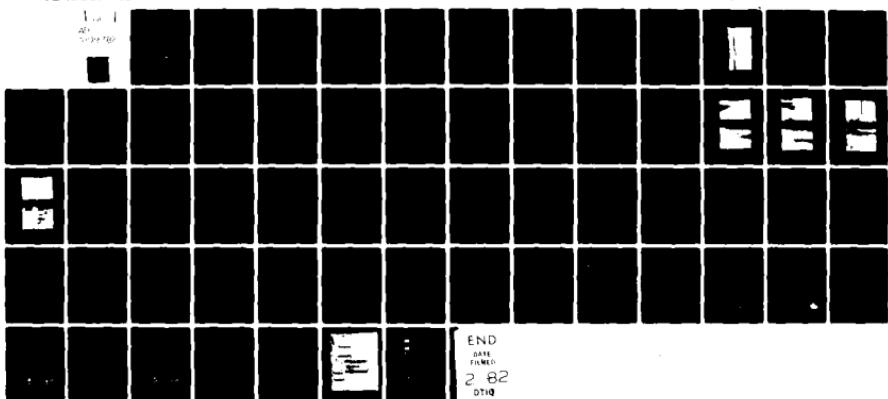
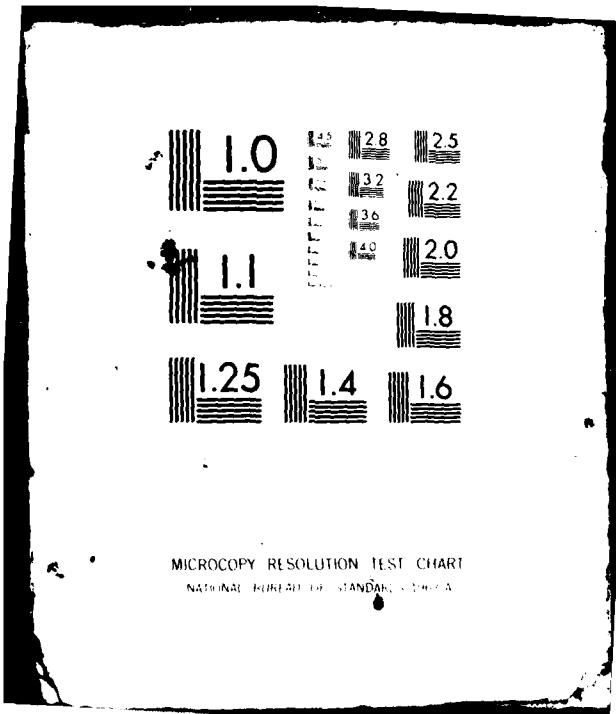


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SUSQUEHANNA RIVER BASIN

ALEXANDER LAKE DAM

TIOGA COUNTY, NEW YORK

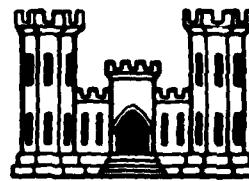
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JULY 1981

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| REPORT DOCUMENTATION PAGE | | READ INSTRUCTIONS BEFORE COMPLETING FORM |
|---|--|--|
| 1. REPORT NUMBER | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER |
| | | AD-A109 282 |
| 4. TITLE (and subtitle) Phase I Inspection Report Alexander Lake Dam Seneca River Basin, Tioga County, NY Inventory No. 839 | 5. TYPE OF REPORT & PERIOD COVERED Phase I Inspection Report National Dam Safety Program | |
| 6. AUTHOR(s) LAWRENCE D. ANDERSEN | 7. PERFORMING LAB. REPORT NUMBER | |
| | 8. CONTRACT OR GRANT NUMBER(S) DAMST-81-C-0011 | |
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| 18. DISTRIBUTION STATEMENT (for the contract entered in Block 3, if different from Report) | | |
| 19. SUPPLEMENTARY NOTES | | |
| 20. KEY WORDS (Continue on reverse side if necessary and identify by block number) Dam Safety National Dam Safety Program Visual Inspection Hydrology, Structural Stability | | Alexander Lake Dam Seneca River Basin Tioga County |
| 21. EVALUATION (Continue on reverse side if necessary and identify by block number) This report provides information and analysis of the physical condition of the dam. All of the report data, information and analysis are based on visual inspection of the dam by the performing organization. | | |
| Based on the evaluation of the existing conditions, the condition of Alexander Lake Dam is considered to be fair. A minor seepage area and some wet areas are located along the downstream toe. The vertical and horizontal alignment of the dam crest is irregular. However, the | | |

observed conditions are not consistent to significantly affect the overall performance of the dam at this time.

The owner's representative reported that the low level outlet pipe for the embankment was plugged by concrete prior to the filling of the dam, as required by the design drawings. Therefore, the dam has no functional low level outlet facilities that could draw down the reservoir in the event of an emergency.

The spillway capacity was evaluated according to the recommended procedure and was found to pass 80 percent of the Probable Maximum Flood (PMF) without overtopping the dam and full PMF with a minor overtopping of the embankment. The spillway capacity of the dam is rated to be inadequate because the spillway cannot pass the recommended spillway design flood of full PMF without overtopping the dam.

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of those guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20316. The purpose of a Phase I investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the spillway design flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

| | |
|---------------|---|
| Spillway Test | X |
| 1775 ft ASL | |
| 1771 ft ASL | |
| 1766 ft ASL | |
| 1744 ft ASL | |
| 1730 ft ASL | |
| 1715 ft ASL | |
| 1690 ft ASL | |
| 1675 ft ASL | |
| 1660 ft ASL | |
| 1645 ft ASL | |
| 1630 ft ASL | |
| 1615 ft ASL | |
| 1600 ft ASL | |
| 1585 ft ASL | |
| 1570 ft ASL | |
| 1555 ft ASL | |
| 1540 ft ASL | |
| 1525 ft ASL | |
| 1510 ft ASL | |
| 1495 ft ASL | |
| 1480 ft ASL | |
| 1465 ft ASL | |
| 1450 ft ASL | |
| 1435 ft ASL | |
| 1420 ft ASL | |
| 1405 ft ASL | |
| 1390 ft ASL | |
| 1375 ft ASL | |
| 1360 ft ASL | |
| 1345 ft ASL | |
| 1330 ft ASL | |
| 1315 ft ASL | |
| 1300 ft ASL | |
| 1285 ft ASL | |
| 1270 ft ASL | |
| 1255 ft ASL | |
| 1240 ft ASL | |
| 1225 ft ASL | |
| 1210 ft ASL | |
| 1195 ft ASL | |
| 1180 ft ASL | |
| 1165 ft ASL | |
| 1150 ft ASL | |
| 1135 ft ASL | |
| 1120 ft ASL | |
| 1105 ft ASL | |
| 1090 ft ASL | |
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| 655 ft ASL | |
| 640 ft ASL | |
| 625 ft ASL | |
| 610 ft ASL | |
| 595 ft ASL | |
| 580 ft ASL | |
| 565 ft ASL | |
| 550 ft ASL | |
| 535 ft ASL | |
| 520 ft ASL | |
| 505 ft ASL | |
| 490 ft ASL | |
| 475 ft ASL | |
| 460 ft ASL | |
| 445 ft ASL | |
| 430 ft ASL | |
| 415 ft ASL | |
| 400 ft ASL | |
| 385 ft ASL | |
| 370 ft ASL | |
| 355 ft ASL | |
| 340 ft ASL | |
| 325 ft ASL | |
| 310 ft ASL | |
| 295 ft ASL | |
| 280 ft ASL | |
| 265 ft ASL | |
| 250 ft ASL | |
| 235 ft ASL | |
| 220 ft ASL | |
| 205 ft ASL | |
| 190 ft ASL | |
| 175 ft ASL | |
| 160 ft ASL | |
| 145 ft ASL | |
| 130 ft ASL | |
| 115 ft ASL | |
| 100 ft ASL | |
| 85 ft ASL | |
| 70 ft ASL | |
| 55 ft ASL | |
| 40 ft ASL | |
| 25 ft ASL | |
| 10 ft ASL | |
| 5 ft ASL | |
| 0 ft ASL | |

A

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
ALEXANDER LAKE DAM
S.Y. 936
REC I.D. NO. 000-1302
CHESAPEAKE RIVER BASIN
FINGER COUNTRY, NEW YORK

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PAGE 1 INSPECTION REPORT
NATIONAL FIRE SAFETY PROGRAM

| | |
|--------------------|--|
| Name of Com- | CHICAGO LUMBER CO. C. & S. CO. |
| Trade License | 2000-100 |
| County Located | Chicago |
| Address | 100 N. Wabash Avenue Suite 1000 - Chicago, Illinois |
| Date of Inspection | Wednesday, April 22, 1981 |

INSPECTION

Result of the inspection of the following building(s). The results of this inspection will be submitted to the City of Chicago Department of Fire and other appropriate authorities during the resolution of the violations or deficiencies in the building. It is anticipated that the appropriate authority will take whatever action is deemed necessary to correct the identified problems in the City of Chicago.

The owner's representative has indicated that the two named individuals are assigned to handle all aspects of the running of the business, no supervisor to the regular working employees. The two are responsible for handling any fire related problems that would arise from the operation of the business.

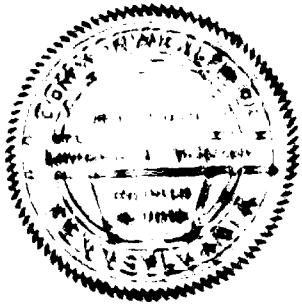
The inspection report will be completed concerning the recommendations and will reflect the name of members of the Chicago Fire Department (CFD) who conducted the inspection. The CFD will make a formal report of the inspection. The inspection report of the CFD is subject to the review of the CFD. The inspection report of the CFD will be forwarded to the appropriate authority for final and complete interpretation of the findings.

This following recommendation will suffice to represent the intent of generalities in a more lengthy form:

1. Measures will be taken to see if the City of Chicago is to be informed of the deficiency - Removal of signage - and/or the remodeling.
2. The owner should remain simple to keep from the occurrence of the cause of the deficiency.

Assessments - Alexander Lake Dam

3. The cross of the dam should be surveyed and the low spots filled to provide a uniform dam crest level. In conjunction with this work, the upstream face of the dam should be reshaped and the need for placing erosion protection should be evaluated by the owner.
4. An emergency dam lift plan of the developed including a float assembly system to allow the dam to be removed in the event of an emergency.
5. The dam and appurtenance structures should be inspected regularly and necessary maintenance should be performed.



Loren P. Dales

Commonwealth of Massachusetts, 8/2
Loren P. Dales, Esq.
Wellesley Office Community Corp., Inc.
500 Washington Street, Wellesley, Mass.

Appraiser No. 5

Loren P. Dales

Mass. Dept. of Natural Resources

L. Dales

W. A. ANDREWS
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AT LAW
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New York, N.Y.

W. A. ANDREWS

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
ALEXANDER LAKE DAM
S.T. 936
DEC 1, 1980 00A-3392
MOHAWK RIVER BASIN
TIOGA COUNTY, NEW YORK

SECTION I - PROJECT INFORMATION

1. 1 GENERAL

a. History

The Phase I Inspection was requested because one section of the dam is owned by the Army, the New York State, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-637.

b. Purpose of Inspection

The inspection will evaluate the existing conditions of the dam and will be limited to safety features and functions related to those listed under Title 10 CFR 1050, and associated conditions outside those areas.

1. 2 DESCRIPTION OF PROJECT

a. Dam and Spillway

The dam has been reported as an earth embankment approximately 100 feet long with a maximum height of 12 feet from the foundation base and a mean width of 100 feet. Both the upstream and downstream faces of the dam are covered with grass and there is no ground cover upstream or downstream.

The upstream face of the dam consists of a single layered project which has been built the last 10 years (including 1980-81) and a previously existing, natural embankment along the bottom of the 1980 embankment. The original embankment has been left with a thin soil layer and no vegetation on the top. The new embankment has been constructed over the old soil layer. There is no vegetation on the upstream face of the dam. The downstream embankment has the previous embankment and a new one constructed with a small area being added. The downstream embankment has a thin soil layer on top which will be an area of vegetation over time as shown in Figure 1. The two lowest upstream areas of the dam itself are covered in the center of the dam although the embankments are covered with vegetation at the upstream end of downstream. Therefore, the dam does not have an emergency spillway facility.

b. Location

The dam is located on an unnamed tributary of the East Branch of Owego Creek about one mile west of Newark Valley in Tioga County, New York. Plate I illustrates the location of the dam.

c. Size Classification

The dam is classified as a small dam based on 12-foot height and a maximum storage capacity of 158 acre-feet.

d. Hazard Classification

The dam is classified to be in the high hazard category. Approximately one mile downstream from the dam, the stream flows through a rural residential area. At least five houses are considered to be within the potential floodplain of the stream.

It is estimated that a failure of the dam would cause loss of more than a few lives and appreciable property damage in this area.

e. Ownership

The dam is owned and operated by Newark Valley Central School District, Newark Valley, N.Y. 14811, (604) 642-3221.

f. Purpose of Dam
Irrigation

g. Design and Construction History

The dam was designed by Mr. Howard Ward, Consulting Engineer, from Condor, New York, in 1965. The dam was constructed under a state construction permit application dated May 7, 1965.

h. Normal Operating Procedure

The reservoir is normally maintained at the crest level of the uncontrolled primary spillway at Elevation 1263. The emergency spillway crest is located at Elevation 1264.8.

i. PERTINENT DATA

Elevations referred to in subsequent sections of the report were calculated based on field measurements assuming the primary spillway crest level to be at Elevation 1263 (USGS Datum) which was interpolated from the USGS 7.5-minute Newark Valley Court quadrangle as the normal pool level for the lake. Elevations shown in design drawings appear to be relative to an arbitrary site datum.

j. Drainage Area (acres)

263(1)

⁽¹⁾ Determined from USGS topographic map.

| | |
|---|--|
| <u>b. Discharge at Dam (cfs)</u> | |
| Principal spillway at top of dam | 5(estimated) |
| Auxiliary spillway at top of dam | 1032 |
| Total spillway capacity at top of dam | 1037 |
| <u>c. Elevation (USGS Datum) (feet)</u> | |
| Top of dam | 1267.6 |
| Auxiliary spillway crest | 1264.8 |
| Principal spillway crest | 1263.0 |
| <u>d. Reservoir (acres)</u> | |
| Surface area at top of dam | 21.1 |
| Surface area at crest of auxiliary spillway | 20.0 |
| Surface area at crest of principal spillway | 19.3 |
| <u>e. Storage Capacity (acre-feet)</u> | |
| Top of dam | 158 |
| Auxiliary spillway crest | 108 |
| Principal spillway crest | 65 |
| <u>f. Dam</u> | |
| Type | Earth embankment |
| Length | 450 feet |
| Height | 12 feet |
| Top width | 9 feet |
| Side slopes | Downstream: 3H:1V Upstream: 3H:1V |
| Zoning | No |
| Impervious core | No |
| Cutoff | Yes |
| Grout curtain | No |
| <u>g. Primary Spillway</u> | |
| Type | 3-foot-diameter corrugated metal pipe drop inlet |
| Length | 9-foot perimeter |
| Crest elevation | 1263 |
| <u>h. Emergency Spillway</u> | |
| Type | Vegetated trapezoidal earth channel |
| Length | 60 feet (as measured) |
| Crest elevation | 1264.8 |
| <u>i. Reservoir Drain</u> | |
| The dam has no functional reservoir drain facility. | |

SECTION 2: ENGINEERING DATA

2.1 DATA AVAILABLE

Available information was obtained from New York State Department of Environmental Conservation, Dam Safety Division files. Available information consists of three design drawings. No other information or reference to such information was located. Mr. Donald Alexander, the owner's representative, was interviewed to obtain additional information on the design and construction of the dam.

2.2 GEOLOGY

The Alexander Lake Dam is located in the glaciated Allegheny Plateau section of the Appalachian Plateau Province. This section is characterized as a maturely dissected plateau with the features modified by continental glaciation, including deposition of glacial till in the valleys.

The dam site is near the axis of a northeast trending anticline (approximately north 70 degrees east). The folding is gentle with the maximum dip of the limbs one to two degrees. The strata at the dam are nearly horizontal and the dip of the strata are affected locally by the folding; however, regionally, the rock strata dip south to southwest at approximately 100 to 150 feet per mile. Regional discontinuities trend approximately east-west and north-east.

The rock strata in the area consist of unconsolidated Pleistocene glacial till (Wisconsin Drift) underlain by strata of the Lower West Falls Group (Upper Devonian Age). The glacial till consists of a mixture of clay and silt with varying amounts of gravel. The glacial till is relatively thin on hilltops and slopes and thicker in the valleys. The bedrock consists of the Gardeau Formation and the Rorich Glen Shale, a thick sequence of interbedded very dark gray shale and thin siltstone.

The abutment slopes are relatively gentle and not susceptible to landslide slope movement.

2.3 SUBSURFACE INVESTIGATION

No reference was found to indicate a subsurface investigation was conducted in conjunction with the design of the dam. A note included on the design drawing shown in Plate 2 suggests that some test pits may have been excavated to classify the soils in the area.

2.4 EMBANKMENT AND APPURTENANT STRUCTURES

Plate 2 illustrates the typical cross section of the dam. The dam appears to consist of homogeneous fill with a central cutoff

trench. The dam was designed to have a slope of 2 horizontal to 1 vertical downstream and 3 horizontal to 1 vertical upstream. The valley cross section of the dam is included in Plate 3.

The appurtenant structures include a drop inlet primary spillway and open-channel emergency spillway located on the left abutment. Details of the primary spillway are illustrated in Plate 2.

2.5 CONSTRUCTION RECORDS

No records are available on the construction of the dam. According to the owner's representative, the dam was constructed under the supervision of the design engineer.

2.6 OPERATING RECORDS

No operating records are maintained for the dam. The dam is maintained by the owner's personnel.

2.7 EVALUATION OF DATA

The available information does not provide any quantitative data for the assessment of structural, geotechnical and hydraulic features of the dam. The design drawings indicate the low level and primary spillway outlet pipes consist of metal pipes. Because metal pipes are subject to corrosion and failure of one of these pipes may cause distress in the embankment, concern exists as to the structural condition of the facilities. Therefore, the owner should evaluate the structural adequacy of the facilities.

The available information includes no hydrology and hydraulic analysis. Plate 4 shows the design maximum pool level. In the construction permit application to the state, the design capacity of the spillway is noted to be 454 cfs.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspections of Alexander Lake Dam were conducted on March 27 and April 30, 1981. The pool level on the dates of inspection was approximately at the primary spillway level.

b. Embankment

In general, the condition of the dam is considered to be fair. Field observations are illustrated in Plate 5. Two wet areas were observed along the downstream toe of the dam. No seepage flow appeared to be associated with the wet areas. A minor seepage was located on the downstream toe in an area which appeared to be the discharge channel of the low level outlet facility. The upstream slope shoreline was found to be irregular and lacked erosion protection. However, no significant erosion due to wave action was noted.

The dam crest was surveyed relative to the primary spillway crest elevation and was found to have some vertical irregularities. While the design freeboard for the dam is 4 feet, the field survey indicated freeboard ranging from 4.3 to 5.8 feet. The lowest area is at the center of the embankment. The dam crest profile according to field measurements is illustrated in Plate 6.

c. Primary Spillway

The primary spillway consists of a 3-foot-diameter corrugated metal pipe drop inlet structure which discharges into a 24-inch metal pipe terminating at the downstream toe of the dam. Although visible portions of the primary spillway facilities were found to be in good condition, concern exists as to the condition of the metal pipe through the embankment.

d. Emergency Spillway

The emergency spillway is a trapezoidal vegetated earth channel located on the left abutment. The emergency spillway channel was found to be in good condition. The grass cover is well established and adequately maintained. The approach and discharge channel were found to be free of brush and trees or debris which might pose a potential for blockage of the spillway.

e. Reservoir Drain

The dam does not have a functional reservoir drain pipe. The owner's representative indicated that the upstream end of the reservoir drain pipe was plugged with concrete prior to the filling of the dam.

f. Downstream Channel

Downstream channel below the primary spillway outlet pipe is an unprotected earth channel which flows parallel to the toe of the dam for approximately 100 feet and then joins the natural streambed. The channel appears to be stable in the near vicinity of the dam.

g. Reservoir

The reservoir slopes are gentle and no sign of instability was observed.

3.2 EVALUATION

The overall condition of the dam is considered to be fair. The following conditions were observed which require action by the owner:

1. The condition and structural adequacy of the spillway outlet pipe and reservoir drain pipe should be evaluated by the owner.
2. The crest of the dam should be surveyed and low spots filled to provide a uniform dam crest level.
3. The upstream face of the dam should be reshaped and the need for providing erosion protection should be evaluated. The wet areas and the seepage point below the toe of the dam should be periodically observed to document if significant seepage is developing.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The reservoir is normally maintained at the primary spillway crest level with excess inflow discharging through the primary spillway. The dam has no formal operating procedures.

4.2 MAINTENANCE OF THE DAM

The dam is maintained by the owner's personnel. The crest and upstream and downstream faces of the dam and the emergency spillway are covered with grass and were found to be adequately maintained.

4.3 WARNING SYSTEM IN EFFECT

No formal warning system exists for the dam.

4.4 EVALUATION

The maintenance condition of the dam is considered to be fair. The development of a formal warning system is considered to be advisable. Further, in view of a lack of a functional low level outlet facility to drain the lake in the event of an emergency, it is recommended that the owner should develop plans to draw down the reservoir in the event of an emergency.

SECTION 5. HYDRAULIC/HYDROLOGIC

5.1 DRAINS AREA CHARACTERISTICS

The dam has a drainage area of 0.6 square miles. The drainage area is composed of sandstone and talus slope. Soil eravage rates tend to increase.

5.2 ANALYSIS CRITERIA

As previously stated, Alexander Lake Dam is classified as a small dam in the high hazard category. Under the recommended criteria for evaluation of emergency spillway discharge capacity, such requirements are required to pass normally in full PPF. In view of the high downstream damage potential, full PPF was selected as the spillway design flood.

The PPF inflow for the reservoir was determined using the 600 series version of the HEC-1 computer program developed by the Hydrologic Engineering Center of the U.S. Army Corps of Engineers. The data used for the computer input are presented in Appendix 3. The PPF inflow hydrograph was found to have a peak flow of 1790 cfs. Computer outputs are also included in Appendix 3.

5.3 SPILLWAY CAPACITY

The spillway facilities for the dam consist of primary and emergency spillways. The emergency spillway is a trapezoidal earth channel with a base width of 90 feet and side slopes of 3 horizontal to 1 vertical on the abutment side and about 6 horizontal to 1 vertical on the embankment side. The primary spillway is a 20-inch-diameter corrugated metal pipe discharging into a 24-inch corrugated metal pipe. The PPF inflow hydrograph was routed through the reservoir and it was found that the dam can pass 90 percent of the PPF without overtopping the low spots on the crest of the dam. Because the capacity of the primary spillway is negligible compared to the emergency spillway, only the emergency spillway capacity was used in the calculations. For full PPF, it was found the low spots on the crest of the dam could be overtopped for 1.3 hours with a maximum depth of about 0.2 foot. Based on the available head relative to the low spot at the crest of the dam, capacity of the emergency spillway was calculated to be 1032 cfs. Emergency spillway rating calculations are also included in Appendix 3.

5.4 RESERVOIR CAPACITY

The dam impounds a reservoir with a storage capacity of 65 acre-feet at the primary spillway crest level, 108 acre-feet at the emergency spillway crest level, and 150 acre-feet at the level of the low spot on the crest of the dam.

5.5 Stomach contents

The stomach contained one egg. This was a fragment of a large fish egg and was measured about 20 mm. (about 8 mm. in diameter) and approximately 10 mm. long.

5.6 External features

The fish was found to have all spines of the soft caudal ventrally and the last rays of the dorsal of the tail and back and with a slight overlapping of the last rays of the dorsal of the tail.

| <u>Part tested</u> | <u>Estimated total length (in cm.)</u> | <u>Estimated depth of dorsal ventrally (cm.)</u> |
|--------------------|--|--|
| 00 | 2.00 | 0 |
| 00 | 2.00 | 0.00 |
| 1000 | 2.00 | 0.25 |

5.7 Wounds

One area of the right dorsal ventral above the second dorsal and below the first of both soft caudal ventrally covering the body. The right dorsal to a point fixed to the mandibular dentition in the corresponding ventral to

SECTION 4. INFORMATION SECURITY

4.1 INFORMATION SECURITY STRATEGY

a. Strategic Information Security

As discussed in Section 3, although current information security efforts have been largely successful in protecting the data held by the agency, the agency must continue to invest resources to implement and refine the architecture of the data it holds.

b. Strategic and Operational Data

Data held by the agency can be categorized through its usage. Data can be categorized into three main groups: data which is highly sensitive, confidential, or private, and unique data used to ensure the integrity of other data. Therefore, the agency must prioritize data if this data is used to ensure system integrity, based on a user's privacy needs, or the sensitivity of the data relative to the organization.

c. Information Security Measures

4.2.1. Data Protection

The first step to protect the agency from a threat to the organization is to build a solid foundation of security architecture. This architecture must be designed to prevent the threat from reaching the organization.

APPENDIX F

F.1 GENERAL

F.1.1 GENERAL

General instructions will be developed which will direct the individual units how to handle medical and dental personnel who have been assigned to regular battalions or companies. These will be issued to each unit before formation. The instructions will include who has authority to designate the organization as being the medical and dental unit of the unit or the company.

The organization will be one organization consisting of the medical personnel and one dental unit. It will consist of a medical and dental company. The organization will consist of four and five dental units. The organization will be responsible for all dental activities.

F.1.2 INSTRUCTIONS TO DENTAL UNITS

These instructions will be developed by each medical directorate and will be submitted to the medical directorate for consideration in the development of the organization. See Annex A for sample.

F.1.3 INSTRUCTIONS TO MEDICAL UNITS

The medical directorate will develop the organization and instructions concerning the medical and dental personnel and their duties and functions and procedures. It will be developed by the medical directorate for consideration and the two groups will keep the personnel in constant touch. In addition to each other, the personnel of the two directorates will keep in touch and the medical and dental personnel will consult the medical directorate.

F.1.4 INSTRUCTIONS

The following recommendations will be implemented as soon as possible at all military bases.

F.2 GENERAL

1. Emergency and non-emergency teams - the use of the RPD should be prohibited. Instructions to personnel of emergency units to use the RPD should be:
 - a. The medical directorate having charge of these teams, the responsibility for the use of the RPD.
 - b. The medical directorate having charge of these teams, the responsibility for the use of the RPD.
 - c. The use of the RPD should be prohibited and the use of the RPD should be prohibited in accordance with the medical directorate. In addition to the use of the RPD, the personnel of the RPD should be prohibited and the use of the RPD should be prohibited in accordance with the medical directorate.
 - d. An emergency team which should be designated the Building a formal charter among the personnel of the emergency unit to the use of the RPD.
 - e. The RPD and emergency unit should be integrated together and personnel of the RPD should be prohibited.

.....

.....



REFERENCE NO. 1
GARRETT SIGHTING REPORT (Sighting case)



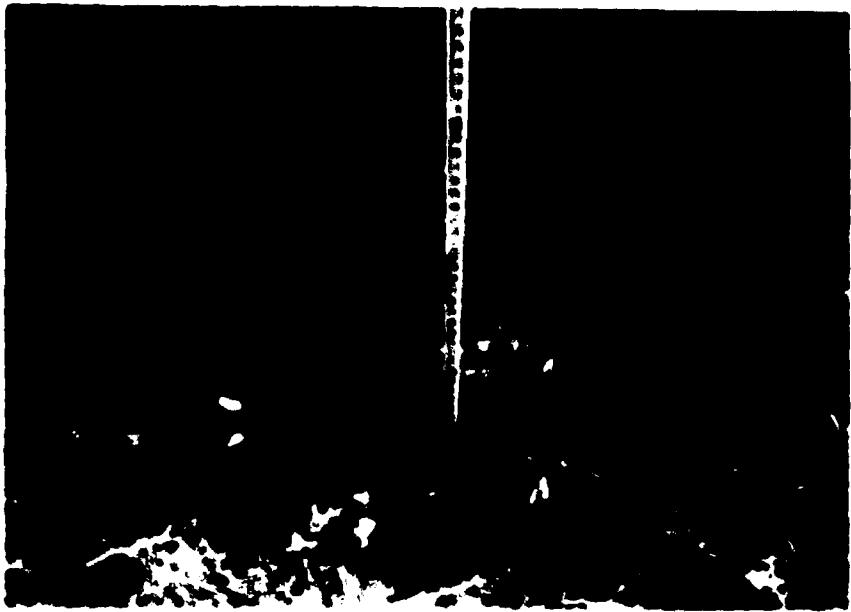
REFERENCE NO. 2
GARRETT SIGHTING REPORT (Sighting case)



EXHIBIT NO. 2
Left Hand Glove (Hand of a Negro woman)



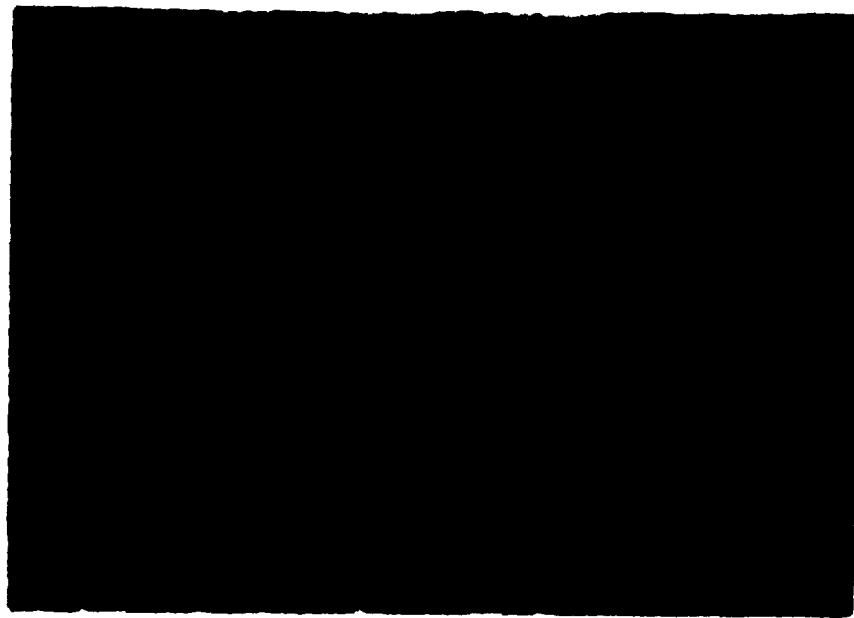
EXHIBIT NO. 3
Right Hand Glove (Hand of a Negro woman)



PHOTOGRAPH NO. 5
Primary Spillway Intake Structure



PHOTOGRAPH NO. 6
Primary Spillway Discharge Pipe



PHOTOGRAPH NO. 7
West and Southwest Areas Adjacent to
Bennet Creek Residential Area



PHOTOGRAPH NO. 8
Bennet Creek Residential Area
(approximately 1.0 mile down stream)

APPENDIX A
VISUAL INSPECTION CHECKLIST

APPENDIX B
VISUAL INSPECTION CHECKLIST

1. Basic Data

a. General

Name of Dam Alexander Lake Dam
Loc. I.D. # N.Y. 930 N.Y. Dam No. 004-3382
River Basin Susquehanna River Basin
Location Town South Valley County Livingston
Reservoir Name None
Elevation of 400 ft above sea level
Bed Elevation (ft) 42' 11.5" Length (ft) 70' 32.0'
Type of Dam Earth
Reservoir Capacity High
Date(s) of Inspection March 27 and April 13, 1981
Weather conditions Partly cloudy, temp 40's and 50's
Reservoir level at time of inspection Normal Pool 21, 1293.0⁽¹⁾
(Water supply)
b. Emergency Personnel Emergency Manager, P.R., James Peeler,
P.R., Brian East, P.R., Captain John, P.R., and Arthur Smith
c. Permit Holder and Office Address & Phone No. J.C. Dr. William Kertzer, Director of Schools,
South Valley Central School District, South Valley,
N.Y. 14031 (601) 542-3221
(2) Owner's Representative: Mr. Donald Alexander

⁽¹⁾ Elevation measurement from TDS of Emergency Manager, South Valley, New York State Office, dated 3/20/81, as recorded April 3, 1981.

2. ~~BB-66-243~~

Base Construction 1965 Date(s) Discontinued N/A
Designed George D. Ward, P.E., Computer Engineer, Center, N.Y.
Constructed by by Fugro Jumbo (a large company)
Other None Wall thickness Thickness

3. Equipment

a. Charged with:

(1) Hydrogen Generator 500 cu ft
(2) Cold Box Filter 3000 cu ft max. + 1000 cu ft min
(3) Compressed Air Compressor None
(4) Condenser Air-cooled System None
(5) Water Treatment None

b. Used:

(1) Water Treatment Equipment Estimated from Figure 9 for 1000
cu ft/min
(2) Water Treatment Equipment Estimated from Figure 9 for 1000
cu ft/min
(3) Water Treatment Equipment None

(4) Water Treatment Equipment None

None

c. Other Items:

(1) Storage Tank (one) 30,000 cu ft (as designed) 270,000 (measured)
(2) Water-treatment Equipment or Water Treatment System None

(3) Emergency Backup Service or Emergency Power None

- (*) Shingle direction - Auger pitch shingle
(*) Best figure (angle) of shingling on roof None
- a. General roof shingle
(*) Shingle (best quality) Shingle (no shingling)
Shingle (no shingling)
(*) Shingles (angle) of shingling on general surface None
- (*) Shingling, surface texture of shingles (note) None
- (*) Best figure (angle) of shingling on roof None
- (*) Roofing None
- (*) General coverage factors (direction, orientation, lighting)
None
- (*) Considerable damage due to weather Exposure of
valley area caused by the heavy rain.
- (*) Damage toward the Very poor and uneven, see
Figure 3 for location.
- b. Materials - Subsurface (note)
No problems observed.

(1) Carries out all controls _____

(2) Improperly carries out controls _____

(3) Observation findings

a) Description of findings The top two the following statements
apply to

b) Description of findings None

c) Description of findings None

d) Interventions (Communication with supervisor, Observation notes, Write, Presentations, File)

2) Reported

- a. Bridges None to U.S. mainland
- b. Damaged or lost None, no damnable problems.
- c. Unusable Control Lane where before this None
- d. None Damaged cause of fire
- e. Damaged roads because of debris, high water, etc. All major
five roads are still damaged.
- f. Damage, damaged ground None
- g. Evidence of movement beyond line of fire None
- h. Condition of Channel road channel Fair, A small number
of culverts.
- i. Uninhabited (including Executive Conference Shanty)
In good condition.
- j. General Service Spillway: Main dikelet off river
discharges into a 24-inch outlet pipe.
Auxiliary Spillway: Vegetated earth channel
on left embankment.
- k. Condition of Service Spillway Good, fresh rock vulnerable
to blockage by debris.

- a) Condition of Discharge Spout(s) Good
- b) Condition of Discharge Convergence Channel Discharge Free
discharge outlet may possibly foul the convergence
area of top
- c) Reservoir Details
- Type Pipe S/A Compound None Onland None
Bottom Concrete None Onland Concrete
Bottom pipe
- Size 6 inches Length 30 feet
Bottom Elevation Sea level Top Sea level Sea level
- Physical Condition (Describ): Inoperable
- Material N/A
- Seams N/A Alignment N/A
- Structural Integrity Unknown
- Hydrostatic Capacity Bottom and rimmed with concrete.
Not accessible.
- Means of Control: Gate N/A Valve N/A Pumped None None
- Operation: Operable N/A Inoperable 1 Other N/A
- Present Condition (Describ): See note above.

2) DISCUSSION

a. COMPARATIVE STUDY THE DIFFERENCE IN THE VARIOUS METHODS

b. DISCUSSION OF METHODS W/A

c. DISCUSSION WITH RESPECT TO THE METHODS (CONT'D)

W/A

d. DISCUSSION WITH RESPECT TO THE METHODS W/A

W/A

e. DISCUSSION WITH RESPECT TO THE METHODS W/A

W/A

f. DISCUSSION WITH RESPECT TO THE METHODS W/A

W/A

4. House - Classroom, etc. ✓/✓

5. Household Linen ✓/✓

6. CONSTRUCTION ✓/✓

7. COMMERCIAL EQUIPMENT ✓/✓

8. EQUIPMENT & MATERIALS ✓/✓

9. OTHER EQUIPMENT (Orange Peels, etc.) ✓/✓

10. FURNITURE ✓/✓

11. STOVES ✓/✓

12. MACHINERY ✓/✓

✓ ✓ ✓

111) REMARKS OR INFORMATION CONCERNING DISEASES, WOUNDS, INJURIES, ETC.

a. NAME OF DOCTOR AND HOSPITAL _____

~~SECRET~~

~~ALL INFORMATION CONTAINED~~

APPENDIX C
DISINTEGRATION DATA (CONTINUED)
TABLE OF 3000 DISINTEGRATIONS PER DAY

DISINTEGRATION DATA

| | <u>Disintg. per day (in sec.)</u> | <u>Half Life (sec.)</u> | <u>No. of days (approx.)</u> |
|--|---------------------------------------|-------------------------|------------------------------|
| 1) Argon 36 | 1.458 x 10 ⁻¹ | 51.3 | 430.0 |
| 2) Barium-107 (about 1/2 that Barium-107) Barium-107 | 1.458 x 10 ⁻¹ | 51.3 | 430.0 |
| 3) Barium-130 (about 1/2 that Barium-130) Barium-130 | 1.458 x 10 ⁻¹ | 51.3 | 430.0 |
| 4) Barium-133 (about 1/2 that Barium-133) Barium-133 | 1.458 x 10 ⁻¹ | 51.3 | 430.0 |
| 5) Barium-135 (about 1/2 that Barium-135) Barium-135 | 1.458 x 10 ⁻¹ | 51.3 | 430.0 |

1) Disintegrated 1000 times stronger than Argon 430.0

2) Disintegrated 1000 times stronger than Barium 430.0

DISINTEGRATION

| | <u>Disintg. per day (in sec.)</u> |
|---|---------------------------------------|
| 1) Argon 36 | 1.458 x 10 ⁻¹ |
| 2) Barium-107 (about 1/2 that Barium-107) Barium-107 | 1.032 |
| 3) Barium-130 (about 1/2 that Barium-130) Barium-130 | 1.032 |
| 4) Barium-133 (about 1/2 that Barium-133) Barium-133 | 1.032 |
| 5) Barium-135 (about 1/2 that Barium-135) Barium-135 | 1.032 |
| 6) Potassium-40 | 1.032 |
| 7) Potassium-40 | 1.032 |
| 8) Potassium-40 | 1.032 |
| 9) Potassium-40 | 1.032 |
| 10) Potassium-40 | 1.032 |
| 11) Potassium-40 | 1.032 |
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| 200) Potassium-40 | 1.032 |

1) Data taken from the 1970 yearbook.

Dam: Alexander Lake Dam
 CREST ELEVATION: 1267.0 (measured low spot)
 Type: Earth
 Width: 9 feet Length: 420 feet
 Spillways: Drop inlet and vegetated earth channel
 Inlets: Drop inlet: Near left abutment; Earth channel: Left
Abutments

SPILLWAY

| DEVICE | AUXILIARY | |
|----------------------------|---|-------------------|
| <u>Drop inlet</u> | Elevation: <u>1264.8</u> | |
| <u>Drop inlet</u> | Type: <u>Vegetated Earth Channel</u> | |
| <u>Drop inlet diameter</u> | Width: <u>60 feet</u> | |
| <u>Type of Control</u> | | |
| <u>Uncontrolled</u> | <u>Uncontrolled</u> | |
| <u>Controlled</u> | | |
| <u>S.A.</u> | Type: <u>N/A</u> (Flashboards, gate) | |
| <u>S.A.</u> | Number: <u>N/A</u> | |
| <u>S.A.</u> | Size/Length: <u>60 feet wide</u> | |
| | Invert Material: <u>Vegetated Earth</u> | |
| | Anticipated Length of operating service: <u>Unknown</u> | |
| <u>SD</u> | Chute Length: <u>N/A</u> | |
| <u>1 1/2 feet</u> | Height Between Spillway Crest and Approach Channel invert (West flow) | <u>2 1/2 feet</u> |

Hydrogeological Gages.

Type: None

Location: N/A

Records:

Date = N/A

Max. Reading = N/A

FLOODWATER CONTROL SYSTEM

Warning System: None

Method of Controlled Releases (Valves/Spills):

None

STATION NO. 10 - 1 + square miles

STATION AND ITS SURFACE CHARACTERISTICS

Land Use - Type - Open cut Company

Resort - Hotel - None

Industries - None - No industrial activity noted

Surface Processes - Washing or planned washing of alluvium down to underlying surface of talus fan (wash zone)

Soil Surface - Soil surface is talus material, sand, and silt

Wash zone

Wash zone

Surface Soil - Soil derived from talus material (wash zone) - presence of talus

None observed

None observed

Surface Soil - Soil derived from talus material (wash zone) - presence of talus

None observed

None observed

Soil - Fluviatile (wash zone and talus zone) - mix together along the transition zone

Soil at 0' - None

Soil at 1' - None

General

Length of Wash Zone - 2,300 ± feet

Length of Shallow Zone of Soil Zone - 2,300 ± feet

RECORDED BY
FBI LABORATORY

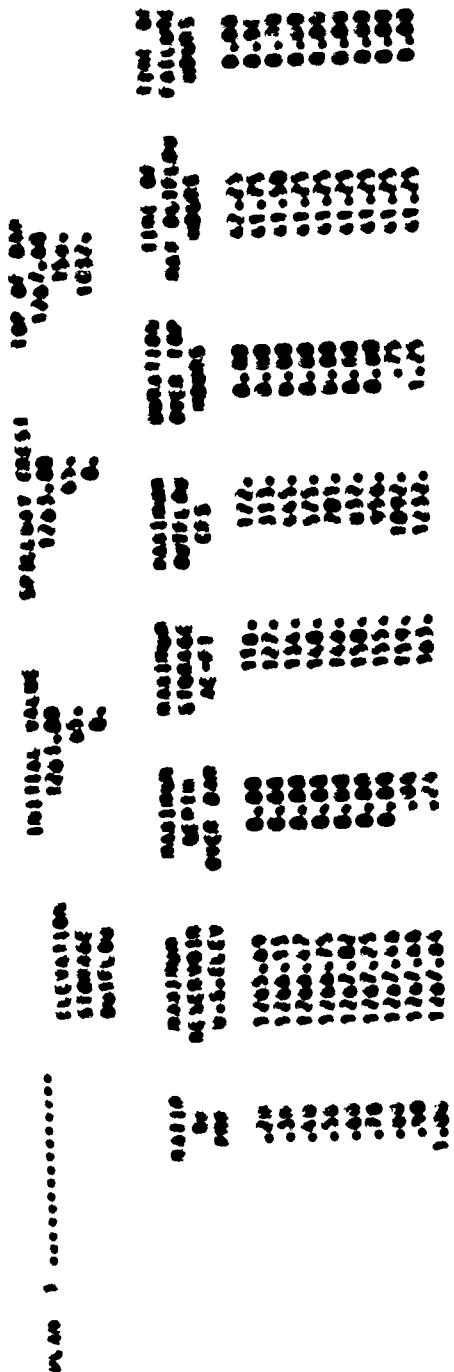
| NAME | NAME | NAME | NAME | NAME |
|------|------|------|------|------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

CONFIDENTIAL REPORT OVERVIEW FOR ANALYSTS
PAGE 37 OF 39

the first time in the history of the country.

OVERTAPPING ANALYSIS SUMMARY
PAGE 10 OF 5

LUMINESCENT DYE ANALYSIS



D'APPOLONIA
CONSULTING ENGINEERS INC

By MR. Dino S. L. S. Subject A. G. G. A. H. C. Dam Sheet No. 1 of 1
One Day W.C. Dam 517181 N.Y. 860 - 3392 Proj. No. 80-778-04

Spillway Capacity
Ref.: "Design of Spillways", C. H. D., 3, 553

$$V_c = \sqrt{\left(\frac{b + \frac{d_c}{2}}{b + d_c}\right) d_c g} \quad (\text{Eq. 1})$$

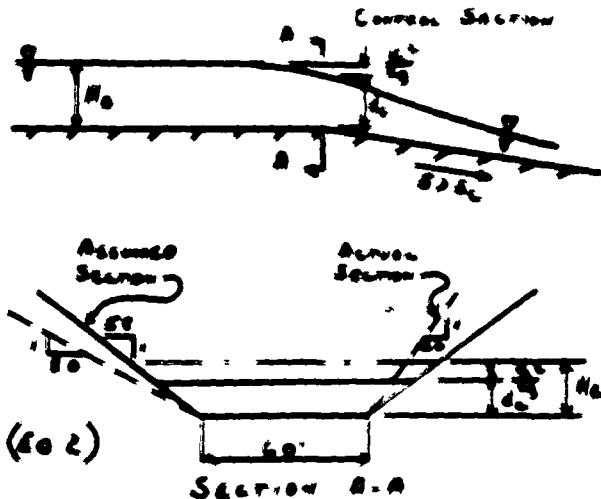
$$H_c = d_c + \frac{d_c}{2g} = d_c + \left(\frac{b + \frac{d_c}{2}}{b + d_c}\right) d_c \left(\frac{1}{2g}\right)$$

$$= \left(\frac{b + \frac{d_c}{2}}{b + d_c}\right) d_c$$

$$d_c = \frac{(35 \cdot 44.2)}{100} = \sqrt{(35 \cdot 44.2)^2 \cdot (9.81) \cdot (100)} \quad (\text{Eq. 2})$$

$$A_c = (2d_c + b)d_c \quad (\text{Eq. 3})$$

$$Q_c = A_c V_c \quad (\text{Eq. 4})$$



Assume 1000 outflow from E. 1263.1 to 1269.8 due to 6" low water
PIPE OUTLET

| Time | | E.O. 2 | E.O. 3 | E.O. 4 | E.O. 5 |
|------------|----------------|----------------|---------------------|----------------|------------------------------------|
| Equivalent | H _c | d _c | A _c | V _c | Q _c , SPILLWAY CAPACITY |
| (ft.) | (ft.) | (ft.) | (ft. ²) | (ft.s) | (cu.s) |
| 1269.8 | 0 | 0 | 0 | 0 | 0 |
| 1268.5 | 0.7 | 0.5 | 29.7 | 3.8 | 113.5 |
| 1266.0 | 1.2 | 0.8 | 53.0 | 5.0 | 262.7 |
| 1264.5 | 1.7 | 1.2 | 78.1 | 5.8 | 456.5 |
| 1262.0 | 2.2 | 1.5 | 105.0 | 6.6 | 692.2 |
| 1261.5 | 2.7 | 1.9 | 133.6 | 7.2 | 968.7 |
| 1261.0 | 3.2 | 2.2 | 164.1 | 7.8 | 1285.6 |
| 1260.5 | 3.7 | 2.6 | 196.4 | 8.4 | 1643.1 |
| 1260.0 | 4.2 | 3.0 | 230.5 | 8.9 | 2041.4 |
| 1259.0 | 5.2 | 3.7 | 304.2 | 9.7 | 2962.7 |
| 1258.0 | 6.2 | 4.5 | 385.2 | 10.5 | 4059.2 |
| 1257.0 | 7.2 | 5.2 | 473.6 | 11.2 | 6321.5 |

To Top of Dam - E. 1267.6

APPENDIX E
PLATES

00-778-815



West Branch

APPROXIMATE
WATERSHED AREA

Newark Valley

ALEXAN

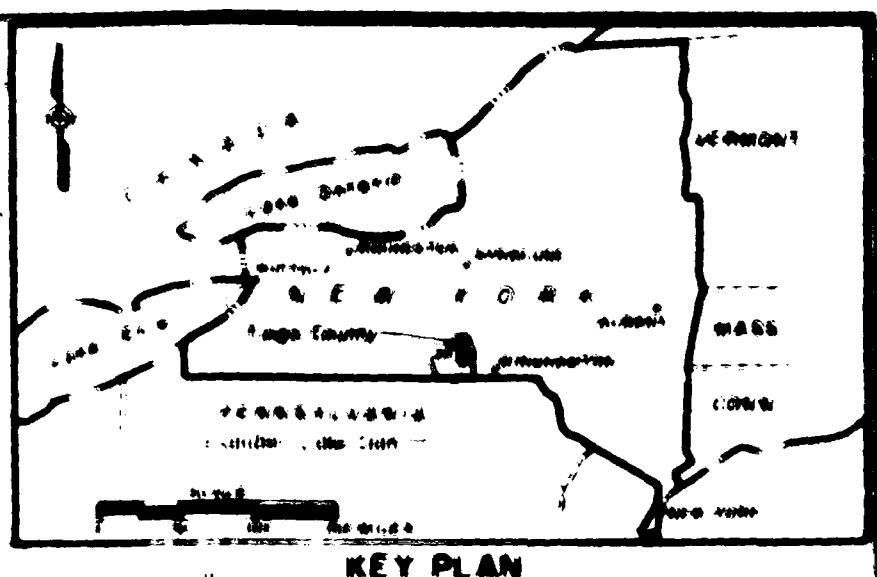
APPROXIMATE AREA

mile 2

EAST

REFERENCE:

7.5 MIN USGS NEWARK VALLEY, NY QUADRANGLE
DATED 1969, SCALE 1:24000



KEY PLAN

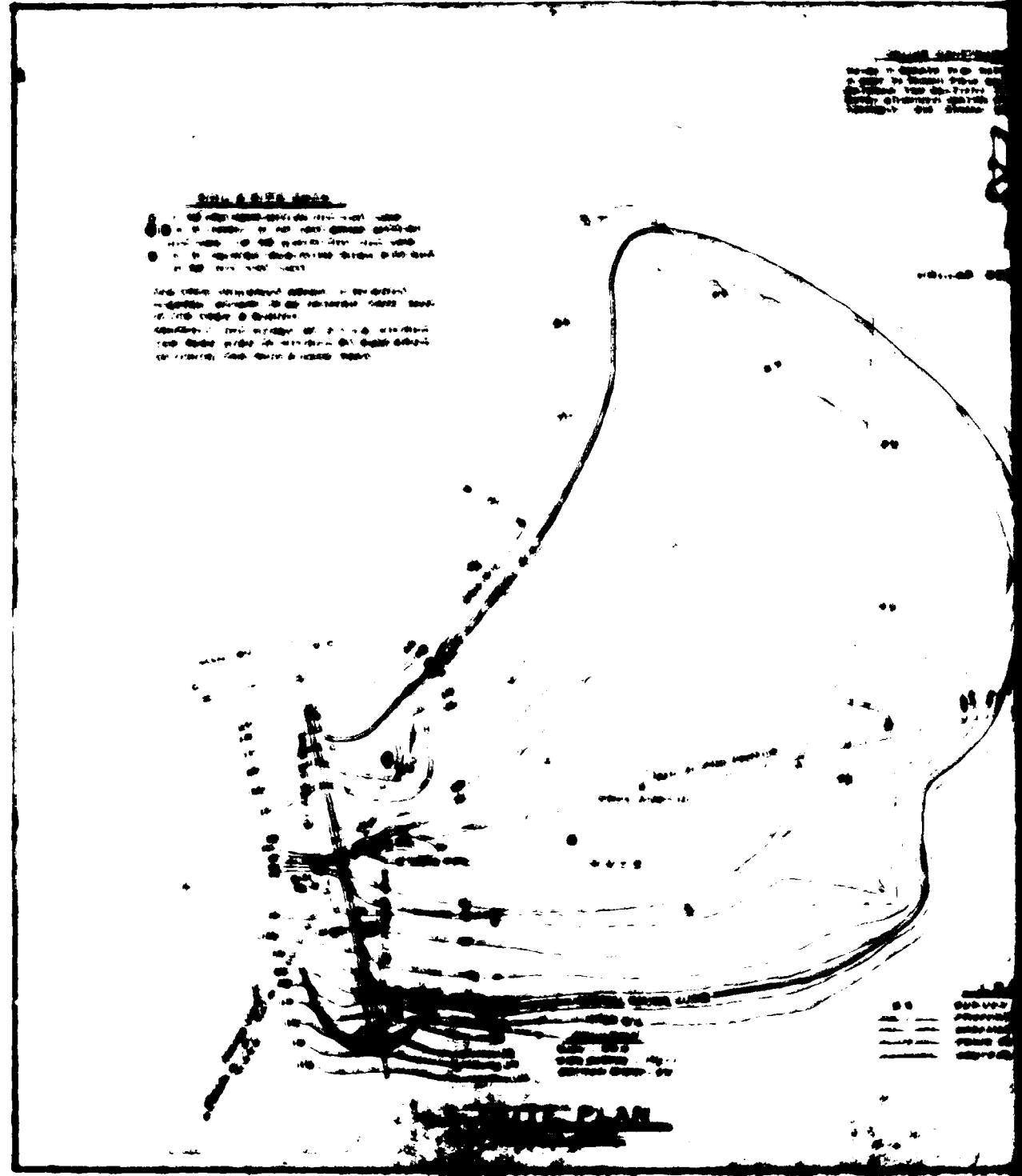
ALEXANDER LAKE DAM

SCALE
0 2000 4000 6000 FEET

PLATE I
ALEXANDER LAKE DAM
VICINITY FLOOD PLAIN & WATERSHED MAP

DRAFTMAN: JNL

REF ID: A6778-006



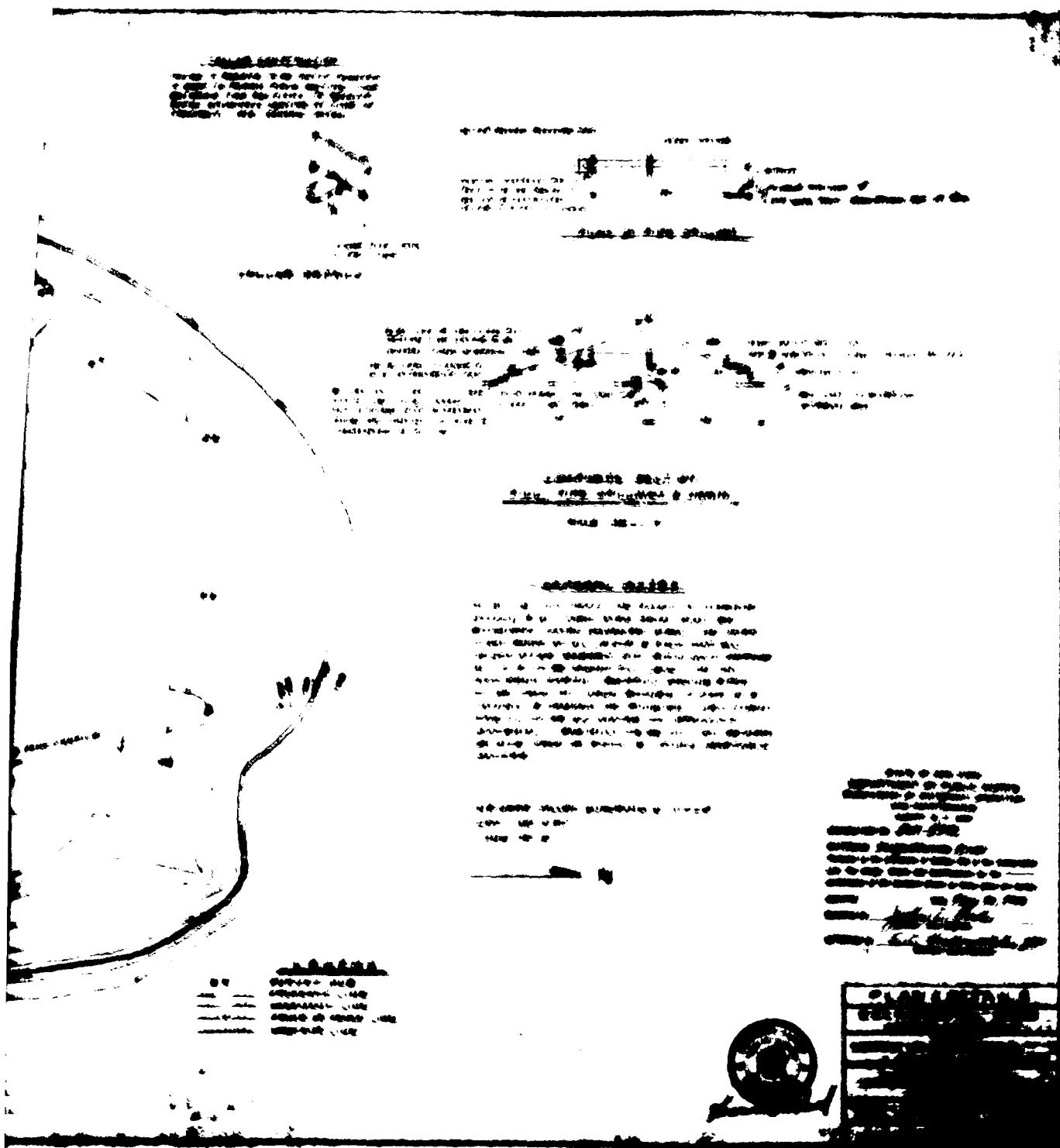
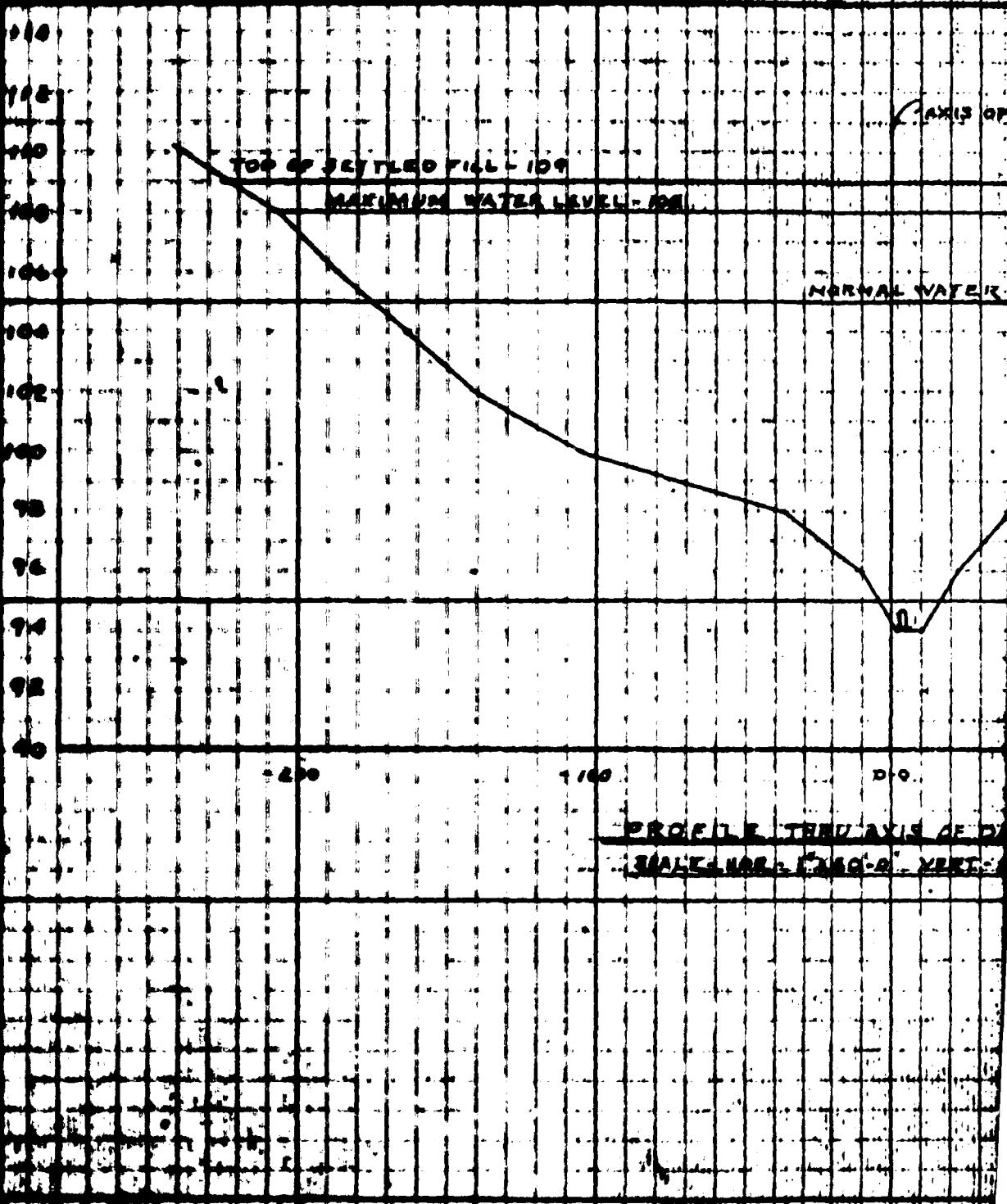


PLATE 2

МАРКОНІЯ

1000' 900' 800' 700' 600' 500' 400' 300' 200' 100' 0'



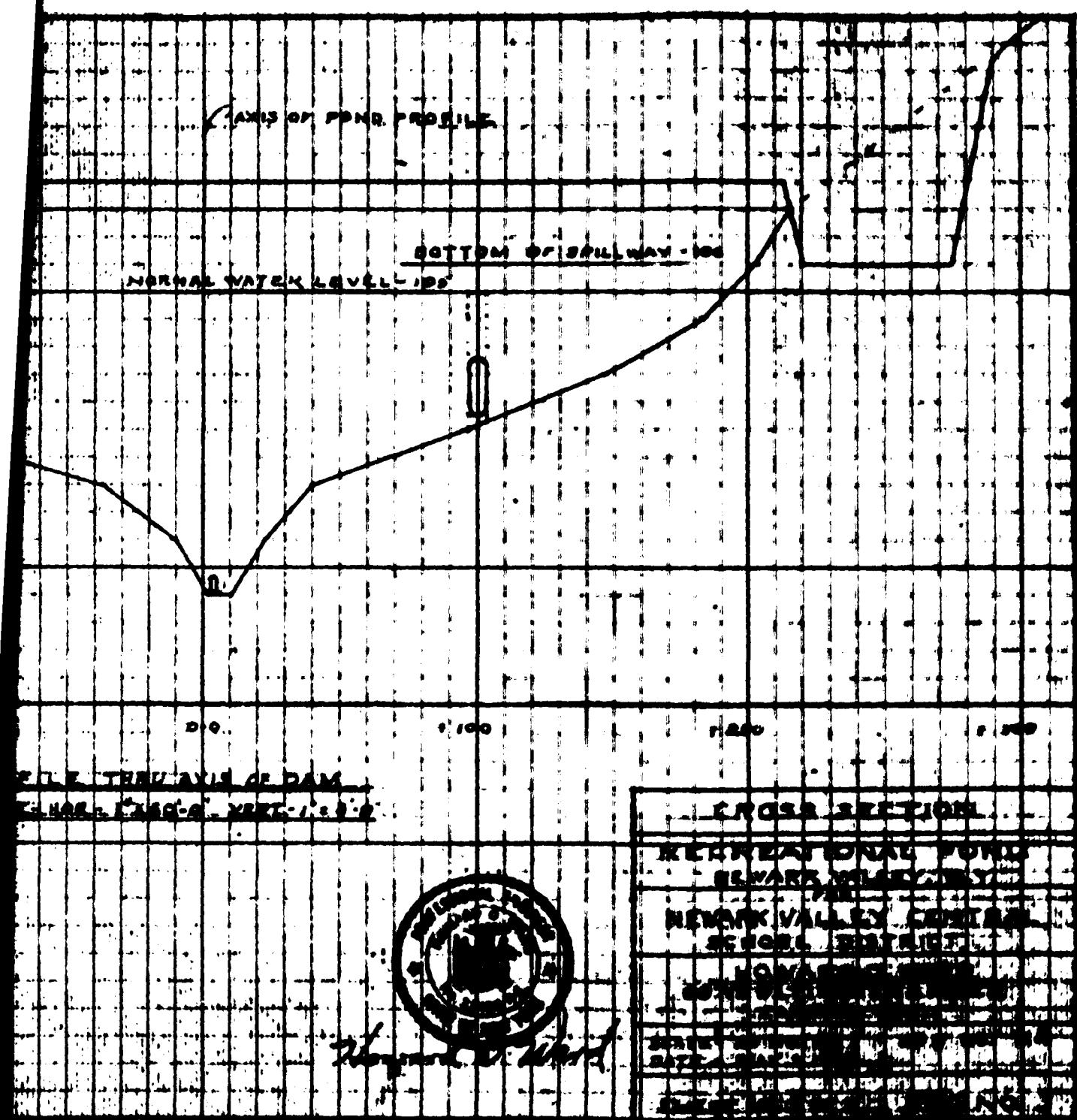
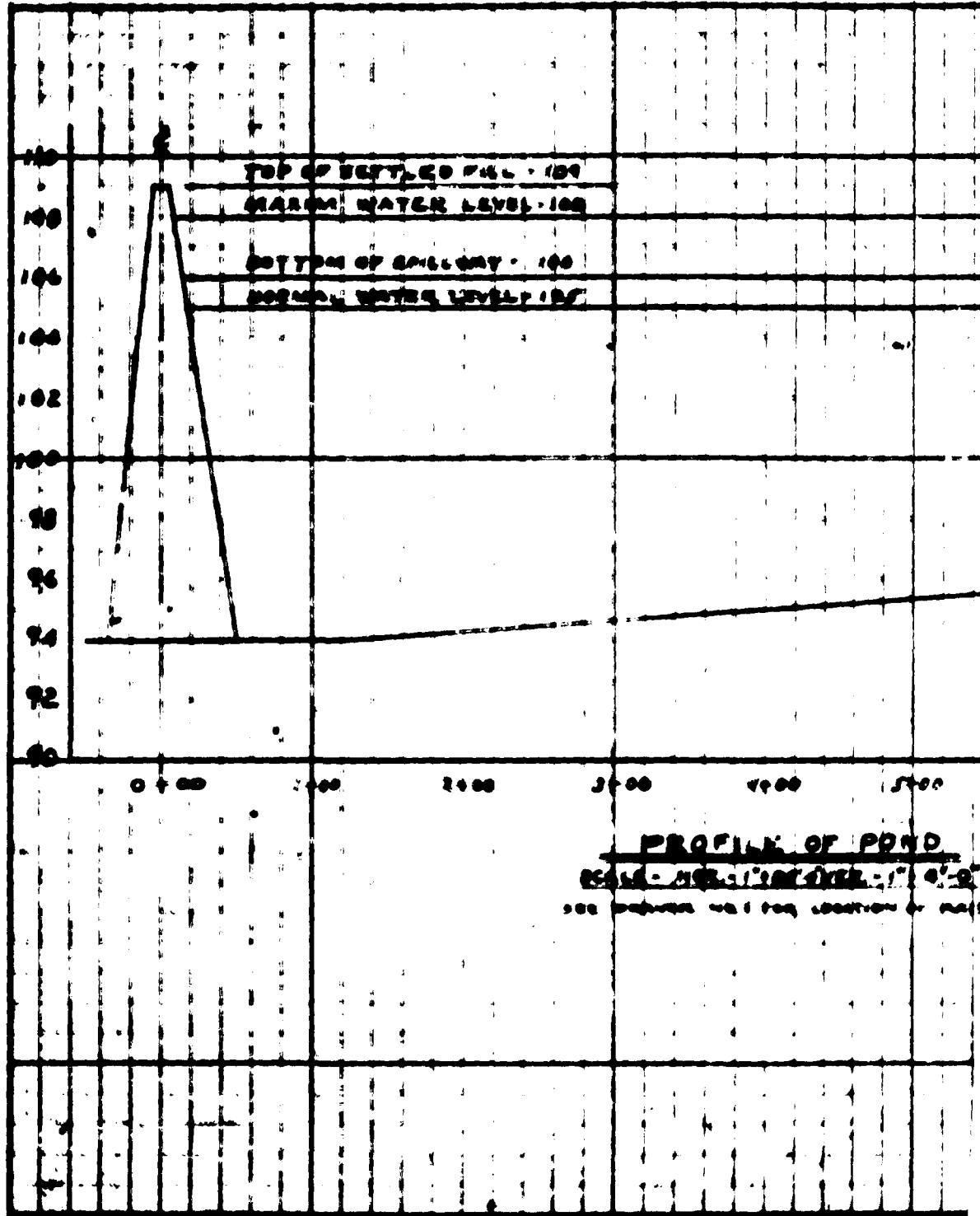


PLATE 3

DAPPOLONIA

PC-2 DRAWINGS 60-770-00

Sheet 1 of 1



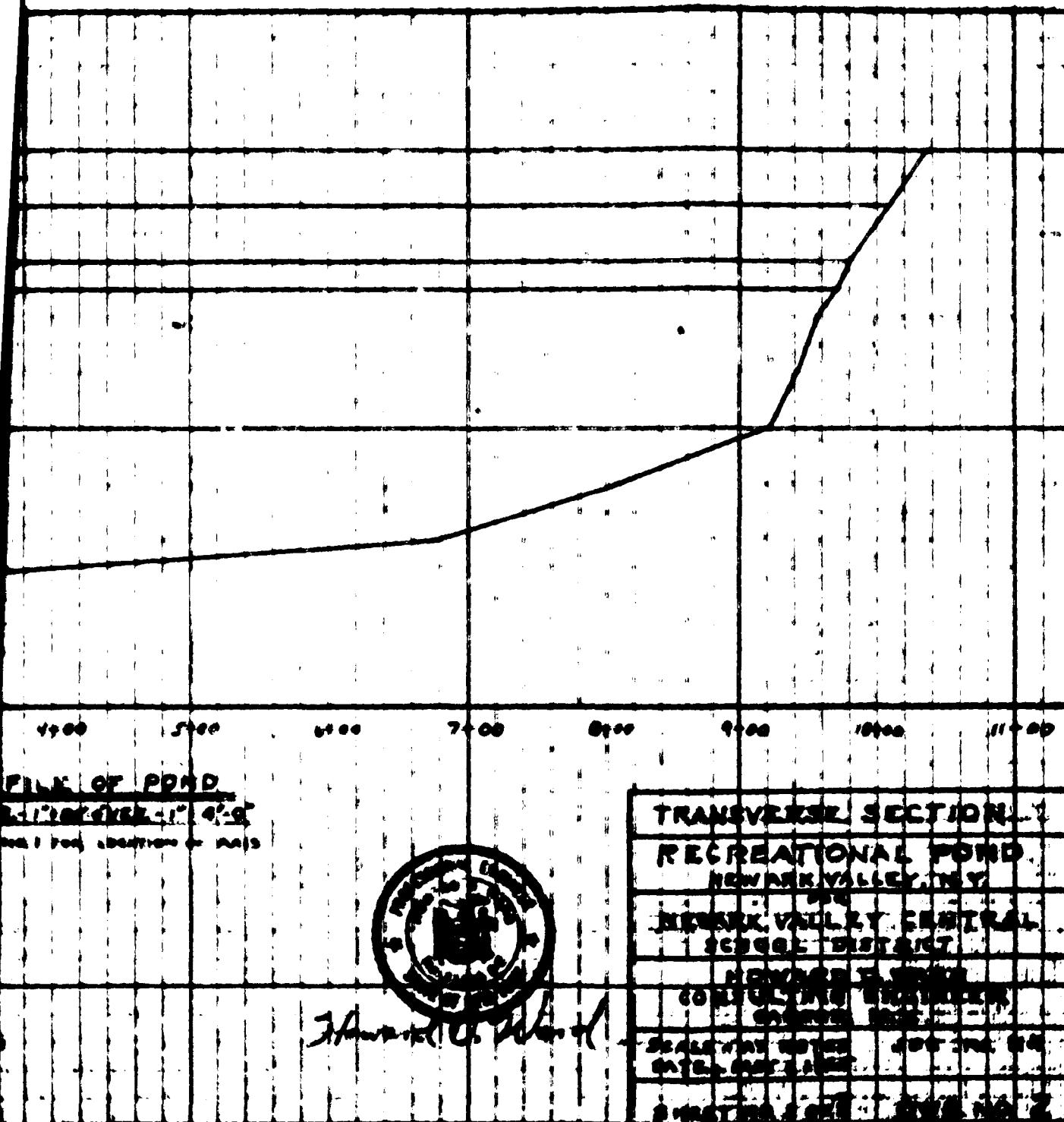
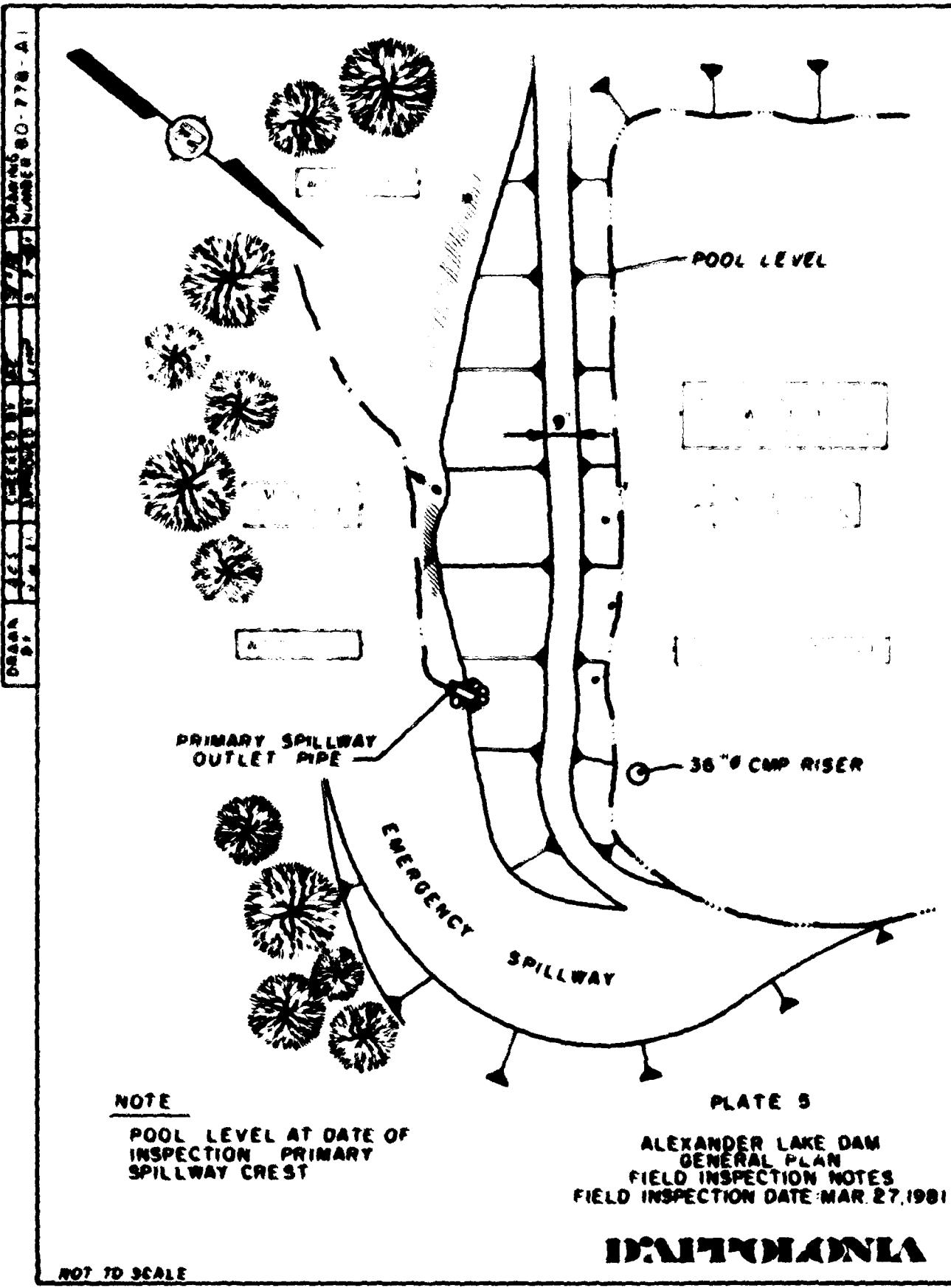


PLATE 4

DRAPTONIA



APPENDIX F
GEOLOGY MAP

DRUM ACS COORDINATE SHEET
F2/2 N 25° 15' E 75° 45' W 75° 45' S 25° 15' E

DRUM ACS COORDINATE SHEET
F2/2 N 25° 15' E 75° 45' W 75° 45' S 25° 15' E

Beebe Lake Dam

Jennings Pond Dam

Nanticoke Creek Watershed Project
Floodwater Retarding Dam Site 9-C

Alexander Lake Dam

Nanticoke Creek Watershed Project
Floodwater Retarding Dam Site 7-B

Pelto Dam

Ed Pytkas Dam



GEOLOGY MAP

REFERENCE

GEOLoGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED 1970, SCALE 1:250,000

1970 MERCULINE AND SONS CO. P.O. BOX 52 LYNDHURST, NY

D'APPOLONIA

DRAWING ACT 2 OF 2 SHEET 1 OF 10 DRAWING NO. 00-778-16

LEGEND

CAMBRIAN GROUP

300-1200 ft. (90-370 m.)

Dry.  Maches Formation—shale, siltstone, Rockford Sandstone; Canandaigua, Canisteo, and Hamlin Shales; Canastota Sandstone; South Water, and Durand Shales; in Penn Yan-Toronto Formation—shale, sandstone.

MISSISSIPPIAN GROUP

300-700 ft. (90-210 m.)

Dry.  Wawayanda Formation—concretion, shale; Hanover and Pee Creek Shales.

WEST FALLS GROUP

1100-1800 ft. (340-550 m.)

Dry.  Romeo Formation—concretion, shale
West Hill and Gardeau Formations—shale, siltstone, Raritan Glen Shale; upper Beers Hill Shale; Grimes Siltstone
Dry. Lower Beers Hill Shale; Duan Hill, Millport, and Maryland Shales
Dry. Romeo Formation—concretion, shale; West Hill Formation—shale, siltstone; Corning Shale
Dry. "New Albany" Formation—concretion, shale
Dry. Gardeau Formation—shale, siltstone; Raritan Glen Shale
Dry. State Mountain Formation—concretion, shale, concretion
Dry. Beers Hill Shale; Grimes Siltstone; Duan Hill, Millport, and Maryland Shales

SANDYEA GROUP

200-1000 ft. (60-300 m.)

Dry. In west: Canandaigua and Middlesex Shales
In east: Rye Point Shale, Rock Stream ("Eden") Shalestone, Pultney, Sawmill Creek, John Creek, and Montour Shales.

GENESEE GROUP AND TULLY LIMESTONE

200-1000 ft. (60-300 m.)

Dry. West River Shale, Genesee Limestone, Penn Yan and Oneonta Shales; all except Genesee replaced eastwardly by Rieca Formation—shale, siltstone and Sherburne Shalestone
Dry. Oneonta Formation—shale sandstone
Dry. Unadilla Formation—shale, siltstone
Dry. Tully Limestone

GEOLOGY MAP LEGEND

REFERENCE

GEOLOGIC MAP OF NEW YORK, FINGER LAKES SHEET
DATED: 1970, SCALE 1:250,000

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D'APPOLONIA