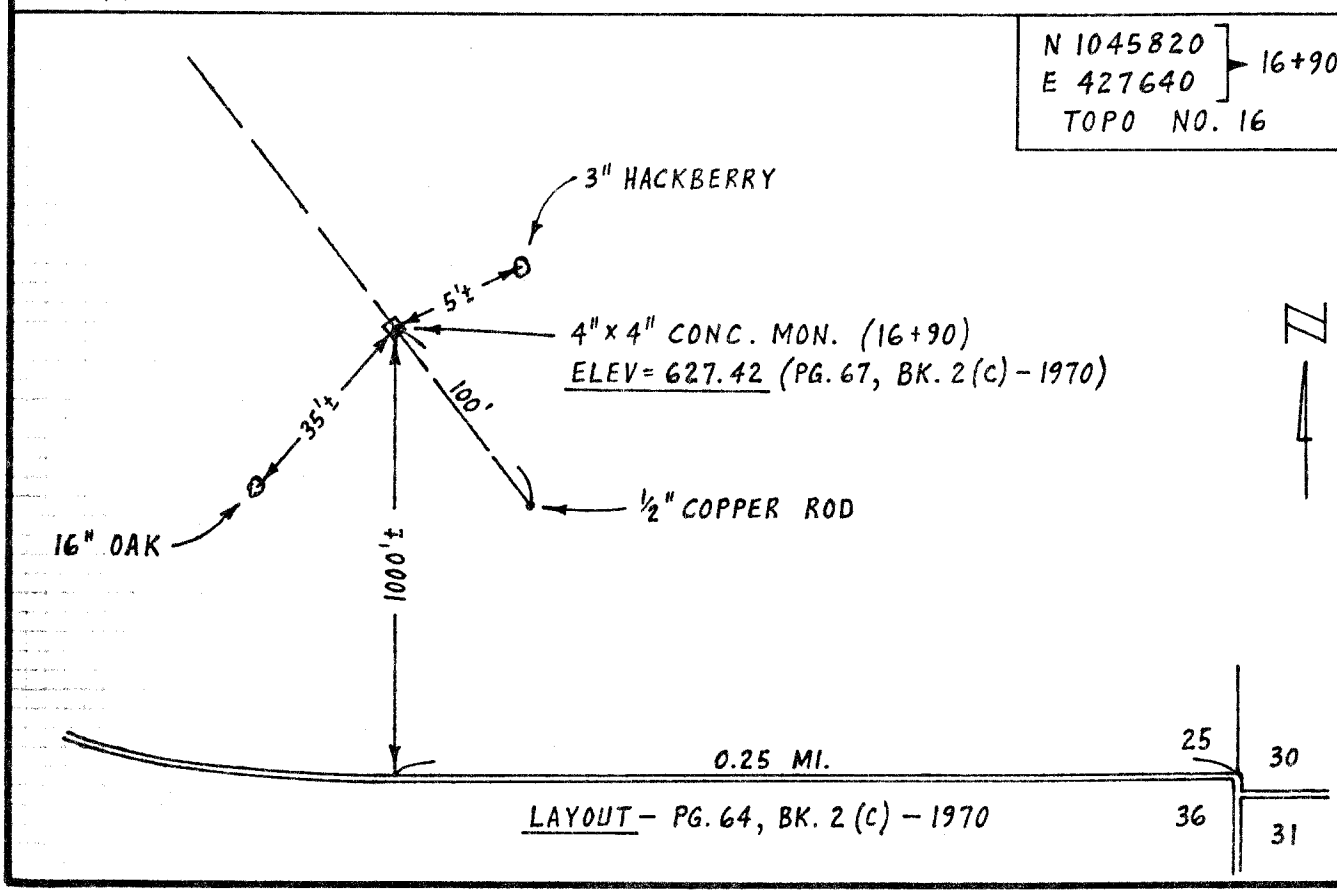
PROJECT LAKE SHELBYVILLE	PAGE 33 OF 40	COMPUTED BY WDM	DATE 8-07-81
SUBJECT SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 33-A

N 1047150
E 426600 } 0+00
TOPO NO. 16



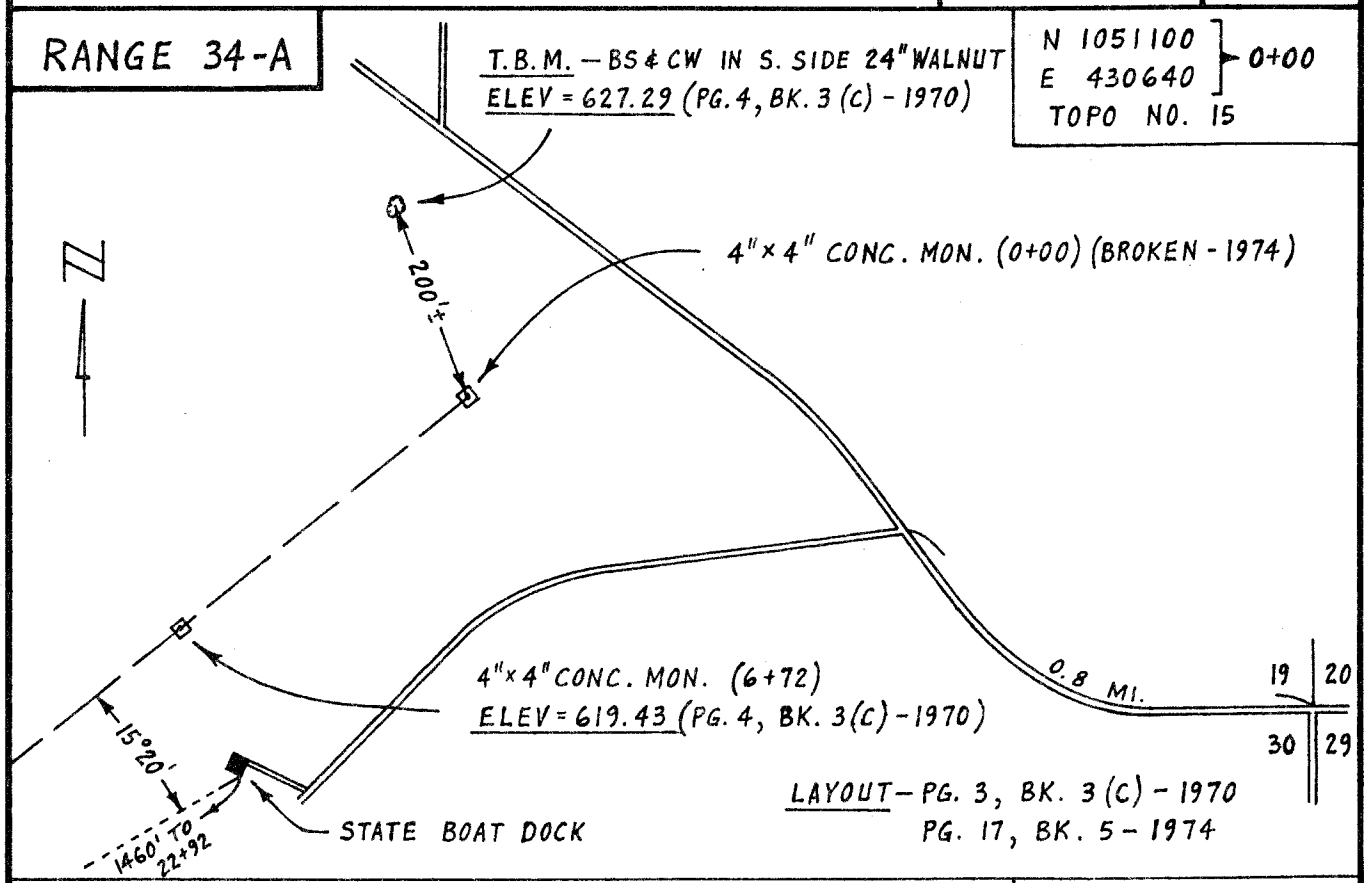
N 1045820
E 427640 } 16+90
TOPO NO. 16



COMPUTATION SHEET

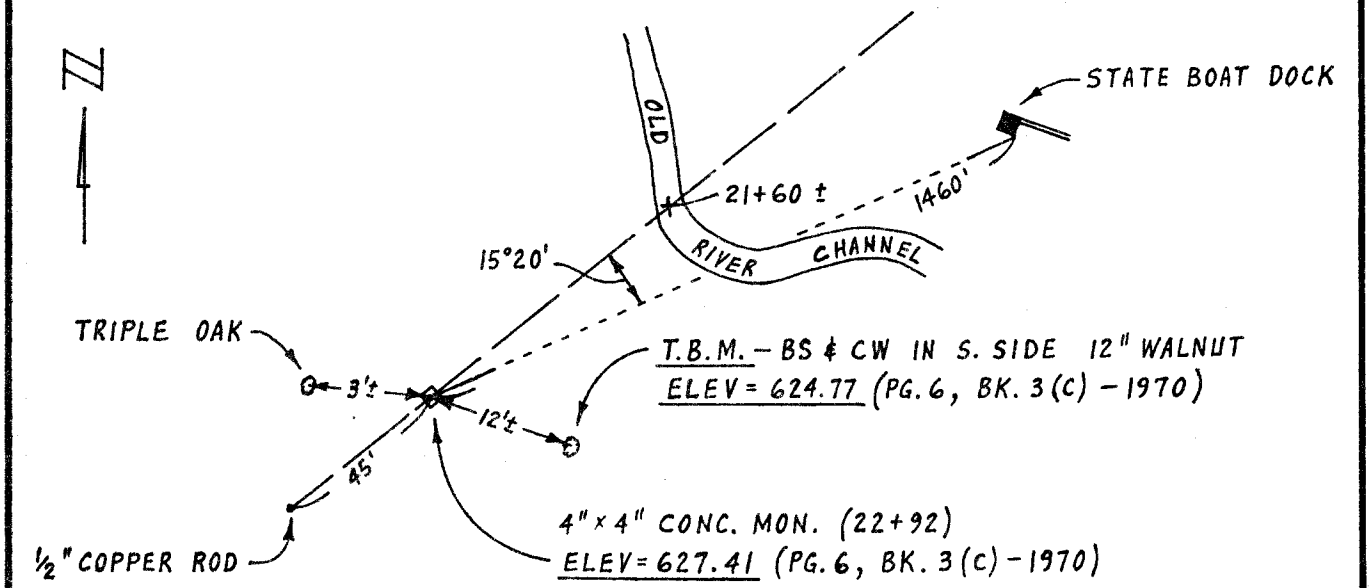
PROJECT	LAKE SHELBYVILLE	PAGE 34 OF 40	COMPUTED BY W&M	DATE 9-08-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 34-A



LAYOUT – PG. 3, BK. 3(C) - 1970

N 1050000
E 428630
22+92
TOPO NO. 16

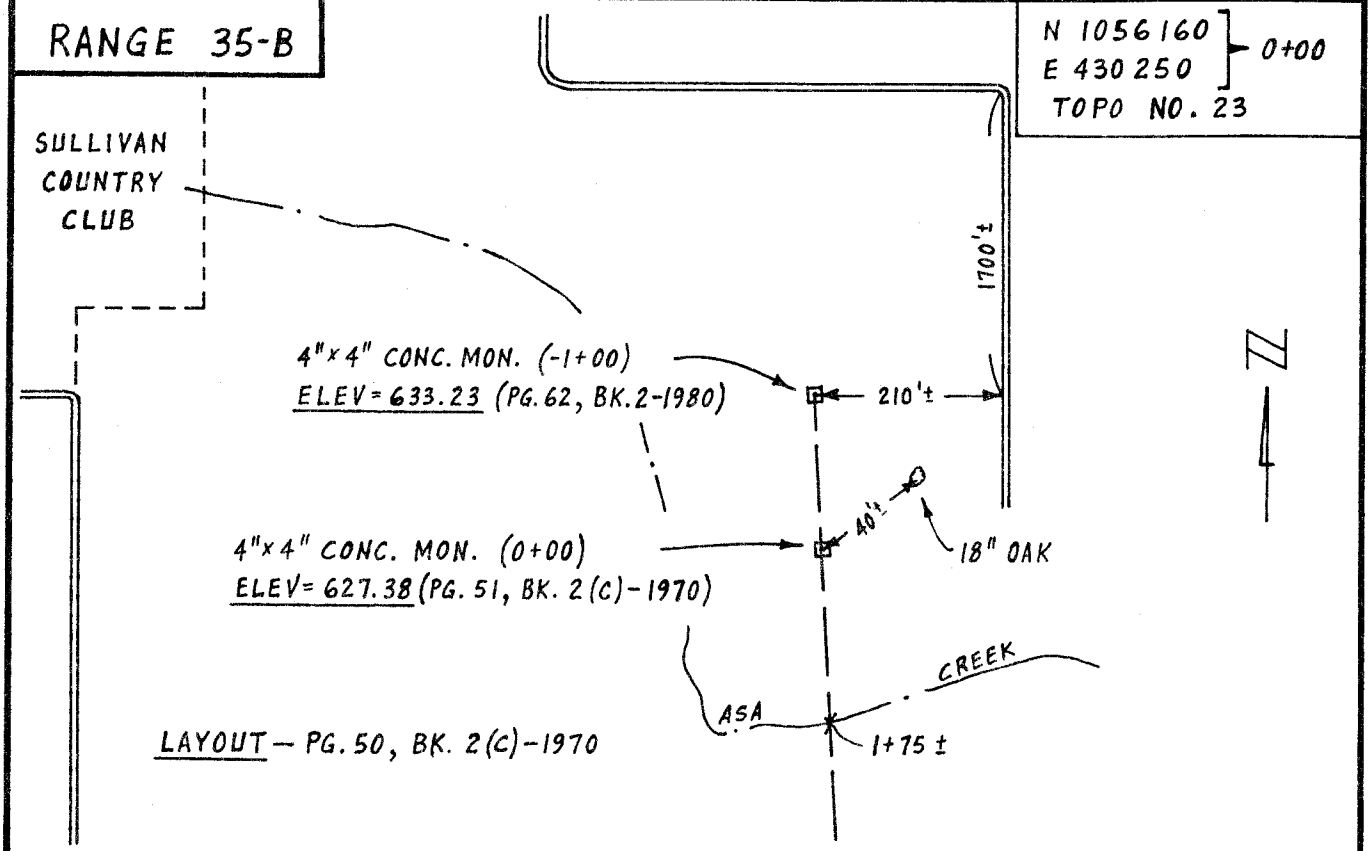


COMPUTATION SHEET

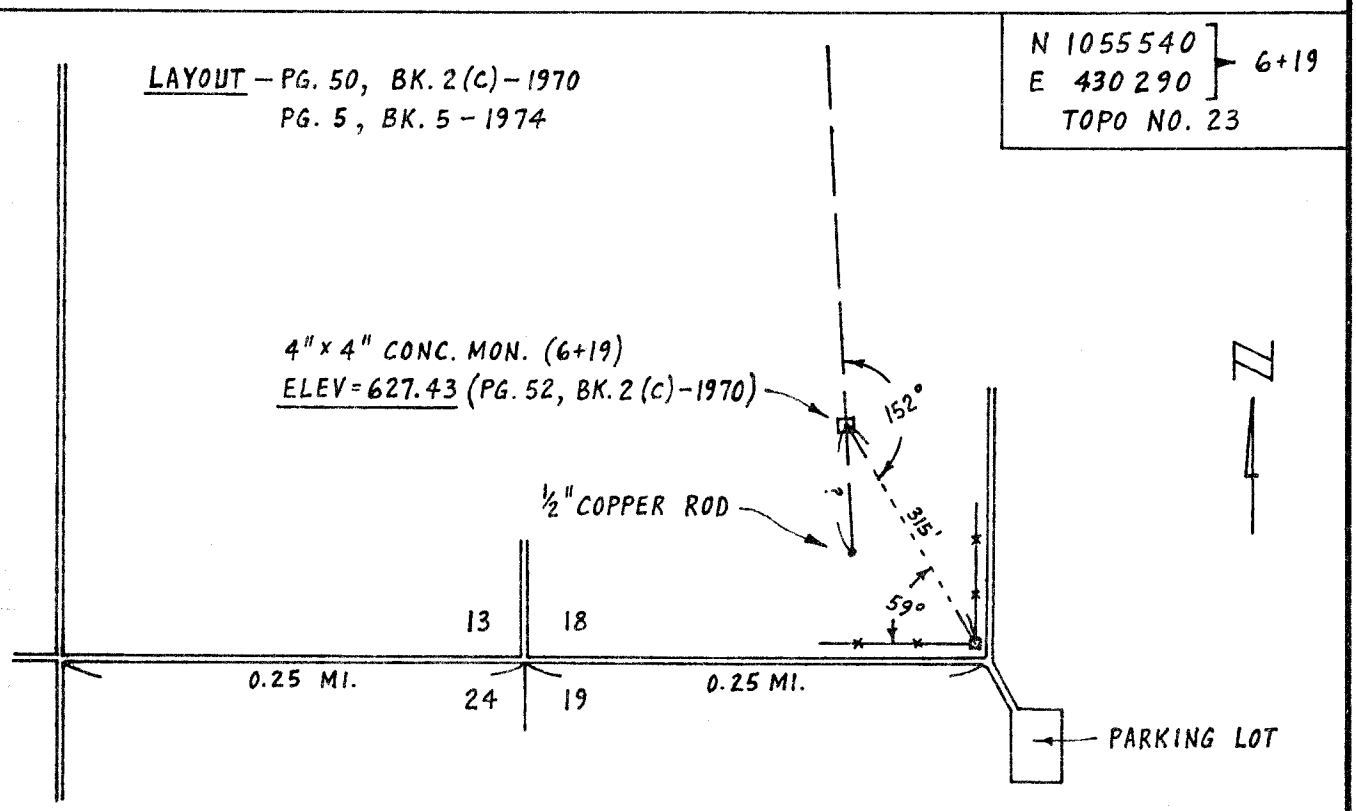
PROJECT	LAKE SHELBYVILLE	PAGE 35 OF 40	COMPUTED BY WSM	DATE 9-08-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 35-B

N 1056160
E 430250
TOPO NO. 23
0+00



N 1055540
E 430290
TOPO NO. 23
6+19

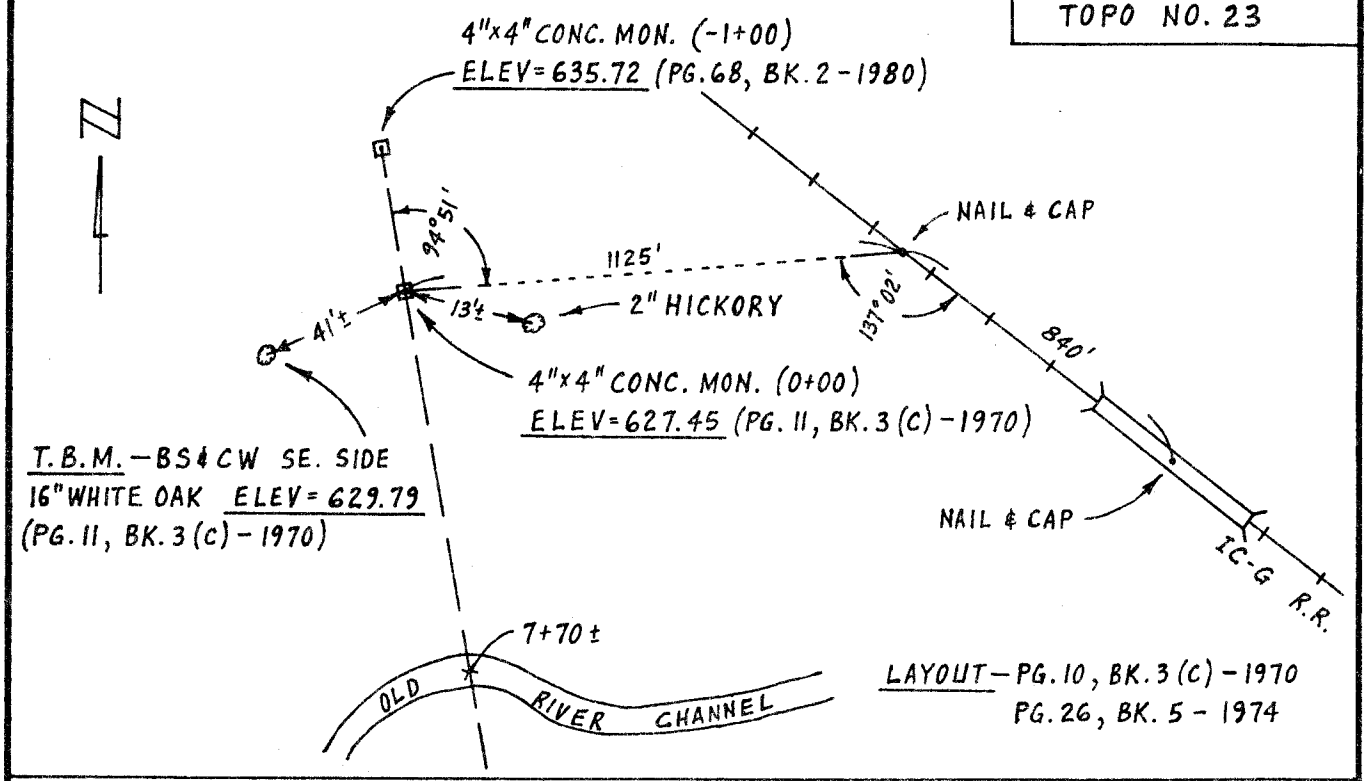


COMPUTATION SHEET

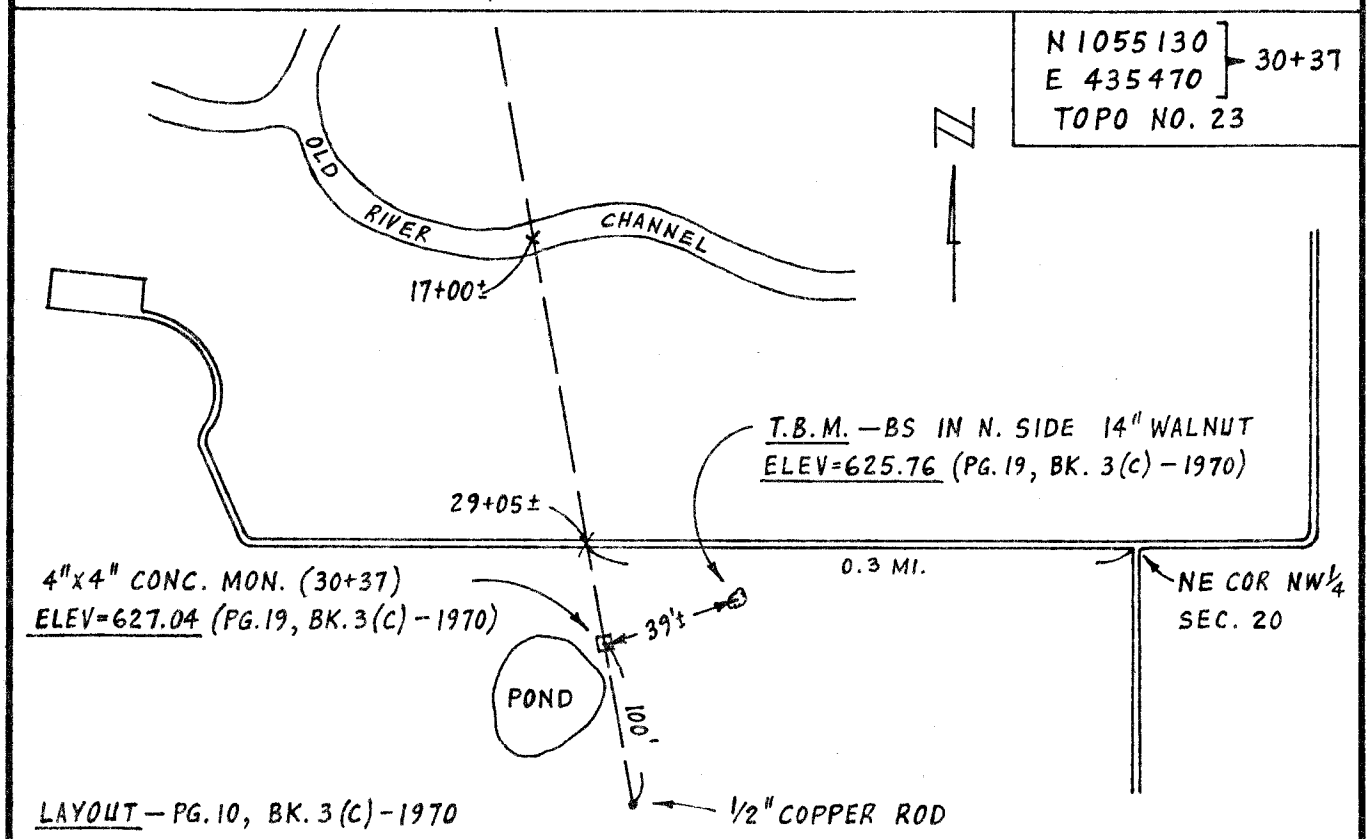
PROJECT	LAKE SHELBYVILLE	PAGE 36 OF 40	COMPUTED BY WJM	DATE 9-09-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 36-A

N 1058120
E 434900 } 0+00
TOPO NO. 23



N 1055130
E 435470 } 30+37
TOPO NO. 23

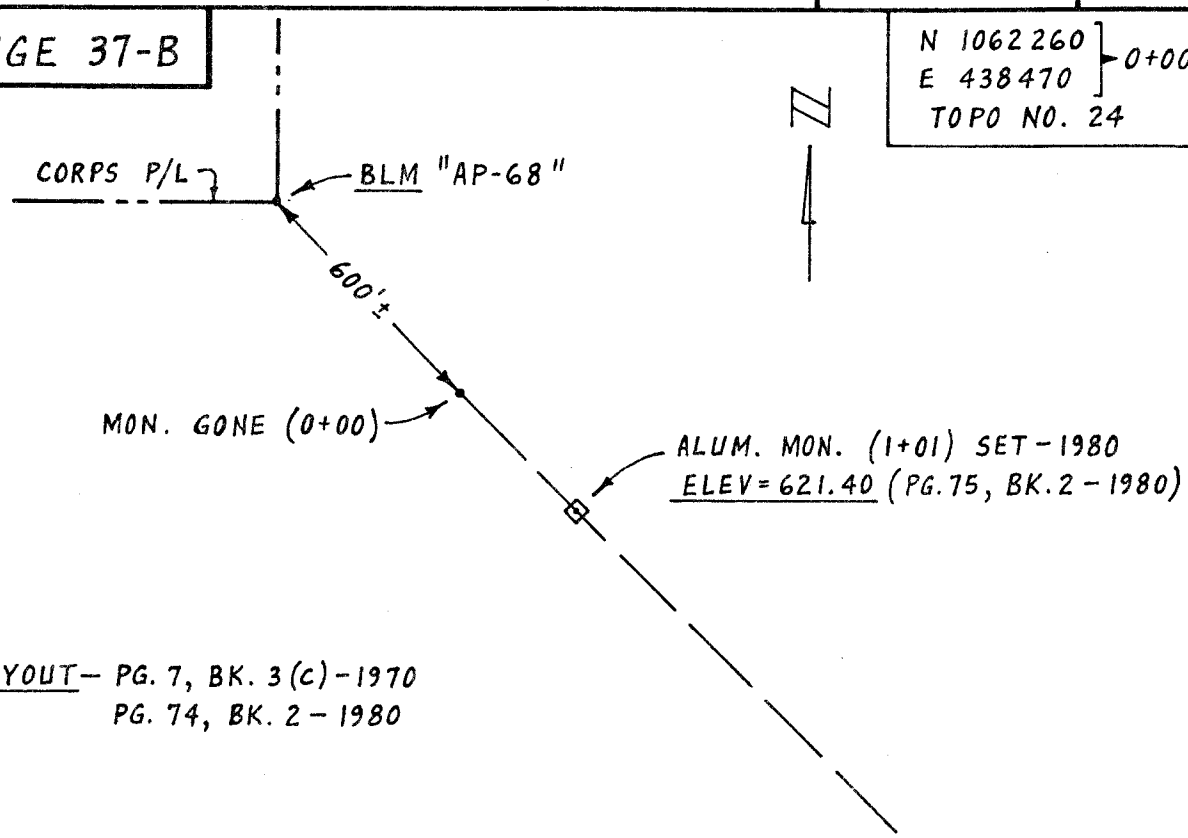


COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 37 OF 40	COMPUTED BY WJM	DATE 9-16-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

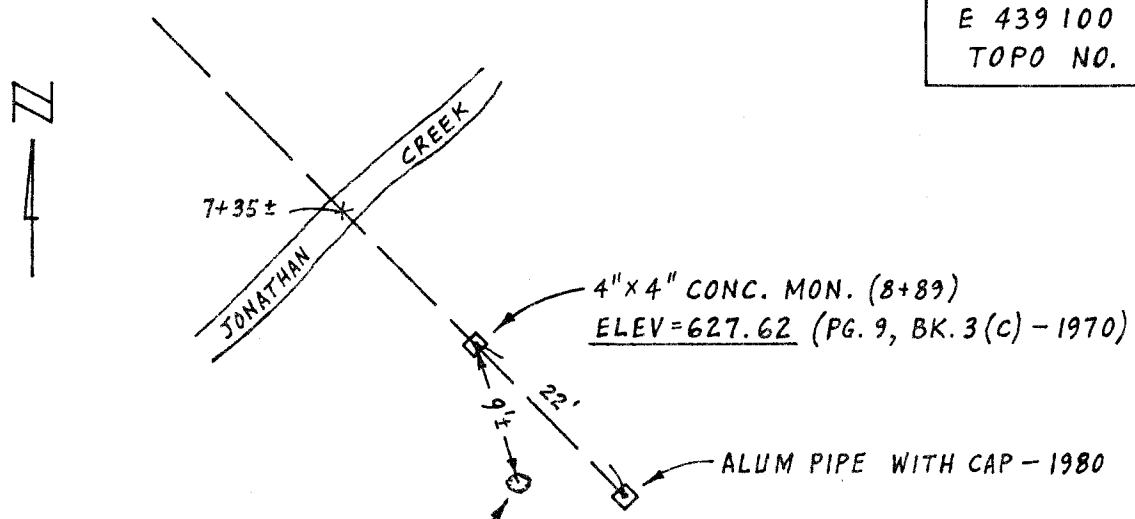
RANGE 37-B

N 1062260
E 438470
TOPO NO. 24
0+00



LAYOUT- PG. 7, BK. 3(c)-1970
PG. 74, BK. 2-1980

N 1061630
E 439100
TOPO NO. 23
8+89



T.B.M. - BS & CW IN 12" MAPLE
ELEV=635.63 (PG. 9, BK. 3(c)-1970)

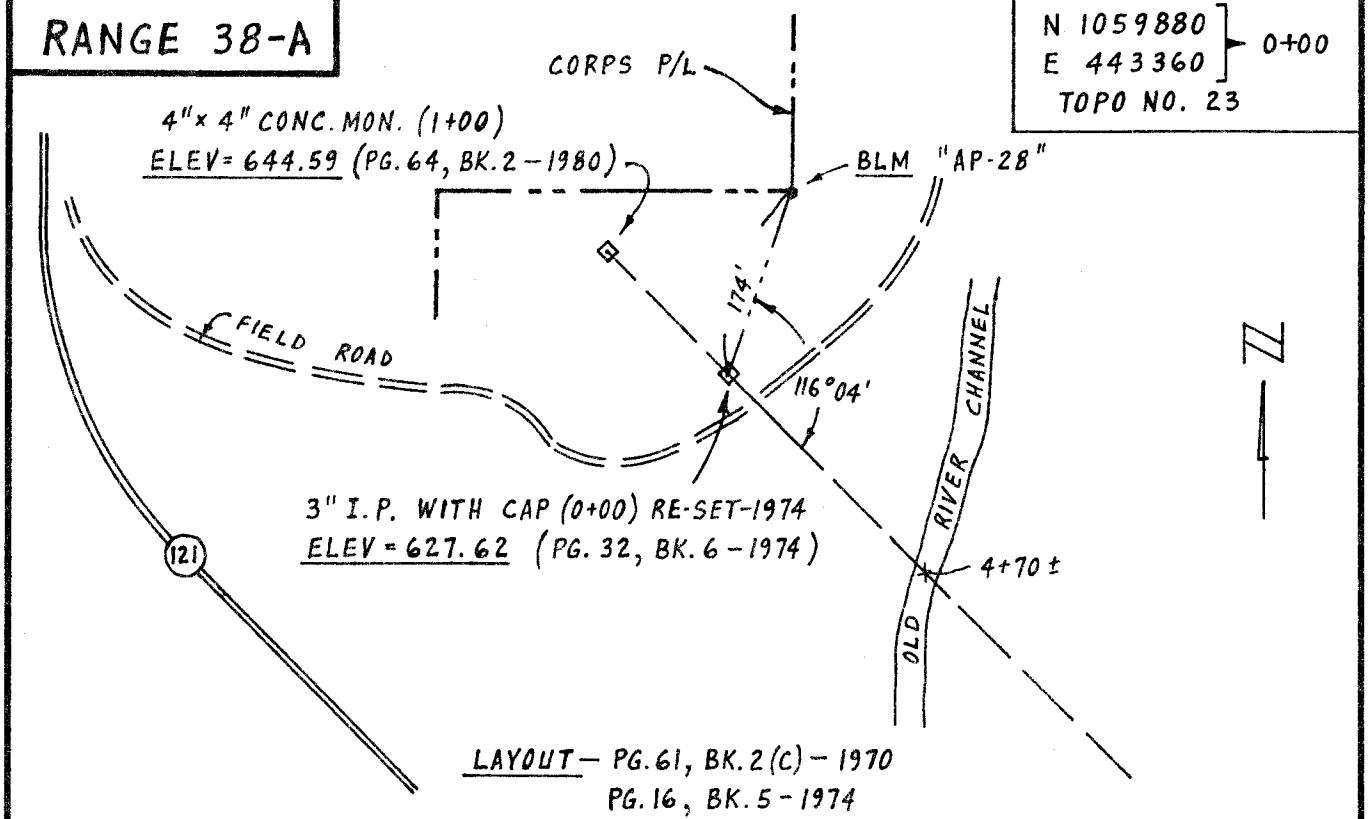
LAYOUT- PG. 7, BK. 3(c)-1970
PG. 74, BK. 2-1980

COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 38 OF 40	COMPUTED BY W&M	DATE 9-17-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

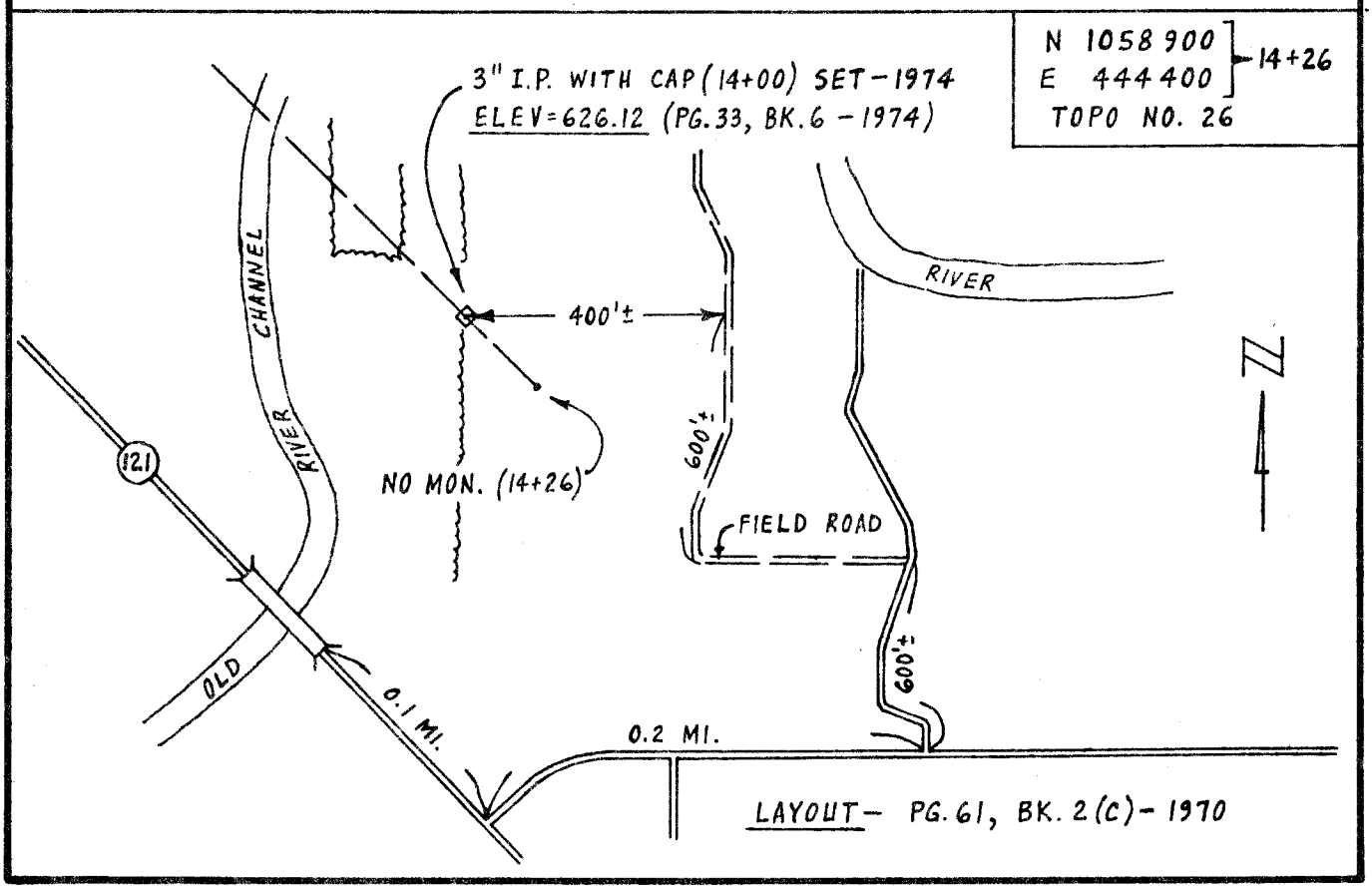
RANGE 38-A

N 1059880
E 443360 → 0+00
TOPO NO. 23



LAYOUT - PG. 61, BK. 2 (C) - 1970
PG. 16, BK. 5 - 1974

N 1058900
E 444400 → 14+26
TOPO NO. 26



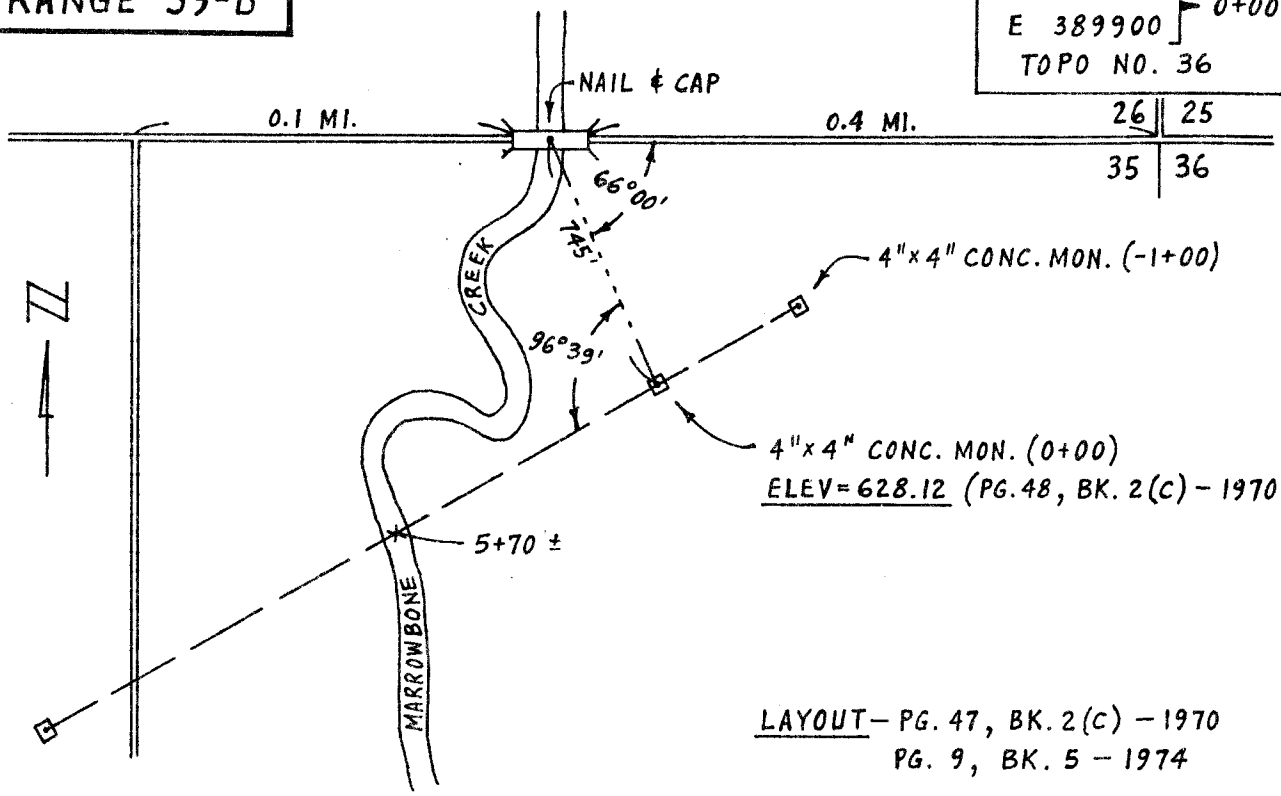
LAYOUT - PG. 61, BK. 2 (C) - 1970

COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 39 OF 40	COMPUTED BY W&M	DATE 9-24-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

RANGE 39-B

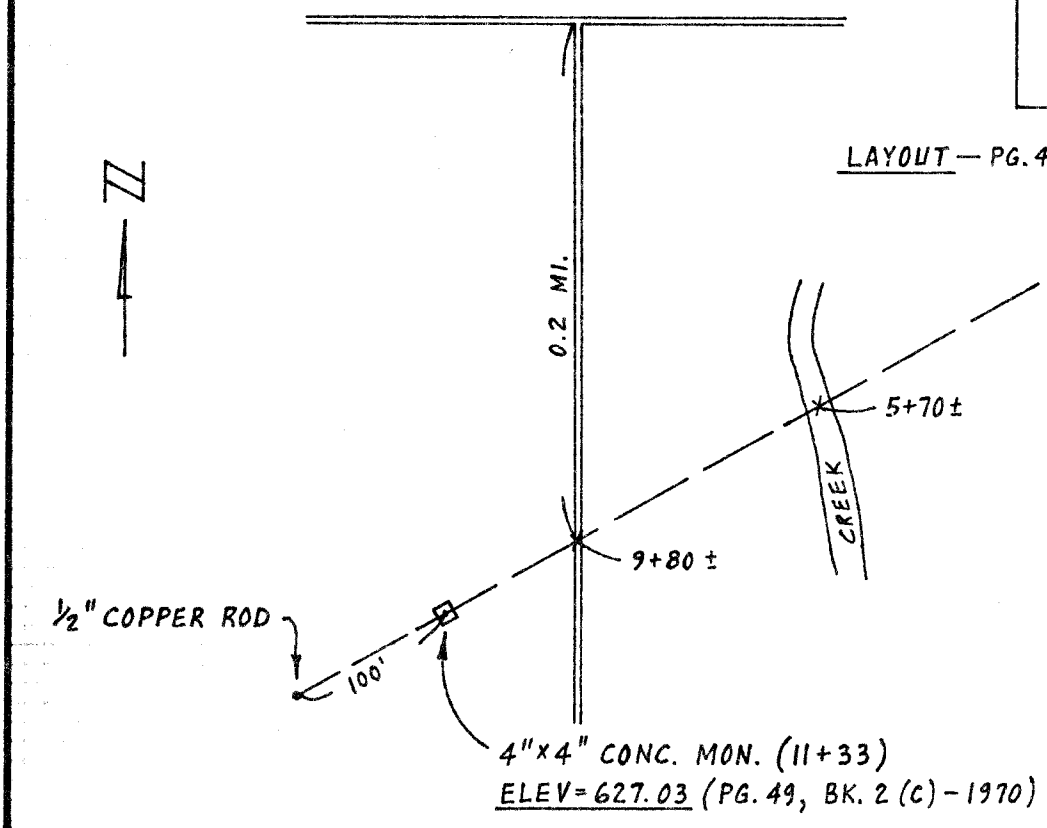
N 1076110
E 389900 } 0+00
TOPO NO. 36



LAYOUT - PG. 47, BK. 2(C) - 1970
PG. 9, BK. 5 - 1974

N 1075540
E 388920 } 11+33
TOPO NO. 36

LAYOUT - PG. 47, BK. 2(C) - 1970



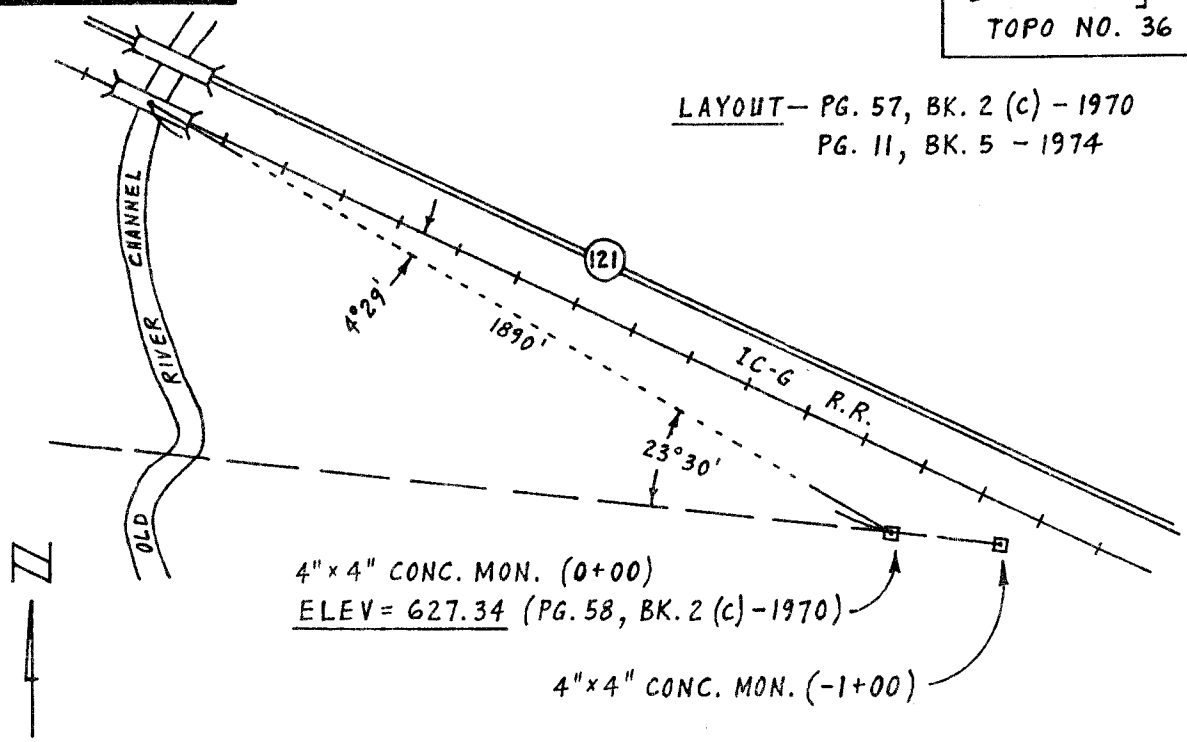
COMPUTATION SHEET

PROJECT	LAKE SHELBYVILLE	PAGE 40 OF 40	COMPUTED BY W&M	DATE 9-30-81
SUBJECT	SEDIMENTATION RANGE CONTROL		CHECKED BY	DATE

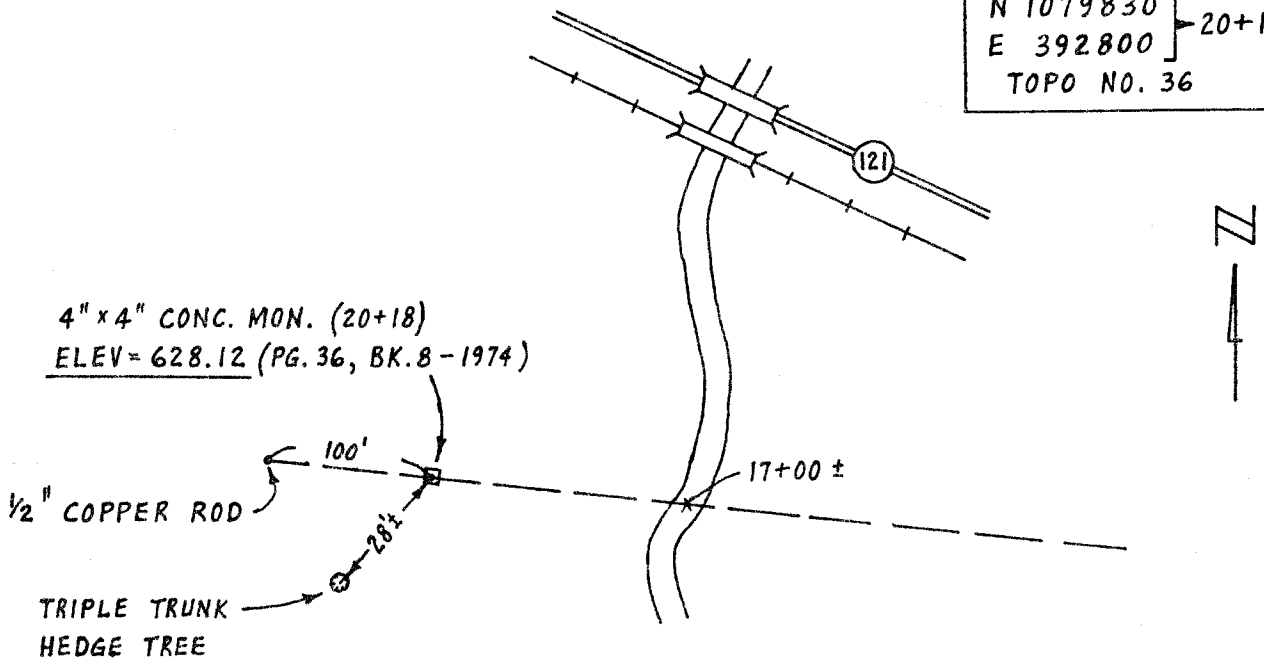
RANGE 40-B

N 1079610
E 394800 → 0+00
TOPO NO. 36

LAYOUT — PG. 57, BK. 2 (c) - 1970
PG. 11, BK. 5 - 1974



N 1079830
E 392800 → 20+18
TOPO NO. 36



LAYOUT — PG. 57, BK. 2 (c) - 1970