

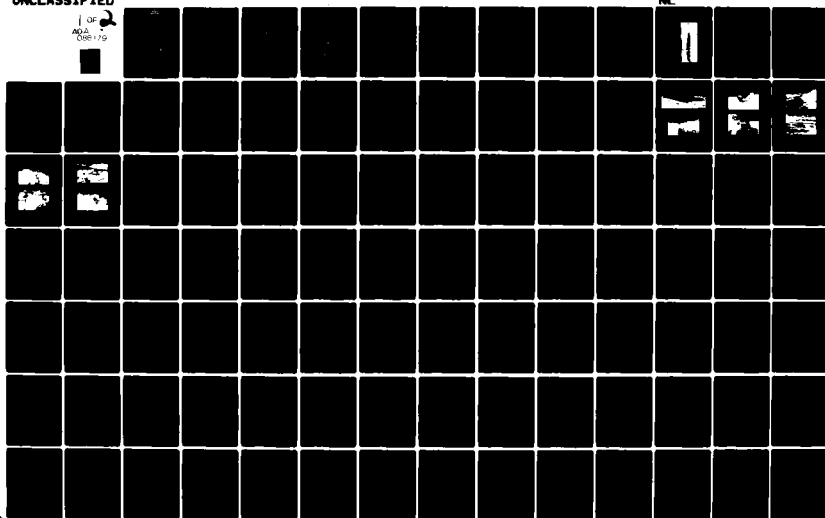
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NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/13
NATIONAL DAM SAFETY PROGRAM. EATON BROOK RESERVOIR DAM (INVENTO--ETC(U)
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization. Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which need to be evaluated and remedied.		

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Additional hydrologic investigations are required to more accurately determine the site specific characteristics of the watershed. Using the Corps of Engineer's Screening Criteria for the initial review of spillway adequacy, it has been determined that the embankment would be overtopped by all storms exceeding the inflow resulting from 40% of the Probable Maximum Flood (PMF) or one half the PMF. A flood wave analysis, assuming a complete breaching of the embankment, indicates that water surface levels downstream of the dam could reach depths which would pose significant danger to residents. The spillway is, therefore, adjudged as seriously inadequate and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

It is, therefore recommended that within 3 months of the date of notification of the owners, a hydrologic investigation of the structure should be undertaken to determine the appropriate mitigating measures to be taken. Within 18 months of the date of notification, appropriate remedial measures should be completed. In the interim, a detailed emergency operation plan and warning system should be developed.

There are a number of additional deficiencies which should be corrected. Seepage at the downstream toe and leakage in the abandoned spillway need to be investigated. Minor grading problems on the embankment should be corrected. The two gate valves on the service spillway which are leaking should be repaired. These deficiencies should be corrected within 12 months of the date of notification.

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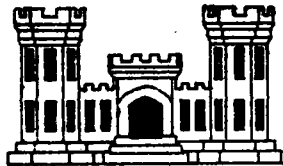
SUSQUEHANNA RIVER BASIN

EATON BROOK RESERVOIR DAM

MADISON COUNTY, NEW YORK

INVENTORY NO. N.Y. 352

**PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM**



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CONTRACT NO. DACW-51-79-C0001

NEW YORK DISTRICT CORPS OF ENGINEERS

JANUARY, 1980

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 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 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.

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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
EATON BROOK RESERVOIR DAM
I.D. NO. N.Y. 352
SUSQUEHANNA RIVER BASIN
MADISON COUNTY, NEW YORK

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PHASE 1 REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: Eaton Brook Reservoir Dam (I.D. NY 352)
State Located: New York
County: Madison
Watershed: Susquehanna River Basin
Stream: Eaton Brook
Date of Inspection: October 2, 1979

ASSESSMENT

Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which need to be evaluated and remedied.

Additional hydrologic investigations are required to more accurately determine the site specific characteristics of the watershed. Using the Corps of Engineer's Screening Criteria for the initial review of spillway adequacy, it has been determined that the embankment would be overtopped by all storms exceeding the inflow resulting from 40% of the Probable Maximum Flood (PMF) or one half the PMF. A flood wave analysis, assuming a complete breaching of the embankment, indicates that water surface levels downstream of the dam could reach depths which would pose significant danger to residents. The spillway is, therefore, adjudged as seriously inadequate and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

It is, therefore recommended that within 3 months of the date of notification of the owners, a hydrologic investigation of the structure should be undertaken to determine the appropriate mitigating measures to be taken. Within 18 months of the date of notification, appropriate remedial measures should be completed. In the interim, a detailed emergency operation plan and warning system should be developed.

There are a number of additional deficiencies which should be corrected. Seepage at the downstream toe and leakage in the abandoned conduit need to be investigated. Minor grading problems on the embankment should be corrected. The two gate valves on the service spillway which are leaking should be repaired. These deficiencies should be corrected within 12 months of the date of notification.

George Koch

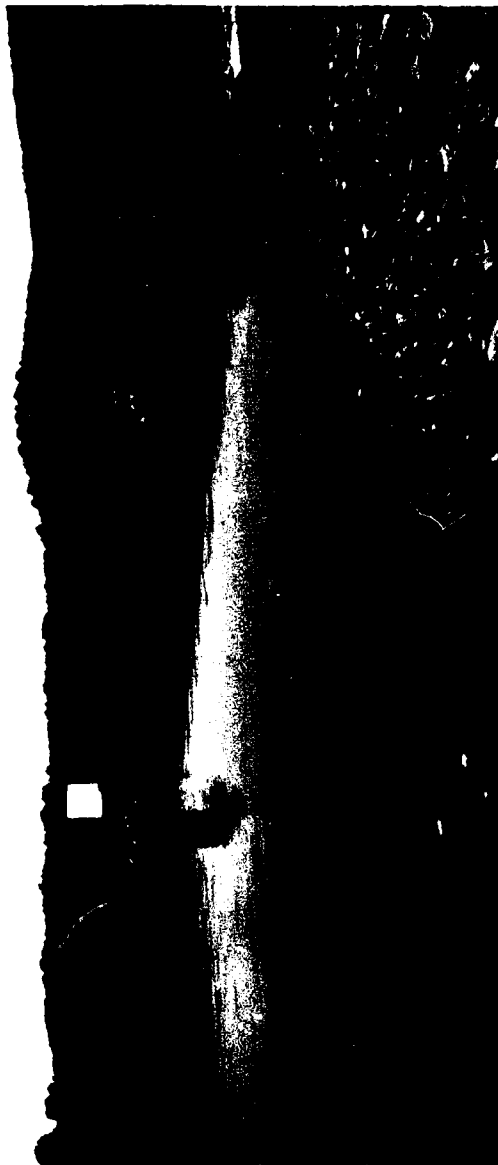
George Koch
Chief, Dam Safety Section
New York State Department
of Environmental Conservation
NY License No. 45937

Approved By:

Clark H. Bern

Col. Clark H. Bern
New York District Engineer

Date: *1978/12/20*



Overview
Eaton Brook Reservoir Dam
I.D. No. NY 352

PHASE 1 INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
EATON BROOK RESERVOIR DAM
I.D. No. NY 352
#104C-710
SUSQUEHANNA RIVER BASIN
MADISON COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase 1 inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection

This inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life and property and to recommend remedial measures where required.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam

The Eaton Brook Reservoir Dam is an earth dam with a gated service spillway and masonry auxiliary spillway channel.

The embankment is a maximum of 58 feet high and is 800 feet long. The crest is a minimum of 10 feet wide and a maximum of 18 feet wide. The embankment slopes are 1 vertical on 2.25 horizontal on the upstream face and 1 vertical on 3 horizontal on the downstream face. The lower portion of the upstream face is lined with rip-rap for wave protection.

The service spillway consists of four 9 inch diameter, gated inlet pipes and a 36 inch diameter masonry outlet conduit. The masonry conduit is 210 feet long. There is a gate house on the upstream slope of the dam which houses the control mechanism for the four gate valves. There is a well pit at the bottom of the gate house which connects the inlet and outlet conduits. Due to the inlet elevation, the service spillway can be used as a reservoir drain.

The auxiliary spillway is an ungated masonry channel at the southern end of the embankment. The bottom width of the channel varies from 19.5 feet near the crest down to 12.2 feet near the downstream end. The channel has vertical side walls.

There is also an abandoned 36 inch diameter masonry conduit whose outlet is located at about midslope on the southern end of the dam. The upstream portion of this conduit was sealed several years ago by concreting the gate control shaft.

b. Location

Eaton Brook Reservoir Dam is located in the town of Eaton, off Eaton Brook Road (County Route 52). Tuscarora Road (County Route 86) runs along the toe of the dam. The village of West Eaton is located approximately 1½ miles downstream of the dam.

c. Size Classification

The dam is 58 feet high and has a maximum storage capacity of 7886 acre-feet. Therefore, the dam is in the intermediate size category as defined by the Recommended Guidelines for Safety Inspection of Dams.

d. Hazard Classifications

The dam is classified as "high" hazard due to the presence of several county roads, approximately 10 houses, and the village of West Eaton downstream of this dam.

e. Ownership

The dam is owned by the New York State Department of Transportation, Waterways Maintenance Subdivision. It is located in DOT-Region 2 whose headquarters are in Utica, New York. The addresses of the Main Office and Regional Office are as follows:

New York State DOT
Main Office-State Campus
1220 Washington Avenue
Albany, New York 12232
Director: Mr. Joseph Stellato
(518) 457-4420

New York State DOT
Region 2 Office
Utica State Office Building
207 Genesee Street
Utica, New York 13501
Frank W. Jennings
Regional Waterways Maintenance Engineer
(315) 797-6120

f. Purpose of Dam

The dam was constructed to provide a water supply both for the village of Eaton and for the Erie Canal. The reservoir is still used as a feeder to the New York State Barge Canal system, and is also used for recreational purposes.

g. Design and Construction History

No design or construction records for the original construction were available. The dam was built in the mid 1800's. Plans for the construction of the auxiliary spillway in 1893 and for the replacement of the valves on the service spillway were available. A filter blanket was installed in 1978 to drain a wet area on the downstream slope. This filter blanket was designed by the New York State Department of Transportation (Soil Mechanics Bureau) and was constructed by the C. Murray Company. The plans which were available have been included in Appendix F.

h. Normal Operating Procedures

Water from the reservoir is released as required to feed the Barge Canal system (Erie Canal). During the Barge Canal's operating season (April to December), the water level in the reservoir is maintained approximately at the auxiliary spillway crest, within the constraints of the canal water requirements. The water level is dropped 3 to 5 feet below the auxiliary spillway crest during the winter months.

1.3

PERTINENT DATA

- a. Drainage Area (sq. mi) 7.96
- b. Discharge at Dam (cfs)
 Service Spillway at Maximum High Water 102
 Auxiliary Spillway Channel at Maximum High Water 1091
- c. Elevation (USGS Datum)
 Top of Dam 1442.0
 Auxiliary Spillway Crest 1434.93
 Invert of Service Spillway 1390.0
- d. Reservoir-Surface Area (acres)
 Top of Dam 346
 Auxiliary Spillway Crest 275
- e. Storage Capacity (acre-feet)
 Top of Dam 7886
 Auxiliary Spillway Crest 5714
- f. Dam
 Embankment Type: Earth and Rock fill
 with riprap on upstream face
 Embankment Length (ft) 800
 Slopes(V:H) Upstream 1 on 2.25
 Downstream 1 on 3
 Crest Width Varies from 10 to 18 feet
- g. Service Spillway
 Type: 4-9 inch diameter inlet pipes with valves, flow into well beneath gatehouse, 36 inch diameter masonry conduit 210 feet long flows out of well-Due to invert elevation, it can also act as a reservoir drain.
- h. Auxiliary Spillway
 Type: Masonry channel with vertical sidewalls
 Channel descends in 8 steps between crest and outlet
 Bottom Width (ft.) at Crest 19.5
 at Outlet 12.2
- i. Reservoir Drain - see Service Spillway
- h. Appurtenant Structures
 Gatehouse
 Octagonal building containing control mechanism for the four service spillway valves. Ladder extends from below wood floor of house to the valves.
- Abandoned Conduit
 36 inch diameter masonry conduit with outlet on the downstream slope.

SECTION 2: ENGINEERING DATA

2.1 GEOTECHNICAL DATA

a. Geology

The Eaton Brook Reservoir Dam is located in the Susquehanna Hills section of the Glaciated Alleghany Plateau physiographic province of New York State. This plateau is underlain by a great thickness of sedimentary rocks from the Devonian Era which lie almost horizontal. Severe trenching by streams and glacial erosion has carved the upland into a rugged terrain. The Susquehanna Hills rise to elevations of 1700 to 2100 feet between the rolling relatively narrow valleys. The surficial soils and features of the area are the result of glaciations during the Cenozoic Era, the last of which was the Wisconsin glaciation.

b. Subsurface Investigations

No subsurface records from the original construction of the dam were available. Several drill holes and test pits were progressed to provide information for the design of the downstream filter blanket. Information concerning these subsurface investigations have been included in Appendix F.

2.2 DESIGN RECORDS

No records were available concerning the original design of the dam. Some information which was used for the design of the downstream drainage blanket was available.

2.3 CONSTRUCTION RECORDS

No information was available concerning the original construction of the dam. Contract plans for the repair work done in 1978 were available and have been included in Appendix F.

2.4 OPERATION RECORDS

Reservoir level readings and gate opening data are taken daily. Records are kept in the Regional Waterways Maintenance Office in Utica.

2.5 EVALUATION OF DATA

The data presented in this report was obtained from the Department of Environmental Conservation files and from the Department of Transportation Regional Waterways Maintenance Office in Utica. While information concerning the original construction of the dam was extremely limited, it appears that the data which was available was reliable and adequate for Phase 1 inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspection of the Eaton Brook Reservoir Dam was conducted on October 2, 1979. The weather was sunny and the temperature was in the seventies. At the time of the inspection two of the valves controlling flow in the service spillway were partially opened and the other two were closed. The water level in the reservoir was approximately four feet below the auxiliary spillway crest.

b. Embankment

Inspection of the embankment revealed several deficiencies. Seepage was noted in one area near the downstream toe on the northern end of the dam beyond the limits of the filter blanket. This seepage was emerging from the slope and flowing into a drainage ditch which ran along the toe. This flow may be seepage from the dam or it may be ground water flow from the hillside to the north of the dam. Further investigation is required to identify the source of this seepage and to determine whether a method of treatment is required.

Several other deficiencies were noted. There were several animal burrows on the downstream face outside the limits of the filter blanket. The embankment crest was slightly irregular with several depressions noted. There was some sloughing and settlement near the top of the upstream face above the level of the laid up stone slope protection.

c. Service Spillway

Visual inspection revealed that the service spillway conduit was in good condition. Only minor leakage near the upstream end and some mortar missing from the joints were noted. The four 9 inch valves were closed during the inspection shutting off flow through the conduit. Inspection revealed that the right two gates (looking downstream) were leaking, while the left two gates sealed tightly. The gate operation machinery located in the gate house on the dam crest was in good condition.

d. Auxiliary Spillway

The auxiliary spillway channel was in satisfactory condition. Portions of the sidewalks and channel bottom have recently been mortared and repointed. Some sections still need to have these repairs made. Voids several inches deep were noted in the sections which needed repointing. Seepage was noted emerging from one of the steps near the downstream end of the dam. Based on the location of this seepage, it appeared to be caused by a spring from the hillside.

e. Downstream Channel

The outlet channel was in satisfactory condition. Immediately downstream of the outlets to both the service and auxiliary spillways, the stream passes under County Route 86 in an 8 foot diameter corrugated metal pipe. This pipe was recently installed replacing a smaller pipe. Downstream of the pipe, the channel was lined with rip-rap for approximately 50 feet. Beyond that point, the natural channel

banks are overgrown with brush and trees.

f. Reservoir

There were no signs of soil instability in the reservoir area.

g. Appurtenant Structures

Gatehouse

The gatehouse was in satisfactory condition. The house provided adequate protection for the gate control mechanism. The exposed concrete at the base of the gate house (on the upstream slope of the embankment) showed some signs of deterioration.

Abandoned Conduit

A small amount of flow (approximately 1/2 inch deep in the invert) was observed at the outlet of this conduit. Further investigation is required to determine the source of this flow.

3.2 Evaluation of Observations

Visual inspection revealed several deficiencies on this structure. The following items were noted:

1. Seepage emerging at the downstream toe beyond the limits of the filter blanket.
2. Animal burrows on the downstream slope.
3. Slight irregularities in the embankment crest.
4. Minor sloughing above the slope protection on the upstream slope.
5. Leakage in two of the valves controlling flow in the service spillway.
6. Joints between blocks on the auxiliary channel which need to be repointed.
7. A small amount of flow at the outlet to the abandoned conduit.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURE

4.1 Procedure

This reservoir is operated as a feeder to the New York State Barge Canal System. Gate openings are set daily according to the water requirements of the Barge Canal. The owner attempts to maintain the water surface at the auxiliary spillway crest during the navigation season.

4.2 Maintenance of Dam

The dam is visually inspected annually by the Department of Transportation. The grass on the embankment is mowed annually. Other minor maintenance functions are performed as required.

4.3 Warning System In Effect

No apparent warning system is present.

4.4 Evaluation

The operation and maintenance procedures for this dam appear to be generally satisfactory. Increased maintenance efforts are required to correct the deficiencies which exist.

SECTION 5: HYDROLOGIC/HYDRAULIC

5.1 Drainage Area Characteristics

Delineation of the watershed draining into the reservoir pool area was made using the USGS 7.5 minute quadrangles for West Eaton and Morrisville, New York. The drainage area is 7.96 square miles and consists of open fields and wooded land. Relief in the drainage area is moderate to steep with slopes ranging from 5 per cent in the western portion of the watershed to 11 per cent in the hills to the south of the reservoir.

5.2 Analysis Criteria

The analysis of the floodwater retarding capability of this dam was performed using the Corps of Engineers HEC-1 computer program, Dam Safety version. This program develops an inflow hydrograph based upon the "Snyder Synthetic Unit Hydrograph" and then uses the "Modified Puls" flood routing procedure. The spillway design flood selected for analysis was the PMF in accordance with the Recommended Guidelines of the U.S. Army Corps of Engineers.

5.3 Spillway Capacity

The dam has a service spillway conduit which can also function as a reservoir drain. The service spillway operates under orifice flow conditions with the four 9 inch diameter pipes being the controlling factor. The analyses assumed that all of the four 9 inch diameter gates were fully opened to provide the maximum spillway capacity. The auxiliary spillway channel was analyzed as a broad-crested weir with a discharge coefficient (c) of 3.087.

The spillways do not have sufficient capacity for discharging the peak outflow from either the Probable Maximum Flood (PMF) or one half the PMF. For the PMF, the peak inflow is 13,231 cfs and the peak outflow is 11,546 cfs. For one half the PMF, the peak inflow is 6,616 cfs and the peak outflow is 2899 cfs. The computed spillway capacity for a water surface elevation at the top-of-dam is 1,193 cfs.

5.4 Reservoir Capacity

Storage capacity of the reservoir between the auxiliary spillway crest and the top of the dam is 2172 acre feet, which is equivalent to a runoff depth of 0.43 inches over the drainage area. The total storage capacity of the dam is 7886 acre feet.

5.5 Floods of Record

The maximum known flood is believed to have occurred as a result of Hurricane Agnes on June 23, 1972. At that time, the water level rose to 1.5 feet above the auxiliary spillway crest with all of the valves on the service spillway fully open. The calculated discharge for this flood is 203 cfs.

5.6 Overtopping Potential

Analysis using the PMF and one half the PMF indicates that the dam does not have sufficient spillway capacity. For a PMF peak outflow of 11,546 cfs, the dam would be overtopped to a computed depth of 2.53 feet. For the peak outflow from one half the PMF, the depth of overtopping would be 0.75 feet. The dam would be overtopped by all storms exceeding 40% of the PMF inflow.

5.7 Evaluation

Using the Corps of Engineer's screening criteria for initial review of spillway adequacy, it has been determined that the dam would be overtopped by either the PMF or one-half the PMF. The total spillway capacity when the water surface is at the top of the dam is 10% of the outflow from the PMF and 41% of the outflow from one half the PMF. A flood wave analysis, assuming complete breaching of the dam, indicates that the water surface could reach depths which pose a significant danger to residents.

The spillway is, therefore, adjudged to be seriously inadequate and the dam is assessed as unsafe, non-emergency.

SECTION 6: STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations

Visual observations of the structure did not reveal any signs of major distress. Minor sloughing of the upstream slope above the level of the slope protection was observed. This minor instability was probably caused by wave action during times of high water.

b. Design and Construction Data

No information was available concerning the original design or construction of this dam. Plans for the modifications to the spillways made during the 1890's were available. The only other information available concerned the 1978 modifications which involved placing a filter blanket on the downstream face to drain several wet areas.

c. Seismic Stability

The dam is located in Seismic Zone 2. Since there was not enough data available to determine the parameters of embankment materials, it was not possible to perform a seismic stability analysis. The dam did, however, appear to be stable.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 Assessment

a. Safety

The Phase 1 inspection of the Eaton Brook Reservoir Dam revealed that the spillway is seriously inadequate and outflows from either the PMF or one-half the PMF would overtop the dam. This overtopping could cause breaching of the dam and the resulting floodwave would significantly increase the hazard to downstream residents. For this reason, the dam has been assessed as unsafe, non-emergency.

There are several other deficiencies on this structure, such as seepage on the downstream toe and through the abandoned conduit, minor sloughing on the upstream slope and leakage in two of the valves on the service spillway, which need further investigation and remedial work. These deficiencies could present a hazard unless appropriate actions are taken.

b. Adequacy of Information

The information which was available for the preparation of this report was generally adequate. Information concerning the original construction of the embankment was limited, but several borings and test pits progressed by DOT provided some information concerning the embankment material.

c. Need for Additional Investigations

Since the spillway was assessed as seriously inadequate, additional hydrologic/hydraulic investigations are required to more accurately determine the site specific characteristics of the watershed.

Investigations into the causes of seepage on the downstream slope and through the abandoned conduit are also required.

d. Urgency

The additional hydrologic/hydraulic investigations which are needed should be commenced within 3 months of the date of notification of the owner. Within 18 months of the date of notification, appropriate remedial mitigating measures should have been completed.

The other deficiencies outlined in the report should be corrected within 1 year of the date of notification of the owner.

7.2 Recommended Measures

a. After the hydrological investigation has been completed, mitigating measures dealing with the seriously inadequate spillway capacity should be determined.

b. Seepage emerging from the downstream toe beyond the limits of the filter blanket should be investigated and if it is found necessary, appropriate remedial measures should be taken.

c. The leakage in the abandoned conduit should be investigated and corrected.

d. The gate valves on the service spillway which are leaking should be repaired.

e. Minor grading problems, such as slight irregularities in the embankment crest, minor sloughing on the upstream face, and animal burrow holes on the downstream slope, should be repaired.

f. The joints between blocks on the auxiliary spillway which need repointing, should be repaired.

APPENDIX A

PHOTOGRAPHS



Downstream face of dam



Upstream face on southern end of dam - entrance to auxiliary spillway



Auxiliary spillway crest - looking downstream



Auxiliary spillway crest - looking upstream



Auxiliary spillway channel looking downstream



Joints in need of repointing on auxiliary spillway channel



Downstream portion of auxiliary spillway channel



Seepage from hillside on second step from bottom
of auxiliary spillway channel



Outlets to service spillway conduit and auxiliary spillway channel



Outlet to abandoned spillway conduit

APPENDIX B

VISUAL INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam EATON BROOK DAM
Fed. I.D. # 352 DEC Dam No. 104C-710
River Basin SUSQUEHANNA
Location: Town EATON County MADISON
Stream Name EATON BROOK
Tributary of _____
Latitude (N) 41° 51.8' Longitude (W) 75° 41.3'
Type of Dam EARTH
Hazard Category C
Date(s) of Inspection 10/2/79
Weather Conditions SUNNY - 70'S
Reservoir Level at Time of Inspection 44" BELOW AUXILIARY CREST

b. Inspection Personnel R. WARRENDER ; W. LYNICK

c. Persons Contacted (Including Address & Phone No.) DON ROHER - (DAM
CARETAKER)

d. History:

Date Constructed ? ABOUT 1837 Date(s) Reconstructed 1978

Designer D.O.T. SOIL MECHANICS BUREAU

Constructed By C. MURRAY CO.

Owner N.Y.S. D.O.T. WATERWAYS - REGION 2 UTICA

2) Embankment

a. Characteristics

- (1) Embankment Material ROCK & EARTH FILL
- (2) Cutoff Type NONE
- (3) Impervious Core NONE
- (4) Internal Drainage System NONE
- (5) Miscellaneous _____

b. Crest

- (1) Vertical Alignment SOMEWHAT IRREGULAR - SEVERAL DEPRESSIONS
- (2) Horizontal Alignment OKAY
- (3) Surface Cracks NONE
- (4) Miscellaneous _____

c. Upstream Slope

- (1) Slope (Estimate) (V:H) 1 ON 2
- (2) Undesirable Growth or Debris, Animal Burrows NONE
- (3) Sloughing, Subsidence or Depressions SOME SLOUGHING OF SLOPE
ABOVE THE LEVEL OF THE SLOPE PROTECTION.

(4) Slope Protection Laid Up Stone - Starts About 10' Down
From Crest.

(5) Surface Cracks or Movement at Toe Unobservable

d. Downstream Slope

(1) Slope (Estimate - V:H) 1 on 3

(2) Undesirable Growth or Debris, Animal Burrows Some Woodchuck
Holes in Areas Where There is No Blanket.

(3) Sloughing, Subsidence or Depressions None

(4) Surface Cracks or Movement at Toe None

(5) Seepage None Noted - Since Blanket Has Been Installed
There Has Been No Flow in CMP Perforated Drain Pipe.

(6) External Drainage System (Ditches, Trenches; Blanket) Filter Cloth
& Small Stone Blanket Cover Most of Slope

(7) Condition Around Outlet Structure Okay

(8) Seepage Beyond Toe Drainage Ditch Runs Along Toe - Flow in This Ditch
From Water Coming Off Hill. One Spot (Approx. 1/3 Way Down Hill From North End)
Has Water Coming Out of Upstream Side of Ditch. Some Flow & Ground Was

e. Abutments - Embankment Contact Soft for 2' Diameter Around Seep. Could Be From
Reservoir or Could Be Off Hill.

(1) Erosion at Contact NONE

(2) Seepage Along Contact NONE

3) Drainage System

a. Description of System FILTER BLANKET WITH PERFORATED CMP DRAIN

b. Condition of System GOOD

c. Discharge from Drainage System NONE

4) Instrumentation (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.)

NONE

5) Reservoir

- a. Slopes OKAY
- b. Sedimentation NONE
- c. Unusual Conditions Which Affect Dam NO OF CAMPS ON RESERVOIR

6) Area Downstream of Dam

- a. Downstream Hazard (No. of Homes, Highways, etc.) COUNTY ROAD, A SMALL DAM, 5-10 HOUSES & TRAILERS IN WEST EATON
- b. Seepage, Unusual Growth NONE
- c. Evidence of Movement Beyond Toe of Dam NONE - ROAD RUNS ALONG TOE
- d. Condition of Downstream Channel 8' CMP UNDER COUNTY ROAD
CHANNEL BANKS SLIGHTLY OVERGROWN BEYOND ENDS OF CO. ROAD
 IMPROVEMENT

7) Spillway(s) (Including Discharge Conveyance Channel)

- a. General _____
- b. Condition of Service Spillway _____

c. Condition of Auxiliary Spillway OKAY - PORTIONS OF SIDEWALLS
AND BOTTOM HAVE RECENTLY BEEN MOTARED & REPOINTED
THERE IS SOME NEAR THE UPPER PART OF CHANNEL
WHICH STILL NEEDS TO BE DONE - NO MOTAR IN SOME
OF THESE JOINTS

d. Condition of Discharge Conveyance Channel SHORT DISTANCE TO
8' CMP GOING UNDER ROAD - CHANNEL FOR THIS
STRECH IS ALL MASONRY

8) Reservoir Drain/Outlet - SAME AS SERVICE SPILLWAY

Type: Pipe _____ Conduit 36" - MASONRY Other _____

Material: Concrete _____ Metal _____ Other MASONRY

Size: 36" Length _____

Invert Elevations: Entrance 1390.0 Exit 1379.5

Physical Condition (Describe): _____ Unobservable _____

Material: MASONRY

Joints: OKAY - SOME MOTAR MISSING Alignment GOOD

Structural Integrity: APPEARS GOOD

Hydraulic Capability: _____

Means of Control: Gate _____ Valve ✓ Uncontrolled _____

Operation: Operable ✓ Inoperable _____ Other _____

Present Condition (Describe): GOOD - OPERATED AT TIME

OF INSPECTION - LEAKAGE FROM 2 OF 4 VALVES

APPENDIX C
HYDROLOGIC/HYDRAULIC
ENGINEERING DATA AND COMPUTATIONS

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

1

AREA-CAPACITY DATA:

	<u>Elevation</u> (ft.)	<u>Surface Area</u> (acres)	<u>Storage Capacity</u> (acre-ft.)
1) Top of Dam	<u>1442.0</u>	<u>346</u>	<u>7886</u>
2) Design High Water (Max. Design Pool)	<u> </u>	<u> </u>	<u> </u>
3) Auxiliary Spillway Crest	<u>1434.93</u>	<u>275</u>	<u>5714</u>
4) Pool Level with Flashboards	<u> </u>	<u> </u>	<u> </u>
5) Service Spillway Crest INVERT	<u>1390.0</u>	<u> </u>	<u> </u>

DISCHARGES

	<u>Volume</u> (cfs)
1) Average Daily	<u> </u>
2) Spillway @ Maximum High Water	<u>1193</u>
3) Spillway @ Design High Water	<u> </u>
4) Spillway @ Auxiliary Spillway Crest Elevation	<u>95</u>
5) Low Level Outlet	<u> </u>
6) Total (of all facilities) @ Maximum High Water	<u>1193</u>
7) Maximum Known Flood	<u>203</u>

CREST:

ELEVATION: 1442Type: EARTHWidth: 10'-18'Length: 800'Spillover AUXILIARY SPILLWAY CHANNELLocation SOUTHERN END OF DAM

SPILLWAY:

PRINCIPAL

1390.0

Elevation

1434.93CONDUIT

Type

CHANNEL - MASONRY

Width

19.5'

Type of Control

Uncontrolled

✓

Controlled:

4-9" DIAMETER GATE VALVES

Type

(Flashboards; gate)

Number

Size/Length

Invert Material

Anticipated Length
of operating service

Chute Length

Height Between Spillway Crest
& Approach Channel Invert
(Weir Flow)

OUTLET STRUCTURES/EMERGENCY DRAWDOWN FACILITIES:

Type: Gate ✓ Sluice _____ Conduit ✓ Penstock _____Shape: 4-9" DIAMETER VALVES FLOWING INTO PIT - THEN
ALONG 36" DIA. CONDUIT

Size: _____

Elevations: Entrance Invert 1390.0Exit Invert 1379.5

Tailrace Channel: Elevation _____

HYDROMETEROLOGICAL GAGES:

Type: NONE

Location: _____

Records: _____

Date - _____

Max. Reading - _____

FLOOD WATER CONTROL SYSTEM:

Warning System: NONE

Method of Controlled Releases (mechanisms):

VALVES ARE OPERATED TO RELEASE THE
AMOUNT OF WATER REQUIRED,

DRAINAGE AREA: 7.96 Sq Mi

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: OPEN FIELDS - WOODED LANDS

Terrain - Relief: MODERATE TO STEEP

Surface - Soil: _____

Runoff Potential (existing or planned extensive alterations to existing
(surface or subsurface conditions)

NONE

Potential Sedimentation problem areas (natural or man-made; present or future)

NONE

Potential Backwater problem areas for levels at maximum storage capacity
including surcharge storage:

NONE

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the
Reservoir perimeter:

Location: _____

Elevation: _____

Reservoir:

Length @ Maximum Pool _____ (Miles)

Length of Shoreline (@ Spillway Crest) _____ (Miles)

PROJECT GRID

JOB	EATON BROOK DAM	SHEET NO.	1	CHECKED BY		DATE	
SUBJECT	HYDROLOGIC/HYDRAULIC COMPUTATIONS			COMPUTED BY	RLW	DATE	11/28/79
DRAINAGE AREA = 5098 ACRES = 7.96 SQ. MI.							
PLANIMETERED IN 3 SECTIONS							
AREA 1		26.86 SQ. IN.					
AREA 2		14.63 SQ. IN.					
AREA 3		14.03 SQ. IN.					
		55.52 SQ. IN. $\Rightarrow$ 5098 ACRES					
SYNDER SYNTHETIC UNIT HYDROGRAPH:							
L = 4.28 mi.		L _{CA} = 1.55 mi					
PMP = 20"		C _s = $\rightarrow$ USE 2.0					
$t_p = C_s (L \cdot L_{CA})^{.3} = (2.0) (4.28 \text{ mi} \cdot 1.55 \text{ mi})^{.3} = 3.53$							
$t_r = \frac{t_p}{5.5} = \frac{3.53}{5.5} = .64$ USE $\frac{1}{2}$ HOUR HYDROGRAPH							
$t_{pe} = t_p + .25(t_r - t_p) = 3.53 + .25(.64 - .64) = 3.49$ HOURS							
HR #33 PMP RAINFALL							
ZONE 1		PMP RAIN = 20" (200 mi ² - 24 hr)					
6 hr = 113%		24 hr = 134%					
12 hr = 126%		48 hr = 145%					

PROJECT GRID

JOB	EATON BROOK DAM		SHEET NO.	2	CHECKED BY		DATE	
SUBJECT	HYDROLOGIC / HYDRAULIC COMPUTATIONS				COMPUTED BY	RLW	DATE	11/28/79
$TRSPC = TFF - \frac{3008}{(7.96)^{1.778}} = 1 - .998 = .8$								
LOSS DATA: 1.0" CONTINUOUS = .1"								
BASE FLOW = 2 cfs / sq. ft. $2(7.96) = 15.92$ Use 15 cfs								
ELEVATIONS - BASED ON REVIEW OF AVAILABLE DATA AT D.O.T. UTICA OFFICE								
U.S.G.S. DATUM BENCH MARK ON GATE HOUSE = 1439.55								
		ELEVATION TOP OF DAM 1442.0						
		AUX. SPILLWAY CREST 1434.93						
		AVERAGE WATER LEVEL 1435.0						
		SPILLWAY PIPE INLET 1390.0						
		SPILLWAY PIPE OUTLET 1379.5						
> INVERT ELEVATIONS								
SURFACE AREAS AT VARIOUS ELEVATIONS - TAKEN FROM 1968 SOUNDING DATA AND FROM USGS SHEET								
ELEVATION		SURFACE AREA (ACRES)						
1390		0						
1395		33.22						
1405		86.06						
1415		142.14						
1425		188.49						
1435		275.5						

PROJECT GRID

JOB	EATON BROOK DAM	SHEET NO.	3	CHECKED BY		DATE	
SUBJECT	HYDROLOGIC/HYDRAULIC COMPUTATIONS			COMPUTED BY	RLW	DATE	11/30/79

EXTRAPOLATION OF SURFACE AREA DATA TO TOP OF DAM
USE CONIC PROJECTION

$1412 \quad A_3 = ? \quad h_3 = 52$
 $1435 \quad A_2 = 275.5 \quad h_2 = 45$
 $1425 \quad A_1 = 183.5 \quad h_1 = 35$
 1390

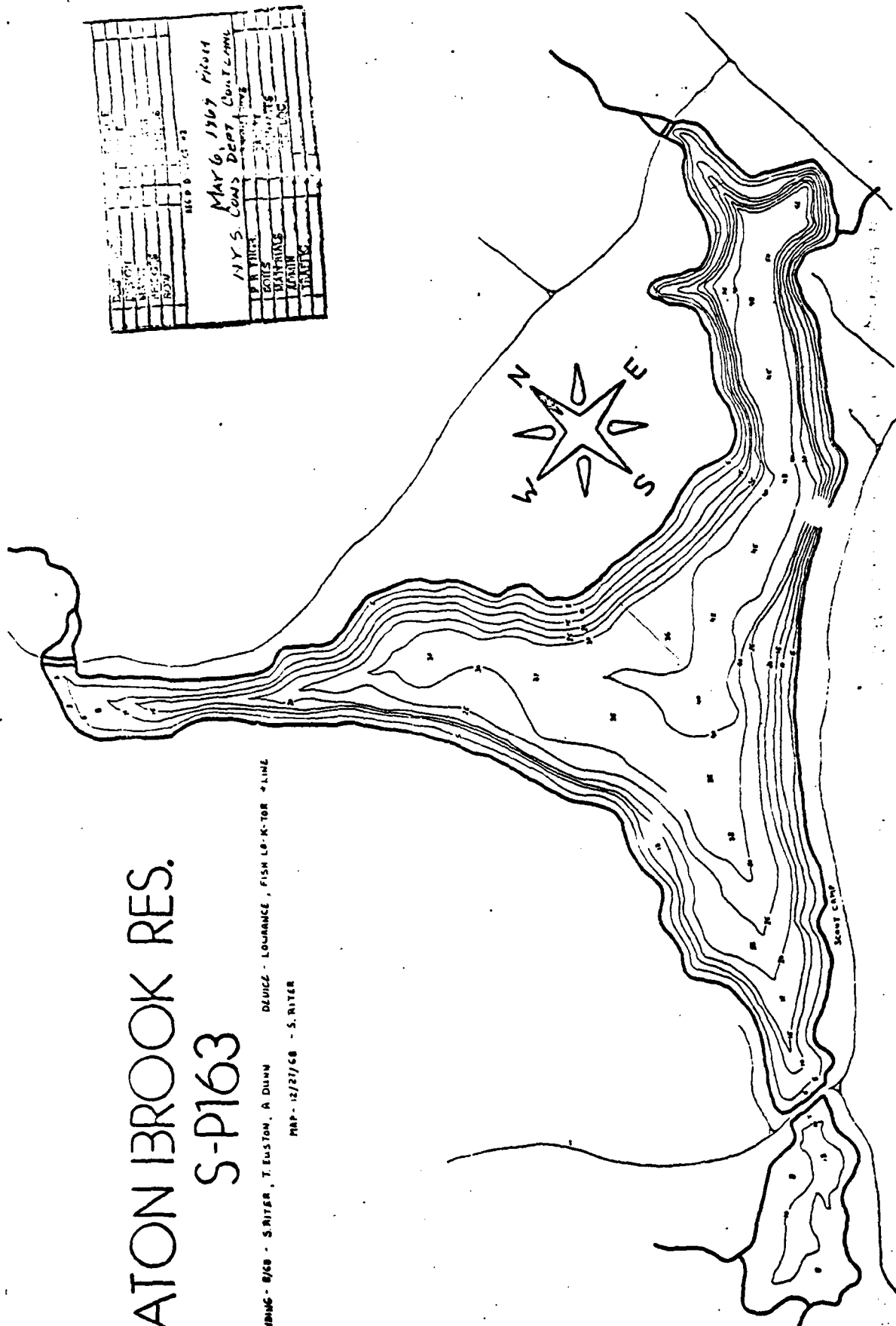
$A = \pi R^2 \Rightarrow R_1 = \sqrt{\frac{183.5 \times 35}{\pi}} = 1616.64$
 $A_2 = \pi R_2^2 \Rightarrow R_2 = \sqrt{\frac{275.5 \times 45}{\pi}} = 1954.47$
 $\Delta H = 1954.47 - 1616.64 = 337.83$
 $\Delta V = 10'$
 $\frac{\Delta H}{\Delta V} = \frac{337.83}{10} = 33.78$
 $R_3 = 1954.47 + 33.78(7) = 2190.93$
 $A_3 = \pi R_3^2 = 346.19 \text{ ACRES} - \text{APPROXIMATE SURFACE AREA WHEN WATER SURFACE IS AT TOP OF DAM (ELEV. 1442)}$

PROJECT GRID

JOB	EATON BROOK DAM	SHEET NO.	4	CHECKED BY		DATE	
SUBJECT	HYDROLOGIC/HYDRAULIC COMPUTATIONS	COMPUTED BY	RLW	DATE	11/30/79		
DISCHARGE CAPACITY CALCULATIONS							
SERVICE SPILLWAY							
4-9" PIPES - TOTAL AREA $4(\pi \cdot (4.5)^2) = 1.767 \text{ ft}^2$							
THIS WILL BE THE CONTROLLING AREA							
$Q = A \sqrt{2gH} = (1.767) \sqrt{2(32.2)(4)} = 95.04 \text{ cfs}$							
DISCHARGE WITH WATER SURFACE AT AUX. SPILLWAY CREST (ALL GATES OPEN FULL)							
$Q = (1.767) \sqrt{2(32.2)(4.93)} = 95.04 \text{ cfs}$							
DISCHARGE WITH WATER SURFACE AT TOP OF DAM							
$Q = (1.767) \sqrt{2(32.2)(52)} = 102.25 \text{ cfs}$							
AUXILIARY SPILLWAY							
$Q = CLH^{3/2} = 3.087(18.8)(7.07)^{3/2} = 1091 \text{ cfs}$							
DISCHARGE AT MAXIMUM KNOWN WATER SURFACE							
SERVICE SPILLWAY							
$Q = (1.767) \sqrt{2(32.2)(46.43)} = 96.62 \text{ cfs}$							
AUXILIARY SPILLWAY							
$Q = (3.087)(18.8)(1.5)^{3/2} = 106.62 \text{ cfs}$							

ATON BROOK RES.
S-P163

YONG - 8/68 - S. RYTER, T. EUSTON, A. DUNN DEVICE - LOURANCE, FISH LO-K-TOR #1112
MAP - 12/27/68 - S. RYTER



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[illegible]

[illegible]

1.02	0.17	0.12	0.05	56.	1.03	20.30	137	0.	0.	0.	15.
1.02	0.17	0.12	0.05	97.	1.03	21.00	138	0.	0.	0.	15.
1.02	0.17	0.12	0.05	163.	1.03	21.30	139	0.	0.	0.	15.
1.02	0.17	0.12	0.05	251.	1.03	22.00	140	0.	0.	0.	15.
1.02	0.17	0.12	0.05	357.	1.03	22.30	141	0.	0.	0.	15.
1.02	0.17	0.12	0.05	471.	1.03	23.00	142	0.	0.	0.	15.
1.02	0.17	0.12	0.05	584.	1.03	23.30	143	0.	0.	0.	15.
1.02	0.17	0.12	0.05	636.	1.04	0.	144	0.	0.	0.	15.
1.02	0.17	0.12	0.05	771.	1.04	0.30	145	0.	0.	0.	15.
1.02	0.17	0.12	0.05	845.	1.04	1.00	146	0.	0.	0.	15.
1.02	0.17	0.12	0.05	909.	1.04	1.30	147	0.	0.	0.	15.
1.02	0.17	0.12	0.05	998.	1.04	2.00	148	0.	0.	0.	15.
1.02	0.17	0.12	0.05	1172.	1.04	2.30	149	0.	0.	0.	15.
1.02	0.17	0.12	0.05	1476.	1.04	3.00	150	0.	0.	0.	15.

SUM 23.20 19.59 3.61 202403.
(589.)(498.)(92.)(5731.41)

PEAK	0-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
13241.	104 0.	4061.	1405.	202389.
475.	207.	115.	40.	5731.
	12.25	18.99	19.70	19.71
	341.08	482.23	500.45	500.63
	5187.	8056.	8360.	8363.
	6410.	9937.	10312.	10316.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 1

0.	6.	6.	6.	6.	6.	6.	6.
0.	6.	6.	6.	6.	6.	6.	6.
0.	6.	6.	6.	6.	6.	6.	6.
21.	81.	112.	140.	159.	168.	162.	162.
119.	131.	75.	65.	56.	49.	43.	43.
29.	25.	23.	18.	16.	15.	14.	14.
39.	55.	100.	143.	234.	275.	308.	308.
399.	409.	590.	776.	1031.	1352.	1730.	2218.
4139.	4711.	5114.	5292.	4897.	4835.	3936.	3936.
2534.	2172.	1864.	1605.	1183.	1016.	873.	873.
551.	470.	402.	344.	252.	215.	184.	184.
116.	92.	75.	62.	28.	21.	15.	15.
7.	7.	7.	7.	6.	6.	6.	6.
6.	6.	6.	6.	6.	6.	6.	6.
0.	0.	0.	0.	0.	0.	0.	0.

PEAK	0-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
5292.	4132.	1625.	562.	80956.
150.	119.	46.	16.	2292.
	6.59	7.59	7.88	7.88
	123.43	192.89	200.18	200.25
	2179.	3222.	3344.	3345.
	2364.	3975.	4125.	4126.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 2

0.	8.	8.	8.	8.	8.	8.	8.
0.	8.	8.	8.	8.	8.	8.	8.
0.	8.	8.	8.	8.	8.	8.	8.
14.	34.	101.	140.	199.	209.	203.	203.
136.	126.	107.	94.	70.	61.	53.	53.
39.	32.	28.	25.	20.	17.	17.	17.
39.	31.	126.	178.	236.	343.	386.	386.
429.	430.	734.	962.	1289.	1690.	2773.	2773.
2179.	5185.	6394.	6610.	6121.	5543.	4920.	4920.
41.	271.	2337.	2001.	1470.	1271.	1092.	1092.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
GFS	6616.	5240.	2031.	70%	101195.
GMS	187.	148.	54.	20.	2866.
PICHS		6.12	9.49	9.85	9.85
HT		155.54	241.12	450.22	250.32
AC-FT		2998.	4028.	4180.	4182.
TOTALS CU I		3205.	4966.	5156.	5158.

HYDROGRAPH AT STA				1 FOR PLAIN 1, RHO 3			
15.	15.	15.	15.	15.	15.	15.	15.
15.	15.	15.	15.	15.	15.	15.	15.
15.	15.	15.	15.	15.	15.	15.	15.
15.	15.	15.	15.	15.	15.	15.	15.
60.	128.	201.	280.	350.	399.	419.	400.
291.	252.	217.	180.	162.	141.	122.	107.
72.	64.	57.	51.	45.	41.	37.	34.
97.	103.	231.	357.	471.	584.	686.	771.
933.	1172.	1476.	1939.	2577.	3381.	4326.	5540.
10348.	11777.	12736.	13231.	13046.	12241.	11047.	9840.
6333.	5430.	4659.	4001.	3439.	2956.	2541.	2103.
1375.	1176.	1005.	857.	735.	629.	538.	461.
275.	230.	189.	154.	122.	92.	69.	38.
10.	18.	17.	17.	16.	16.	16.	16.
15.	15.	15.	15.	15.	15.	15.	15.
15.	15.	15.	15.	15.	15.	15.	15.

	PFA ^a	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	13231.	10540.	4001.	1405.	202389.
CHS	375.	227.	115.	40.	5731.
FUCHS		12.25	18.99	19.71	19.71
MC		311.06	462.23	500.45	500.63
AC-FY		5197.	8056.	8360.	8363.
THURDS CU II		6+10.	9937.	10+12.	10316.

本報社址：上海南京路
 電話：二二二二
 本報社址：上海南京路
 電話：二二二二

HYDROGRAPH ROUTING

[illegible]

STAGE	1435.00	1402.00
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PH13	95.00	1123.00
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SURFACE AREA =	J.	33.	86.	142.	189.	276.	346.
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CAPACITY=	0.	55.	631.	1761.	3408.	5714.	7886.
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1442.

1	4.45	6.24	6.28
2	112.95	156.45	159.62
3	1807	2647	2667
4	2327	3265	3289
5	701		
6	701		
7	701		
8	701		
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99	701		
100	701		

END-OF-PERIOD HYDROGRAPH ORDINATES

STORAGE			
5711.	5764.	5700.	5696.
5675.	5667.	5664.	5693.
5639.	5631.	5626.	5657.
5590.	5596.	5596.	5624.
5614.	5620.	5622.	5594.
5617.	5613.	5618.	5623.
5599.	5589.	5583.	5605.
5630.	5600.	5679.	5543.
6114.	6041.	6047.	5792.
6048.	6116.	6147.	6374.
7979.	7953.	7953.	8112.
7671.	7596.	7901.	7946.
7290.	7217.	7557.	7873.
6950.	6920.	7217.	7519.
6046.	6046.	6861.	7146.
6624.	6624.	6601.	6805.
			6333.
			6578.
			6555.
			6777.
			7078.
			7442.
			7412.
			8087.
			8060.
			8033.
			7744.
			7365.
			7327.
			6981.
			6098.
			6724.
			6750.
			6511.
			6490.
			5686.
			5689.
			5653.
			5610.
			5606.
			5610.
			5619.
			5592.
			5606.
			5617.
			5655.
			7927.
			8005.
			7708.
			7327.
			6981.
			6098.
			6724.
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STAGE	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1435.0	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.9	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.8	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.7	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.6	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.5	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.4	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.3	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.2	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.1	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0
1434.0	1434.0	1434.9	1434.8	1434.7	1434.6	1434.5	1434.4	1434.3	1434.2	1434.1	1434.0

PEAK OUTFLOW IS 289% AT TIME 47.00 HOURS

CFS	PF6K	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
2899	2246	1301	572	62867	
55	64	27	14	2347	

[illegible]

SEPARATION OF PLANT NATION 3

[illegible][illegible]

[illegible]

LOCATION OF DAN

JOURNAL DEPTH CHART L ROUTE 1:10.

Q ₁ (1)	Q ₁ (2)	Q ₁ (3)	ELIQT	ELIMAX	RLIMTH	SEL
0.0500	0.0500	0.0510	1390.0	1550.0	200.	0.26000

CROSS SECTION CORRELATES--STA,ELEV,STA,ELEV--ETC

0.	1360,00	450,00	1460,00	1350,00	1395,00	1250,00	1390,00	1862,00	1390,00
1362,00	1395,00	330,00	1440,00	4000,00	1540,00				

STORAGE	0.	2.41	21.41	60.07	118.39	196.38	293.25	402.20	521.54	647.23
	777.14	911.27	1047.65	1192.26	1339.08	1490.14	1645.42	1804.85	1966.69	2130.19

OUTFL04	3606775.50	4031200.50	1.553.54	244824.50	253260.51	2430481.19	4774038.25	4342165.75	13278927.63	19459496.00	27207830.00
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[illegible]

FLUX	0.	1663.54	24894.50	983260.51	2430431.19	4774038.25	8342165.75	13273927.63	19459496.00	27207830.00
	36667176.50	46013230.50	57030910.00	69111273.00	82250075.00	96446472.00	*****	*****	*****	*****

STATION 1030, PLAIN L, RT101

OUTFLAY

189.	3.	186.	6.	183.	7.	130.	11.	177.	14.
172.	10.	172.	15.	170.	21.	170.	24.	165.	26.
151.	27.	151.	30.	159.	32.	157.	34.	155.	36.
153.	34.	151.	40.	149.	41.	148.	43.	145.	45.
145.	40.	145.	47.	141.	45.	140.	51.	139.	52.
136.	53.	136.	54.	135.	56.	133.	57.	132.	58.
130.	64.	130.	61.	129.	62.	128.	63.	127.	64.
125.	65.	125.	66.	124.	67.	123.	87.	174.	102.
409.	241.	409.	440.	590.	638.	780.	819.	941.	959.
1128.	1024.	1128.	1105.	1168.	1137.	1184.	1146.	1184.	1141.
1154.	1127.	1154.	1105.	1123.	1077.	1099.	1050.	1063.	1018.
1000.	942.	1000.	952.	965.	918.	984.	884.	896.	850.
817.	817.	828.	745.	795.	754.	764.	724.	734.	695.
667.	667.	676.	640.	649.	613.	622.	584.	597.	564.
541.	541.	549.	518.	526.	497.	504.	476.	483.	456.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL	VOLUME
CFS	285d.	2246.	1301.	572.		62865.
C-45	82.	44.	37.	16.		2347.
INCLES		2.62	6.08	8.02		8.07
AC-FT	44	66.67	154.49	203.80		204.92
100% CUM		1114.	2581.	2405.		3424.
		1374.	3123.	4199.		4224.

MAXIMUM STAGE IS 1391.9

STATION 1000, PLAIN 1, RTIO 3

[illegible]

Q4(1)	Q4(2)	Q4(3)	ELIQT	ELIAX	PLIYN	SEL
0.0550	0.0500	0.0500	1307.0	1500.0	0.0	0.02000

0.	1501.00	520.70	1421.00	1480.10	1395.00	1256.00	1385.00	1485.00	1389.00
1498.00	1395.00	1400.70	1400.00	3350.10	1500.00				

STORAGE	0,	0,36	2,36	8,04	16,26	27,01	39,93	53,96	69,03	85,12
	102,26	120,42	139,62	159,36	181,13	203,43	226,77	251,14	276,55	302,99
OUTFLUJ	0,	0,55	15260,72	98015,66	232046,35	461044,34	814304,41	1277451,80	1839880,59	2502446,91
	3266793,03	4133627,01	5109553,75	6192565,00	7367933,19	8697414,88	10124123,50	11671007,68	13340989,38	15137000,13
STAGE	1340,00	1374,34	1409,68	1406,53	1412,37	1418,21	1424,05	1429,69	1435,74	1441,58
	1447,42	1453,26	1459,11	1464,95	1470,79	1476,63	1482,47	1488,32	1494,16	1500,00
FLUJ	0,	350,35	15260,72	98015,66	232046,35	461044,34	814304,41	1277451,80	1839880,59	2502446,91
	3266793,03	4133627,01	5109553,75	6192565,00	7367933,19	8697414,88	10124123,50	11671007,68	13340989,38	15137000,13

STATION 1053, PLAN 1, RTIO 1

	0.	187.	6.	OUTFLOW	12.	175.	18.	170.	23.
374.	187.	181.	3.	181.	12.	175.	18.	170.	23.
165.	160.	155.	33.	155.	37.	151.	41.	147.	45.
143.	139.	135.	53.	135.	56.	132.	60.	129.	63.
126.	123.	120.	65.	123.	71.	118.	74.	115.	76.
113.	111.	107.	80.	107.	82.	107.	84.	105.	86.
103.	102.	100.	30.	100.	90.	99.	92.	98.	93.
95.	95.	94.	95.	94.	96.	97.	92.	92.	90.
90.	90.	90.	100.	90.	101.	89.	120.	140.	195.
234.	234.	557.	474.	557.	671.	747.	851.	908.	991.
024.	1326.	1136.	1140.	1136.	1156.	1153.	1177.	1153.	1172.
143.	1224.	1092.	1134.	1092.	1100.	1070.	1073.	1039.	1047.
006.	272.	230.	230.	230.	946.	903.	911.	863.	877.
844.	831.	760.	811.	760.	780.	736.	749.	708.	720.
671.	651.	625.	604.	625.	637.	595.	612.	574.	587.
550.	526.	504.	541.	504.	510.	483.	497.	462.	477.

[illegible][illegible]

16.	20.	24.	20.	40.	90.	148.	7.	11.	15.
17.	150.	150.	132.	110.	107.	97.	174.	105.	152.
63.	50.	59.	55.	50.	50.	48.	88.	80.	74.
32.	35.	37.	37.	36.	36.	35.	46.	43.	40.
33.	32.	31.	31.	30.	30.	35.	35.	34.	33.
27.	27.	26.	28.	25.	25.	24.	29.	28.	25.
22.	22.	21.	21.	20.	20.	20.	19.	19.	16.

STAGE	
1346.0	1345.7
1346.4	1345.6
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1388.0	1345.5
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1389.0	1345.5
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1392.0	1345.5
1392.1	1345.5
1392.2	1345.5
1392.3	1345.5
1392.4	1345.5
1392.5	1345.5
1392.6	1345.5
1392.7	1345.5
1392.8	1345.5
1392.9	1345.5
1393.0	1345.5
1393.1	1345.5
1393.2	1345.5
1393.3	1345.5
1393.4	1345.5
1393.5	1345.5
1393.6	1345.5
1393.7	1345.5
1393.8	134

	PRAC	6-H-HUR	24-H-HUR	72-H-HUR	TOTAL	VOLUME
CFS	11529.	8478.	3275.	1254.	101349.	
CMS	326.	240.	93.	35.	5135.	
PICES		9.91	15.31	17.53	17.66	
MI		251.67	338.86	446.54	448.58	
AC-FT		4204.	6496.	7460.	7494.	
TJUS CU M		5106.	8013.	9201.	9243.	

MAXIMUM STORAGE - 105.

MAXIMUM STAGE IS 1355.6

[illegible]

HYDROGRAPH ROUTING

[illegible]

WIND-DRIVEN DEPTH CHANNEL ROUTING IS

RELTH	FLDAX	ELIVT	YI(3)	YI(2)	YI(1)
1720	1500.0	1315.0	0.0500	0.0500	0.0500
0.01700					

GROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC	
0.	1509.00 1800.00 1720.00 1503.00 1720.00 1500.00 1315.00 1315.00

1316.0

STAGE IS

5. MAXIMUM STORAGE =

STATION 23090, PLAN 1, RTID 2

[illegible][illegible][illegible]

[illegible]

CFS	PEAK	6-HR	24-HR	72-HR	TOTAL
CHS	11559.	8430.	3275.	1253.	181329.
INCHES	327.	240.	63.	35.	5135.
MI		9.91	15.31	17.58	17.66
AC-FT		251.71	388.87	440.42	440.54
FOOT-CU-M		4225.	6400.	7458.	7493.
		5117.	8013.	9199.	9242.

MAXIMUM STORAGE = 46.

MAXIMUM STAGE IS 1324.8

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FORMULATED PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
 AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS		
				RATIO 1	RATIO 2	RATIO 3
				0.40	0.50	1.00
HYDROGRAPH AT	1	7.96 (0.30E 19)	1	5292. (149.87)(	6016. (107.33)(	13231. (374.67)(
	1	7.96 (0.30E 19)	1	1166. (33.01)(	2799. (42.09)(	11546. (326.94)(
ROUTED TO	1000	7.96 (0.23E 18)	1	1134. (33.54)(	2898. (42.06)(	11537. (327.53)(
	1063	7.96 (0.23E 18)	1	1177. (33.33)(	2913. (42.49)(	11532. (326.50)(
ROUTED TO	4560	7.96 (0.79E 18)	1	1165. (32.91)(	2901. (42.14)(	11573. (327.72)(
	12960	7.96 (0.62E 19)	1	1164. (32.95)(	2901. (42.15)(	11529. (326.47)(
ROUTED TO	23080	7.96 (0.12E 20)	1	1164. (32.96)(	2904. (42.23)(	11559. (327.31)(

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1

RATIO OF PIF	ELEVATION STORAGE OUTFLOW	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM	TIME OF FAILURE HOURS
0.40	1441.83	1415.01	1435.00	1442.00	0.
0.50	1442.75	5714.	5714.	7386.	0.
1.00	1444.53	95.	95.	1193.	0.

PLAN 1 STATION 1000

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE, FT	TIME HOURS
0.40	1184.	1390.7	49.50
0.50	2898.	1391.8	46.50
1.00	11567.	1397.1	44.50

PLAN 1 STATION 1063

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE, FT	TIME HOURS
0.40	1177.	1395.2	49.00
0.50	2913.	1395.4	47.00
1.00	11532.	1399.2	44.50

PLAN 1 STATION 4560

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE, FT	TIME HOURS
0.40	1165.	1379.2	49.50
0.50	2901.	1381.9	47.00
1.00	11573.	1384.1	44.50

PLAN 1 STATION 12960

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE, FT	TIME HOURS
0.40	1164.	1351.6	50.00
0.50	2901.	1353.5	47.00
1.00	11529.	1355.6	44.50

PLAN 1 STATION 23060

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE, FT	TIME HOURS
0.40	1164.	1316.0	50.00
0.50	2904.	1317.6	47.00
1.00	11559.	1324.3	44.50

 FLOOD HYDROGRAPH PACKAGE (HEC-1)
 DAM SAFETY VERSION JULY 1978
 LAST MODIFICATION 26 FEB 79
 MODIFIED FOR HONEYWELL APR 79

 THIS PROGRAM IS CURRENTLY BEING MODIFIED
 TO RUN ON THE DGS HONEYWELL SYSTEM

PLEASE REPORT ANY UNUSUAL OPERATING PROBLEMS
 TO MIKE TILLSON (RN, 423) PH: 7-5666

1 A1 EATON BRADOK RESERVOIR DAM
 2 A PMF WITH RATIOS - ANALYSIS
 3 A3 DATE
 4 B 130
 5 B1 5

6 J 1 3 1
 7 J1 .4 .5 1
 8 K 0 1
 9 K1

INFLOW HYDROGRAPH

10 M 1 1 7.96
 11 P 0 20 113 126 134 145
 12 T 1 .1

13 W 3.53 .625
 14 X 15 15 1
 15 K 1 1
 16 K1 ROUTED HYDROGRAPH BREACH
 17 Y 1 1
 18 Y1 1
 19 Y4 1435 1442
 20 Y5 95 1193
 21 \$A 0 33.2 86.1 142.1 188.5 275.5 346.2
 22 \$E 1390 1395 1405 1415 1425 1435 1442
 23 \$4 1435
 24 \$0 1442 3.087 1.5 800
 25 \$B 30 .5 1390 2 1435 1442
 26 K 1 1000 1

-1435 -1

27	K1 LOCATION TUE UF DAM									
28	Y			1						1
29	Y1	1								
30	Y6	.05	.05	.05	1390	1560	200	.26		
31	Y7	0	1560	450	1460	1850	1395	1850	1390	1862 1390
32	Y7	1862	1395	3300	1440	4000	1540			
33	K	1	1063							1
34	K1 LOCATION TUSCARORA ROAD									
35	Y					1				
36	Y1	1								
37	Y6	.05	.05	.05	1389	1500	60	.02		
38	Y7	0	1500	520	1420	1480	1395	1480	1389	1488 1389
39	Y7	1488	1395	1800	1400	3350	1500			
40	K	1	4560							1
41	K1 LOCATION ROBERTS ROAD									
42	Y					1				
43	Y1	1								
44	Y6	.05	.05	.05	1375	1500	3500	.004		
45	Y7	0	1500	800	1380	950	1380	950	1375	958 1375
46	Y7	958	1380	1200	1380	2600	1500			
47	K	1	12960							1
48	K1 LOCATION SMALL DAM									
49	Y					1				
50	Y1	1								
51	Y6	.05	.05	.05	1345	1500	4900	.006		
52	Y7	0	1500	1000	1360	1250	1350	1250	1345	1258 1345
53	Y7	1258	1350	1700	1360	3200	1500			
54	K	1	23080							1
55	K1 LOCATION EAGLEVILLE ROAD									
56	Y					1				
57	Y1	1								
58	Y6	.05	.05	.05	1315	1500	1720	.017		
59	Y7	0	1500	1400	1320	1500	1320	1500	1315	1500 1315

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FORMULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
 AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS		
				RATIO 1	RATIO 2	RATIO 3
				0.40	0.50	1.00
HYDROGRAPH AT	1	7.96 (0.30E 19)	1	5292. (149.87)	6616. (187.33)	13231. (374.67)
ROUTED TO	1	7.96 (0.30E 19)	1	1166. (33.01)	42834. (1212.91)	49572. (1403.75)
ROUTED TO	1000	7.96 (0.23E 18)	1	1184. (33.54)	42783. (1211.47)	49584. (1404.07)
ROUTED TO	1063	7.96 (0.23E 18)	1	1177. (33.33)	42785. (1211.52)	49536. (1402.70)
ROUTED TO	4560	7.96 (0.79E 18)	1	1165. (32.98)	41428. (1173.11)	47250. (1337.96)
ROUTED TO	12960	7.96 (0.62E 19)	1	1164. (32.95)	39644. (1122.59)	46273. (1310.31)
ROUTED TO	23080	7.96 (0.12E 20)	1	1164. (32.96)	40217. (1138.83)	46796. (1325.10)

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1

ELEVATION
STORAGE
OUTFLOW

INITIAL VALUE
1435.00
5714.
95.

SPILLWAY CREST
1435.00
5714.
95.

TOP OF DAM
1442.00
7886.
1193.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
0.40	1441.83	0.	7826.	1166.	0.	49.00	0.
0.50	1442.29	0.29	7985.	42834.	1.19	47.00	45.00
1.00	1443.59	1.59	8450.	49573.	1.85	44.50	42.50

PLAN 1 STATION 1000

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE/FT	TIME HOURS
0.40	1184.	1390.7	49.50
0.50	42783.	1400.0	47.00
1.00	49584.	1400.3	44.50

PLAN 1 STATION 1063

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE/FT	TIME HOURS
0.40	1177.	1395.2	49.00
0.50	42785.	1402.9	47.00
1.00	49536.	1403.4	44.50

PLAN 1 STATION 4560

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE/FT	TIME HOURS
0.40	1165.	1379.2	49.50
0.50	41428.	1390.1	47.00
1.00	47250.	1390.8	44.50

PLAN 1 STATION 12960

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE/FT	TIME HOURS
0.40	1164.	1351.6	50.00
0.50	39644.	1361.7	47.50
1.00	46273.	1362.2	45.00

PLAN 1 STATION 23080

RATIO	MAXIMUM FLOW/CFS	MAXIMUM STAGE/FT	TIME HOURS
0.40	1164.	1316.0	50.00
0.50	40217.	1328.6	47.50
1.00	46756.	1329.4	45.00

APPENDIX D

REPORTS FROM PRIOR INSPECTIONS

(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK
CONSERVATION COMMISSION
ALBANY

map 104-C *Reservoir*
DAM REPORT

June 25, 191*7*
(Date)

CONSERVATION COMMISSION,

DIVISION OF INLAND WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the *Eaton* *Reservoir* Dam.

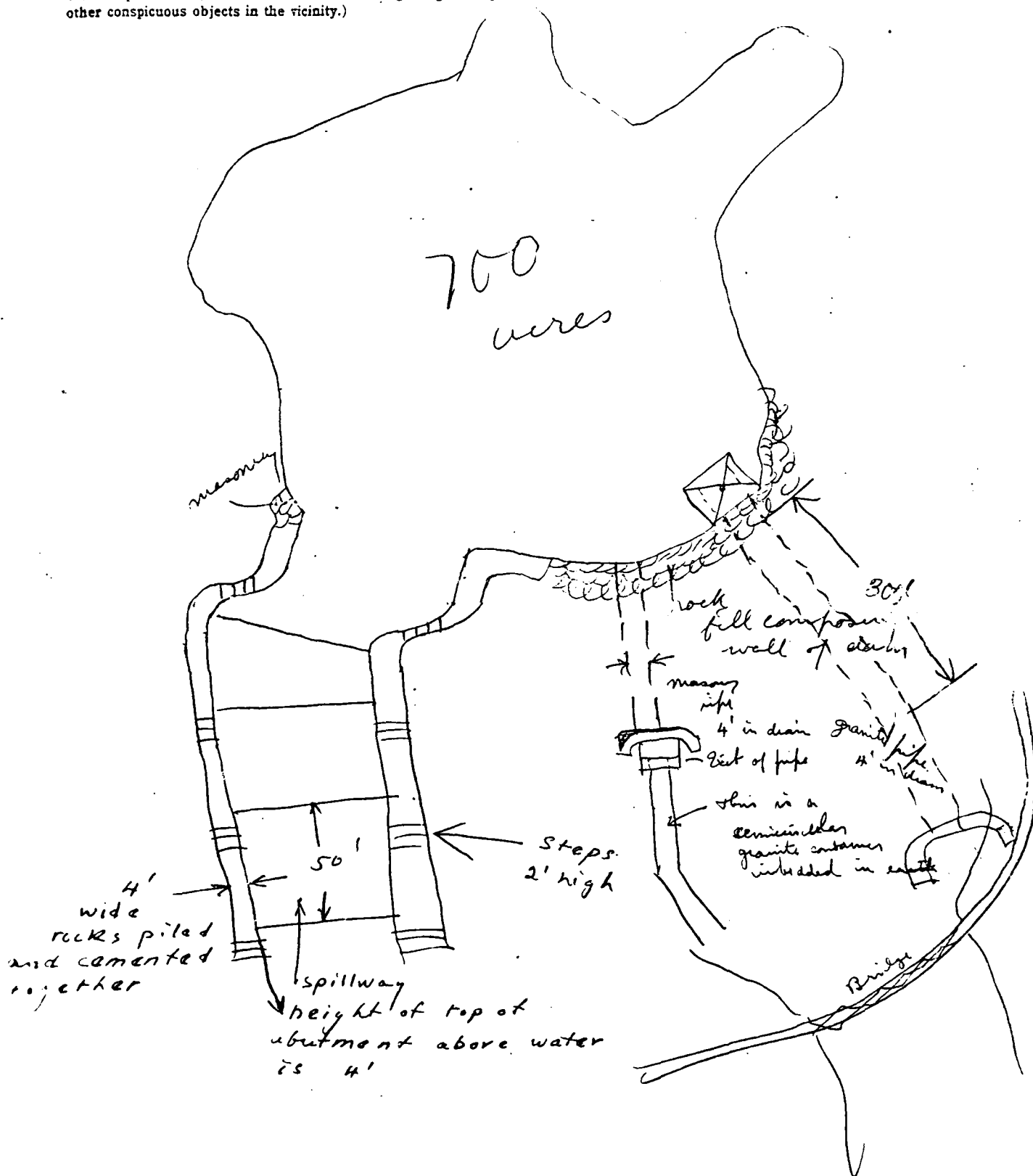
This ~~dam~~ *reservoir forms the source of* *Eaton Brook* *reservoir*
~~is situated upon the~~ (Give name of stream)
in the Town of *West Eaton*, ~~Eaton~~ *MADISON* County,
about *2 1/4* miles from the Village or City of *West Eaton*
(State distance)
The distance *down* stream from the ~~dam~~ *reservoir* to the *West Eaton*
(Up or down) (Give name of nearest important stream or of a bridge)
is about *2 1/4* miles
(State distance)

The dam is now owned by *Eaton Water Works (State)*
(Give name and address in full)
and was built in or about the year _____, and was extensively repaired or reconstructed during the year _____.

As it now stands, the spillway portion of this ~~dam~~ *reservoir* is built of *Masonry*
(State whether of masonry, concrete or timber)
and the other portions are built of *Masonry and rock*
(State whether of masonry, concrete, earth or timber with or without rock fill)

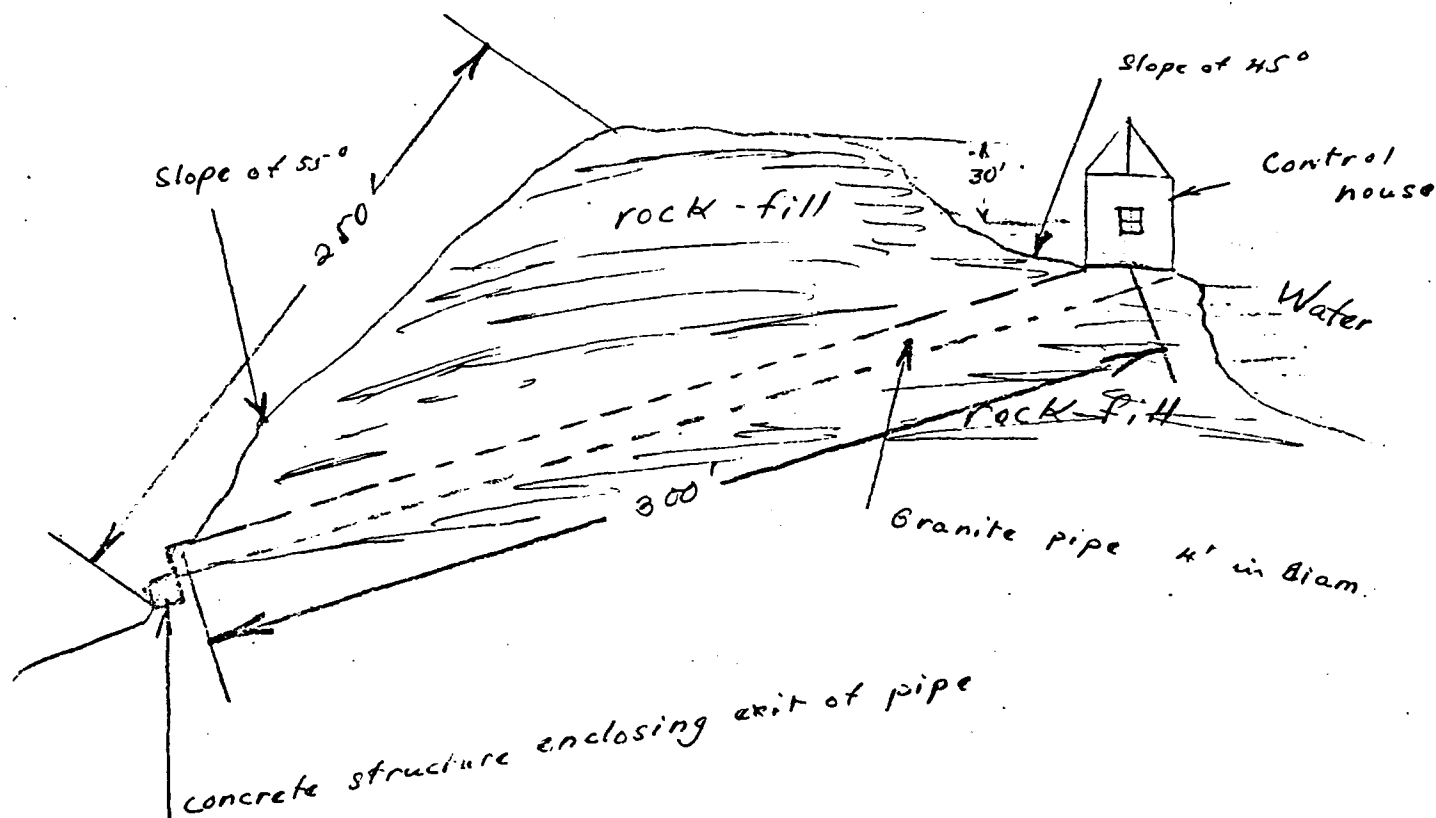
As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam ~~is~~ *at reservoir* *gravel and sand* and under the remaining portions such foundation bed is *mud and earth*.

(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)

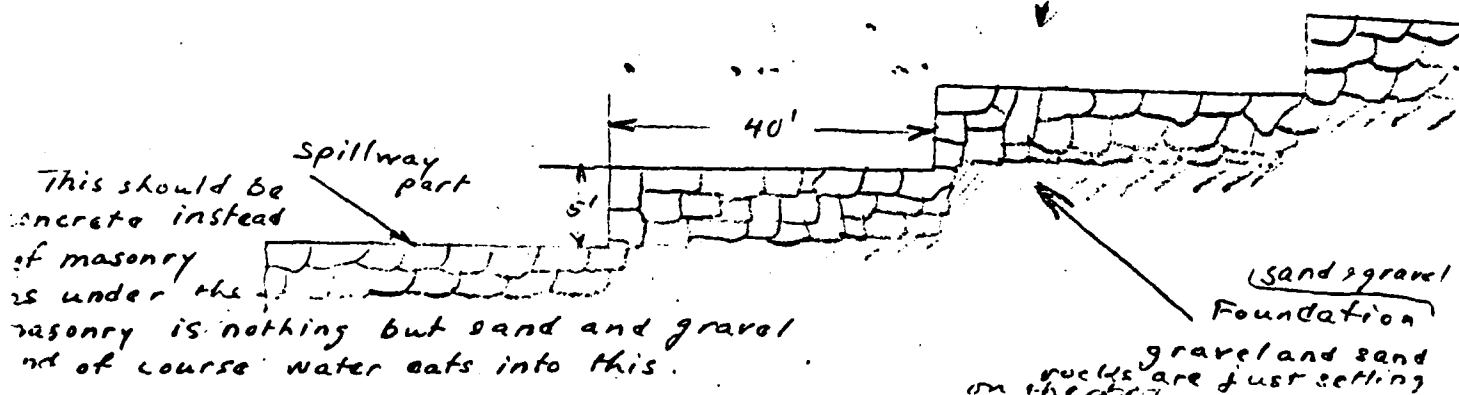


(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)

Cross-section of Dam



Cross-section of Spillway.



The total ^{area} ~~length~~ of this ^{reservoir} ~~dam~~ is 700 acres ~~feet~~. The spillway or waste-weir portion, is about 200 feet long, and the crest of the spillway is about 16 feet below the top of the dam.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows: There is one discharge pipe and one sluiceway. The pipe is about 6' in diam

At the time of this inspection the water level above the dam was ft. in.
 below
 above the crest of the spillway.

(State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks which you may have observed.)

*This reservoir is in good condition. The banks surrounding body of water are 18' high, rock fill, and the report concerning its bad shape is, as far as I can make out but, hearsay. I could, at the time of visitation, not observe any cracks or leaks in the surrounding wall.
 July 5-17. High water was 19' ± 2'-3" in spill. Bank somewhat washed near Gate House & spill flowing 200 up in that place. Not dangerous A.P.M. & L.*

Reported by Willard Boleford
 (Signature)

Conservation Commission, Albany, N.Y.
 (Address—Street and number, P. O. Box or R. F. D. route)

Dunkany Falls, N.Y.
 (Name of place)

APPENDIX E

REFERENCES

APPENDIX E

REFERENCES

- 1) U.S. Department of Commerce; Weather Bureau;
Hydrometeorological Report No. 33 - Seasonal Variation of the Probable
Maximum Precipitation East of the 105th Meridian for Areas from 10 to
1,000 Square Miles and Durations of 6, 12, 24, and 48 Hours, April 1956.
- 2) H.W. King and E.F. Brater, Handbook of Hydraulics, 5th edition,
McGraw-Hill, 1963.
- 3) University of the State of New York, Geology of New York, Education
Leaflet 20, Reprinted 1973.
- 4) Elwyn E. Seelye, Design, 3rd edition, John Wiley and Sons, Inc., 1960.
- 5) U.S. Department of the Interior, Bureau of Reclamations;
Design of Small Dams, 2nd edition (rev. reprint), 1977.

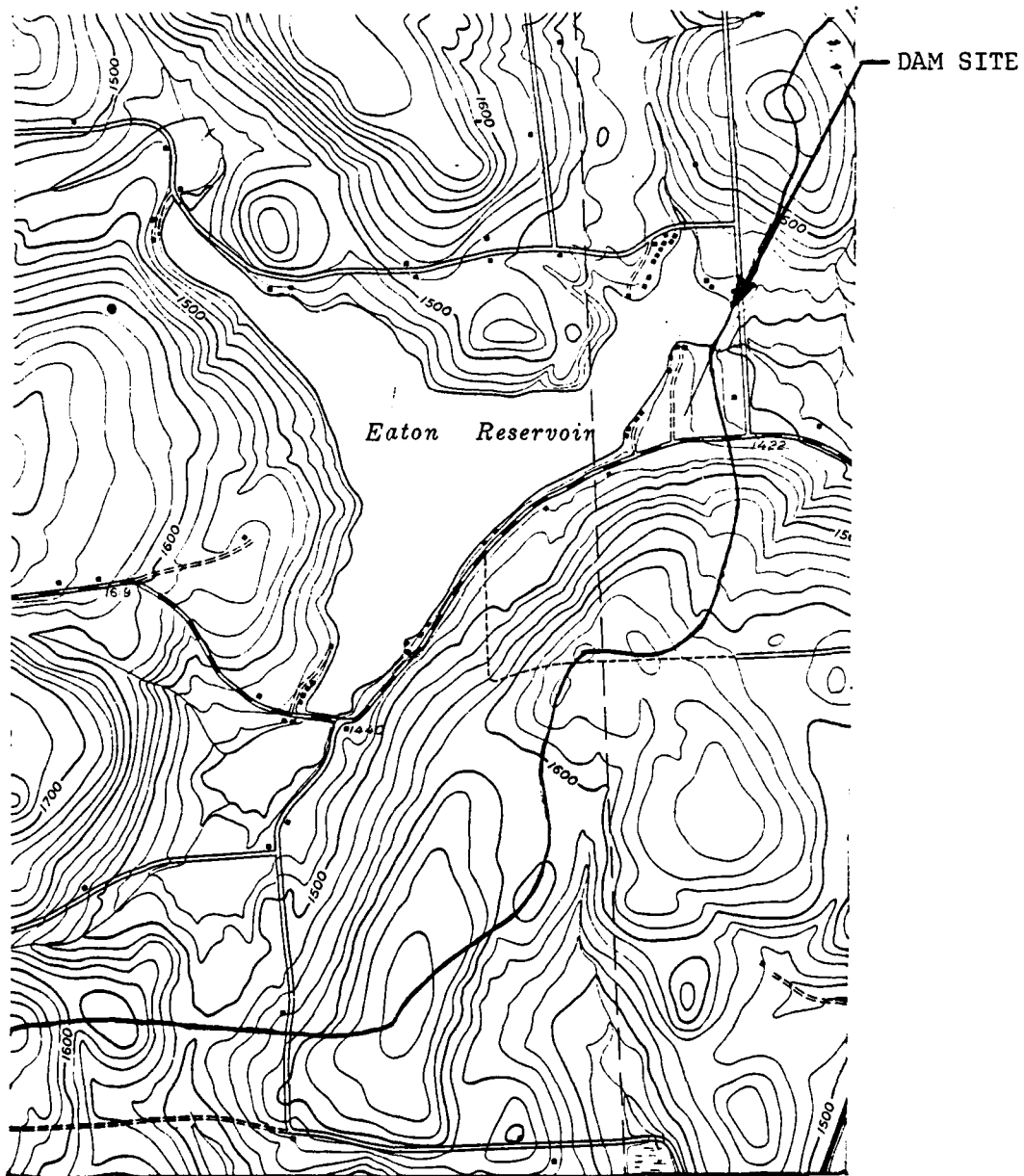
APPENDIX F

DRAWINGS

DAM SITE



VICINITY MAP
EATON BROOK RESERVOIR DAM
I.D. No. N.Y.352



TOPOGRAPHIC MAP
EATON BROOK RESERVOIR DAM
I.D. No. N.Y. 352

SM 282d (2/72)

REGION 2
 COUNTY Putnam
 PIN ME 7201-101.06
 PROJECT Soil Investigation - Eaton Brook Dam
 SOIL SERIES _____
 COORD. LOC. _____
 DATE START 3-1-73

STATE OF NEW YORK
 DEPARTMENT OF TRANSPORTATION
 SOIL MECHANICS BUREAU
 SUBSURFACE EXPLORATION LOG

HOLE 1
 LINE _____
 STA _____
 OFFSET _____
 SURF. ELEV. _____
 DEPTH TO WATER _____

CASING O.D. 4.125 I.D. 3.875 WEIGHT OF HAMMER - CASING 300 LBS. HAMMER FALL - CASING 15
 SAMPLER O.D. 3 I.D. 2.5 WEIGHT OF HAMMER - SAMPLER _____ LBS. HAMMER FALL - SAMPLER 10 LBS.

DEPTH BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER					DESCRIPTION OF SOIL AND ROCK	WATER
			0	6	12	18	24		
0								Gr. Silt. Same Sand. Tr. Gravel.	
1								Drove casing from 0 to 20' Spinned out.	
2								Casing and Drove Spoon for sample	
3								1 thru 6	
5	1			5	3				
6									
7									
8									
9									
10	2			4	3			Gr. Sand. Some Silt. Trace Gravel & Clay	
11									
12									
13									
14									
15	3			2	3			Gray-Brown Silt. Same Sand Trace of Gravel - Clay	
16									
17									
18									
19									
20	4			3	3			Gray Silt. Same Sand Trace of Gravel & Clay	
21									
22									
23									
24									
25	5			4	4			Gray Silt. Same Sand & Gravel Trace of Clay	
26									
27									
28									
29									
30	6			6	7			Gray Silt. Same Gravel Trace of Sand, Clay	
31									
32									
33									
34									
35	7			13	13			Gravel & Gr. Sand. Tr. Silt, Clay	
36								Washed out Casing & Drove Spoon for sample from 30 to 59'	
37									
38									
39									
40	8			15				Gr. Sand & Gravel. Same Silt. Tr. Clay	
41									
42									
43									
44									
45	9			12	9			Gr. Sand. Some Gravel. Tr. Silt. Clay	
46									
47									
48									
49									
50									

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

CONTRACTOR

SM

DRILL RIG OPERATOR H. P. Ussell
 SOIL & ROCK DESCRIP. _____
 REGIONAL SOILS ENGR. R. Gage
 SHEET 1 OF 2
 STRUCTURE NAME/NO. _____

HOLE 1 F 1 B

DATE FINISH 3-6-73

DEPTH BELOW SURFACE	BLOWS ON CASING	SAMPLE NO.	BLOWS ON SAMPLER				DESCRIPTION OF SOIL AND ROCK
			1	2	3	4	
0	21	10	2	14			
	115				26		
	151						Gr. Sand & Gravel. Tr. Silt. Clay
	157						
55	160	11	2	11			
	101				22		
	231						Stone Frag. Some Br. Sand Tr. Silt
	182						Drilled ahead of casing with power bit
60	251	12	17	130			From 57' to 60' Drove casing to 60' & water
					102		out. Drove sampler to 61' 4" for sample
							Step-d Hole 61' 5"
							Ground Water Thru out Hole
							Friday, March 2 - 1913 25' 0"
							Monday " 5 - 1913 21' 5"
							Tuesday " 6 - 1913 5' 8"
							Wednesday " 7 - 1913 5' 10"
							Time 11:55 AM 7 - 1913 2' 4"
							" 12:55 PM 7 - 1913 3' 4"
							Thursday, March 8 - 1913 28' 6"
							Time at 1:30 PM 8 - 1913 51' 6"
							" 2:00 PM 8 - 1913 49' 0"
							" 2:30 PM 8 - 1913 48' 0"
							Friday, March 9 - 1913 47' 3" at 10:10 AM
							Time at 12:33 9 - 1913 54' 6"
							" 11:35 9 - 1913 54' 6"
							Thursday, March 15 - 1913 25' 0" 1:00 PM
							Monday " 19 - 1913 48' 0" 2:00 PM
							Plastic Tube Put in Hole before Pumping
							Casing. Put Sand & Small Stone in Casing
							Plastic Tube Filled in. Was unplug to
							was out. Plastic Tube. Moved hole 2"
							Drove casing to 60' washed out & put
							in plastic tube. Tube filled with
							sand. Check sand with tap. Measured
							28' from top of tube. on April 30 - 1913
							Sand measured 15' from top of tube

HOLE / A / A

SM 282d (2/72)

REGION 2
 COUNTY Madison
 PIN MA 7321 75126
 PROJECT Soil Investigation Eaton Street D90
 SOIL SERIES _____
 COORD. LOC. _____
 DATE START 4-25-73

STATE OF NEW YORK
 DEPARTMENT OF TRANSPORTATION
 SOIL MECHANICS BUREAU
 SUBSURFACE EXPLORATION LOG

HOLE 2
 TIME in middle
 STA of 20m
 OFFSET _____
 SURF. ELEV. _____
 DEPTH TO WATER _____

CASING O.D. 4 1/2 I.D. 4 1/2 WEIGHT OF HAMMER - CASING 500 LBS. HAMMER FALL - CASING 15 IN.
 SAMPLER O.D. 3 1/2 I.D. 3 WEIGHT OF HAMMER - SAMPLER _____ LBS. HAMMER FALL - SAMPLER 12 IN.

DEPTH BELOW SURFACE	BLOW COUNT ON CASING	SAMPLE NO.	BLOWS ON SAMPLER					DESCRIPTION OF SOIL AND ROCK	MOIST. CONT.
			0	5	10	15	20		
0								Brown Sand, Some Gravel & Silt	
								Sample #1 & 2	
5		1	10					Drilled out Casing with Roller Bit, Washed out & Drove N X Sampler	
								for samples from 0' to 65'	
10		2	6	6				Brown Course Sand, trace Silt	
								Sample #3 & 4	
15		3	5	4				After Washing out Casing, Hole filled w/ in anywhere from 4" to 2' throughout	
								the Hole	
20		4	4	4				Gray Course Sand, Some Silt	
25		5	5	7				Gravel, Some Gray Silt & Sand	
								Sample #6 & 7	
30		6	3	3					
35		7	7	5				Wood Fibers, trace Gray Silt & Sand	
40		8	10	3				Gray Silt, Some Sand & Gravel,	
								trace Stone Frag.	
45		9	4	5				Gray Silt, Some Sand & Gravel, trace	
								Stone Frag. & Clay	

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED
 FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAIL-
 ABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE
 ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE.
 IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A
 SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR
 JUDGMENT OF SUCH AUTHORIZED USERS.

CONTRACTOR _____ SM _____

DRILL RIG OPERATOR H. P. Vawter
 SOIL & ROCK DESCRIP. _____
 REGIONAL SOILS ENGR. R. Gage
 SHEET 1 OF 2
 STRUCTURE NAME/NO. _____

HOLE 2

SM 2824 (2/72)

REGION 2
 COUNTY Albany
 PIN ALB 1201 28106
 PROJECT Soil Investigation Eaton Brook Dam
 SOIL SERIES _____
 COORD. LOC. _____
 DATE START 4-25-73

STATE OF NEW YORK
 DEPARTMENT OF TRANSPORTATION
 SOIL MECHANICS BUREAU
 SUBSURFACE EXPLORATION LOG

HOLE 2
 LINE 12 Middle
 STS of Dam
 OFFSET _____
 SURF. ELEV. _____
 DEPTH TO WATER _____

CASING O.D. _____ I.D. _____ WEIGHT OF HAMMER - CASING 300 LBS. HAMMER FALL - CASING 18
 SAMPLER O.D. _____ I.D. _____ WEIGHT OF HAMMER - SAMPLER _____ LBS. HAMMER FALL - SAMPLER 12

DEPTH BELOW SURFACE	BLOWS ON CASING	SAMPLER NO.	BLOWS ON SAMPLER	DESCRIPTION OF SOIL AND ROCK	V.C.
0					
135	10	10	7	Gray Silt, some Sand & Gravel, trace Stone Frag. & Clay	1
140			8		
142				Gray Silt, some Sand & Gravel, trace	1
155	11			Stone Frag. & Clay Sample #10, 11 & 12	
175		9	6		
183			6		
60	12				1
90		4	4		
103			9	Plastic tube put down in hole to 63'	
177					
232					
65	13			No Sample	
				Stopped Drilling @ 66.5'	
				Before extracting casing, small	
				crushed stone and sand were placed	
				around plastic tube.	
				placed plastic tube in the ground	
				to 63' for future observation.	

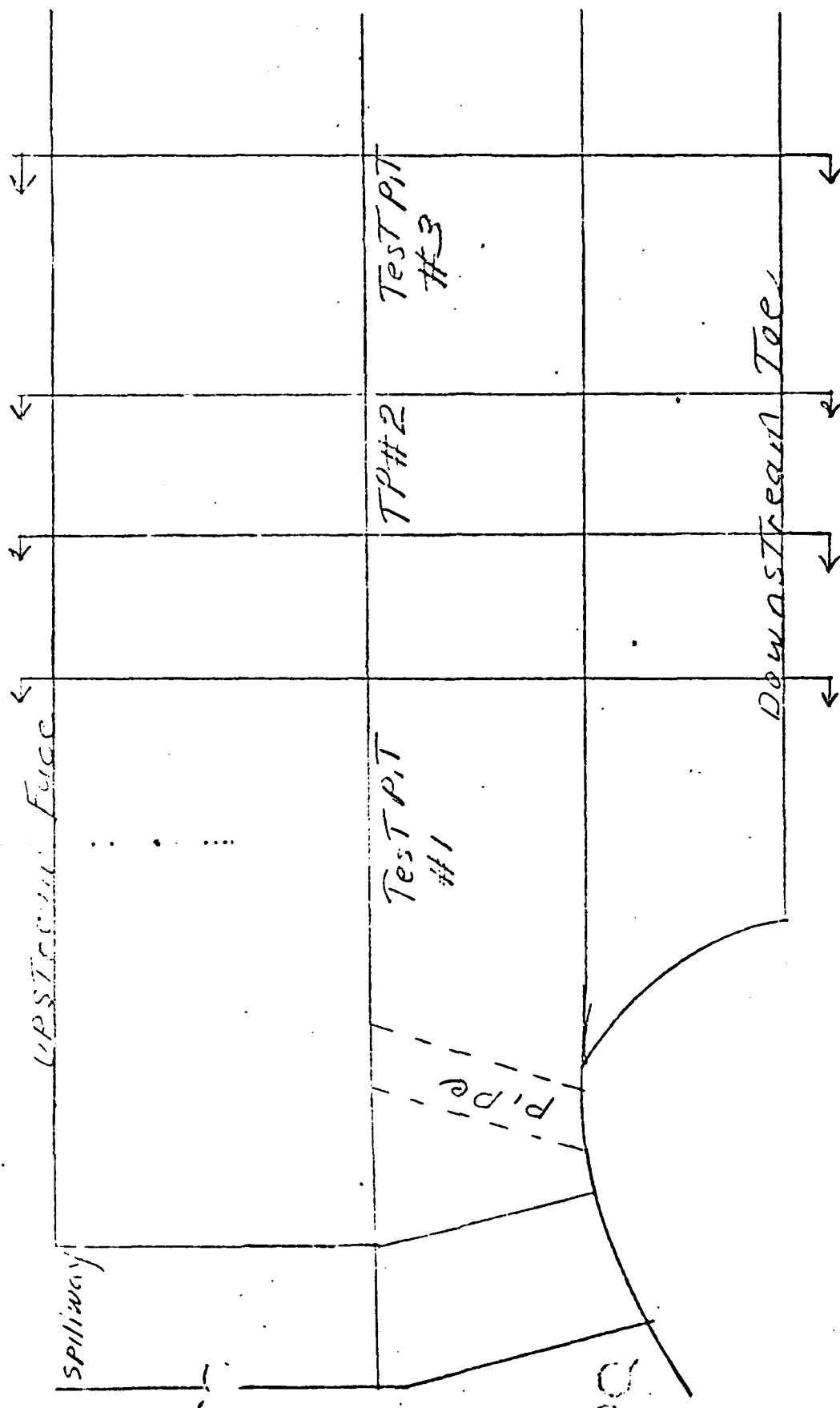
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

CONTRACTOR _____ SM _____

DRILL RIG OPERATOR H P Usual
 SOIL & ROCK DESCRIP. _____
 REGIONAL SOILS ENGR. R Gage
 SHEET 2 OF 2
 STRUCTURE NAME/NO. _____

HOLE _____

Wm. H. R. Co.
Anderson Co.



REGION NO. 2
COUNTY Madison

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
SOIL MECHANICS BUREAU

P.I. N.Y.L. 72-1.70116

SUBSURFACE EXPLORATION LOG

PROJECT Eaton Brook Dam Investigation
TYPE OF EXPLORATION TEST PIT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR STATE DESIGN AND ESTIMATE PURPOSES. IT IS MADE AVAILABLE TO BIDDERS ONLY THAT THEY MAY HAVE ACCESS TO IDENTICAL INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGEMENT OF THE BIDDER.

HOLE NO. T.P. #	LINE & STA	OFFSET		
1				
SURF. ELEV.		G.W. ELEV. 2.5		
DEPTH	SAMPLE NO.	(1)	(2)	FIELD DESCRIPTION
	1 + 2	B+	W	Material is clayey silt w/ cobbles and flat stone at 2.5' There is 1/4" layer of organic material which is running into hole at this depth 2.5'
5.0				Refused
BY H. US Mail DATE 1-4-77				

HOLE NO. T.P. #	LINE & STA	OFFSET		
2				
SURF. ELEV.		G.W. ELEV. 4.0		
DEPTH	SAMPLE NO.	(1)	(2)	FIELD DESCRIPTION
	1+2	B+	W	clayey silt w/ cobbles and flat stone
6.0				water @ 4 ft
				stopped hole
BY H. US Mail DATE 1-4-77				

(1) = PROFILE (2) = MOISTURE (W, M OR D)

AD-A086 179

NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/8 13/13
NATIONAL DAM SAFETY PROGRAM. EATON BROOK RESERVOIR DAM (INVENTO--ETC(U)
FEB 80 8 KOCH DACW51-79-C-0001

UNCLASSIFIED

NL

2 OF 2
001179



END
DATE
FILMED
8-80
DTIC

(1) = PROFILE (2) = MOISTURE (W_M OR D)

DATED _____ REVIEWED BY _____ DATED _____

TRUE NORTH



Scale in Feet

CANAL R.O.W.

#129

#130

CLUB HOUSE

1514
Wd. Ft.
Ho.

CANAL R.O.W. LINE

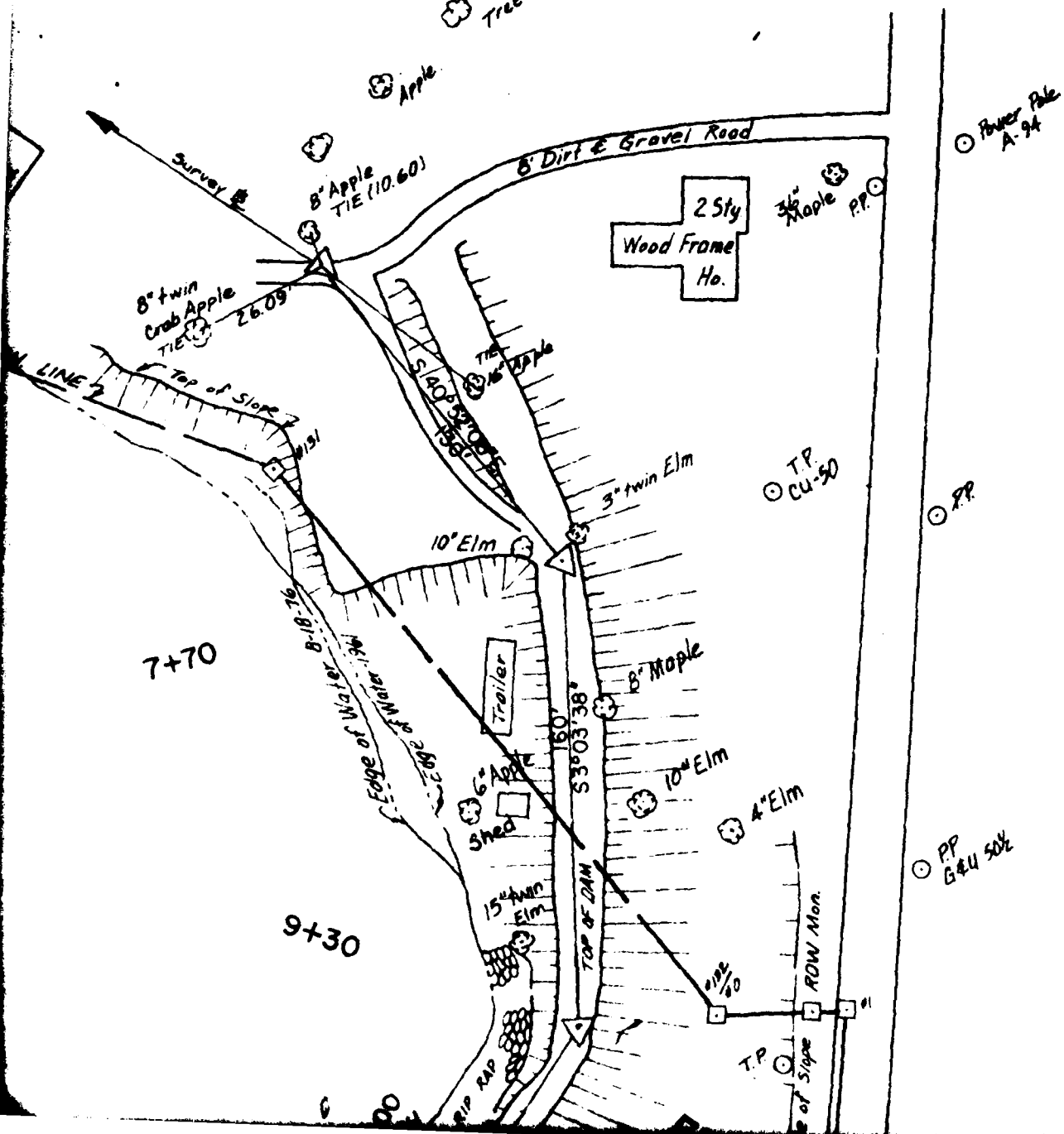
6+40

8" x 4" in
Crab Apple
TIE

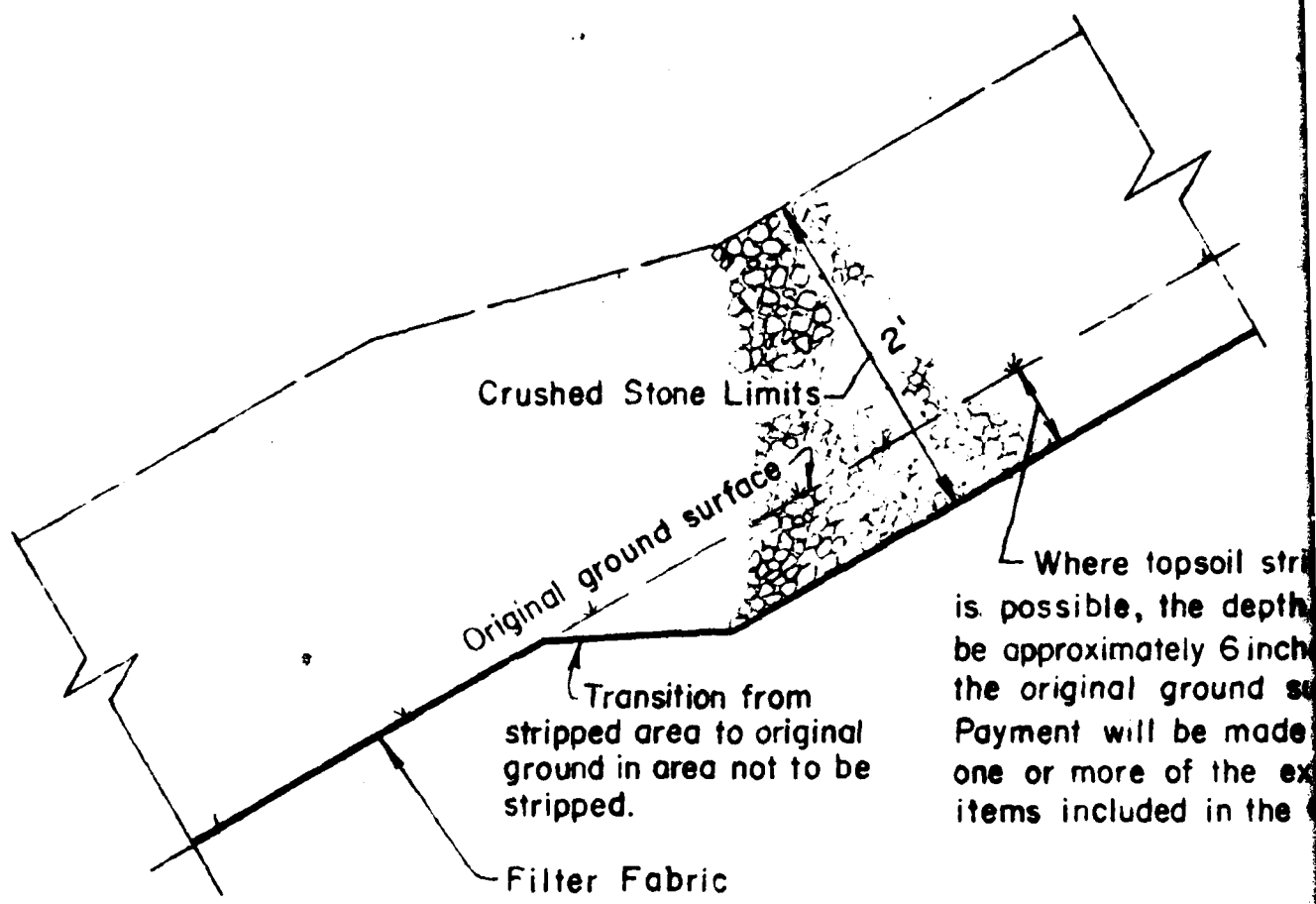
7+70

Survey E

Top of Slope



3

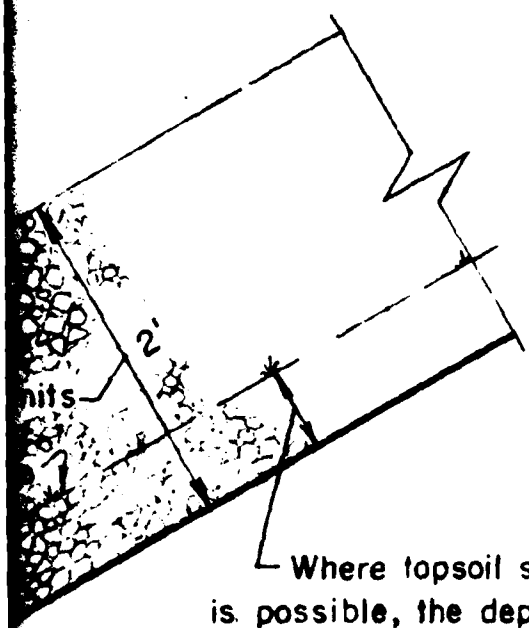


Where topsoil stripping is possible, the depth shall be approximately 6 inches from the original ground surface. Payment will be made for one or more of the existing items included in the

Wherever topsoil stripping is eliminated, the Filter Fabric shall be placed directly on the original ground surface.

TREATMENT DETAIL FOR STRIPPING TRANSITION NO SCALE

22

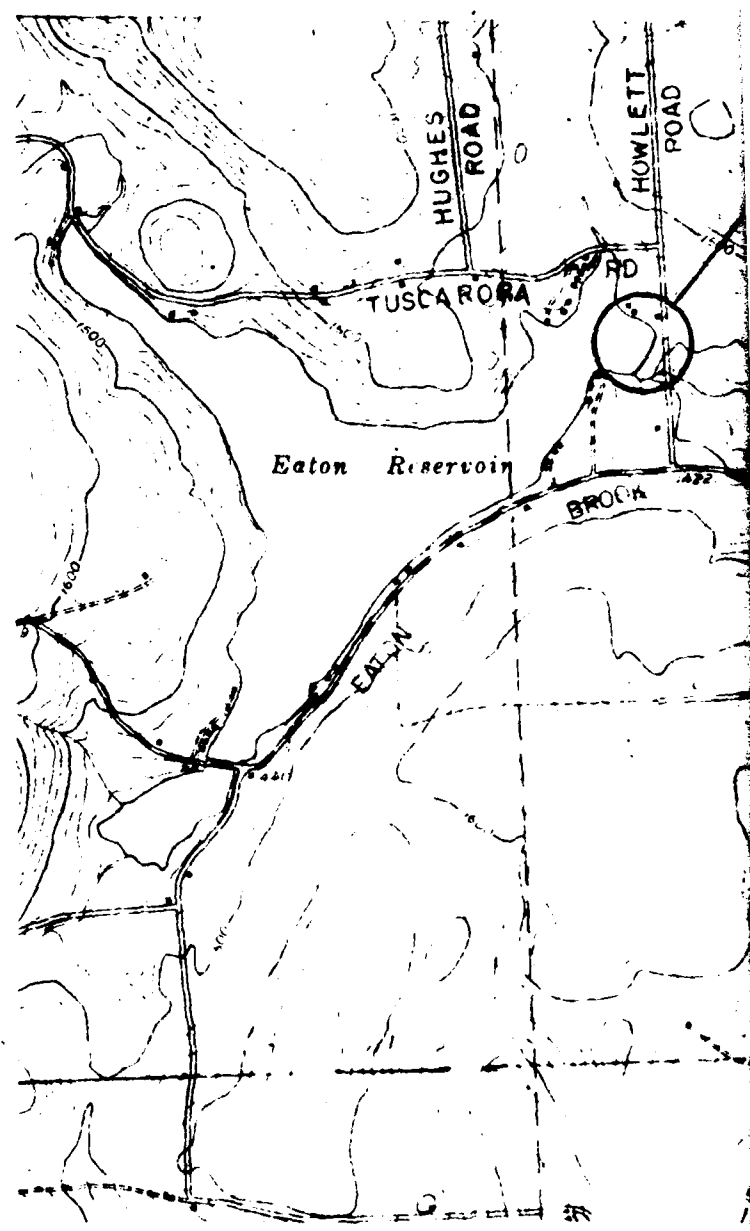


Where topsoil stripping is possible, the depth should be approximately 6 inches below the original ground surface. Payment will be made under one or more of the excavation items included in the Contract.

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original
to be

g is eliminated,
aced directly on

STRIPPING TRANSITION
SCALE



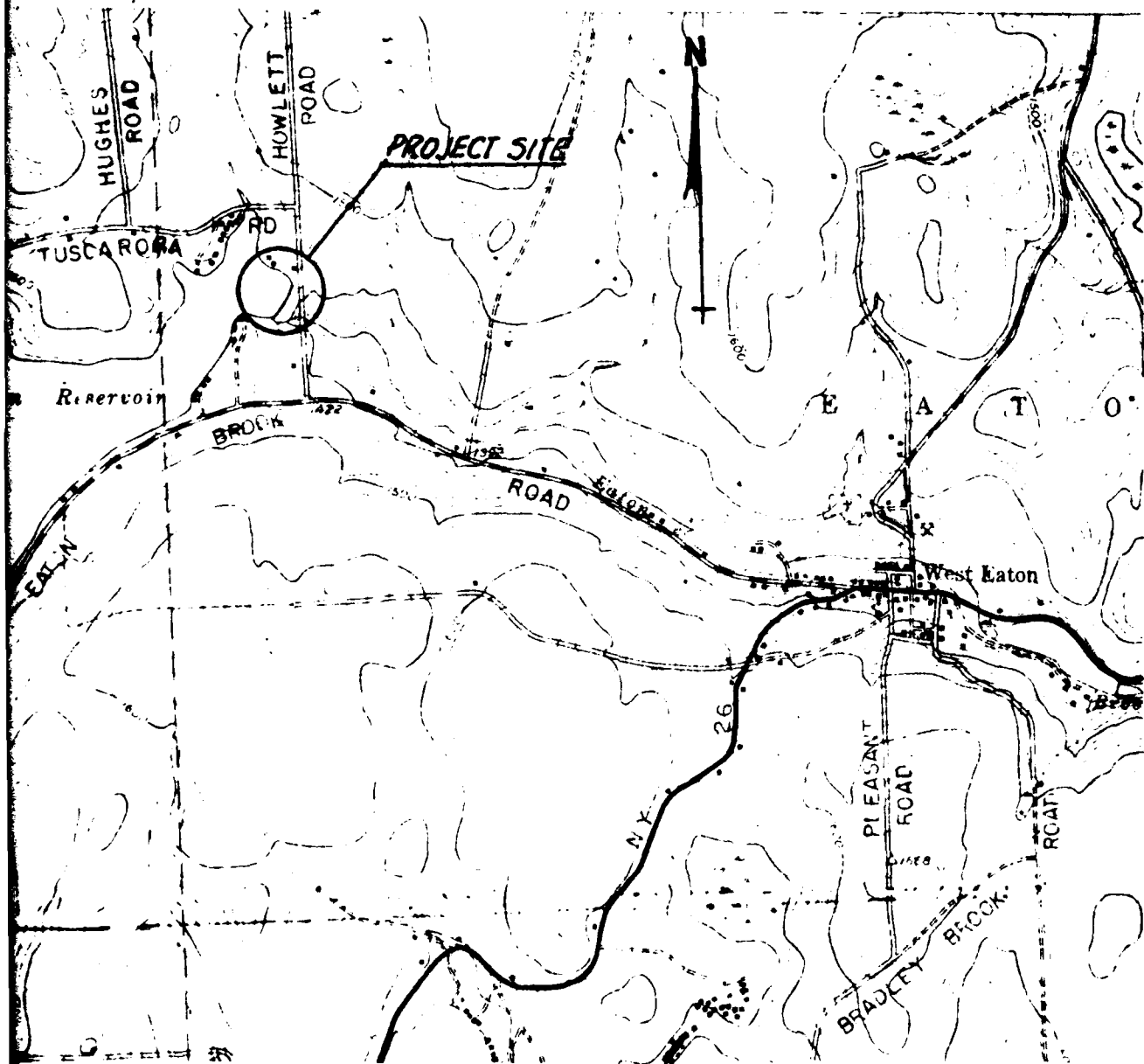
PROJECT
SCALE

NOTES.

1. See Special Notes in the Proposal for progress of work

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.		2	6
EATON BROOK RESERVOIR				
MADISON COUNTY				

5

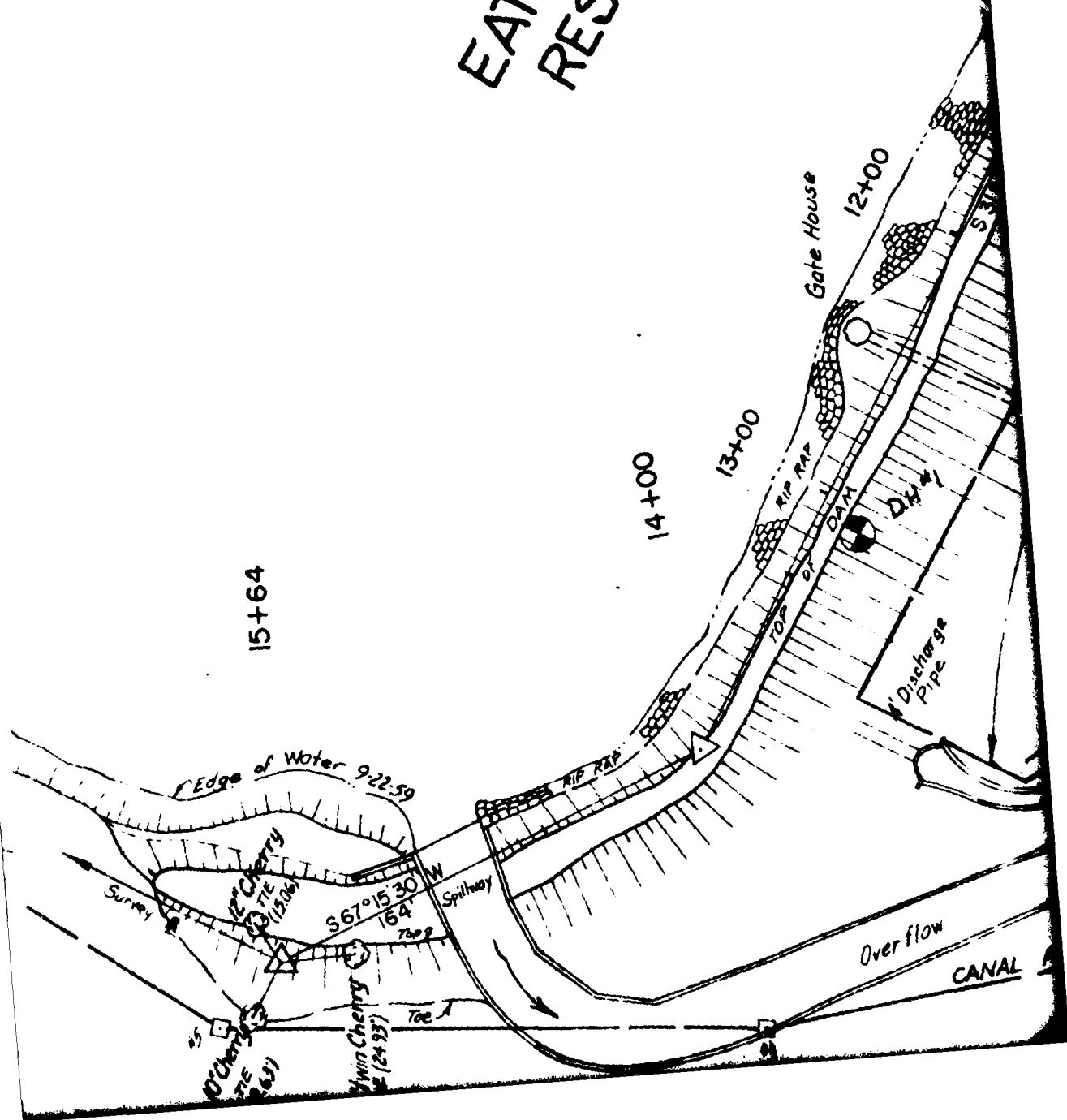


PROJECT LOCATION MAP

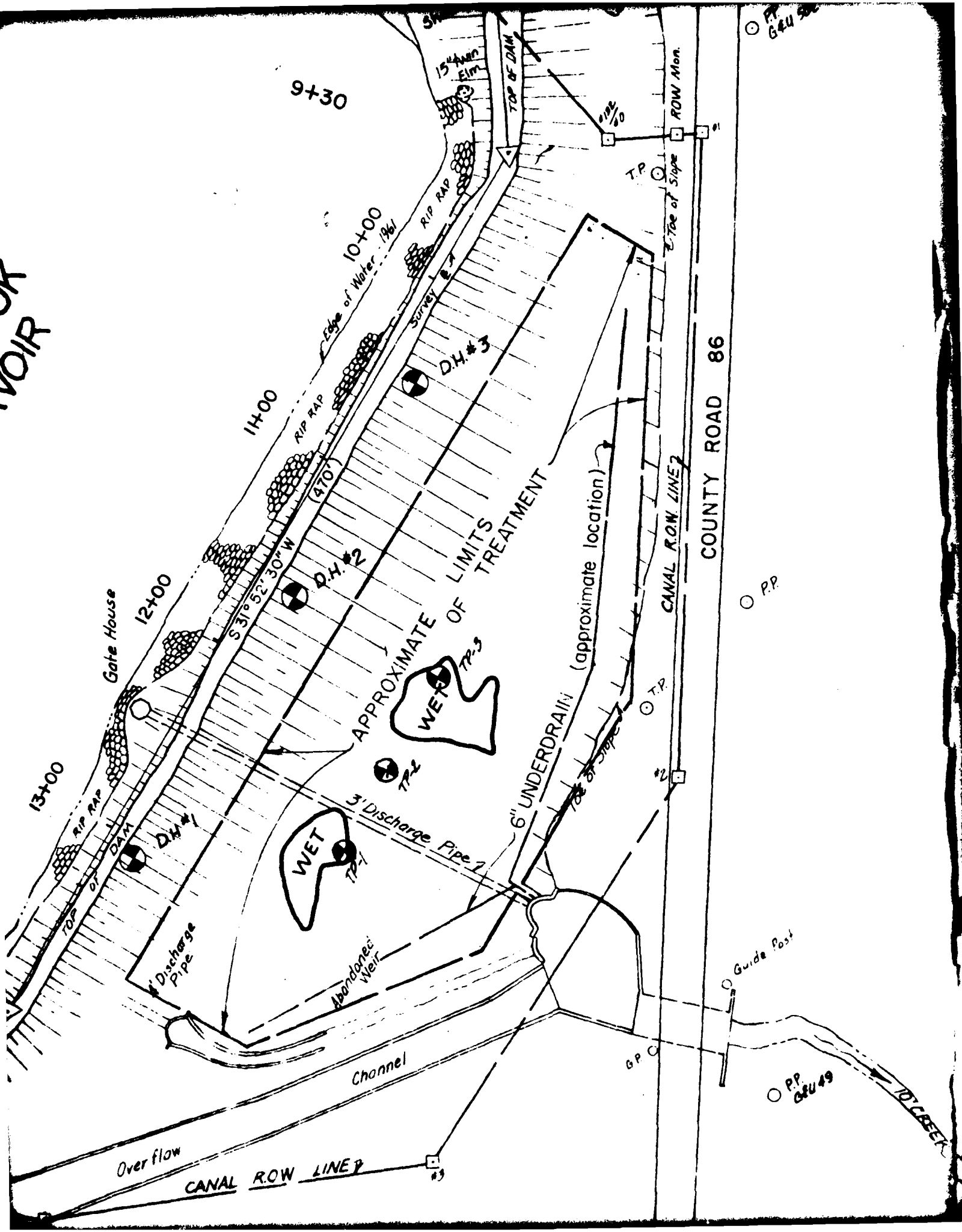
SCALE: 1" = 2,000'

for purposes of work and excavation procedures.

EATON BROOK RESERVOIR



VOIR



TRANSITION

PROJECT LOCATION

SCALE: 1" = 2,000'

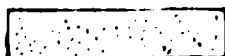
NOTES.

1. See Special Notes in the Proposal for progress of work and excavation p
2. Limits shown for filter treatment and the locations of underdrain pipe are locations will be determined during construction by the Regional Soils Engineer or
3. The minimum width of Plastic Filter Fabric shall be 24 feet
4. Locations of the drill holes and test pits are approximate. Refer to the table
5. It is important to note that stripping the topsoil may cause potentially harm to commencing stripping operations, small amounts of the topsoil is to be removed damaging seepage forces are encountered. If any large volume flows are noted, a treatment section directly on the existing surface.
6. Filter material for the underdrain pipe (at both sites) shall be Crushed Stone f

LABORATORY GRAIN SIZE DISTRIBUTION TEST										
TEST PIT NO	REPRESENTATIVE SAMPLE DEPTH - FEET	% PASSING BY WEIGHT U.S. STANDARD SIEVE								
		3"	2"	1"	1/2"	1/4"	# 4	# 10	# 20	# 40
TP - 1	0 - 2.5'	82.2	71.9	53.7	46.5	42.4	40.2	35.7	32.1	29.
"	2.5 - 5.0'	52.0	44.4	40.7	36.8	34.4	32.3	29.5	27.3	26.
TP - 2	0 - 2.5'		100	98.8	95.8	93.7	91.8	87.4	84.9	83.
"	2.5 - 5.0'	86.8	85.3	76.7	68.4	63.2	59.7	52.0	46.8	44.
TP - 3	0 - 3.0'					100	98.3	95.6	92.7	89.

NOTE: The test method used for these grain size analyses conforms to A.S.T.M. Designation D422 Technical Manual No. TM(s) 64-2.

SYMBOLS



Crushed stone - # 1, 2 & 3A size stones in approx. equal amounts.



Filter Fabric

EATON RE

ST
DEPART

NO

PROJECT LOCATION MAP

SCALE: 1"= 2,000'

or progress of work and excavation procedures.

The locations of underdrain pipe are approximations only. The actual limits and location by the Regional Soils Engineer or his representative.

Fabric shall be 24 feet

limits are approximate. Refer to the table below for test pit soil analyses

the topsoil may cause potentially harmful seepage at the downstream toe. Prior to removal of the topsoil is to be removed in several areas to assure that no large volume flows are noted, eliminate the stripping and construct the face.

(at both sites) shall be Crushed Stone furnished and paid for under Item 623.03.

SIZE DISTRIBUTION TEST SUMMARY										
BY WEIGHT U.S. STANDARD SIEVE NUMBER									HYDROMETER ANALYSIS	
1/2"	1/4"	# 4	# 10	# 20	# 40	# 60	# 100	# 200	.02mm	.002mm
46.5	42.4	40.2	35.7	32.1	29.8	28.1	26.8	25.4	16.2	4.9
36.8	34.4	32.3	29.5	27.3	26.0	25.1	24.3	23.2	14.6	4.7
95.8	93.7	91.8	87.4	84.9	83.1	81.2	79.3	77.2	57.6	14.7
68.4	63.2	59.7	52.0	46.8	44.1	42.1	40.3	37.5	23.0	7.7
	100	98.3	95.6	92.7	89.7	84.5	78.6	74.7	49.3	14.0

is conforms to A.S.T.M. Designation D422 as modified by the Bureau of Soil Mechanics

NO AS BUILT REVISIONS

EATON RESERVOIR PLAN

STATE OF NEW YORK

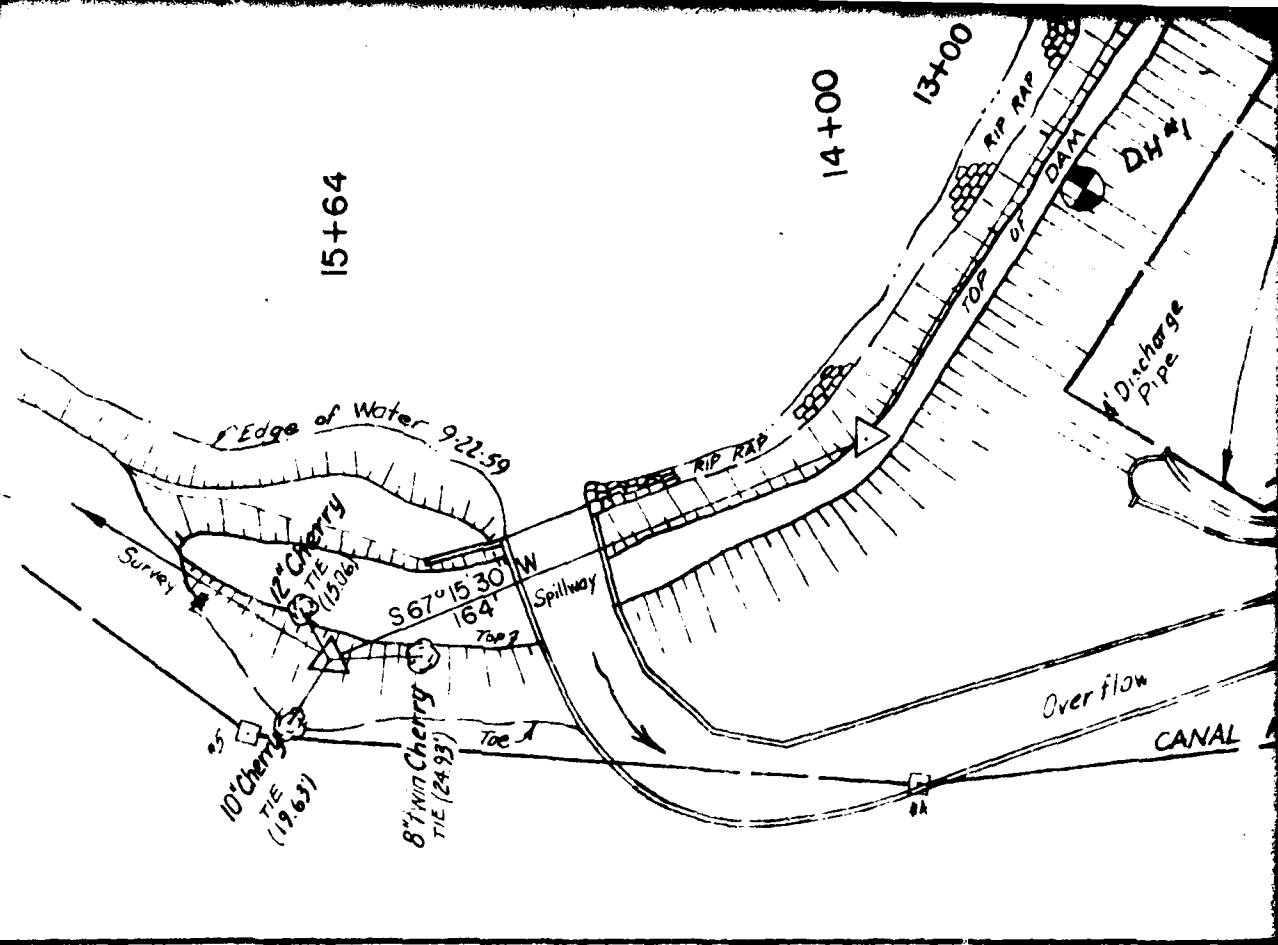
283A size
equal amounts.

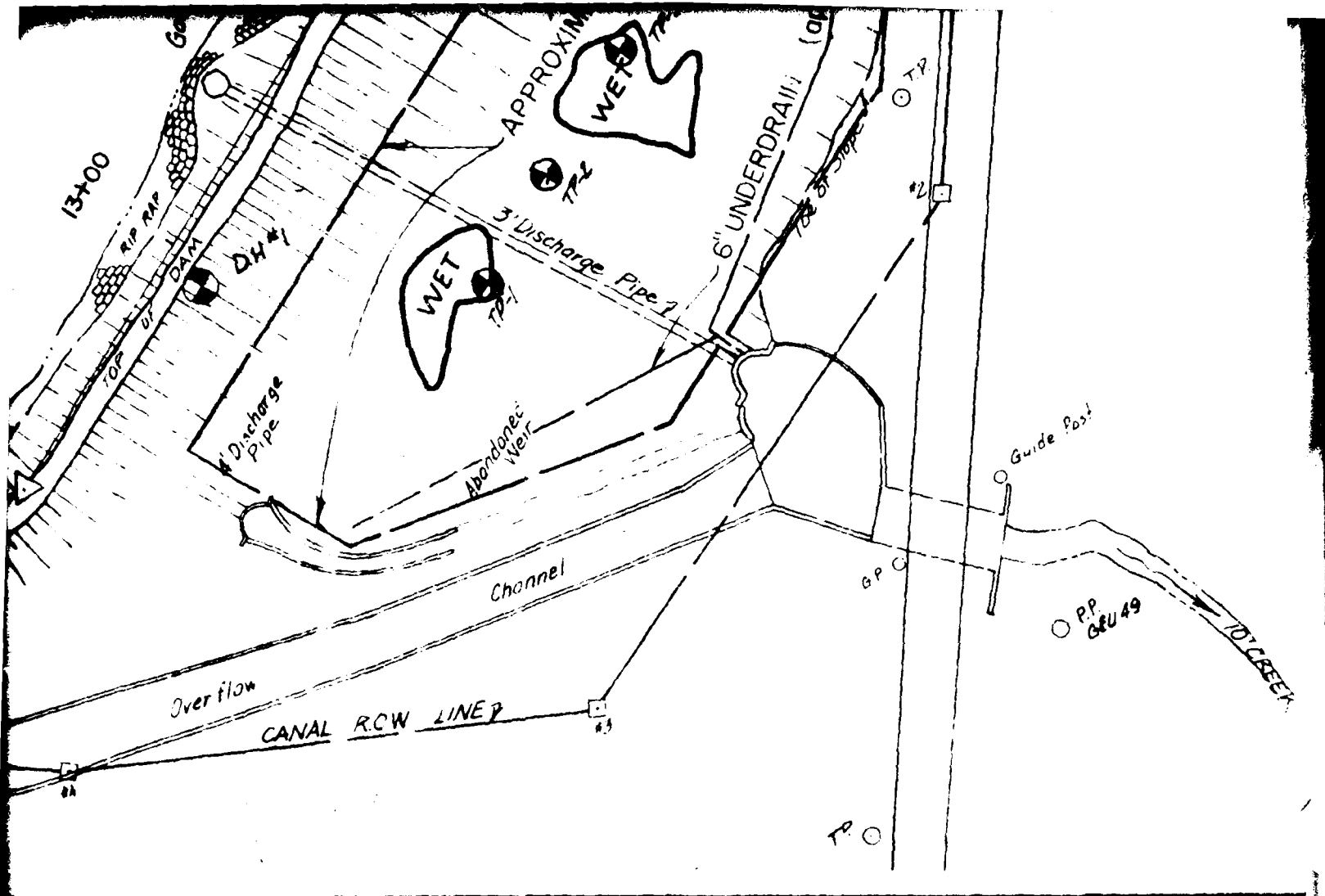
7235

Handy (copy)

IN CHARGE OF

DR





TP - 3	0 - 3.0'					100	98.3	95.
--------	----------	--	--	--	--	-----	------	-----

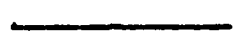
NOTE: The test method used for these grain size analyses conforms to A.S.T.M. Design
Technical Manual No. TM(s) 64-2.

15

SYMBOLS



Crushed stone - #1,2 & 3A size
stones in approx. equal amounts.



Filter Fabric



DH

Drill Holes



TP

Test Pits

EAT

DRAWING
EBP

98.8	95.8	93.7	91.8	87.4	84.9	83.1	81.2	79.3	77.2	57.6	14.7
76.7	68.4	63.2	59.7	52.0	46.8	44.1	42.1	40.3	37.5	23.0	7.7
		100	98.3	95.6	92.7	89.7	84.5	78.6	74.7	49.3	14.0

analyses conforms to A.S.T.M. Designation D422 as modified by the Bureau of Soil Mechanics

NO AS BUILT REVISIONS

EATON RESERVOIR PLAN

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

DRAWING No

EBP-1

SCALE

As Shown

DATE

3/28/78

REGION 2

HC 47c (10 74)

BRUNING 44-131 37235

OLS

one - #1,2 & 3A size
approx. equal amounts.
ric

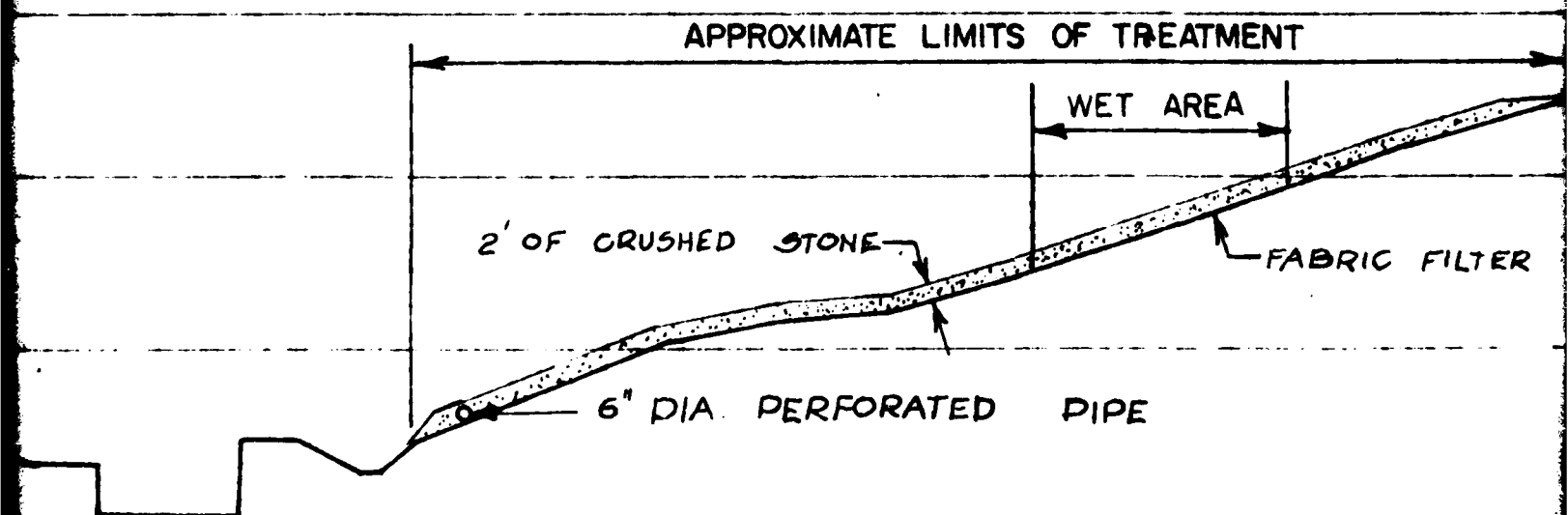
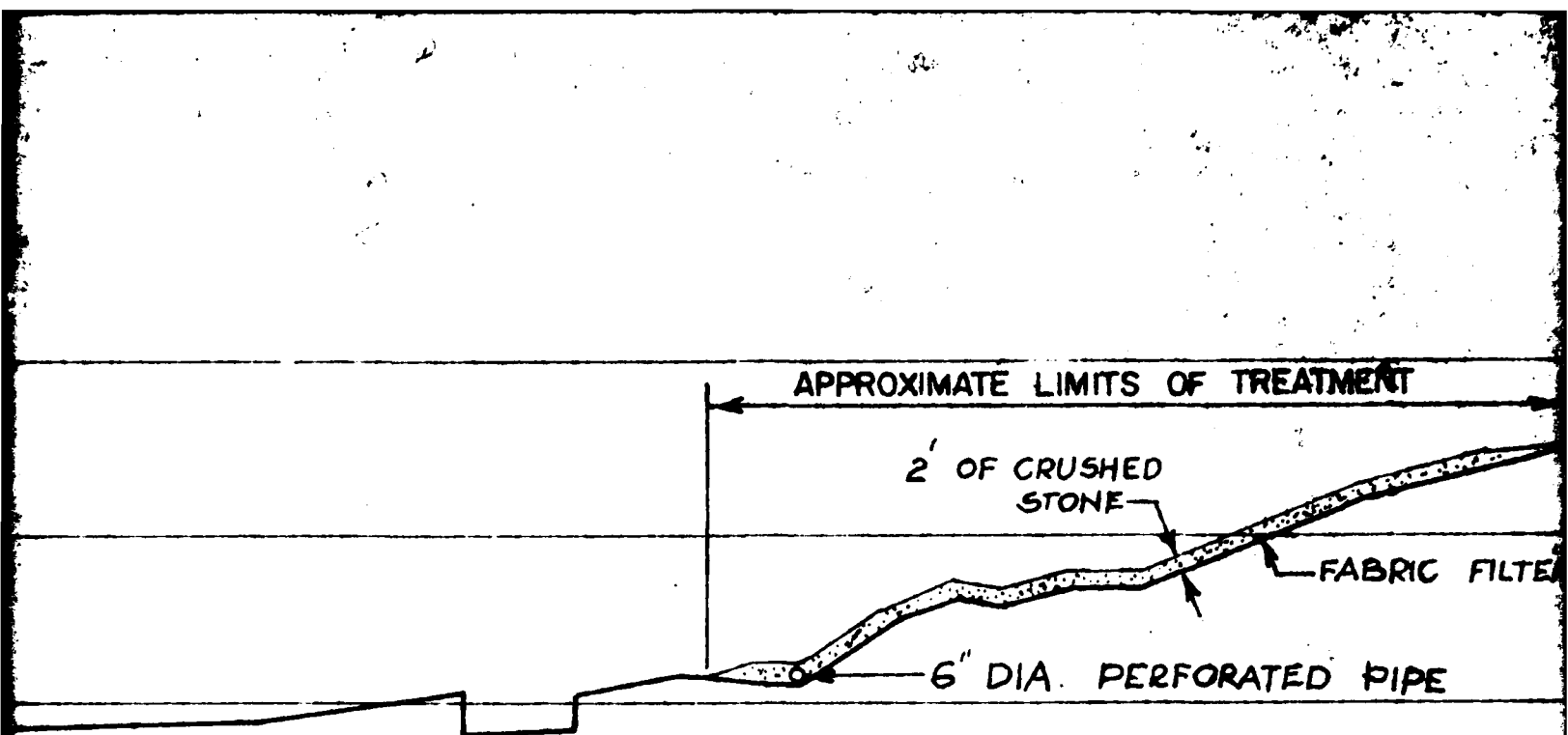
DATED _____

REVIEWED BY _____

DATED _____

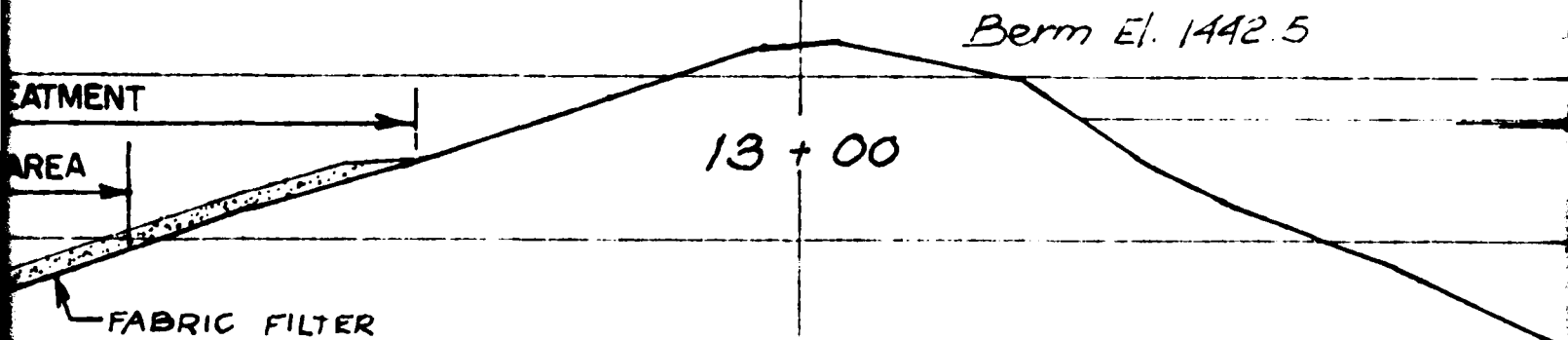
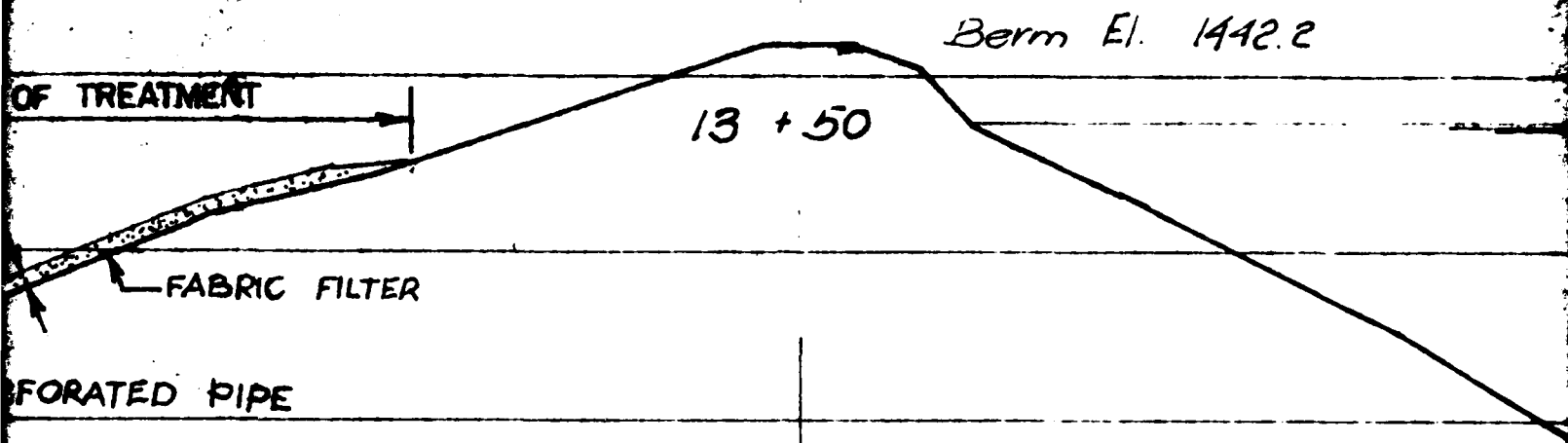
± 1394.6

± El. 1392.9



APPROXIMATE LIMITS OF TREATMENT

3



Berm El. 1442.4

6

El. 1442.2

1440.00

1420.00

1400.00

NOTE

T
A
O
E
6
12
5

El. 1442.5

1440.00

1420.00

1400.00

C

D95848

FED. ROAD RES. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.		3	6
EATON BROOK RESERVOIR				
MADISON COUNTY				

NOTES:

SECTIONS 10+00, 10+50, 11+00 ARE SIMILAR TO THOSE SHOWN ON THIS SHEET.

TREATMENT AREAS FOR THE ABOVE STATIONS ARE AS SHOWN ON SHEET NO 2.

PAYMENT FOR TREATMENT ITEMS:

CRUSHED STONE SHALL BE PAID FOR UNDER ITEM 623.03.

FABRIC FILTER SHALL BE PAID FOR UNDER ITEM 17203.98.

6" DIA. PERFORATED PIPE SHALL BE PAID FOR UNDER ITEM 12605.0702.

SEE SPECIAL NOTES REGARDING STRIPPING SURFACE UPON WHICH FILTER FABRIC IS TO BE PLACED.

SEE SHEET NO.6 FOR EXCAVATION PAYMENT.

1440.00

1420.00

1400.00

Stanley R. R. R.

DESIGNED BY

DATED

CHECKED BY

DATED

± El. 1392.9



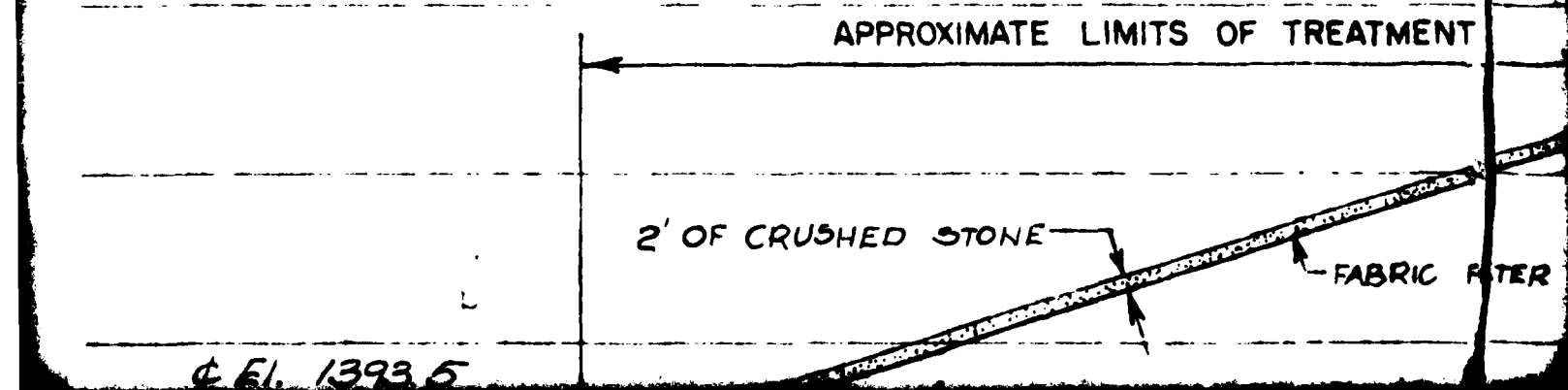
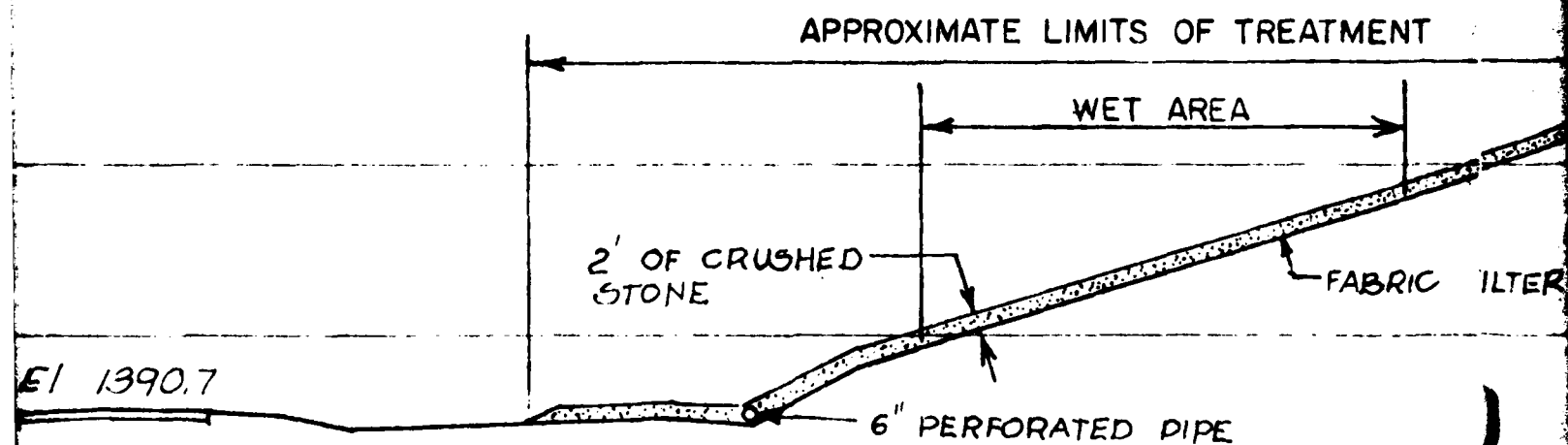
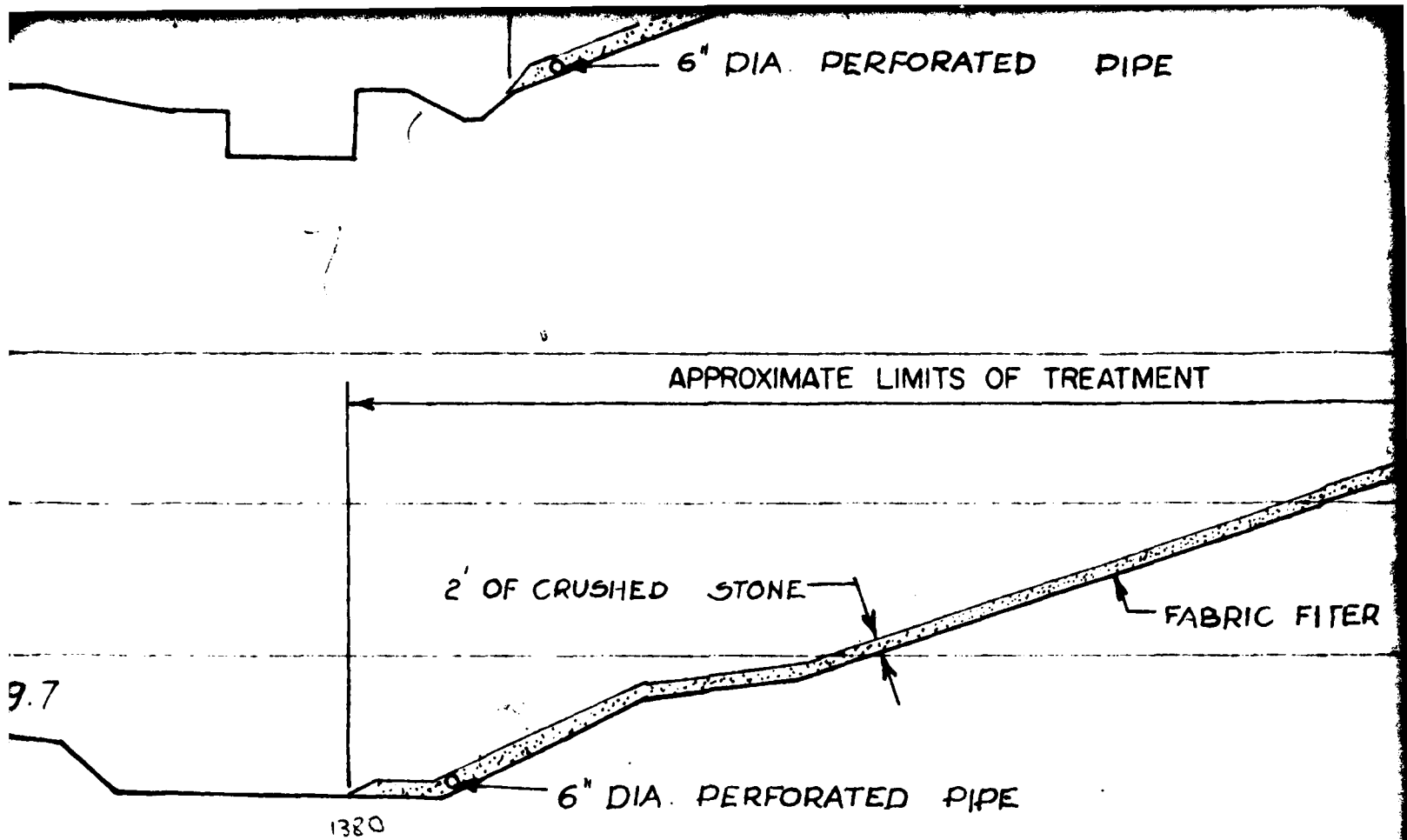
± El. 1389.7



1380

± El 1390.7





PIPE

8

Berm El. 442.4

ATMENT

12 + 50

FABRIC FILTER

Berm El. 441.9

TREATMENT

12 + 00

FABRIC FILTER

Berm El. 442.0

F TREATMENT

11 + 50

FABRIC FILTER

1400.00

El. 1442.4

1440.00

1420.00

1400.00

1441.9

1440.00

1420.00

1400.00

1442.0

1440.00

1420

1400.00

¢ El. 1390.7

¢ El. 1393.5

IN CHARGE OF

Stanley R. King

2' OF CRUSHED
STONE

FABRIC FILTER

6" PERFORATED PIPE

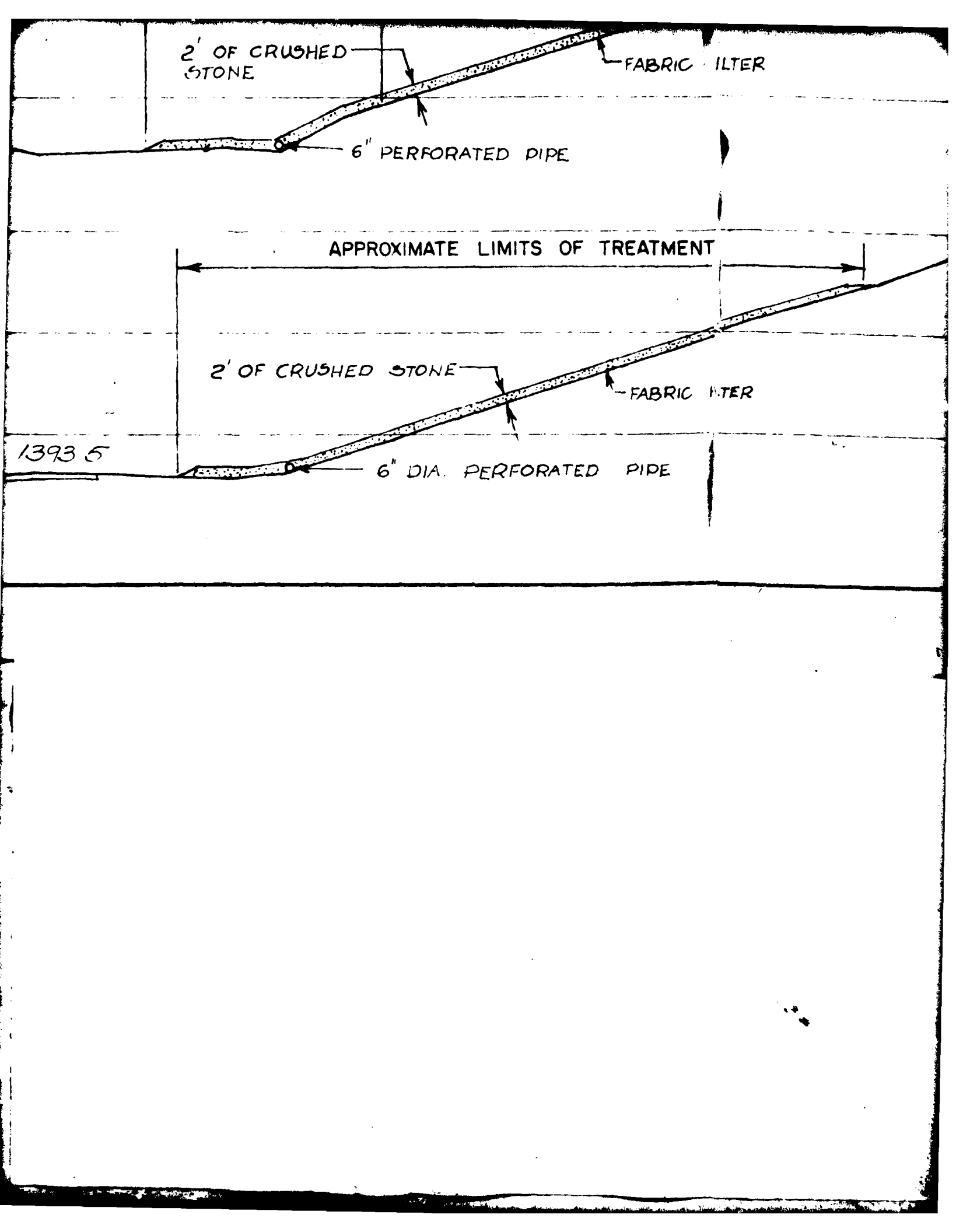
APPROXIMATE LIMITS OF TREATMENT

2' OF CRUSHED STONE

FABRIC FILTER

6" DIA. PERFORATED PIPE

1393 5



ILTER

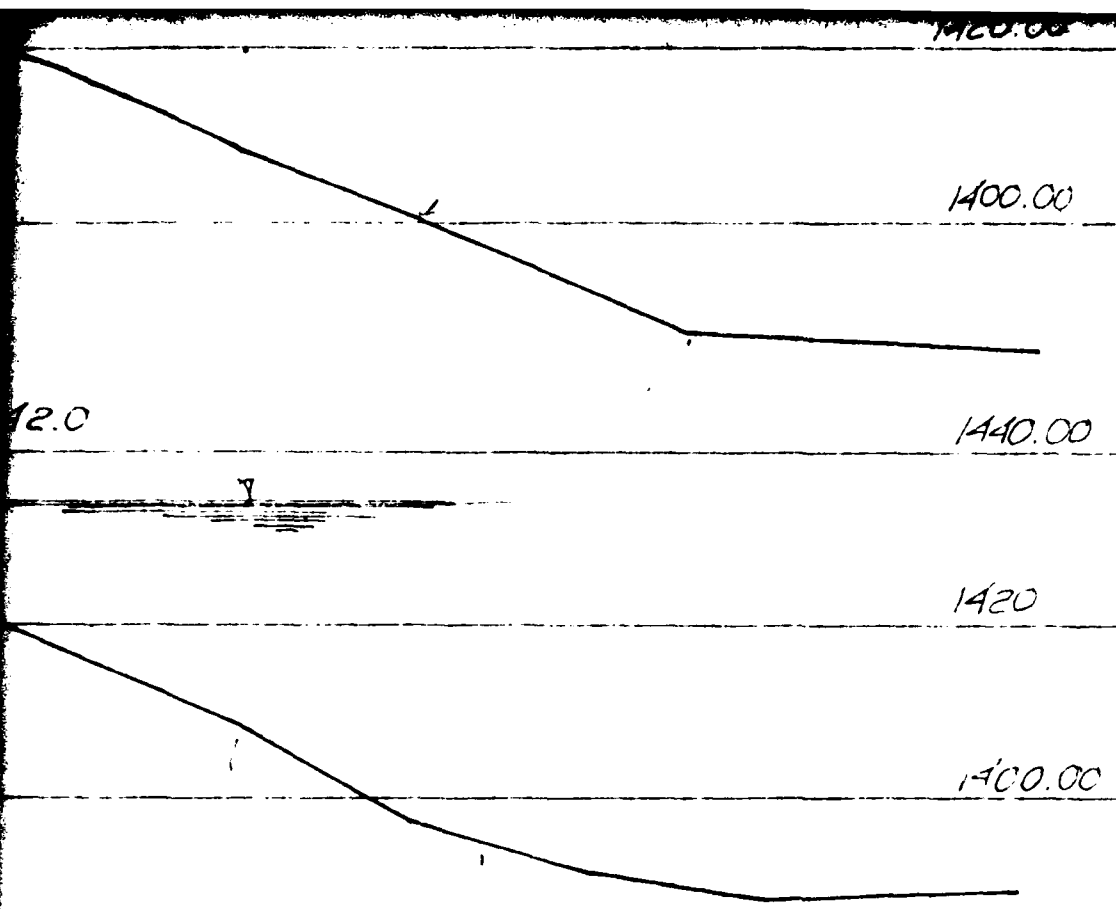
Berm El 442.0

11 + 50

ATER

12

3



20' CR
DE
DRAWING NO EBX-1

NO AS BUILT REVISION

20' CROSS SECTIONS

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

DRAWING No.

EBX-1

SCALE

HOR. 1"=20
VER. 1"=20

DATE

4/78

REGION 2

HC 47c (10-74)

BRUING 44-131-87235