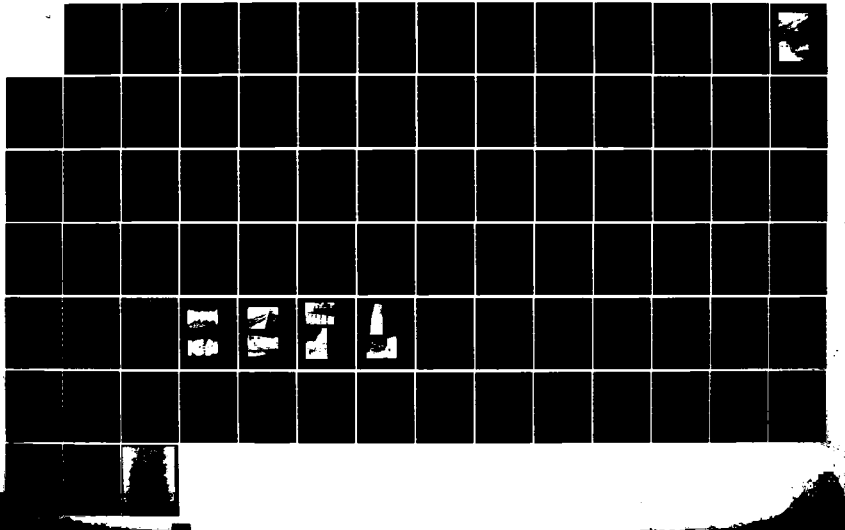
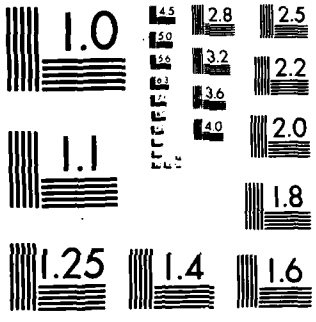


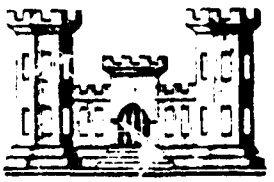


THAMES RIVER BASIN
THOMPSON, CONNECTICUT

MECHANICSVILLE DAM

CT 00182

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

SEPTEMBER, 1979

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CT 00182	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Mechanicsville Dam NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED INSPECTION REPORT 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE September 1979 13. NUMBER OF PAGES 65
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

APPROVAL FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

DAMS, INSPECTION, DAM SAFETY,

Thames River Basin
Thompson, Conn.
Mechanicsville Dam

20 ABSTRACT (Continue on reverse side if necessary and identify by block number)

Mechanicsville Dam is a composite masonry and earth dam consisting of a stepped stone masonry overflow section surmounted by a concrete superstructure forming 16 spillway bays, an earth dike on the right abutment, and a stone wall and abandoned power house on the left abutment. The entire length of the dam is 568 ft. The dam is judged to be in generally fair condition. Based upon the guidelines, the recommended test flood ranges from a 100-year to a ½ PMF.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

REPLY TO
ATTENTION OF
NEDED

FEB 13 1980

Honorable Ella T. Grasso
Governor of the State of Connecticut
State Capitol
Hartford, Connecticut 06115

Dear Governor Grasso:

Inclosed is a copy of the Mechanicsville Dam Phase I Inspection Report, which was prepared under the National Program for Inspection of Non-Federal Dams. This report is presented for your use and is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. A brief assessment is included at the beginning of the report. I have approved the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is a vitally important part of this program.

A copy of this report has been forwarded to the Department of Environmental Protection, the cooperating agency for the State of Connecticut. In addition, a copy of the report has also been furnished the owner, Acme Bleaching Company, Union City, New Jersey.

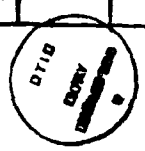
Copies of this report will be made available to the public, upon request, by this office under the Freedom of Information Act. In the case of this report the release date will be thirty days from the date of this letter.

I wish to take this opportunity to thank you and the Department of Environmental Protection for your cooperation in carrying out this program.

Sincerely,

MAX B. SCHEIDER
Colonel, Corps of Engineers
Division Engineer

Incl
As stated



MECHANICSVILLE DAM

CT-00182

THAMES RIVER BASIN
THOMPSON, CONNECTICUT

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

NATIONAL DAM INSPECTION PROGRAM

PHASE I INSPECTION REPORT

Identification No.:	CT-00182
Name of Dam:	Mechanicsville Dam
Town:	Thompson
County and State:	Windham County, Connecticut
Stream:	French River
Date of Inspection:	21 August 1979

BRIEF ASSESSMENT

Mechanicsville Dam is a composite masonry and earth dam consisting of a stepped stone masonry overflow section surmounted by a concrete superstructure forming 16 spillway bays, an earth dike on the right abutment, and a stone wall and abandoned power house on the left abutment. The entire length of the dam is about 568 ft. It is a run-of-the river dam which once served the power needs of a downstream industrial complex. The only purpose of the dam now is to pond water for a dry hydrant located in Mechanicsville.

The reservoir is about 8,000 ft. long and has a surface area at spillway level of about 44 acres. The drainage area above the dam is about 112 sq. mi. and the maximum storage to the top of dam is estimated at about 900 acre-ft. The height of the dam is 21.75 ft.; the size classification is thus small. A breach of the dam would affect a mill downstream on the north side of Putnam, and could possibly cause appreciable community and industrial economic losses with the loss of a few lives in the city of Putnam itself. The Penn Central Railroad between Mechanicsville and Putnam could also be affected by high water. The dam has been classified as having a significant hazard potential.

The dam is judged to be in generally fair condition. There is no low level dewatering facility. The piers of the concrete spillway bridge are badly eroded and the right abutment dike is covered with tree and brush growth. There is a gap in the left abutment stone wall about 8 ft. wide. The abandoned power house is in disrepair and the dam shows no sign of having received any maintenance in recent years. There is a low-lying boggy zone about 300 ft. below the dike.

Based upon the guidelines, the recommended test flood ranges from a 100-year to a ½ PMF. A test flood equal to the ½ PMF (31,200 cfs) was selected. Since storage is insignificant, a test flood routing was not performed.

The spillway is not adequate to pass the test flood outflow without overtopping the non-overflow sections of the dam. The test flood outflow would overtop the left abutment wall by about 5.5 ft. and the right abutment dike by about 2.8 ft. The spillway can pass 10,200 cfs or about 33 percent of the test flood outflow without overtopping the left abutment.

Within one year after receipt of this Phase I Inspection Report, the owner, the Acme Bleaching Company, should retain the services of a registered professional engineer and implement the results of his evaluation of the following: (1) a study of the hydrology of the drainage basin and of the adequacy of the spillway in relation to the potential overtopping of the walls and dike; (2) determine whether the spillway bridge should be repaired or removed; (3) determine whether the gates in the power house can be made operative and used for drawdown; (4) determine whether corrective action is necessary to insure structural and hydraulic integrity of the abandoned power house and appurtenances; and (5) examine the possible need to strengthen and provide riprap protection for the right abutment dike.

The owner should also implement the following operating and maintenance measures: (1) a plan to remove trees and brush from the dike embankment, including their root systems, and to backfill with suitable material and restore the slopes; (2) remove debris from the overflow section; (3) redress, reset and repoint dislodged masonry on the abutment walls; (4) consideration should be given to the control of burrowing rodents; (5) monitor once a month the low lying slough downstream of the dike for evidence of possible seepage; (6) develop a formal surveillance and flood warning plan, including round-the-clock monitoring during periods of heavy precipitation; and (7) institute procedures for an annual periodic technical inspection of the dam and its appurtenant structures.

Peter B. Dyson
Project Manager

COMMONWEALTH OF MASSACHUSETTS
PETER
BRIAN
DYSON
No. 18452
REGISTERED
PROFESSIONAL ENGINEER

This Phase I Inspection Report on Mechanicsville Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgment and practice, and is hereby submitted for approval.

ARAMAST MAHTESIAN, MEMBER
Foundation & Materials Branch
Engineering Division

CARNEY M. TERZIAN, MEMBER
Design Branch
Engineering Division

RICHARD DIBUONO, CHAIRMAN
Water Control Branch
Engineering Division

APPROVAL RECOMMENDED:

JOE B. FRYAR
Chief, Engineering Division

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. 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 continued care and inspection can there be any chance that unsafe conditions be detected.

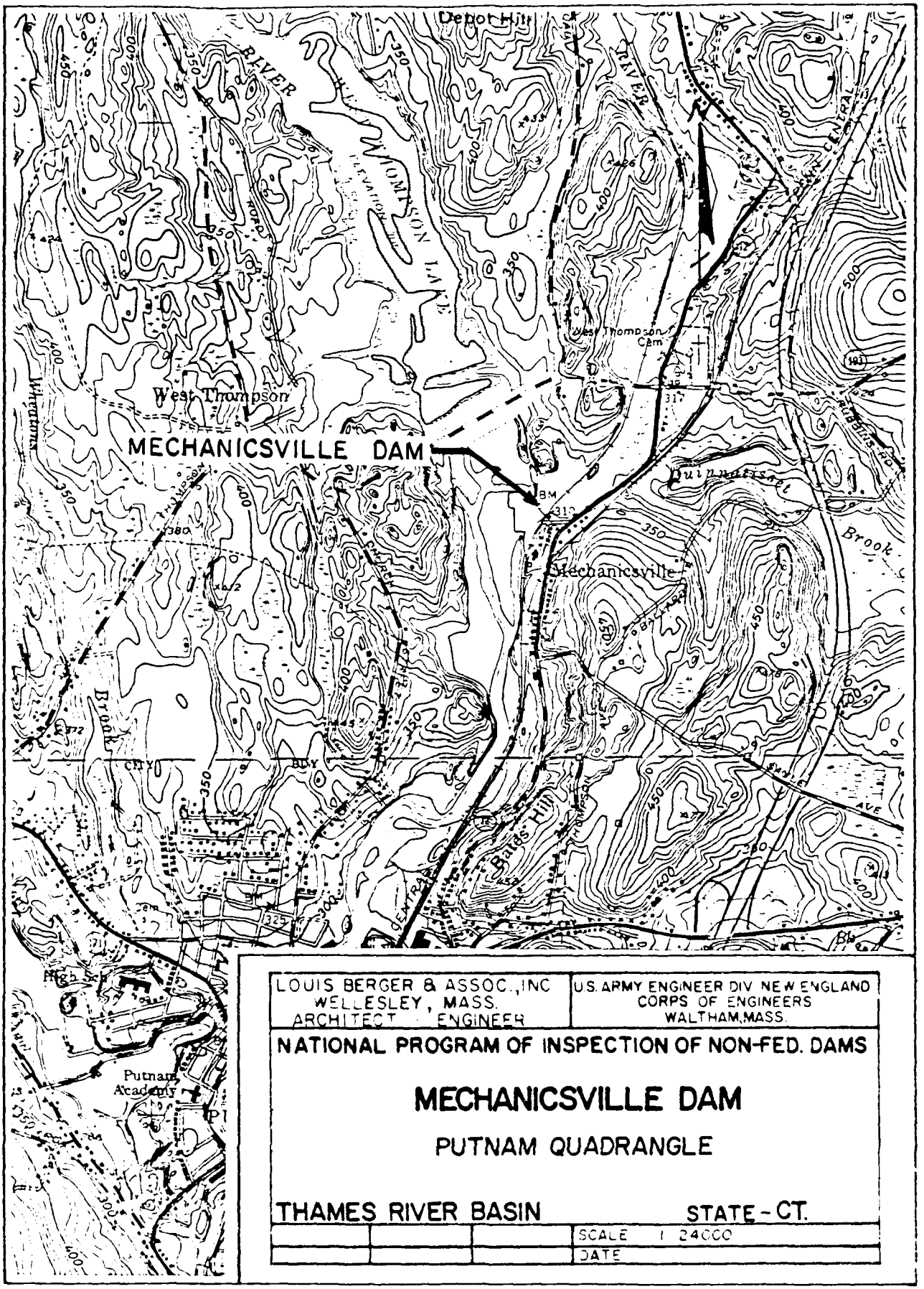
Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because 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.

TABLE OF CONTENTS

MECHANICSVILLE DAM

Overview of Overflow Section from Left Abutment

Overview of Downstream Face of Dike from Right Abutment



LOUIS BERGER & ASSOC., INC WELLESLEY, MASS. ARCHITECT ENGINEER	U.S. ARMY ENGINEER DIV NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

MECHANICSVILLE DAM

PUTNAM QUADRANGLE

THAMES RIVER BASIN STATE - CT.

			SCALE 1 24000
			DATE

PHASE I INSPECTION REPORT

MECHANICSVILLE DAM CT-00182

Section 1 - PROJECT INFORMATION

1.1 General

a. Authority. Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a national program of Dam inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Louis Berger & Associates, Inc. has been retained by the New England Division to inspect and report on selected dams in the State of Connecticut. Authorization and notice to proceed was issued to Louis Berger & Associates, Inc. under a letter of 14 August 1979 from William E. Hodgson, Jr., Colonel, Corps of Engineers. Contract No. DACW33-79-C-0051, Job Change No. 1, has been assigned by the Corps of Engineers for this work.

b. Purpose

(1) Perform technical inspection and evaluation of non-Federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by non-Federal interests.

(2) Encourage and assist the States to initiate quickly effective dam safety programs for non-Federal dams.

(3) Update, verify and complete the National Inventory of Dams.

1.2 Description of Project

a. Location. Mechanicsville Dam is located on the French River about 1,100 ft. upstream from the river's confluence with the Quinebaug River. The damsite is in the community of Mechanicsville, in the town of Thompson, Windham County, Connecticut. The dam is reached via State Highway 12. It is shown on U.S.G.S. Quadrangle, Putnam, Connecticut with coordinates approximately at N 41° 56' 35", W 71° 53' 44".

b. Description of Dam and Appurtenances. Mechanicsville Dam is a run-of-the-river dam believed to have been constructed around 1900 as a diversion dam to furnish water power for generation of electricity in a power house located on the left abutment of the dam. The power house has been abandoned for some years and is in an advanced state of disrepair.

Essentially the dam consists of an overflow section which spans the entire width of the river, a masonry wall and power house forebay forming the left (southerly) abutment and an earth dike on the right (northerly) abutment. The overall length of the dam including forebay, power house, and dike, as well as the overflow section, is about 568 ft.

The overflow section is about 200 ft. long with an effective hydraulic length of about 184 ft. The overflow section is constructed of laid-up rectangular shaped stones capped with a 10 ft. wide concrete sill. The stones have been placed in a stepped up fashion on the downstream side at a slope of approximately 1 horizontal to 1 vertical. The slope of the upstream face is unknown. A concrete bridge has been constructed about 5.5 ft. above the concrete sill, supported by 17 equally spaced concrete piers. The piers are 1 ft. wide and are spaced 12.5 ft. apart on center, leaving a clear span of 11.5 ft. in each bay. At one time flow through the 16 bays was controlled by wooden gates, none of which remain.

Extending for about 85 ft. from the left abutment of the overflow section is a mortared stone wall which connects to a 60 ft. long abandoned power house with forebay. The power house forebay contains six wooden intake gates which are not operative and appear to be in a closed or nearly closed position.

The earth dike on the right abutment runs essentially northerly and is made up of loose sand and gravel topped with vegetation. The dike is about 210 ft. long and has a top width which varies from about 3 ft. to 6 ft. Both the downstream and upstream slopes are variable but approach a 2 horizontal to 1 vertical (see Appendix B for a sketch of the dam).

No pool elevation is shown on the U.S.G.S. guadrangle for Putnam, Connecticut. For the purpose of this report a spillway crest elevation of 305 MSL has been assumed, after considering relative elevations shown on the U.S.G.S. map.

c. Size Classification. Mechanicsville Dam is about 22 ft. high and impounds a normal storage of about 330 acre-ft. to spillway crest level and a maximum of about 900 acre-ft. to the top of the stone wall on the left abutment. In accordance with the size and capacity criteria given in Recommended Guidelines for Safety Inspection of Dams, the project falls into the small category for both criteria and is therefore classified accordingly.

d. Hazard Classification. Mechanicsville Dam is located about 1,100 ft. upstream from the French River's confluence with the Quinebaug River. Upstream along the Quinebaug River, about 1,000 ft. above the confluence of the two rivers, is the U.S. Army Corps of Engineers' West Thompson Lake Dam. Below the confluence of the two rivers the Quinebaug River flows through a relatively wide valley until it reaches the Putnam Upper Dam (CT 00179), one of three dams located in the City of Putnam. In the 1.9 mi. reach between Mechanicsville Dam and Putnam Upper Dam the valley is rather wide and a flood stage caused by the breach would be considerably reduced from initial surge. The only structures within this reach are the Penn Central Railway line and the mills at Putnam Upper Dam. It is estimated that a breach of the Mechanicsville Dam when the water level in the pond was at the top of the stone wall on the left abutment would raise the water level over the crest of Putnam Upper Dam from a stage of about 8.0 ft. to a stage of about 9.3 ft. It is considered that the breach would cause marginal flood damage in this reach of the river. About 700 ft. downstream of Putnam Upper Dam the water passes over Putnam Middle Dam and then

threads through a newly reconstructed channel in the back waters of the Putnam Lower Dam. The reach of the river between Putnam Middle Dam and Putnam Lower Dam is about 2,600 ft. and it is in this area that a slight rise in the river could cause significant damage should the river be at bank full or above bank full just prior to the dam failure. Though it is estimated that the breach would only cause about a one ft. rise in water surface in this reach, the community is built up to a considerable extent in this area. A new Court House complex is located low on the right bank of the river and a shopping center is located on the left bank. It is estimated that appreciable economic losses would occur and a few lives could be lost in this area because of a breach of the dam. Consequently, Mechanicsville Dam has been classified as having a significant hazard potential in accordance with the Recommended Guidelines for Safety Inspection of Dams.

e. Ownership. Mechanicsville Dam is owned by the Acme Bleaching Company, c/o Mr. Ulrich Baumann, 8555 Tonnelle Ave., North Bergen, New Jersey.

The dam is believed to have been constructed about 1900 and was sold by the Connecticut Light & Power Company to the Acme Bleaching Company of Union City, New Jersey on February 11, 1942.

f. Operator. The Acme Bleaching Company, c/o Mr. Ulrich Baumann, 8555 Tonnelle Ave., North Bergen, New Jersey. Telephone: None

or

Harber & Freesman, Attorneys, c/o Mr. Jacob Freesman, 2011 Lemoine Ave., Ft. Lee, New Jersey. Telephone: (201) 461-8183.

g. Purpose of Dam. It is believed that the dam was originally constructed to furnish hydroelectric power in Mechanicsville. Records indicate that it was used for that purpose until the flood of August 1955, at which time the adjacent mill suffered considerable damages because of the flood and a subsequent fire and the mill was thereafter abandoned. The Mechanicsville Dam therefore no longer serves its original purpose, but does serve to pond water for a dry hydrant located in Mechanicsville.

h. Design and Construction History. It is not known by whom the dam was constructed; no drawings or reports have been found pertaining to the design and construction of the dam. The construction is of laid-up stone, which has been out of vogue since the turn of the century. This tends to confirm the estimated 1900 year of construction.

i. Normal Operating Procedures. There are no operational procedures for Mechanicsville Dam.

1.3 Pertinent Data

a. Drainage Area. The drainage area above Mechanicsville Dam consists of 111.9 sq. mi., described in general as rolling terrain. Most of the drainage area is forested. It contains numerous mill ponds, lakes and reservoirs, the

largest body of water being Lake Chaubunagungamaug (Webster) located about 11.4 miles upstream of the Mechanicsville Dam on a tributary to the French River. The drainage area is about 24.5 miles long and 8 miles wide at its widest point. There are two U.S. Army Corps of Engineers flood control dams within the 111.9 sq. mi. drainage area. Hodges Village Dam has a drainage area of 31.1 sq. mi. and Buffumville Dam has a drainage area of 26.5 sq. mi.

b. Discharge at Damsite

(1) Outlet Works Conduit. None

(2) Maximum Known Flood at Damsite. The maximum discharge at the damsite is unknown. A Corps of Engineers' flood profile of the French River for the August 1955 Flood indicates that the stage at the damsite was 9.8 ft. above the crest of the dam. A stage of 9.8 ft. would correspond to a discharge of about 19,300 cfs based upon the rating curve for the dam found in this Report. U.S.G.S. Station 01125000 is located on the French River about 8.9 miles upstream of the dam in Webster, Mass., having a period of record from 1948 to the present. The discharge of record for the gage occurred on August 19, 1955, when the discharge was 14,400 cfs. The drainage area above the gaging station is 85.3 sq. mi.

(3) Ungated Spillway Capacity at Top of Dam. The total spillway capacity at top of the stone wall on the left abutment, elevation 311.75, is 10,200 cfs.

(4) Ungated Spillway Capacity at Test Flood Elevation. The ungated spillway capacity is about 24,500 cfs at test flood elevation 317.3.

(5) Gated Spillway Capacity at Normal Pool Elevation. Not applicable

(6) Gated Spillway Capacity at Test Flood Elevation. Not applicable

(7) Total Spillway Capacity at Test Flood Elevation. The total spillway capacity at the test flood elevation is 24,500 cfs at elevation 317.3.

(8) Total Project Discharge at Test Flood Elevation. The total project discharge at test flood elevation is 31,200 cfs at elevation 317.3.

c. Elevations (Ft. above NGVD Assuming Spillway Crest to be at Elevation 305 from U.S.G.S. Quad)

(1) Streambed at centerline of dam - 290.0±

(2) Maximum tailwater - Not available

(3) Upstream invert of outlet culvert - Not applicable

(4) Recreation Pool - Not applicable

(5) Full flood control pool - Not applicable

(6) Ungated spillway crest - 305

(7) Design surcharge (original design) - Unknown

(8) Top of Dam - Dike - 314.5
Right Abutment Wall - 312.4
Left Abutment Wall - 311.75

(9) Test flood design surcharge - 317.3

d. Reservoir

(1) Length of maximum pool - 8,000(±) ft.

(2) Length of recreation pool - Not applicable

(3) Length of flood control pool - Not applicable

e. Storage (acre-ft.)

(1) Recreation pool - Not applicable

(2) Flood control pool - Not applicable

(3) Spillway crest pool El. 305.0 - 330

(4) Top of Left Abutment El. 311.75 - 900

(5) Test flood pool El. 317.3 - 1,660

f. Reservoir Surface (acres)

(1) Recreation pool - Not applicable

(2) Flood control pool - Not applicable

(3) Spillway crest El. 305.0 - 44.0

(4) Top of Left Abutment El. 311.75 - 114.0

(5) Test flood pool El. 317.3 - 158.0

g. Dam

(1) Type - Gravity, constructed of laid-up stone, with unmortared joints, left abutment - mortared stonewall, right abutment - earth dike.

(2) Length - 568 ft.

(3) Height - 21.75 ft.

(4) Top width - 10 ft.

(5) Side Slopes - Upstream unknown
Downstream - 1 horizontal to 1 vertical, stepped section; dike - variable.

(6) Zoning - Not applicable

(7) Impervious core - Not applicable

(8) Cutoff - Unknown

(9) Grout curtain - Unknown

- Right Abutment Dike

(1) Type - Earthfill

(2) Length - 210 ft.

(3) Height - Varies, 7 ft. maximum

(4) Top Width - Varies, 3 ft. to 6 ft.

(5) Side Slopes - Upstream and Downstream - Variable, but approach 2 horizontal to 1 vertical

(6) Zoning - Unknown

(7) Impervious Core - Unknown

(8) Cutoff - Unknown

(9) Grout Curtain - Unknown

h. Diversion and Regulating Tunnel - None

i. Spillway

(1) Type - Overflow gravity dam (downstream stepped face - 1 horizontal to 1 vertical)

(2) Length of weir - 16 bays having net crest length of 184 ft.

(3) Crest elevation - 305 (assumed)

(4) Gates - None

(5) Upstream channel - Natural river channel

(6) Downstream channel - Natural river channel

j. Regulating Outlets (Abandoned Power House)

(1) Invert - Unknown

(2) Size - Unknown

(3) Description - Six sluiceways through abandoned Power House

(4) Control Mechanism - Missing and inoperative

(5) Other - The gates are closed or nearly closed.

SECTION 2 - ENGINEERING DATA

2.1 Design Data

No data on the design of the dam or appurtenances has been recoverd and probably none exists. In the course of the inspection a sketch of the dam was made which is included in Appendix B.

2.2 Construction Data

No records or correspondence regarding construction have been found.

2.3 Operation Data

The Dam was last operated by the Acme Bleaching Company, which at the present time is nearly defunct. There are no known records of operation.

2.4 Evaluation of Data

a. Availability. Since no engineering data is available, it is not possible to make an assessment of the safety of the dam. The basis of the information presented in this report is principally the visual observations of the inspection team.

b. Adequacy. The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection, past performance history and sound engineering judgement.

c. Validity. Not applicable.

SECTION 3 - VISUAL INSPECTION

3.1 Findings

a. General. The visual inspection of Mechanicsville Dam took place on 21 August 1979. On that date water was flowing about 9½ in. deep over the spillway crest, giving a discharge of about 400 cfs. The dam was judged to be in fair condition due to the absence of an operative outlet. There was no evidence of any major problems but several items require attention (see Section 7).

b. Dam. The dam is a run-of-the-river dam with an overall length of about 568 ft. The principal elements of the dam are a concrete capped stone gravity overflow section, an earth dike on the right (northerly) abutment, and an abandoned power house with forebay and stone retaining wall on the left (southerly) abutment.

Starting from the right (northerly) abutment, there is an earth dike about 220 ft. long that intersects with natural ground on the far right (Overview Photo). At the left end the dike abuts to the overflow section of the dam which is about 200 ft. long (Appendix C, Photo #1). At the left end of the overflow section there is an old stone wall about 85 ft. long which connects to the forebay of the abandoned power house at its left end (Appendix C, Photo #2). There was no visible evidence of any bedrock outcrops either along the bottom of the river downstream of the overflow section or on either the east or west abutments.

c. Appurtenant Structures

(1) Spillway. The overflow section is comprised of a laid-up stone gravity structure capped with reinforced concrete at its crest and spanned by a reinforced concrete bridge (Appendix C, Photo Nos. 3 & 4). Concrete piers support the bridge and form 16 spillway bays of 11 ft. 6 in., giving the dam an effective hydraulic width of 184 ft. While the massive stone stepped structure and concrete cap were sound and stable, the concrete piers supporting the bridge were in poor condition; spalling has taken place and much of the reinforcing steel is visible. The crest of the spillway and the downstream stone stepped section were covered by debris and remnants of the old spillway bay gates and their control mechanisms. Examination of both banks of the river downstream of the spillway for some distance revealed no evidence of seepage. The masonry at both abutments has become invaded by mature trees which are visibly disrupting the integrity of the walls. On the downstream side of the overflow section at both abutments, shaped concrete and masonry flumes guide the flows to mid channel. At the left abutment the flume's concrete veneer over rubble core has been stripped away. At mid-dam the configuration of the stone is stepped, assisting energy dissipation.

(2) Dike. The general condition of the dike appeared to be fair, with no evidence of potholes, sinkholes, or seepage. However, the embankment was heavily overgrown with mature trees and there was some evidence of burrowing

rodents in the very gravelly material. For some distance downstream of the embankment there was no evidence of seepage, although the character of the exposed, bouldery surface soils with cobbles indicates that heavy scour was probably experienced sometime in the past. About 300 ft. downstream and 200 ft. north of the spillway, in what is heavily wooded and apparently natural terrain, there was a low-lying boggy zone about 300 feet long which displayed characteristic marsh growth.

There was no riprap protection on the upstream face of the dike and the slope was considerably eroded on the northerly end.

(3) Left Abutment Wall and Power House. The general condition of the left abutment wall was poor. About half way between the overflow section and the power house forebay there was a gap in the wall which was about 4 ft. deep and 8 ft. wide. The wall has been heavily invaded by vegetation and many of its stones were loose.

To the left of the stone wall is the abandoned power house and forebay with 6 intake gates into the old turbine room of the structure (Appendix C, Photo No. 5). The gates were in a closed or nearly closed position, but water was leaking through the structure (Appendix C, Photo No. 6). From the floor of the power house, inspection of the turbine areas was attempted through an uncovered access hole, but the water surface was within 6 ft. of the floor obscuring all detail. There is a bypass flume to the left of the intake gates in the forebay. Water appeared to be leaking between the forebay and the flume as the aperture through the wall was at least 1 ft. above the level of the water (Appendix C, Photo Nos. 7 & 8). The power house structure was in a dilapidated condition.

d. Reservoir Area. The reservoir shores vary from lightly wooded gently sloped granular materials to heavily wooded, moderately sloped terrain consisting of a thin mantle of over burden over irregular rock. Artificial embankments for a railway and highway also form part of the shoreline. All shores appeared to be stable.

e. Downstream Channel. Immediately downstream of the dam there was some encroachment of the channel by trees and bushes on each bank, but essentially the main channel was unobstructed. There is no evidence of any bedrock outcrops along the bottom of the river downstream and in the vicinity of the spillway. About 1,100 ft. below the dam the French River joins the Quinebaug River, and the waters flow through a relatively large river valley until they reach the first downstream community of Putnam. Here the Quinebaug River flows over three dams as it passes through a densely populated urban area. In the center of Putnam proper the channel has recently been reconstructed. The Quinebaug River joins the Shetucket River several miles downstream in the City of Norwich, Connecticut.

3.2 Evaluation

The visual inspection of the dam adequately revealed key characteristics as they may relate to its stability and integrity, permitting an assessment to be made of those features affecting the safety of the structure. The Mechanicsville Dam and appurtenant works are judged to be in generally fair condition. There are no low level dewatering facilities for the dam. The piers of the concrete spillway bridge are in poor condition. There is considerable tree growth on the dike and no riprap protection is present on the upstream slope, downstream slope or crest of the dike. The left abutment wall is in poor condition and the power house is dilapidated, with considerable leakage through the walls. The dam appears to have received no maintenance in recent years.

SECTION 4 - OPERATIONAL PROCEDURES

4.1 Procedures

The Acme Bleaching Company is the owner of the dam, but has virtually abandoned it. There are no operating devices in working order nor any documented operating procedures for the dam.

4.2 Maintenance of Dam

There is no maintenance program in effect at Mechanicsville Dam and no maintenance is being performed.

4.3 Maintenance of Operating Facilities

The gates on the overflow section have been removed and the intake gates at the power house are completely inoperative and have not been maintained in recent years. There are no other operating facilities for the dam.

4.4 Description of any Warning System in Effect

No warning system is in effect at Mechanicsville Dam.

4.5 Evaluation

The ponded water behind the dam is now used only as an emergency source for fire fighting purposes. Maintenance is not being performed; it should include periodic growth removal from the dike on the right abutment, surveillance regarding seeps, repair of the masonry walls and keeping the spillway crest clear of debris. The owner should establish a formal warning system.

SECTION 5 - HYDRAULIC/HYDROLOGIC

5.1 Evaluation of Features

a. General. The Mechanicsville Dam is a run-of-the-river type project, originally constructed to provide hydroelectric power in the Mechanicsville area. It now serves no useful purpose other than providing a ponding of the French River for a dry hydrant located in Mechanicsville. It is basically a low storage-high spillage dam. It consists of a laid-up stone overflow section with a concrete sill, an earth fill dike, a stone masonry wall, and an abandoned power house with forebay.

b. Design Data. No hydrologic or hydraulic design data were retrieved for Mechanicsville Dam.

c. Experience Data. No records are available in regard to past operation of the dam. State of Connecticut records indicate that the adjacent mill complex was in operation until the flood of August 1955, when the mill complex suffered considerable damages because of the flood, a subsequent fire, and was thereafter abandoned. A U.S. Army Corps of Engineers' flood profile of the French River for the August 1955 Flood indicates that the stage at the damsite was 9.8 ft. above the crest of the dam in the August 1955 flood. A stage of 9.8 ft. would correspond to a discharge of 19,300 cfs based on the rating curve for the dam found in this report. There is a U.S.G.S. Gaging Station located about 8.9 miles upstream on the French River in Webster, Mass., having a record dating back to December 1948. The discharge of record at the gage is 14,300 cfs occurring on August 19, 1955. The drainage area above the gage is 85.3 sq. mi. compared with a drainage area above Mechanicsville Dam of 111.9 sq. mi. Since 1955 the U.S. Army Corps of Engineers has constructed two flood control projects upstream; the Hodges Village Dam has a drainage area of 31.1 sq. mi., and the Buffumville Dam has a drainage area of 26.5 sq. mi.

d. Visual Observations. No evidence which would indicate possible high flows through the reservoir area or in the downstream channel was noted.

e. Test Flood Analysis. Mechanicsville Dam is about 22 ft. high and impounds about 900 acre-ft. to the top of the left abutment wall; it is therefore classified as small in size. Because of downstream conditions, the hazard potential is classified as significant. In accordance with Recommended Guidelines for Safety Inspection of Dams, the recommended test flood is 100-year to half a probable maximum flood. A test flood of a magnitude corresponding to ½ PMF was selected for the evaluation because the City of Putnam is about two miles downstream of the dam.

The NED March 1978 Preliminary Guidance Memorandum for Estimating Probable Discharges was used for deriving a maximum probable flood peak flow rate, which was then divided by two to arrive at the test value. The two upstream Army Corps of Engineers flood control projects were taken into consideration in arriving at the test value. These are located in the basins at Buffumville

and Hodges Village, as mentioned above. The drainage areas above both of these projects were deducted from the 111.9 sq. mi. drainage area above Mechanicsville Dam, leaving a net area of 54.3 sq. mi. for computing the test flood. The storage capacity of Lake Chaubumagungamaug (Webster) was not considered. Analysis of spillway adequacy in this report is thus on the conservative side. Based on this net drainage area, the test flood inflow was determined to be about 575 CSM or 31,200 cfs. Because of the high discharge and low storage ability of the impoundment above the dam, a storage routing was not performed; the inflow-outflow disparity was considered to be insignificant.

A discharge curve for the dam was computed (see sheets D-4 thru D-6, Appendix D). With the reservoir to top of the left abutment wall (elevation 311.75) the spillway can release about 10,200 cfs or about 33 percent of the test flood outflow. The overflow portion of the dam will not pass the test flood outflow without an overtopping of the non-overflow sections and the dike. The test flood outflow would overtop the stone wall on the left abutment by about 5.5 ft. and the dike on the right abutment by about 2.8 ft. At the time of the test flood, the discharge over the spillway would be 24,500 cfs or 78 percent of the test flood outflow.

f. Dam Failure Analysis. As discussed above, the dam would be overtopped by the test flood outflow; a breach owing to structural failure of the dam is also a possibility. For this analysis a breach was assumed with the water level at the top of the left abutment. The "rule of thumb" criteria suggested in the NED March 1978 Guidance Report was used. With a breach width of 40 percent of the overflow section length, or about 80 ft., an outflow of about 19,600 cfs, which includes 6,000 cfs from the intact portion of the spillway, would be realized (see Sheets D-8 thru D-18, Appendix D).

The outflow enters the Quinebaug River at its confluence with the French River about 1,100 ft. downstream of the Mechanicsville Dam. The U.S. Army Corps of Engineers' West Thompson Lake Dam is located 1,000 ft. upstream along the Quinebaug River from the confluence of the two rivers. In the breach analysis, it was assumed that any flow in the Quinebaug River below the West Thompson Lake Dam was negligible at the time the breach occurred.

Below the confluence of the two rivers the Quinebaug flows in the backwaters of the upper of the three dams in Putnam city. None of the three dams have official names and only the upper one is in the register (CT 00179). In this report they have been designated as Putnam Upper Dam, Putnam Middle Dam and Putnam Lower Dam. In the 1.9 mi. reach between the Mechanicsville Dam and the Putnam Upper Dam, the valley is fairly wide and a flood stage caused by the breach would be considerably reduced from the initial surge. With the exception of the Penn Central Railway line paralleling the river and the mill complex at Putnam Upper Dam, there are no structures within this reach. Before the breach it is estimated that the water level at the upper Putnam dam would be about 296, or 4 ft. above the millrace training wall, resulting in some flooding of the mill complex. After the breach, this stage would rise by about 1.3 ft., which would probably cause some additional flood damage in the mill complex and could affect the railroad.

About 700 ft. downstream of Putnam Upper Dam the water passes over Putnam Middle Dam and then flows through a recently improved channel in the backwaters of the Putnam Lower Dam. The reach between the Middle Dam and the Lower Dam is about 2,600 ft. and it is in this area that a small rise in the river could cause significant damage, should the river be bank full or above just prior to the breach of the Mechanicsville Dam. It is estimated that the breach would raise the water surface about 1 ft. in this reach. However, the area is well developed, this being the center of the city, and the development lies low on the flood plain of the river. A new court house complex is located low on the right bank and a newly developed shopping center is located in the left flood plain (see Appendix D, Sheet D-19).

It is therefore considered that property damage could occur resulting in appreciable economic losses and that there is the potential for the loss of a few lives in this area resulting from failure of Mechanicsville Dam.

SECTION 6 - STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observation. The field investigations of the embankment revealed no significant displacement or distress which would warrant the preparation of slope stability computations. The abandoned power house and left abutment wall are in poor condition. Overall, the dam appears to be in fair condition, but deficiencies described under Section 7 should be corrected.

b. Design and Construction Data. No design or construction data regarding the original dam were recovered. Inspection reports, correspondence, and schematics by State personnel and consultants dating from 1958 were reviewd. No plans or calculations of value to a stability assessment are available.

c. Operating Records. No operating records are known to exist. There are no records of any significance to structural stability.

d. Post-Construction Changes. No post-construction changes are known which would adversely affect the stability or integrity of the dam.

e. Seismic Stability. The dam is located in Seismic Zone No. 1, and in accordance with Phase I guidelines, does not warrant seismic analysis.

SECTION 7

ASSESSMENT, RECOMMENDATIONS & REMEDIAL MEASURES

7.1 Dam Assessment

a. Condition. On the basis of the Phase I visual examination, Mechanicsville Dam appears to be in generally fair condition. There is no means for drawing down the reservoir. The deficiencies revealed indicate that a further investigation should be carried out and that some remedial work is needed. The major concerns with the overall integrity of the dam are as follows:

(1) The spillway can only pass 33 percent of the test flood outfow.

(2) The absence of a low level dewatering facility.

(3) The unprotected right abutment dike.

(4) The height of the abutment walls, which are both lower than the dike.

b. Adequacy of Information. The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection, past performance history and sound engineering judgement.

c. Urgency. The recommendations and remedial measures enumerated below should be implemented by the owner within one year after receipt of this Phase I Inspection Report.

d. Need for Additional Investigations. Additional investigations are required as recommended in Para. 7.2.

7.2 Recommendations

It is recommended that the owner should retain the services of a competent registered professional engineer to make investigations and studies of the following, and if proved necessary, to design appropriate remedial works.

(1) Make a thorough study of the hydrology of the drainage basin, including an assessment of the attenuating effects of Lake Webster. Review the spillway adequacy in relation to the potential overtopping of the abutment walls and the dike.

(2) Determine whether the spillway bridge should be repaired or removed.

(3) Determine whether the gates in the power house can be made operative and used for drawdown. In the event that these gates cannot be used, consideration should be given to making provisions for a low level outlet.

(4) Determine whether corrective action is necessary to insure structural and hydraulic integrity of the abandoned power house, forebay, abutment walls, and retaining walls.

(5) Examine possible requirements for strengthening the right dike section and providing riprap protection on the upstream face.

7.3 Remedial Measures

a. Operating and Maintenance Procedures

(1) Remove trees and brush from the dike embankment, including their root systems, and backfill with suitable material; restore the slopes.

(2) Remove debris from the overflow section.

(3) Redress, reset and repoint dislodged masonry on abutment walls, and on left bank retaining wall.

(4) Consideration should be given to the control of burrowing rodents.

(5) Monitor, once per month, low-lying slough downstream of dike for evidence of possible seepage.

(6) Develop a formal surveillance and flood warning plan, including round-the-clock monitoring during periods of heavy precipitation.

(7) Institute procedures for an annual periodic technical inspection of the dam and its appurtenant structures.

7.4 Alternatives

The only practical alternative would be to breach the dam under the auspices of a registered professional engineer with due consideration of environmental effects.

APPENDIX A

INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST
PARTY ORGANIZATION

PROJECT Mechanicsville Dam

DATE 21 August 1979

TIME 9:30 AM

WEATHER Clear, 70 degrees

W.S. ELEV. 305 U.S. NA DN.S.

PARTY:

1. Peter B. Dyson
2. Pasquale E. Corsetti
3. Roger F. Berry
4. Carl J. Hoffman
5. James Reynolds
6. _____
7. _____
8. _____
9. _____
10. _____

	PROJECT FEATURE	INSPECTED BY	REMARKS
1.	Hydrology	Roger F. Berry	
2.	Hydraulics/Structures	Carl J. Hoffman	
3.	Soils and Geology	James Reynolds	
4.	General Features	Peter B. Dyson	
5.	General Features	Pasquale E. Corsetti	
6.			
7.			
8.			
9.			
10.			

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Stone Overflow Section NAME C. Hoffman

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITIONS
DAM EMBANKMENT	
Crest Elevation	305.0 (assumed)
Current Pool Elevation	305.8
Maximum Impoundment to Date	Unknown
Surface Cracks	None evident
Pavement Condition	Fair
Movement or Settlement of Crest	None
Lateral Movement	None
Vertical Alignment	Good
Horizontal Alignment	Good
Condition at Abutment and at Concrete Structures	All concrete in disrepair, masonry walls unraveling and becoming dislodged.
Indications of Movement of Structural Items on Slopes	None on major masonry, but walls and flume apron dislodged and raveling.
Trespassing on Slopes	Some
Sloughing or Erosion of Slopes or Abutments	N.A.
Rock Slope Protection - Riprap Failures	N.A.
Unusual Movement or Cracking at or near Toes	None evident
Unusual Embankment or Downstream Seepage	None evident
Piping or Boils	None evident
Foundation Drainage Features	None
Toe Drains	None
Instrumentation System	None

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Earth Dike NAME James Reynolds

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITIONS
DIKE EMBANKMENT	
Crest Elevation	314.5
Current Pool Elevation	305.8
Maximum Impoundment to Date	Not known
Surface Cracks	None except rodent burrows
Pavement Condition	N.A.
Movement or Settlement of Crest	None
Lateral Movement	None
Vertical Alignment	Good
Horizontal Alignment	Good
Condition at Abutment and at Concrete Structures	Masonry walls unraveling and becoming dislodged.
Indications of Movement of Structural Items on Slopes	None
Trespassing on Slopes	Some
Sloughing or Erosion of Slopes or Abutments	Upstream face locally eroded
Rock Slope Protection - Riprap Failures	No riprap present
Unusual Movement or Cracking at or near Toes	None
Unusual Embankment or Downstream Seepage	None evident, but low marshy slough about 300 ft. downstream of dike
Piping or Boils	None
Foundation Drainage Features	None
Toe Drains	None
Instrumentation System	None

NOTE: Heavy growth of trees and brush on embankment

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Power House NAME

DISCIPLINE Structural/Hydraulics NAME

AREA EVALUATED	CONDITIONS
OUTLET WORKS - INTAKE CHANNEL AND INTAKE STRUCTURE	
a. Approach Channel	Concrete Forebay
Slope Conditions	N.A.
Bottom Conditions	Not visible
Rock Slides or Falls	N.A.
Log Boom	N.A.
Debris	None
Condition of Concrete Lining	Fair
Drains or Weep Holes	None
b. Intake Structure	
Condition of Concrete	Fair
Stop Logs and Slots	None

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Power House NAME

DISCIPLINE Structures/Hydraulics NAME Carl J. Hoffman

AREA EVALUATED	CONDITIONS
OUTLET WORKS - OUTLET STRUCTURE AND OUTLET CHANNEL	
General Condition of Concrete	Fair
Rust or Staining	Some
Spalling	Some
Erosion or Cavitation	Yes
Visible Reinforcing	None
Any Seepage or Efflorescence	Some
Condition at Joints	Fair
Drain Holes	None
Channel	Fair
Loose Rock or Trees Overhanging Channel	Overhanding trees
Condition of Discharge Channel	Fair

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Spillway NAME

DISCIPLINE Structures/Hydraulics NAME Carl J. Hoffman

AREA EVALUATED	CONDITIONS
OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS	
a. Approach Channel	
General Condition	Good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	Some
Floor of Approach Channel	Not visible
b. Weir and Training Walls	
General Condition of Concrete	Fair
Rust or Staining	Some
Spalling	Some
Any Visible Reinforcing	Yes
Any Seepage or Efflorescence	Yes
Drain Holes	None
c. Discharge Channel	
General Condition	Good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	Yes
Floor of Channel	Not visible
Other Obstructions	None

PERIODIC INSPECTION CHECKLIST

PROJECT Mechanicsville Dam DATE 21 August 1979

PROJECT FEATURE Spillway Bridge NAME

DISCIPLINE Structures NAME Carl J. Hoffman

AREA EVALUATED	CONDITIONS
OUTLET WORKS - SERVICE BRIDGE	
a. Superstructure	All concrete
Bearings	None
Anchor Bolts	None
Bridge Seat	None
Longitudinal Members	Fair
Underside of Deck	Fair
Secondary Bracing	Exposed reinforcing on piers
Deck	Fair
Drainage System	None
Railings	None
Expansion Joints	None
Paint	None
b. Abutment & Piers	
General Condition of Concrete	Poor
Alignment of Abutment	Good
Approach to Bridge	Fair
Condition of Seat and Backwall	None

PERIODIC INSPECTION CHECKLIST

PROJECT: Mechanicsville Dam DATE: 21 August 1979

AREA EVALUATED	CONDITIONS
Outlet Works - Control Tower	N.A.
Outlet Works - Transition and Conduit	N.A.

APPENDIX B

ENGINEERING DATA

12

Dam Inspection Report

Town: Thompson

Date of Inspection: 11/28/~~75~~ 75

Name of Impoundment: Mechanicsville Dam

Remarks: The condition of the dam is essentially unchanged since the inspection by Macchi & Hoffman dated Oct. 15, 1973.

The wooden gates over the spillway section are still in place. Some of the gates are partially closed and many sections have become clogged with large trees and other debris. The gates should be removed along with the debris. This maintenance would allow the dam to pass the maximum quantity of water.

Recommendations:

Owner Notified: Phone (date) Letter: (date)

Robert E Sommicheen
(Inspector's Signature)

B-1

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING • HARTFORD, CONNECTICUT 06115

COPY

8 November 1973

Calvine Mills
c/o Troy Textiles, Inc.
1417 Broadway
New York, New York 10018

Re: Mechanicsville Dam
Thompson
Code T-2

Gentlemen:

According to the records in this office, your concern is the owner of the subject dam located on the French River in the Mechanicsville section of Thompson.

The Department of Environmental Protection has jurisdiction over all dams which might endanger life or property in the event of failure, per the General Statutes, a copy of which is enclosed. It has been determined that this dam is under our jurisdiction.

A recent inspection of this structure has been made by one of the engineering consultants retained by this office. According to their report, it is imperative that all debris trapped in front of most of the bridge spans be cleared away. The remaining wood gates should also be removed to permit free flow of water.

The concrete wall piers are deteriorating. If it is your intention to preserve the concrete bridge over the dam, these piers should be repaired in the not too distant future.

Will you kindly advise us within two weeks as to your intentions in performing the necessary maintenance at this dam.

Very truly yours,

Victor F. Galgowski
Supt. of Dam Maintenance
Water & Related Resources

VFG:ljg

Enclosure

8-2

SWAINSBORO PRINT WORKS, INC.
1412 BROADWAY
NEW YORK, N. Y. 10018
565-2580

November 16, 1973

Mr. Victor F. Galgowski
Supt. of Dam Maintenance
Water & Related Resources
Department of Environmental Protection
State Office Bldg.
Hartford, Conn. 06115

Re: Mechanicsville Dam
Thompson
Code T-2

Dear Mr. Galgowski:

We have your letter of November 8, 1973. At present we are the owners of the property on the French River on which the subject dam is located.

It is our intention to visit the site and have an inspection of the dam made by a local engineer. After this inspection we shall contact you regarding the maintenance you indicate as necessary.

Very truly yours,

SWAINSBORO PRINT WORKS, INC.

Murray Newton

MN:as

B-3

MECHANICSVILLE DAM ON THE FRENCH RIVER

THOMPSON, CONNECTICUT

This dam was inspected on October 15, 1973. Our previous inspection of this dam was made on April 30, 1970.

LOCATION - This dam is located in the Mechanicsville section of the Town of Thompson, Connecticut, east of the Penn. Central Railroad Line and next to the present Mechanicsville Post Office.

DESCRIPTION - The dam was built in the early part of this century to provide power to a large mill that was active until the flood of 1955 at which time the mill suffered considerable damages because of the flood and a subsequent fire and was thereafter abandoned. See attached sketch.

The dam is a stone masonry structure, 200 feet long, bridged over by a concrete structure consisting of 16 spans at 12' - 6" O.C. and a slab in top. The openings between piers are spillways controlled by manually operated sliding wood gates, 11 feet wide by 6 feet high each. The dam and the concrete structure are both in good structural condition except some of the concrete wall piers which have been partially eroded at the bottom to the extent that only the reinforcing steel remains. Presently, only 5 of the 16 spans are passing the flow. The remaining spans are either closed by the wooden gates or by debris. The sliding gates system is no longer operable.

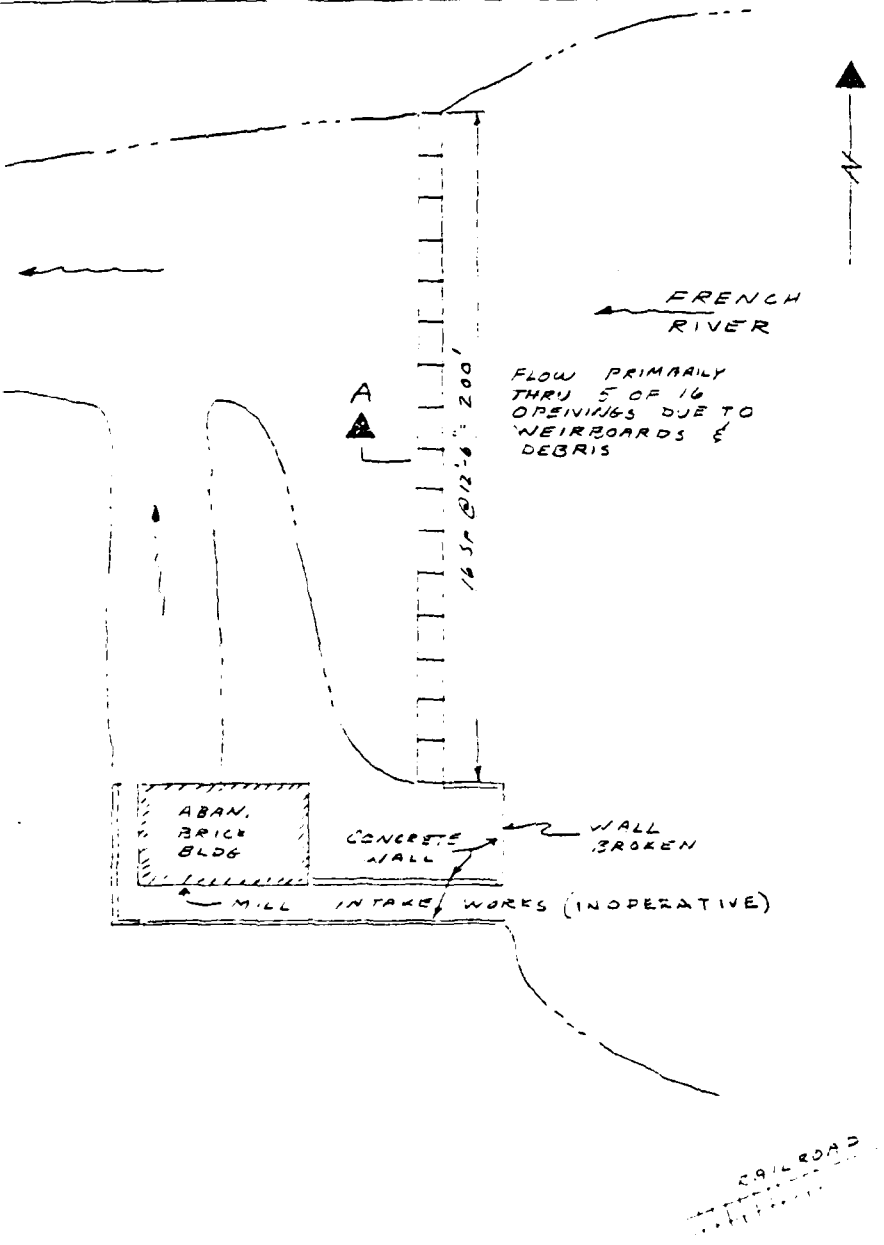
We were informed by the Postmaster that during the 1936 flood the site was not as badly affected as by the 1955 flood, at which time the river overflowed its banks.

CONCLUSIONS AND RECOMMENDATIONS - Our conclusions on the structural and hydraulic adequacy of this dam are the same as we reported on May 1, 1970. Structurally, this dam is sound. Large floods such as the 1936 or 1955 floods will again overtop the banks of the river. If the present concrete bridge over the dam is not completely removed, it is imperative that all the spans of this bridge be opened to flow by removing the remains of the wood gates and cleaning all debris trapped in front of some of the openings. Also, if the concrete structure is left in place, the concrete wall piers should be repaired in the not too distant future.

The amount of flow at flood time in this site is partially dependent now on the flood control structures that have been built after the 1936 and 1955 floods on the upstream sections of the French River in the State of Massachusetts.

MACCHI & HOFFMAN • ENGINEERS • HARTFORD, CONN.

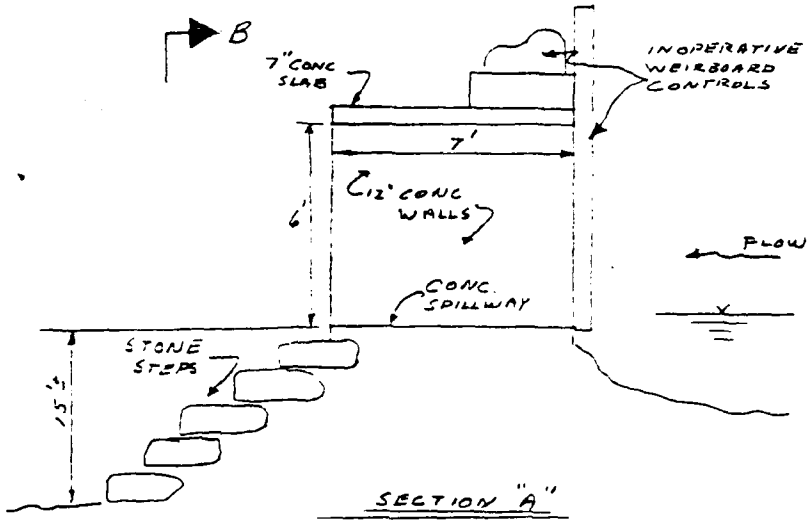
BY PPL DATE 10-16-73 SUBJECT DAM IN MECHANICSVILLE SHEET NO 1 OF 2
CHKD. BY JHC DATE 10-17-73 NEAR B.M 310 ℄ JOB NO.
MECHANICSVILLE POST OFFICE



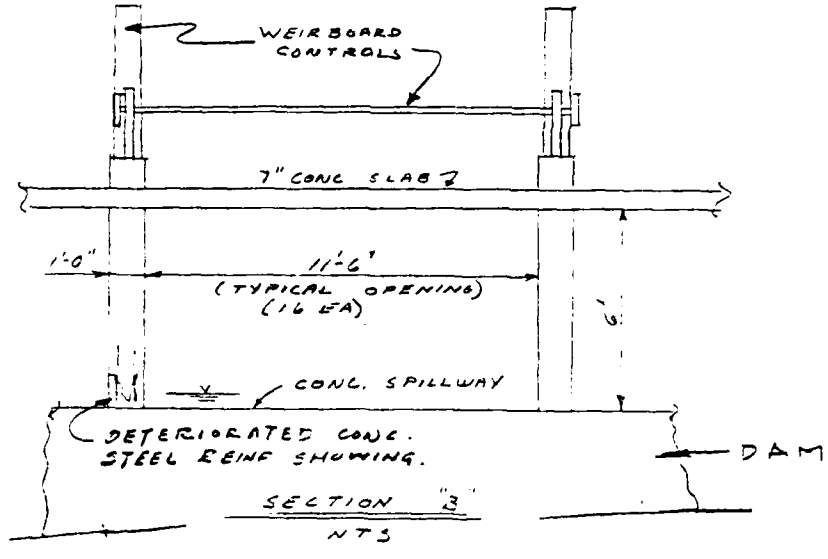
PLAN
NTS

MACCHI & HOFFMAN • ENGINEERS • HARTFORD, CONN.

BY PPL DATE 10-16-73 SUBJECT DAM IN MECHANICSVILLE SHEET NO. 2 OF 2
CHKD. BY JHC DATE 10-17-73 JOB NO.



SECTION "A"
NTS



SECTION "B"
NTS

January 28, 1971

Mr. Uldric Baldman
c/o Acme Bleaching Company
8555 Tonell Avenue
North Burgen, New Jersey

Re: Mechanicsville Dam
Thompson

Dear Mr. Baldman:

According to the records in this office, the Acme Bleaching Company, of which you are apparently an officer, is the owner of the subject dam. The Water Resources Commission, per the General Statutes of Connecticut (a copy of which is enclosed) has jurisdiction over all dams "... which by breaking away or otherwise might endanger life or property ...".

We enclose a copy of a May 1, 1970 report on an inspection of this dam by our consultants, Macchi & Hoffman, Engineers. Since the condition of the dam at that time, "...presented no hazards to public safety", we are merely sending you a copy of this report for your information and guidance on the maintenance of the structure. If the trees and brush are not removed within a reasonable period of time, they could eventually cause an accelerated deterioration of the structure which could change the opinion on the safety of the dam.

Very truly yours,

William E. O'Brien III
Civil Engineer

WEOIII:mh

Enclosure

cc: Mr. Jacob Freesman

LAW OFFICES
HARBER & FREESMAN
422 THIRTY-EIGHTH STREET
UNION CITY, N. J. 07087
863-8181

SAMUEL HARBER (1912-1967)
JACOB FREESMAN
GORDON S. FREESMAN
RAYMOND GORAB

2011 Lemoine Ave
07024

461-8133

September 11, 1970

STATE WATER RESOURCES COMMISSION
RECEIVED
SEP 14 1970
ANSWERED
REFERRED
FILED

State of Connecticut,
Water Resources Commission,
State Office Building,
Hartford, Connecticut. 06115

Re: Acme Bleaching Company
Mechanicsville Dam
Thompson

Attention: William H. O'Brien III,
Civil Engineer

Gentlemen:

We are the attorneys for Acme Bleaching Co. and have your letter of August 31, 1970.

Most of the original stockholders of this Company have passed away and the one remaining does not want to put any money into any repairs as the Corporation has no funds. As far as the Corporation is concerned, they consider the Dam to have been abandoned by them.

If any Commission wants to take it over, I am certain that I can prevail upon the remaining officer to transfer title.

Very truly yours,

HARBER & FREESMAN

BY: Jacob Freesman

jf/jsc

August 31, 1970

Acme Bleaching Company
8555 Tonall Avenue
North Burgen, New Jersey

Re: Mechanicsville Dam
Thompson

Gentlemen:

According to the records in this office, your company is the owner of the subject dam on the French River in Mechanicsville, Thompson just upstream from the confluence of the Quinnebaug River.

The Water Resources Commission has jurisdiction over all dams which might endanger life or property in the event of failure, per the General Statutes, a copy of which is enclosed.

We enclose a copy of a May 1, 1970 report on the condition of this dam by one of our Consultant, engineering firms, Macchi and Hoffman, Engineers. They recommend that certain maintenance work be performed to maintain the dam in a safe condition.

Would you please advise this office as to your intentions in having this work performed?

Very truly yours,

William H. O'Brien III
Civil Engineer

WHOIII/lch
Enclosures

3-10

MACCHI & HOFFMAN • ENGINEERS

EXECUTIVE OFFICES • 44 GILLETT STREET • HARTFORD, CONN., 06105 • PHONE (203) 525-6631

A. J. MACCHI
H. R. HOFFMAN
J. J. SCHMID

ASSOCIATE CONSULTANT
PROF. C. W. DUNHAM

May 1, 1970

The State of Connecticut
Water Resources Commission
165 Capitol Avenue
Hartford, Connecticut

Attention: Mr. William H. O'Brien, III

Re: Mechanicsville Dam
Thompson, Connecticut

Gentlemen:

An inspection trip was made to the above project on Thursday, April 30, 1970, by Messrs. A. J. Macchi and R. J. Dellaripa.

Our report is as follows:

1. The condition of the dam at this time is such that it presents no hazards to public safety.

2. We recommend clearing the up-stream face of debris that has accumulated against the sluice gates, and removing the few remaining wooden gates from the sluice gates in order to allow free flow over the dam and prevent debris accumulation.

3. There are some small trees and undergrowth on the up-stream face near the north abutment which should be removed.

4. The entire dam width is a spillway and is adequate for flood flows.

Very truly yours,

MACCHI & HOFFMAN, ENGINEERS

R. J. DELLARIPA

THE CONNECTICUT LIGHT & POWER CO.

GENERAL OFFICE
BERLIN, CONNECTICUT

TELEPHONE
EWINGTON MOHAWK 6-2431

MAILING ADDRESS
P. O. BOX 2010
HARTFORD 1, CONN.

June 5, 1958

Mr. William S. Wise, Director
State of Connecticut
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Dear Mr. Wise:

In reply to your letter of June 3rd, we wish to advise that The Connecticut Light and Power Company sold all its interest in the Dam known as Mechanicsville Pond on the French River in the village of Mechanicsville, town of Thompson, Conn., to Acme Bleaching Company of Union City, New Jersey on February 11, 1942.

This Company no longer has any interest in any dams in the village of Mechanicsville.

Very truly yours,

J. S. Lewis
Real Estate Engineer

JSL:MFF

June 3, 1958

Mr. J. Lewis, Real Estate Agent
Connecticut Light & Power Company
P. O. Box 2010
Hartford, Connecticut

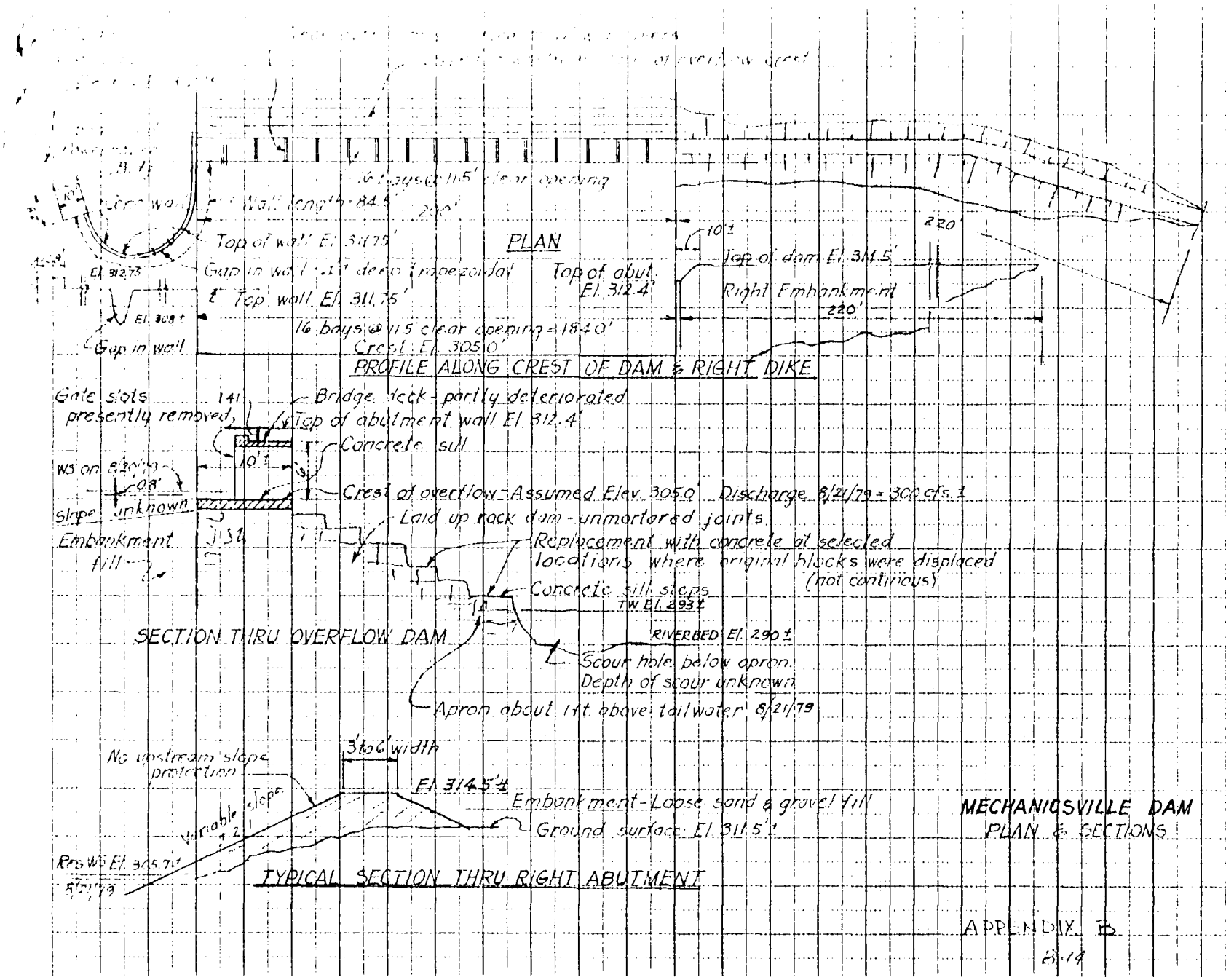
Dear Mr. Lewis:

This Commission is charged with the responsibility of making an inventory and the inspection of the dams of the state. One of the dams inspected was the dam in the Village of Mechanicsville which presumably was originally owned by the Putnam Finishing Company but now presumably owned by the Connecticut Light and Power Company. This dam has been inspected by our consultant, Mr. Palmer, and a copy of his letter is attached hereto. This letter indicates what should be done to place the dam in a usable condition.

Very truly yours,

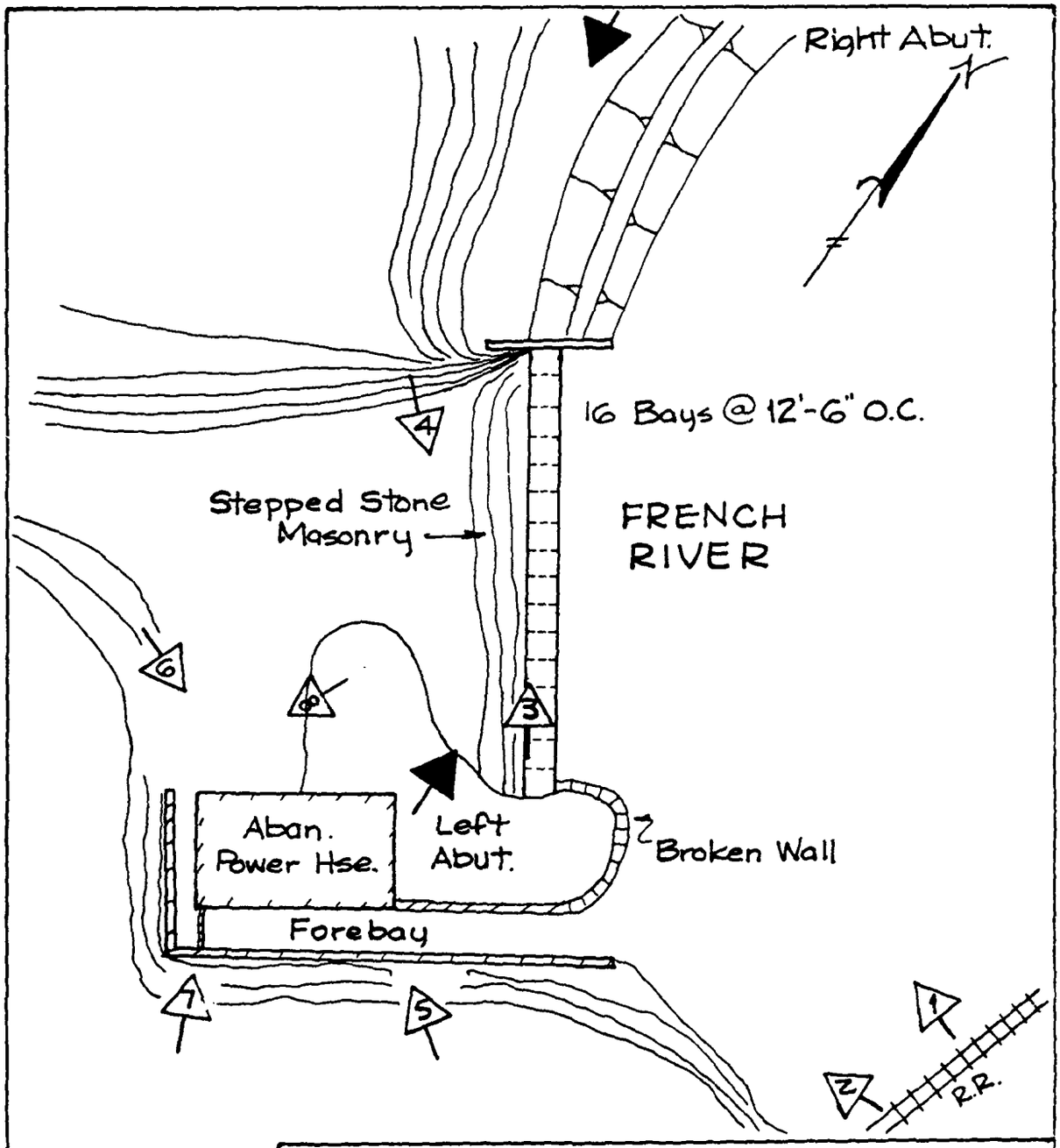
William S. Wise
Director

WSW/jb
Encl.


16 bays @ 11.5' clear opening
Wall length = 845'
200'
Top of wall El 311.75'
Gap in wall 1'-1" deep trapezoidal
Top wall El 311.75'
16 bays @ 11.5 clear opening = 184.0'
Crest El 305.0'
PLAN
Top of abut. El 312.4'
10'±
220'
Top of dam El 311.5'
Right Embankment
220'
El 312.75
El 309±
Gap in wall
PROFILE ALONG CREST OF DAM & RIGHT DIKE
Gate slots presently removed
14'
Bridge deck - partly deteriorated
Top of abutment wall El 312.4'
Concrete sill
10'±
WS on 8/20/79
.08'
Slope unknown
Crest of overflow - Assumed Elev 305.0' Discharge 8/21/79 = 300 cfs ±
Laid up rock dam - unmortared joints
Embankment
Fill
Replacement with concrete at selected locations where original blocks were displaced (not continuous)
Concrete sill steps
TW El 293±
14'
SECTION THRU OVERFLOW DAM
RIVERBED El 290±
Scour hole below apron
Depth of scour unknown
Apron about 1ft above tailwater 8/21/79
No upstream slope protection
3' to 6' width
El 314.5'±
Embankment - Loose sand & gravel fill
Ground surface El 311.5'±
Slope variable 1:2
Res WS El 305.7±
8/21/79
TYPICAL SECTION THRU RIGHT ABUTMENT
MECHANICSVILLE DAM
PLAN & SECTIONS

APPENDIX C

PHOTOGRAPHS



Appendix "C" Photos

Overview Photos

LOUIS BERGER & ASSOC., INC WELLESLEY, MASS. ARCHITECT - ENGINEER	U.S. ARMY ENGINEER DIV NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

MECHANICSVILLE DAM

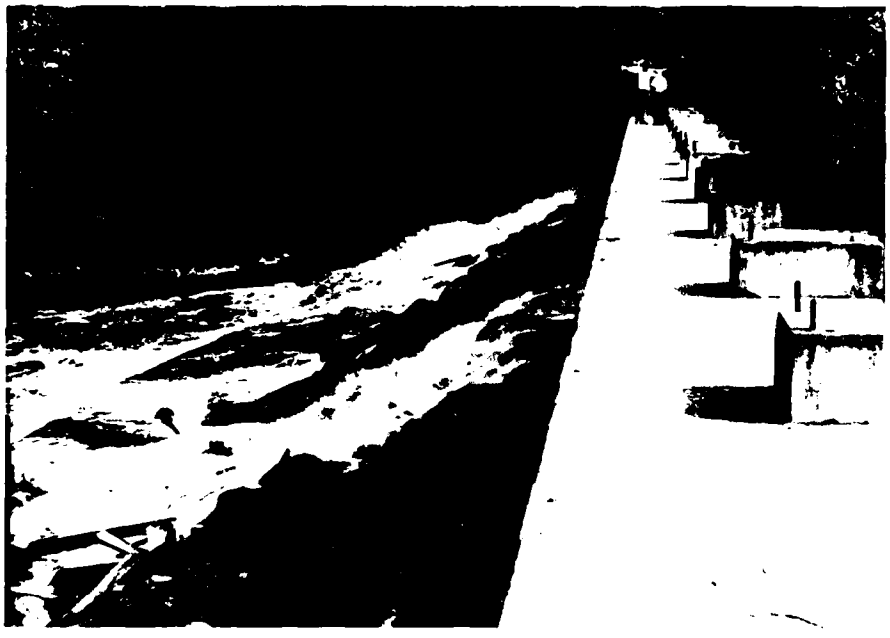
SKETCH PLAN SHOWING LOCATION & ORIENTATION OF PHOTOS

STATE - CT.

			SCALE
			DATE

1. Overflow section and bridge from upstream.

2. Abandoned power house and forebay from upstream.

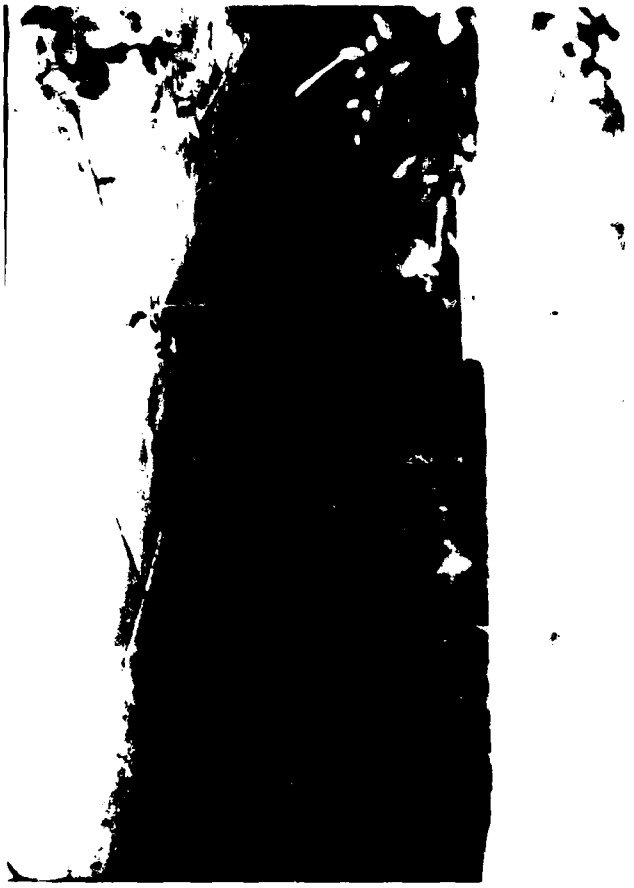


3. Spillway bridge with remains of gate controls.

4. Downstream face of overflow section and concrete bridge.

5. Five of 6 intake gates to power house.

6. Seepage through deteriorated corner of turbine house.



7. Seepage flow in flume left of forebay.

8. Seepage flow from flume into tailrace.

APPENDIX D

HYDROLOGIC AND HYDRAULIC COMPUTATIONS

BY ____ DATE 4/27/79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO ____ OF ____

CHKD. BY ____ DATE ____ PROJECT ____

SUBJECT ____ AREA

FIND ENTIRE AREA ABOVE DAM

PLANIMETER NO. 305-50
INDEX @ 594
10 = 1 sq in

NOTE: PLANIMETERED AREA PLUS THE DRAINAGE AREA OF NORTH GROSVENORDALE POND WILL BE TOTAL DRAINAGE AREA OF THIS DAM.

USGS Sheet	Ave Reading (sq in)	
Putnam, Conn	25.70 + 16.81 =	42.51
Thompson, Conn, RI	22.31 + 13.92 =	4.23
Webster, Mass, Conn	5.33 + 0.18 =	5.51
Oxford, Mass, Conn, RI		[illegible]
	Total =	[illegible]

Scale $(1")^2 = (2{,}000')^2$ 4,000,000 sq ft/sq in

$$\text{Area} = \frac{90.42 \text{ sq in} \times 4{,}000{,}000 \text{ sq ft/sq in}}{43{,}560 \text{ sq ft/Acre}} = 8{,}303.03 \text{ Acres}$$

8,303.03 Acres ÷ 640 Acres/sq mi = [illegible] sq mi

Total Area = 8,303.03 + [illegible] = [illegible]

12.97 − 13.0 = [illegible]

LOUIS BERGER & ASSOCIATES INC.

BY [illegible] DATE [illegible] SHEET NO. [illegible] OF [illegible]

CHKD. BY ______ DATE ______ PROJECT ______

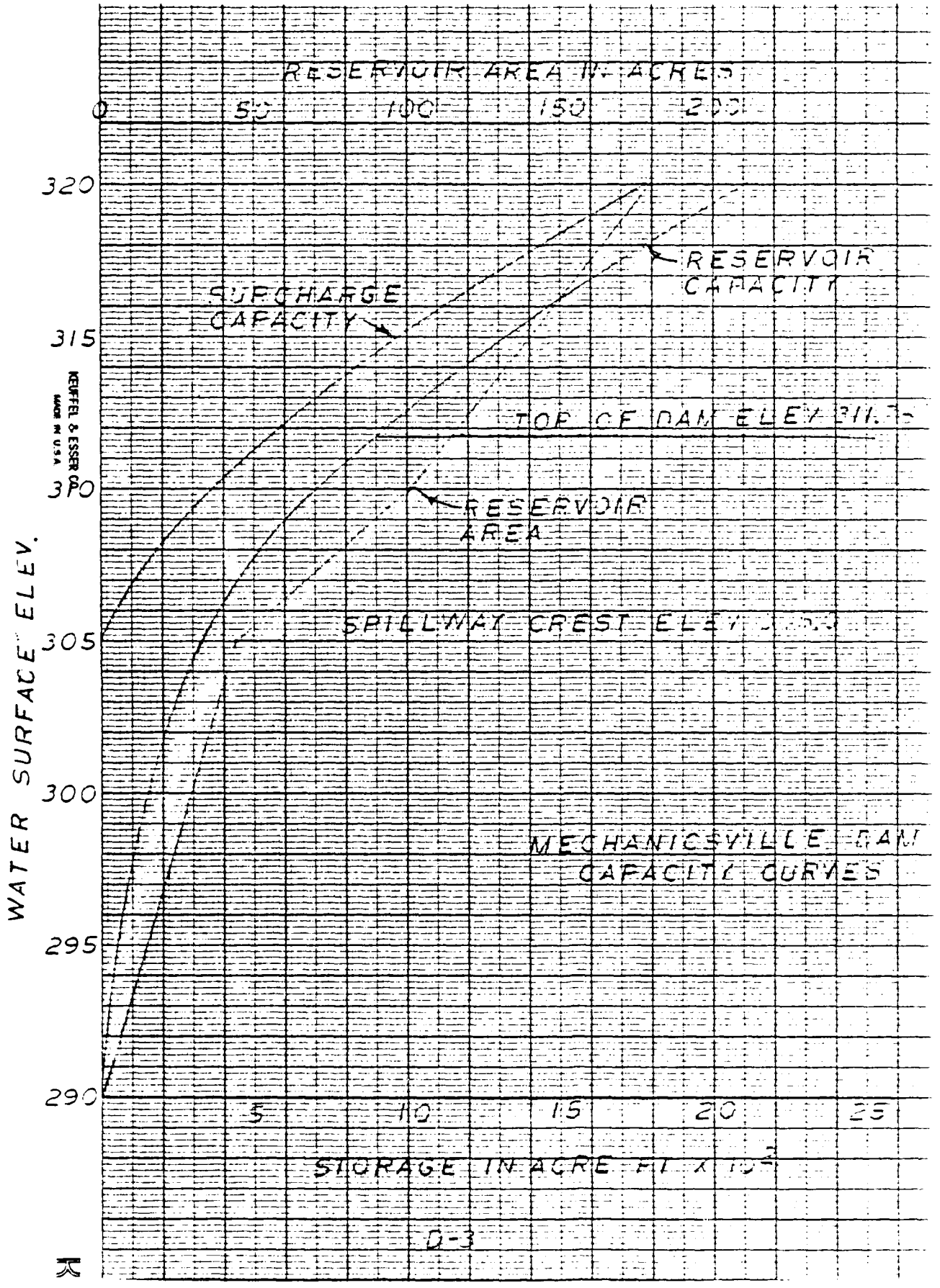
SUBJECT [illegible]

Elev [illegible]	Area A	Av Area [illegible]	ΔE (ft)	Vol [illegible]	[illegible]	[illegible]
290	0		2			
292	6	3		6	6	
294	12	9		18	24	
[illegible]	18	15		30	54	
298	24	21		42	96	
300	29	26.5		53	149	
302	35	32		64	213	
304	41	38		76	[illegible]	
305	44	42.5	1	42	[illegible]	
[illegible]	55	49.5		50	381	50
308	75	66.5	2	133	514	183
310	101	94.5		189	703	372
312	117	109		218	921	590
314	133	125		250	1171	840
316	149	140.5		281	1452	[illegible]
318	164	156		312	1764	[illegible]
[illegible]	179	171.5		343	2107	1776

[illegible]

[illegible]

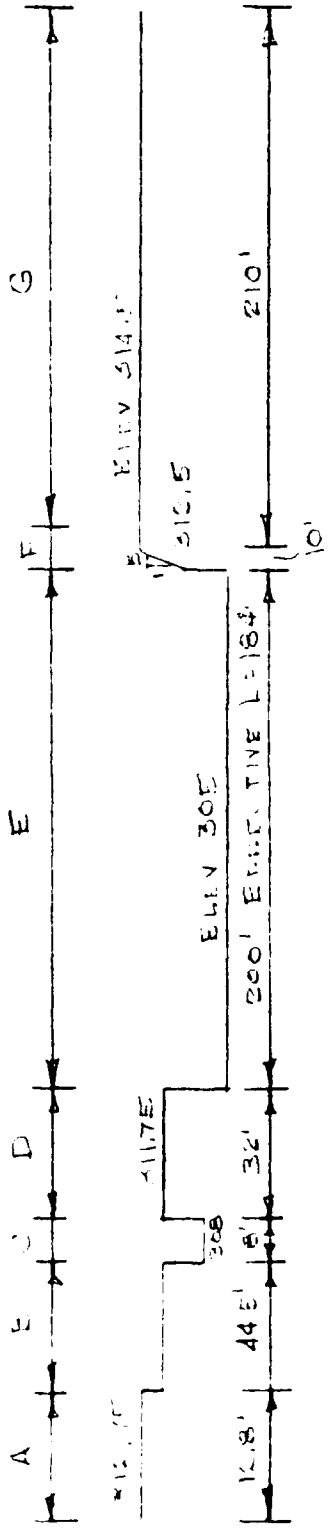
[illegible]


RESERVOIR AREA IN ACRES
0
50
100
150
200
320
315
310
305
300
295
290
RESERVOIR CAPACITY
SURCHARGE CAPACITY
TOP OF DAM ELEV. 311.5
RESERVOIR AREA
SPILLWAY CREST ELEV. 305.0
MECHANICSVILLE DAM
CAPACITY CURVES
WATER SURFACE ELEV.
5
10
15
20
25
STORAGE IN ACRE FT X 10³
D-3
KEUFFEL & ESSER CO. MADE IN U.S.A.

BY KEB DATE 8-24-9 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. ____ OF ____

CHKD. BY ____ DATE ____ INTERSECTION OF LANE ____ PROJECT ____

SUBJECT ____



ELEV FT	A, C=2.8 L	A, C=2.8 H	A, C=2.8 G	B,+D, C=2.9 L	B,+D, C=2.9 H	B,+D, C=2.9 G	C, C=2.7 L	C, C=2.7 H	C, C=2.7 G	E, C=3.1 L	E, C=3.1 H	E, C=3.1 G				
	12.8			76.5			8			184						
		0	0		0	0		0	0		1	570				
		0	0		0	0		0	0		2	1612				
		0	0		0	0		0	0		3	2964				
		0	0		0	0		1	22		4	4542				
		0	0		0	0		2	61		5	6277				
		0	0		0	0		3	112		6	8362				
		0	0		0	0		4	172		7	10564				
		0	0		0	28		6	247		9	15001				
		0	0		0	74		7	400		10	15038				
		0	0		0	135		8	481		11	20610				
		0	0		0	144		9	582		12	23711				
		0	0		0	225		10	683		13	26744				
		0	0		0	325		11	788		14	29811				
		0	0		0	455		12	916		15	33127				
		0	0		0	625		13	1082		16	36556				
		0	0		0	825		14	1282		17	40000				
		0	0		0	1044		15	1511		18	43444				
		0	0		0	1277		16	1761		19	46889				
		0	0		0	1511		17	2033		20	50333				
		0	0		0	1744		18	2322		21	53778				
		0	0		0	1977		19	2633		22	57222				
		0	0		0	2211		20	2966		23	60667				
		0	0		0	2444		21	3322		24	64111				
		0	0		0	2677		22	3700		25	67556				
		0	0		0	2911		23	4100		26	71000				
		0	0		0	3144		24	4522		27	74445				
		0	0		0	3377		25	4966		28	77889				
		0	0		0	3611		26	5433		29	81334				
		0	0		0	3844		27	5922		30	84778				
		0	0		0	4077		28	6433		31	88223				
		0	0		0	4311		29	6966		32	91667				
		0	0		0	4544		30	7522		33	95112				
		0	0		0	4777		31	8100		34	98556				
		0	0		0	5011		32	8700		35	102001				
		0	0		0	5244		33	9322		36	105445				
		0	0		0	5477		34	9966		37	108890				
		0	0		0	5711		35	10633		38	112334				
		0	0		0	5944		36	11322		39	115779				
		0	0		0	6177		37	12033		40	119223				
		0	0		0	6411		38	12766		41	122668				
		0	0		0	6644		39	13522		42	126112				
		0	0		0	6877		40	14300		43	129557				
		0	0		0	7111		41	15100		44	133001				
		0	0		0	7344		42	15922		45	136446				
		0	0		0	7577		43	16766		46	139890				
		0	0		0	7811		44	17633		47	143335				
		0	0		0	8044		45	18522		48	146779				
		0	0		0	8277		46	19433		49	150224				
		0	0		0	8511		47	20366		50	153668				
		0	0		0	8744		48	21322		51	157113				
		0	0		0	8977		49	22300		52	160557				
		0	0		0	9211		50	23300		53	164002				
		0	0		0	9444		51	24322		54	167446				
		0	0		0	9677		52	25366		55	170891				
		0	0		0	9911		53	26433		56	174335				
		0	0		0	10144		54	27522		57	177780				
		0	0		0	10377		55	28633		58	181224				
		0	0		0	10611		56	29766		59	184669				
		0	0		0	10844		57	30922		60	188113				
		0	0		0	11077		58	32100		61	191558				
		0	0		0	11311		59	33300		62	195002				
		0	0		0	11544		60	34522		63	198447				
		0	0		0	11777		61	35766		64	201891				
		0	0		0	12011		62	37033		65	205336				
		0	0		0	12244		63	38322		66	208780				
		0	0		0	12477		64	39633		67	212225				
		0	0		0	12711		65	40966		68	215669				
		0	0		0	12944		66	42322		69	219114				
		0	0		0	13177		67	43700		70	222558				
		0	0		0	13411		68	45100		71	226003				
		0	0		0	13644		69	46522		72	229447				
		0	0		0	13877		70	47966		73	232892				
		0	0		0	14111		71	49433		74	236336				
		0	0		0	14344		72	50922		75	239781				
		0	0		0	14577		73	52433		76	243225				
		0	0		0	14811		74	53966		77	246670				
		0	0		0	15044		75	55522		78	250114				
		0	0		0	15277		76	57100		79	253559				
		0	0		0	15511		77	58700		80	257003				
		0	0		0	15744		78	60322		81	260448				
		0	0		0	15977		79	61966		82	263892				
		0	0		0	16211		80	63633		83	267337				
		0	0		0	16444		81	65322		84	270781				
		0	0		0	16677		82	67033		85	274226				
		0	0		0	16911		83	68766		86	277670				
		0	0		0	17144		84	70522		87	281115				
		0	0		0	17377		85	72300		88	284559				
		0	0		0	17611		86	74100		89	288004				
		0	0		0	17844		87	75922		90	291448				
		0	0		0	18077		88	77766		91	294893				
		0	0		0	18311		89	79633		92	298337				
		0	0		0	18544		90	81522		93	301782				
		0	0		0	18777		91	83433		94	305226				
		0	0		0	19011		92	85366		95	308671				
		0	0		0	19244		93	87322		96	312115				
		0	0		0	19477		94	89300		97	315560				
		0	0		0	19711		95	91300		98	319004				
		0	0		0	19944		96	93322		99	322449				
		0	0		0	20177		97	95366		100	325893				
		0	0		0	20411		98	97433		101	329338				
		0	0		0	20644		99	99522		102	332782				
		0	0		0	20877		100	101633		103	336227				
		0	0		0	21111		101	103766		104	339671				
		0	0		0	21344		102	105922		105	343116				
		0	0		0	21577		103	108100		106	346560				
		0	0		0	21811		104	110300		107	350005				
		0	0		0	22044		105	112522		108	353449				
		0	0		0	22277		106	114766		109	356894				
		0	0		0	22511		107	117033		110	360338				
		0	0		0	22744		108	119322		111	363783				
		0	0		0	22977		109	121633		112	367227				
		0	0		0	23211		110	123966		113	370672				
		0	0		0	23444		111	126322		114	374116				
		0	0		0	23677		112	128700		115	377561				
		0	0		0	23911		113	131100		116	381005				
		0	0		0	24144		114	133522		117	384450				
		0	0		0	24377		115	135966		118	387894				
		0	0		0	24611		116	138433		119	391339				
		0	0		0	24844		117	140922		120	394783				
		0	0		0	25077		118	143433		121	398228				
		0	0		0	25311		119	145966		122	401672				
		0	0		0	25544		120	148522		123	405117				
		0	0		0	25777		121	151100		124	408561				
		0	0		0	26011		122	153700		125	412006				
		0	0		0	26244		123	156322		126	415450				
		0	0		0	26477		124	158966		127	418895				
		0	0		0	26711		125	161633		128	422339				
		0	0		0	26944		126	164322		129	425784				
		0	0		0	27177		127	167033		130	429228				
		0	0		0	27411		128	169766		131	432673				
		0	0		0	27644		129	172522		132	436117				

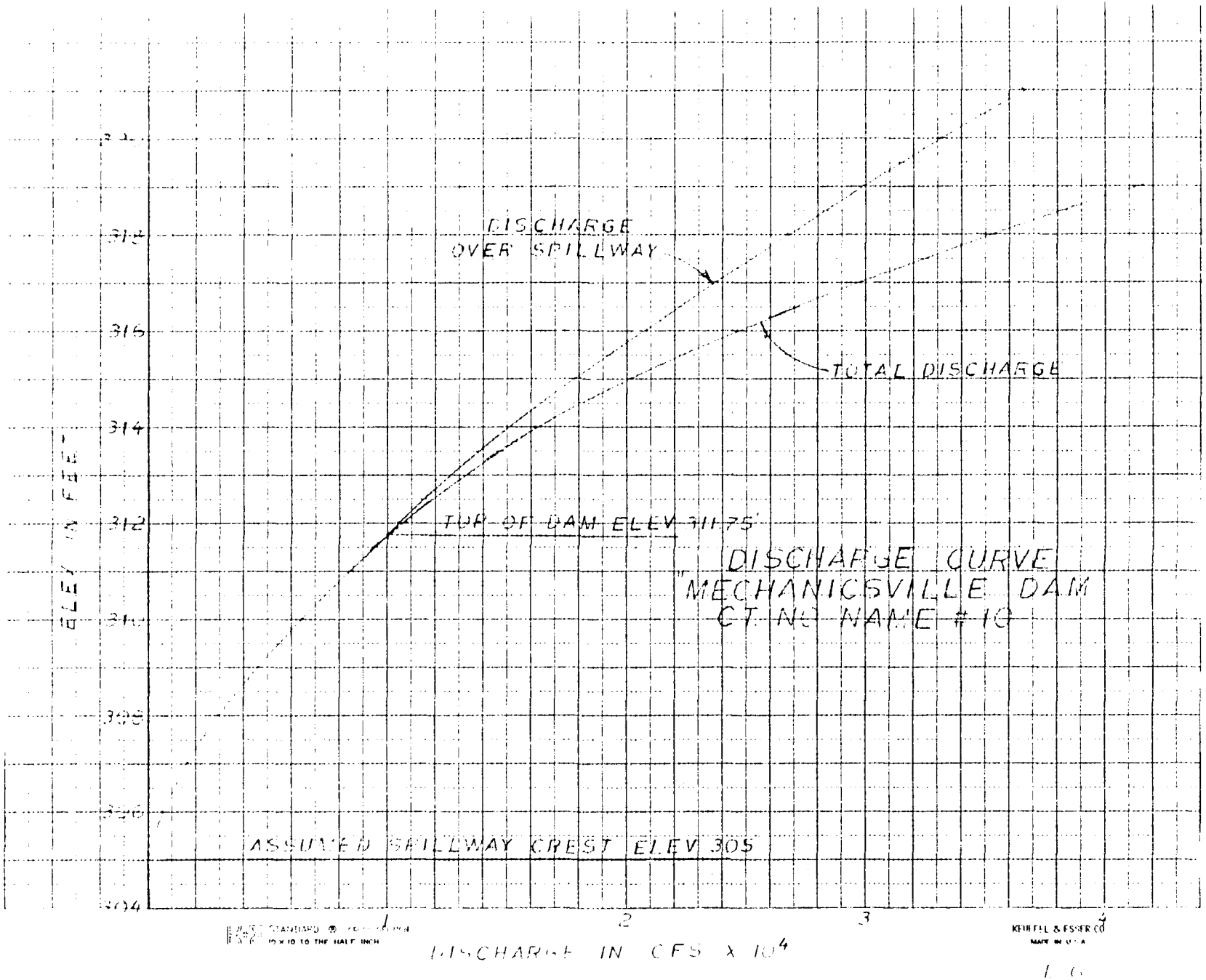
D-4

BY RFB DATE 8-24-79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 3 OF

CHKD. BY ____ DATE ____ INSPECTION OF DAM PROJECT ____

SUBJECT SPILLWAY #2 HEADWORKS DISCHARGE CURVE

ELEV	F, C = 2.7			C = 2.8			
FT	L	H	Q	L	H	Q	EQS
306	0	0	0	210	0	0	870
307	0	0	0	↓	0	0	1613
308	0	0	0		0	0	2964
309	0	0	0		0	0	4566
310	0	0	0		0	0	6439
311	0	0	0		0	0	8445
312	0	0	0		0	0	10765
313	7.5	.75	13		0	0	13130
315	10	1.5	50		1.5	206	20117
316	↓	2.5	107		1.5	1080	24640
317		3.5	177		2.5	2324	29778
318		4.5	258		3.5	3850	35424
319		5.5	348		4.5	5613	41519
320		6.5	447		5.5	7564	48022
321		7.5	555		6.5	9744	54907


DISCHARGE OVER SPILLWAY
TOTAL DISCHARGE
TOP OF DAM ELEV 311.75
DISCHARGE CURVE
MECHANICSVILLE DAM
CT NO NAME #10
ASSUMED SPILLWAY CREST ELEV 305
ELEVATION IN FEET
DISCHARGE IN CFS x 10^4
316
314
312
310
308
306
304
1
2
3
4

BY KFK DATE 3/20/74 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. ____ OF ____

CHKD. BY ____ DATE ____ INSPECTION OF DAMS PROJECT ____

SUBJECT ____

D.A. = 111.87

SIZE CLASSIFICATION = SMALL

HAZARD CLASSIFICATION = SIGNIFICANT

INSPECTION FLOOD = 100YR TO ½ PMF

CALCULATE PMF USING "PRELIMINARY GUIDANCE FOR ESTIMATING MAXIMUM PRECIPITATION ... PART I DAM SAFETY / INVESTIGATIONS MARCH 1978".

ASSUME THAT DRAINAGE AREAS AT DE PROJECTS AT BUFFUMVILLE AND HOUSE'S VILLAGE TO HAVE SAME TIME TO ½PMF AT MECHANICSVILLE

ENTIRE DRAINAGE AREA = 111.9
ABOVE BUFFUMVILLE = 66.8
ABOVE HOUSE'S VILLAGE = 31.1

NET DRAINAGE AREA = 54.2 SQ MI

USING CORPS ENVELOPE CURVES

FOR A = 54.2, ROLLING TERRAIN, PEAK Q = 80 CSM

Q_{PMF} = 80 (54.2) = 43,448 CFS

½ PMF = $\frac{43,448}{2}$ = 21,722 CFS

SAY Q_{USE} = 21,700 CFS

BY RFB DATE 8-24-79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 1 OF

CHKD. BY DATE INSPECTION OF DAMS PROJECT

SUBJECT NJ No Name # 2, Mechanicsville, Failure Analysis

STEP 1 ESTIMATE RESERVOIR STORAGE AT TIME OF FAILURE.

ELEV = 311.75 , STORAGE = 290 ACRE-FT

STEP 2 DETERMINE PEAK FAILURE OUTFLOW

$$Q_{P1} = 8/27\, W_b \sqrt{g}\, Y_o^{3/2}$$

W_b = 40% OF 200' = 80 FT

Y_o = 311.75 − 290 = 21.75

$$Q_{P1} = 1.68\,(80)(21.75)^{3/2} = 13,632$$

NOW ADD Q_s GOING OVER REMAINDER OF SPILLWAY

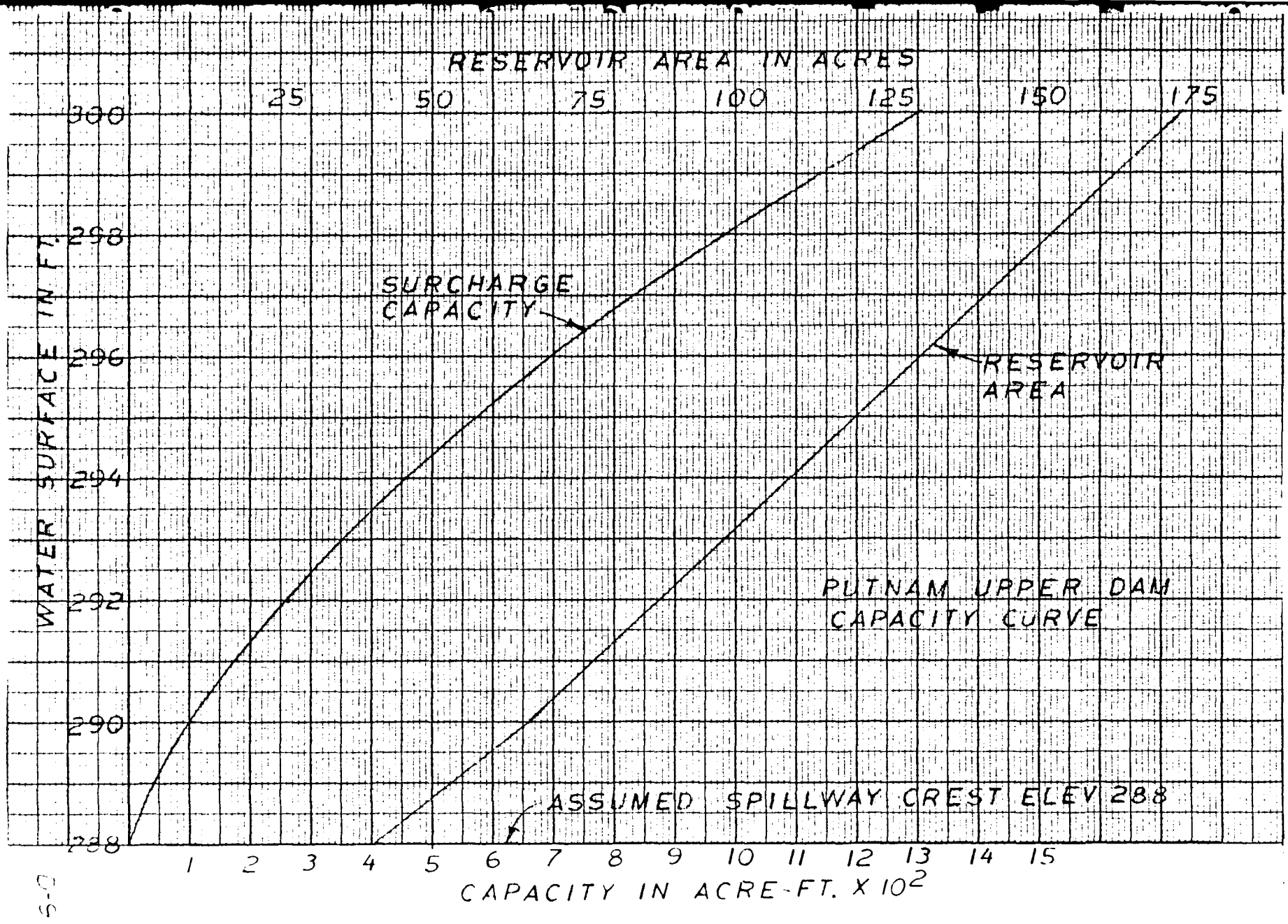
$$Q_s = 10,000 \times \frac{120}{200} = 6000 \text{ CFS}$$

$$Q_{TOTAL} = 13,632 + 6,000 = 19,632 \text{ CFS}$$

SAY Q_{P1} = 19,600 CFS

STEP 3 FIND STORAGE BETWEEN PUTNAM UPPER DAM AND MECHANICSVILLE DAM

COMPUTE RATING CURVE FOR PUTNAM UPPER DAM


RESERVOIR AREA IN ACRES
25
50
75
100
125
150
175
300
298
296
294
292
290
288
WATER SURFACE IN FT.
SURCHARGE CAPACITY
RESERVOIR AREA
PUTNAM UPPER DAM
CAPACITY CURVE
ASSUMED SPILLWAY CREST ELEV 288
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
CAPACITY IN ACRE-FT. X 10²

S-D

BY RFB DATE 8-29-79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 2 OF

CHKD. BY DATE INSPECTION OF DAMS PROJECT

SUBJECT CT NO NAME #10, MECHANICSVILLE [illegible]

ELEV. ASSUM	AREA AC	AVE AREA ACRES	H (FT)	VOL STOR ACRE-FT	CUM STOR AC-FT	CORRECTED STORAGE
288	40.4					
290	66.1	53.2	2	107		107
292	87.5	76.8	2	154		261
294	109	98.2	2	196		457
296	130.5	119.8	2	240		697
298	152	141.2	2	282		979
300	172.6	162.3	2	325		1304
302						
304						
306						
308						
310						

AT ELEV 298 READ #2 87.57 READ #3 87.14 AVE 0.44
" #1 87.14 " #2 86.71 AREA = 42.42
0.43 0.44

AT ELEV 290 READ #2 89.14 READ #3 90.62 AVE 0.72
" #1 88.42 " #2 89.70 AREA = 66.1
.74 .70

AT ELEV 300 READ #2 91.68 READ #3 91.14 AVE 1.62
" #1 91.02 " #2 91.66 AREA = 172.6 AC
1.66 1.52

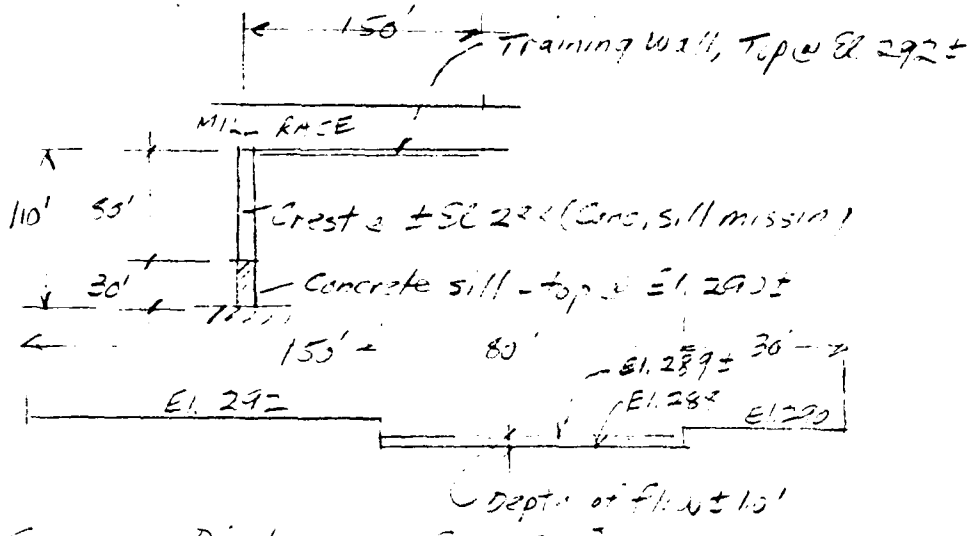
BY _____ DATE _____ **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 2 OF _____

CHKD. BY _____ DATE _____ PROJECT _____

SUBJECT _____

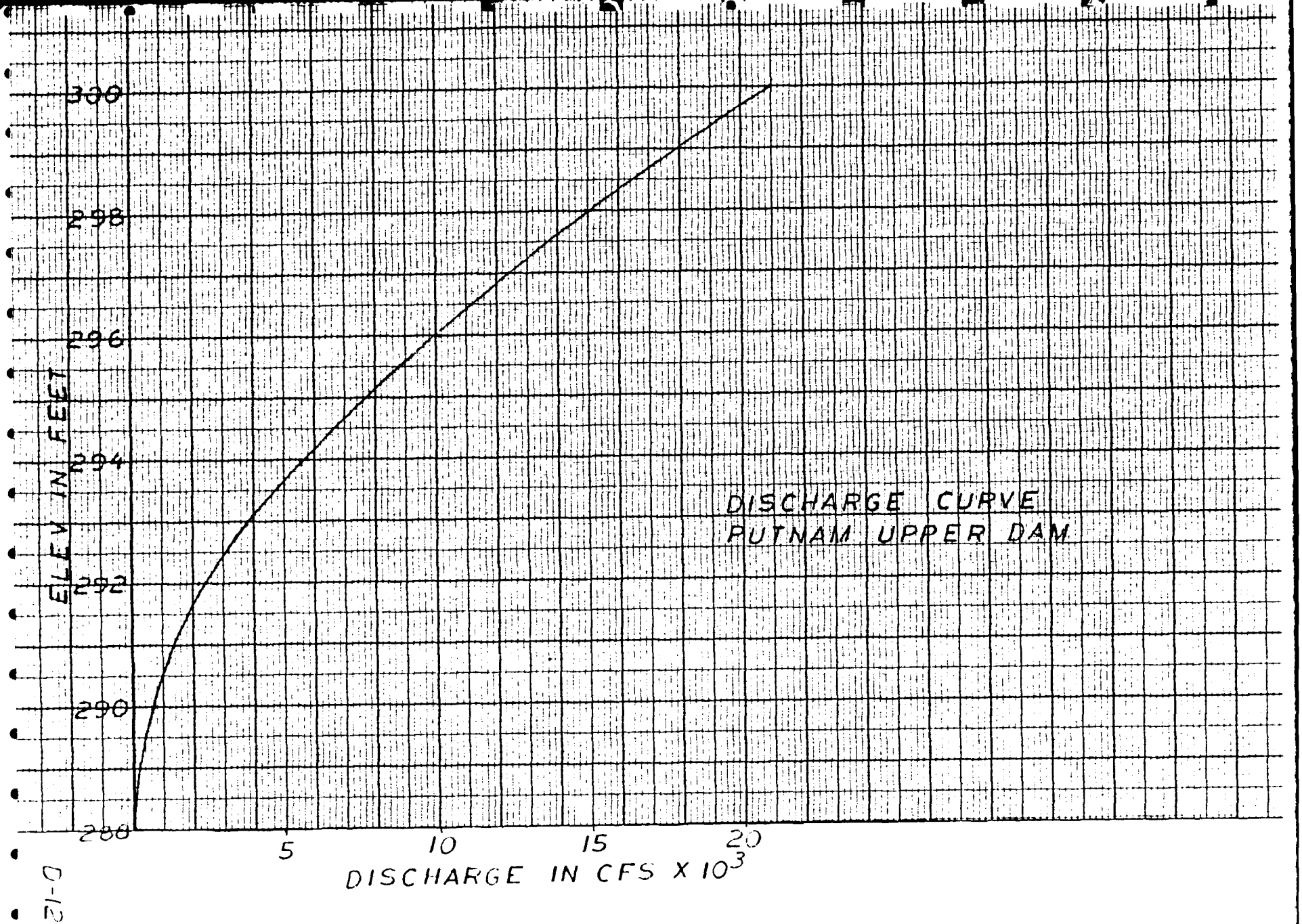
RESERVOIRS BELOW MECHANICSVILLE DAM.

UPSTREAM PUTNAM DAM



Spillway Discharge - Say C = 3.0

Elev.	90' Section		30' Section		150' Section C=2.5			
	H	ΔQ	+	ΔQ	H	ΔH	ΔQ	ΣQ
288	0	0				C		0
289	1.0	240						240
290	2.0	650	0	0				650
292	4.0	1900	2.0	250	0		0	2150
294	6.0	3500	4.0	700	2	2.0	1270	5470
296	8.0	5400	6.0	1300	4	2.5	3430	10,100
298	10.0	7550	8.0	2000	6	2.5	5300	14,900
300	12.0	9970	10.0	2850	8	2.5	8150	20,970


300
298
296
294
292
290
288
ELEV IN FEET
5
10
15
20
DISCHARGE IN CFS X 10^3
DISCHARGE CURVE
PUTNAM UPPER DAM

21-0

STEP 4 REACH NO 1 STA 0+00 TO 42+00

A. FOR $Q_{P1} = 19,600$ STAGE = 299.4, $S_2 = 1,100$

FOR $Q_S = 10,000$, STAGE = 296.0, $S_1 = 700$

$V_1 = 12,100 - 700 = 510$ ACRE-FT

B $Q_{P2\,(TRIAL)} = 19,600\left(1 - \frac{510}{900}\right) = 19,600\,(1 - .57)$

$Q_{P2\,(TRIAL)} = 8428$ CFS

C. FOR 8428 $S_2 < S_1$ SAY $V_2 = 0$

D. $V_{AVE} = \frac{V_1 + V_2}{2} = \frac{510 + 0}{2} = 255$ ACRE-FT

$Q_{P2} = 19,600\left(1 - \frac{255}{900}\right) = 19,600\,(1 - .283)$

$Q_{P2} = 14,053$ STAGE = 297.3

AT $Q_S = 10,000$ STAGE = 296.0

$\Delta H = 1.3$ FT

STEP 3 REACH #2

FIND STORAGE BETWEEN PUTNAM LOWER DAM AND PUTNAM MIDDLE DAM

COMPUTE RATING CURVE FOR PUTNAM LOWER DAM

BY RFB DATE 8-23-79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 5 OF

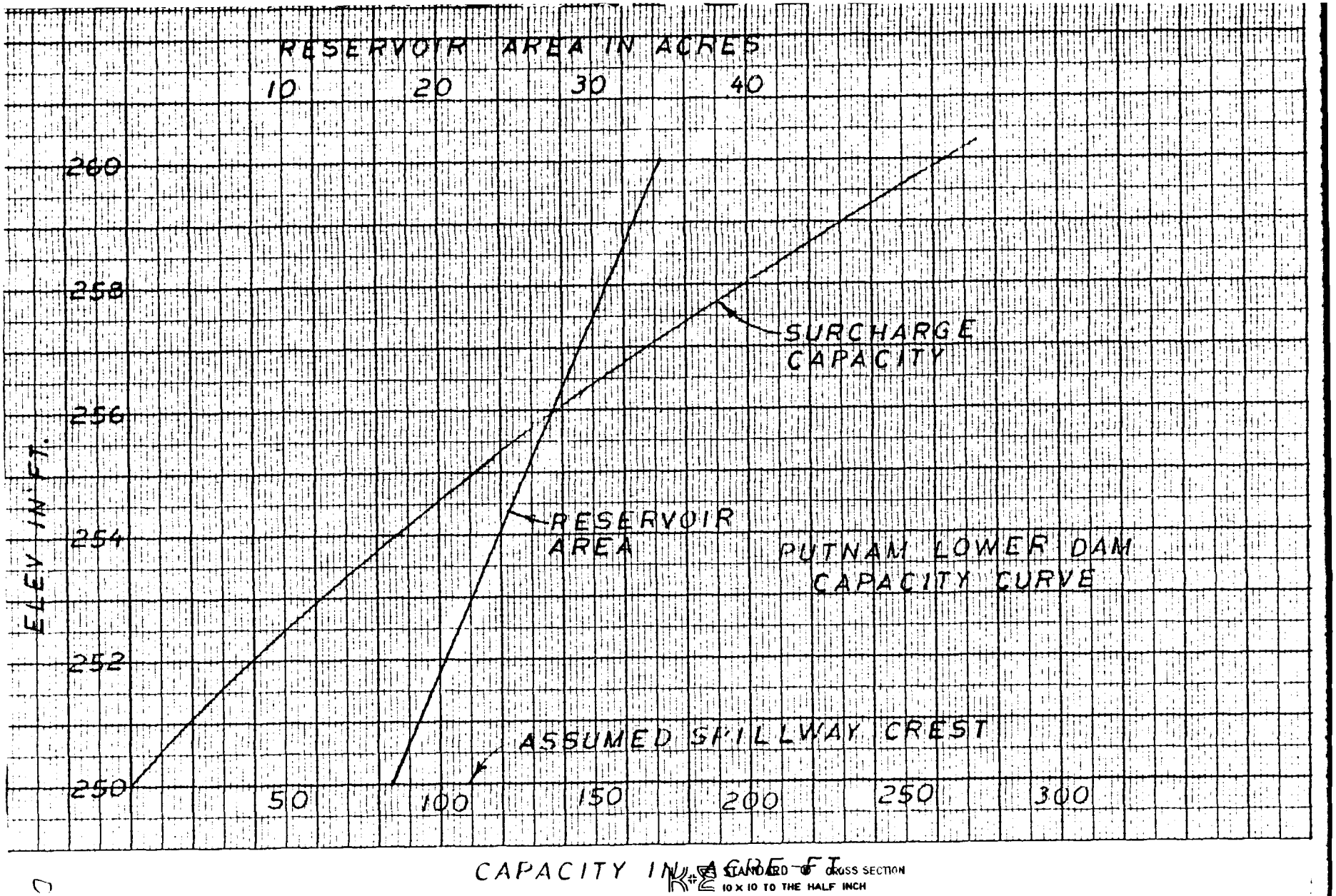
CHKD. BY DATE Inspection of Dams PROJECT

SUBJECT Ct No Name #10, Mechanicsville, Lower Putnam [illegible]

Elev Assum	Area Ac	Ave Area Acres	Ht (ft)	Inc Stor Acre-ft	[illegible] Ac-ft	[illegible]
250	18.4					
252	21.6	20	2	40		40
254	24.8	23.2	2	46.4		86.4
256	28.0	26.4	2	52.8		139.2
258	31.2	29.6	2	59.2		198.4
260	34.4	32.8	2	65.6		264

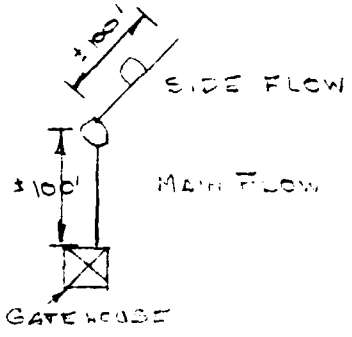
At elev 250 Read #2 91.06 Read #3 91.23 Ave [illegible]
" #1 90.87 " #2 91.06 Area = 18.4
.23 .17

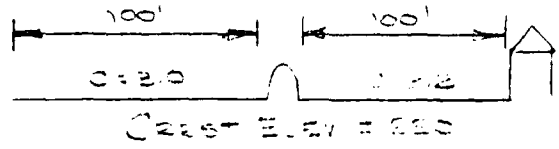
At elev 260 Read #2 91.50 Read #3 91.88 Ave [illegible]
" #1 91.13 " #2 91.50 Area = 34.4
37 .38


RESERVOIR AREA IN ACRES
10
20
30
40
260
258
256
254
252
250
ELEV IN FT.
SURCHARGE CAPACITY
RESERVOIR AREA
PUTNAM LOWER DAM CAPACITY CURVE
ASSUMED SPILLWAY CREST
50
100
150
200
250
300
CAPACITY IN ACRE-FT.
STANDARD CROSS SECTION
10 X 10 TO THE HALF INCH

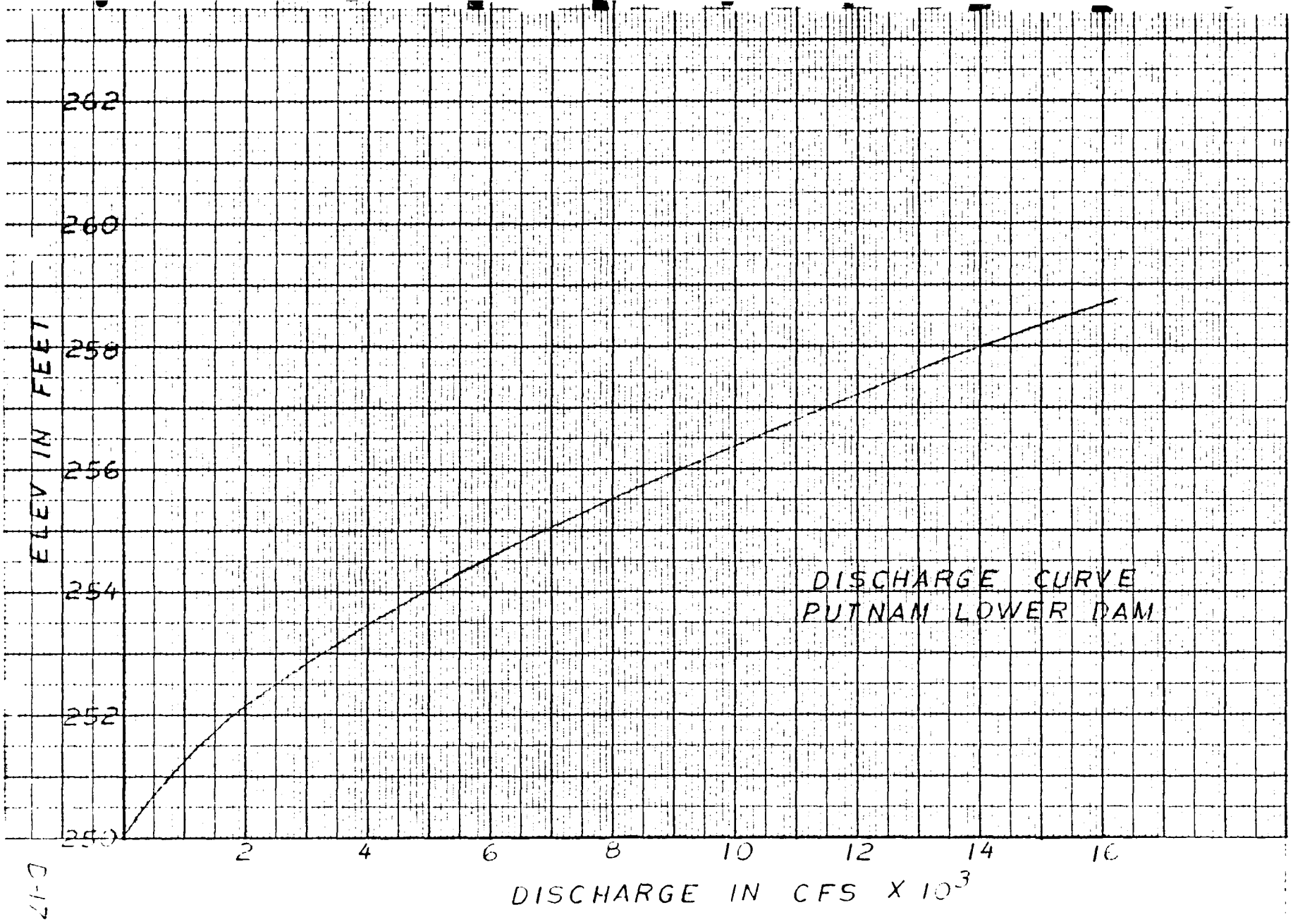
51-7

"PUTNAM LOWER DAM"





ELEV FT	MAIN OVERFLOW H	MAIN OVERFLOW ΔQ	SIDE OVERFLOW H	SIDE OVERFLOW ΔQ	TOTAL Q
250	0	0	0	0	0
252	2	900	2	850	1750
254	4	2560	4	2400	4960
256	6	4700	6	4400	9100
258	8	7250	8	6800	14050
260	10	10,200	10	9560	19760
262	12	13,300	12	12,500	25800
264	14		14		


ELEV IN FEET
262
260
258
256
254
252
250
2
4
6
8
10
12
14
16
DISCHARGE IN CFS X 10^3
DISCHARGE CURVE
PUTNAM LOWER DAM

BY RJA DATE 9-6-79 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO 1 OF

CHKD. BY DATE INSPECTION OF DAMS PROJECT

SUBJECT CT. NO NAME #15, MERIDEN, CT.

STEP 4 REACH 2 STA 105+00 TO 129+00

A FOR Q_{P1} = 14,050 STAGE = 256, S_1 = 105

FOR Q_S = 10,000 STAGE = 255.7, S = 148

V_1 = 198 - 148 = 50 ACRE-FT

B Q_{P2} (TRIAL) = $14,050\left(1-\frac{50}{400}\right)$ = 14,050(1-.125)

Q_{P2} (TRIAL) = 13,277 CFS

C FOR 13,277 STAGE = 257.7, S_2 = 191

$V_2 = S_2 - S_1$ = 189 - 148 = 41 ACRE-FT

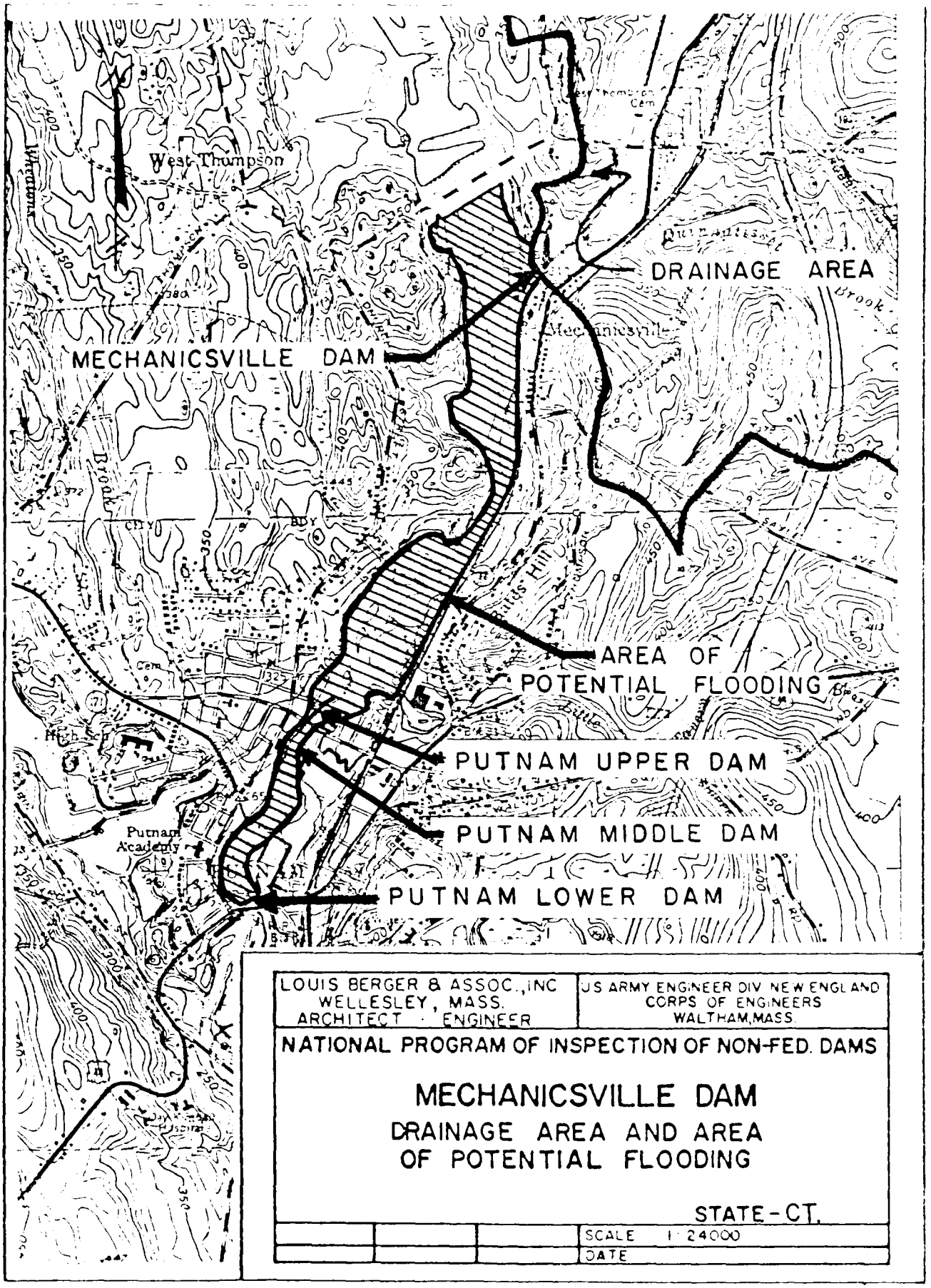
D $V_{AVE} = \frac{50+41}{2}$ = 45.5

$Q_{P2} = 14{,}050\left(1-\frac{45.5}{400}\right)$ = 14,050(1 - .114)

Q_{P2} = 13,231 CFS STAGE = 257.7

AT Q_S = 10,000 STAGE = 255.7

ΔL = 1.0 FT



LOUIS BERGER & ASSOC., INC WELLESLEY, MASS. ARCHITECT · ENGINEER	US ARMY ENGINEER DIV NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

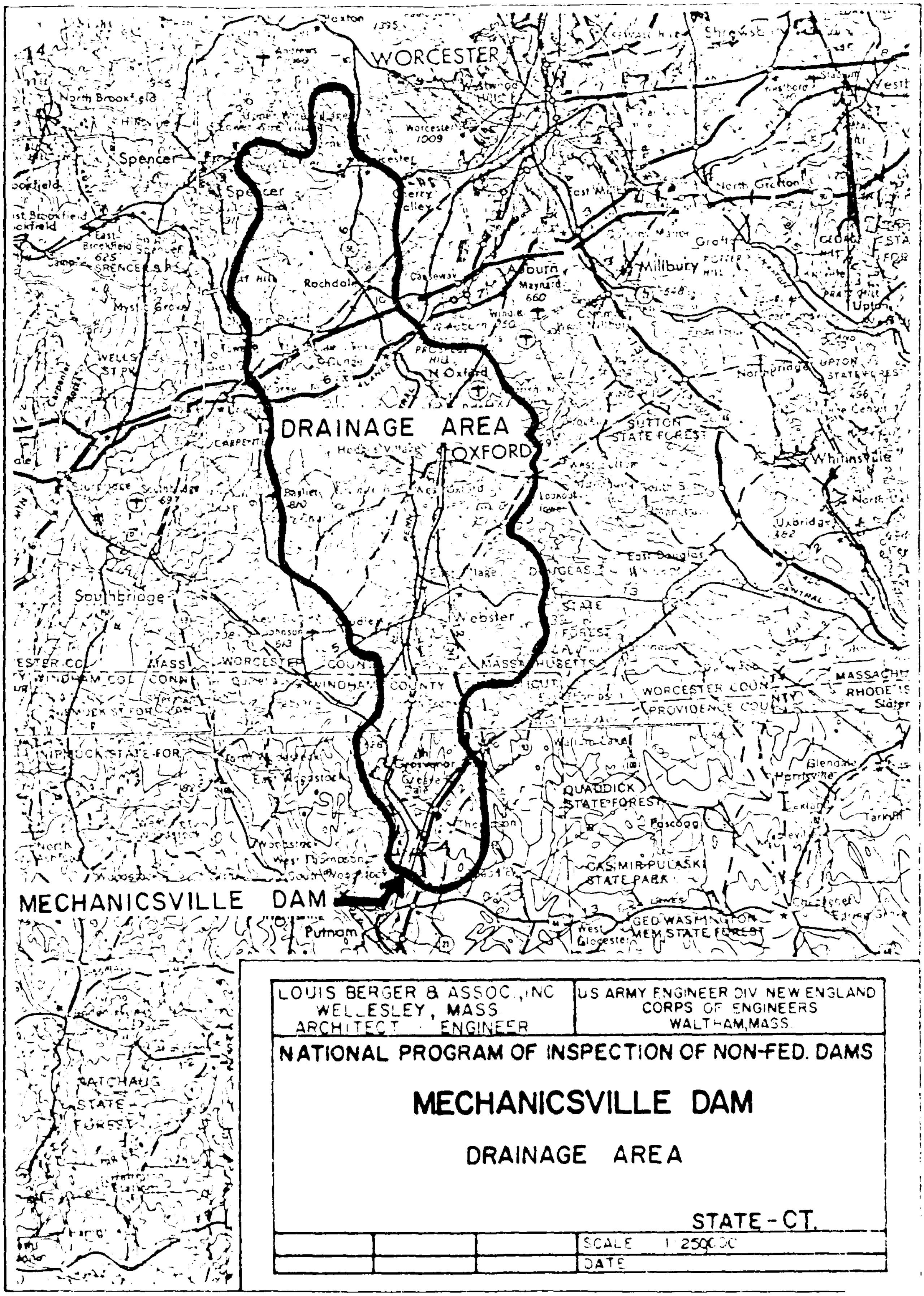
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

MECHANICSVILLE DAM

DRAINAGE AREA AND AREA OF POTENTIAL FLOODING

STATE - CT.

			SCALE 1:24000
			DATE



LOUIS BERGER & ASSOC., INC WELLESLEY, MASS ARCHITECT · ENGINEER	US ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

MECHANICSVILLE DAM

DRAINAGE AREA

STATE - CT.

			SCALE 1:250000
			DATE

APPENDIX E

INFORMATION AS CONTAINED IN THE NATIONAL INVENTORY OF DAMS

INVENTORY OF DAMS IN THE UNITED STATES

STATE	IDENTITY NUMBER	DIVISION	STATE	COUNTY	CONGR DIST.	STATE	COUNTY	CONGR DIST.	NAME	LATITUDE (NORTH)	LONGITUDE (WEST)	REPORT DATE DAY	MO	YR
CT	182	NED	CT	015	02				MECHANICSVILLE DAM	4156.6	7153.7	21	AUG	79

POPULAR NAME	NAME OF IMPOUNDMENT
	MECHANICSVILLE POND

REGION	BASIN	RIVER OR STREAM	NEAREST DOWNSTREAM CITY-TOWN-VILLAGE	DIST FROM DAM (MI.)	POPULATION
01	07	FRENCH RIVER	MECHANICSVILLE	0	1500

TYPE OF DAM	YEAR COMPLETED	PURPOSES	STRUCTURAL HEIGHT (FT.)	HYDRAULIC HEIGHT (FT.)	IMPOUNDING CAPACITIES MAXIMUM (ACRE-FT.)	IMPOUNDING CAPACITIES NORMAL (ACRE-FT.)
REPGOT	1900	0	25	22	900	330

DIST	OWN	FED R	PRV/FED	SCS A	VER/DATE
NED	N	N	N	N	

REMARKS
21=UNMORTARED STONE 23=FORMERLY WATER POWER FOR FACTORY

D/S HAS	SPILLWAY CREST LENGTH	SPILLWAY TYPE	SPILLWAY WIDTH (FT.)	MAXIMUM DISCHARGE (FT.)	VOLUME OF DAM (CY)	POWER CAPACITY INSTALLED (MW)	POWER CAPACITY PROPOSED (MW)	NAVIGATION LOCKS NO.	LENGTH (FT.)	WIDTH (FT.)	LENGTH (FT.)	WIDTH (FT.)	LENGTH (FT.)	WIDTH (FT.)	LENGTH (FT.)	WIDTH (FT.)
2	568	U	200	10200	7990											

OWNER	ENGINEERING BY	CONSTRUCTION BY
ACME BLEACHING COMPANY		

REGULATORY AGENCY			
DESIGN	CONSTRUCTION	OPERATION	MAINTENANCE
NONE	NONE	NONE	NONE

INSPECTION BY	INSPECTION DATE DAY	MO	YR	AUTHORITY FOR INSPECTION
LOUIS BERGER & ASSOCIATES, INC.	21	AUG	79	PL92-367

REMARKS


FIL