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NATIONAL DAM SAFETY PROGRAM. ONEIDA CITY RESERVOIR DAM (N.Y.-42--ETC(U)
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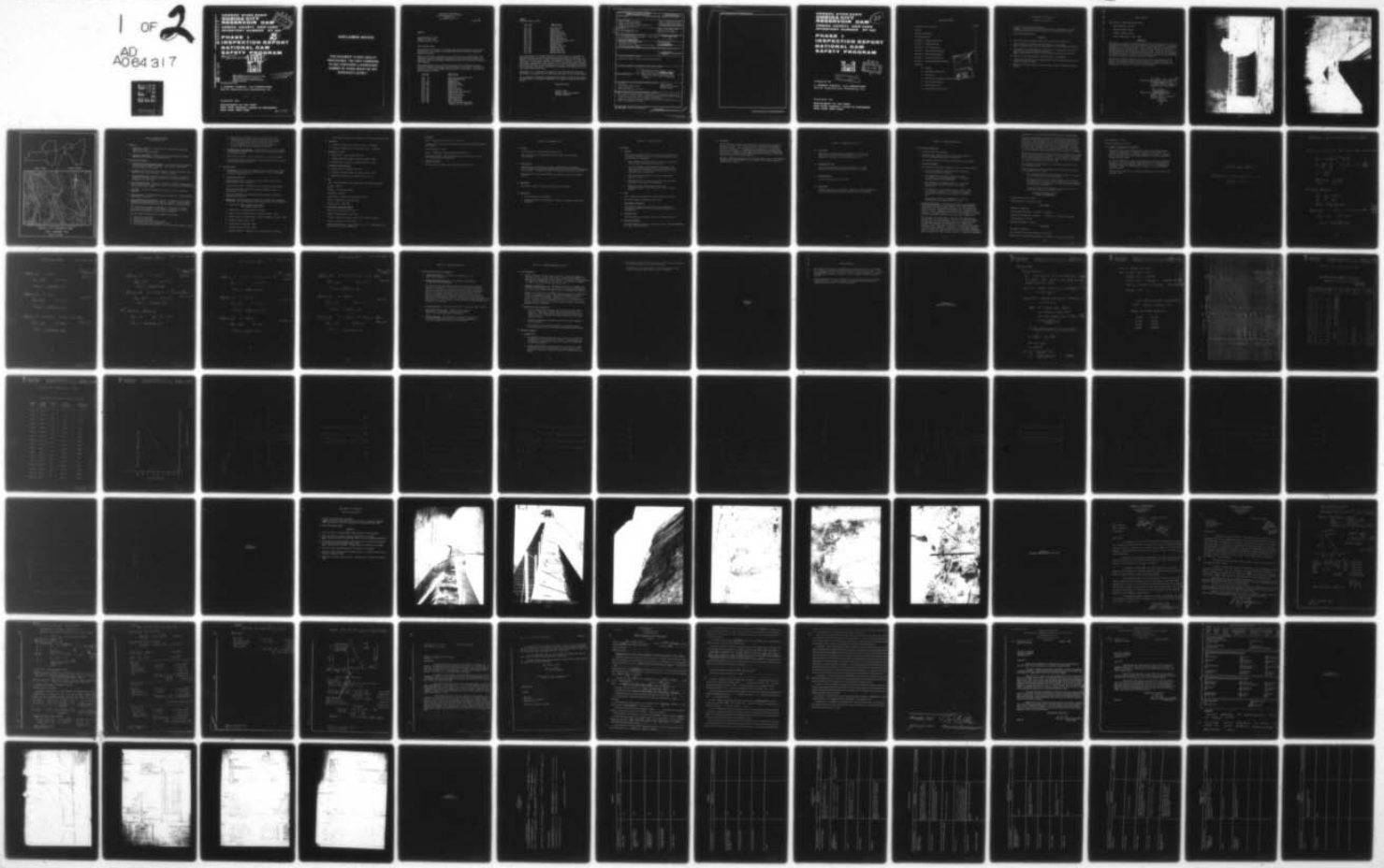

OSWEGO RIVER BASIN
ONEIDA CITY RESERVOIR DAM
ONEIDA COUNTY, NEW YORK
INVENTORY NUMBER NY 421

23

PHASE 1 INSPECTION REPORT NATIONAL DAM SAFETY PROGRAM

Contract:
DACW51-78-C-0025

LEVEL II

Prepared by

L. ROBERT KIMBALL and ASSOCIATES
615 W. Highland Ave. Ebensburg, Pa.

Prepared For

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

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DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, NEW YORK
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

2 OCT 1978

NANEN-F

Honorable Hugh L. Carey
Governor of New York
Albany, New York 12224

Dear Governor Carey:

The purpose of this letter is to inform you of a clarification of the guidelines used by this office in assessing dams under the National Program of Inspection of Dams.

Office of the Chief of Engineers has recently provided a clarification that dams with seriously inadequate spillways are to be assessed as unsafe, non-emergency, until more detailed studies prove otherwise or corrective measures are completed.

The following dams in your state have previously been assessed as having seriously inadequate spillways, with capability to pass safely only the percentage of the probable maximum flood as noted in each report. They are now to be assessed as unsafe:

I.D. NO.	NAME OF DAM
N.Y. 59	Lower Warwick Reservoir Dam
N.Y. 4	Salisbury Mills Dam
N.Y. 45	Amawalk Dam
N.Y. 418	Jamesville Dam
N.Y. 685	Colliersville Dam
N.Y. 6	Delta Dam
N.Y. 421	Oneida City Dam
N.Y. 39	Croton Falls Dam
N.Y. 509	Chadwick Dam (Plattenkill)
N.Y. 66	Boyds Corner Dam
N.Y. 397	Cranberry Lake Dam
N.Y. 708	Seneca Falls Dam
N.Y. 332	Lake Sebago Dam
N.Y. 338	Indian Brook Dam
N.Y. 33	Lower(S) Wiccopee Dam (Lower Hudson W.S. for Peekskill)

NANEN-F
Honorable Hugh L. Carey

I.D. NO.	NAME OF DAM
N.Y. 49	Pocantico Dam
N.Y. 445	Attica Dam
N.Y. 658	Cork Center Dam
N.Y. 153	Jackson Creek Dam
N.Y. 172	Lake Algonquin Dam
N.Y. 318	Sixth Lake Dam
N.Y. 13	Butlet Storage Dam
N.Y. 90	Putnam Lake (Bog Brook Dam)
N.Y. 166	Pecks Lake Dam
N.Y. 674	Bradford Dam
N.Y. 75	Sturgeon Pool Dam
N.Y. 414	Skaneateles Dam
N.Y. 155	Indian Lake Dam
N.Y. 472	Newton Falls Dam
N.Y. 362	Buckhorn Lake Dam

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, however, that based on an initial screening, and preliminary computations, there appears to be a serious deficiency in spillway capacity so that if a severe storm were to occur, overtopping and failure of the dam would take place, significantly increasing the hazard to loss of life downstream from the dam.

Consequently, it is advisable to implement the recommendations previously furnished in the reports for the above-mentioned dams as soon as practicable.

It is requested that owners of these dams be furnished a copy of this letter and that copies be permanently appended to all reports previously furnished to you.

Sincerely yours,

CLARK H. BENN
Colonel, Corps of Engineers
District Engineer

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Oneida City Reservoir Dam
Oswego River Basin, Oneida County, N.Y.
Inventory No. N.Y. 421

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

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National Dam Safety Program
Visual Inspection
Hydrology, Structural Stability
Oneida County
Oneida City Reservoir
Florence Creek

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.

Oneida City Reservoir Dam was judged to be unsafe-non-emergency due to a seriously inadequate spillway.

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OSWEGO RIVER BASIN
ONEIDA CITY RESERVOIR DAM
ONEIDA COUNTY, NEW YORK
INVENTORY NUMBER NY 421

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PHASE 1 INSPECTION REPORT NATIONAL DAM SAFETY PROGRAM

Prepared by

L. ROBERT KIMBALL and ASSOCIATES
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DEPARTMENT OF THE ARMY
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NEW YORK, NEW YORK

Table of Contents

Description of Photographs

Oneida City Reservior

1. Overall view of dam from downstream
   Visible: Overflow and non-overflow dam sections, flashboards, stilling basin, gate house, drain pipe discharge in stilling basin left wall.

2. View from right abutment

APPENDIX C

3. View from left of spillway showing right abutment and flashboards.

4. View from right of spillway showing flashboards and manwalk.
   Note: Location below top of dam and control valve for opening flashboards.

5. View from toe of right abutment section of dam at transition from vertical to battered section, spillway wall at right.
   Note: Deterioration of gunite facing, exposed reinforcing and seepage.

6. Close up of dam showing deterioration of gunite and seepage.

7. Close up of dam (left section) showing build up of calcium carbonate due to seepage, seepage as shown.

8. Downstream of right abutment section, showing voids in rubble used as back fill.

Phase I Report

Name of Dam: Oneida City Reservoir Dam

State Located: New York

County Located: Oneida

Stream: Florence Creek

Date of Inspection: May 4, 1978

ASSESSMENT

The hydrologic analysis of Oneida Dam indicated that the spillway is "seriously inadequate" as defined by ETL 1110 "Review of Spillway Adequacy". The dam is overtopped by 2.3 feet for the SPF and 3.7 feet for the PMF assuming the flashboards and manwald are not present. Should the flashboards be closed the spillway capacity will be reduced to 20% of the SPF. Therefore, as a precaution we recommend that the flashboard system remain open contrary to normal summer operational procedures. Removal of the flashboards and manwalk are recommended to eliminate spillway obstructions as soon as possible.

Seepage noted through the dam and at the toe of the right abutment dicate that a more thorough evaluation of the structure be conducted in the near future. The evaluation should include seepage and stability analysis with installation of monitors to locate and define seepage.

Approved by: R. Jeffrey Kimball

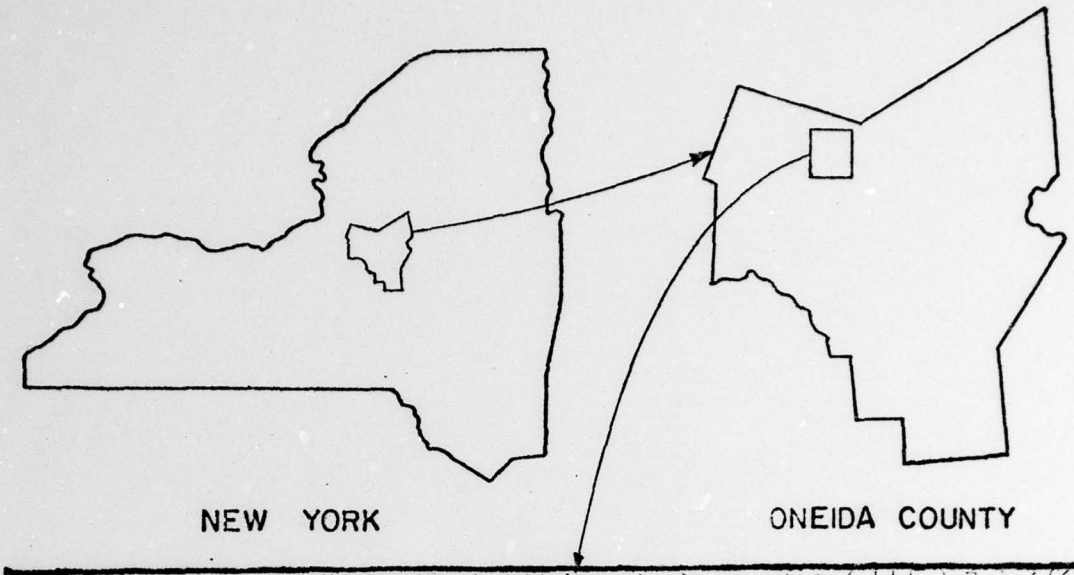
R. Jeffrey Kimball, P.E.
L. ROBERT KIMBALL & ASSOCIATES
Registration No. PA 26275E

Approved by: Clark H. Benn

CLARK H. BENN
Colonel, Corps of Engineers
District Engineer
30 June 78

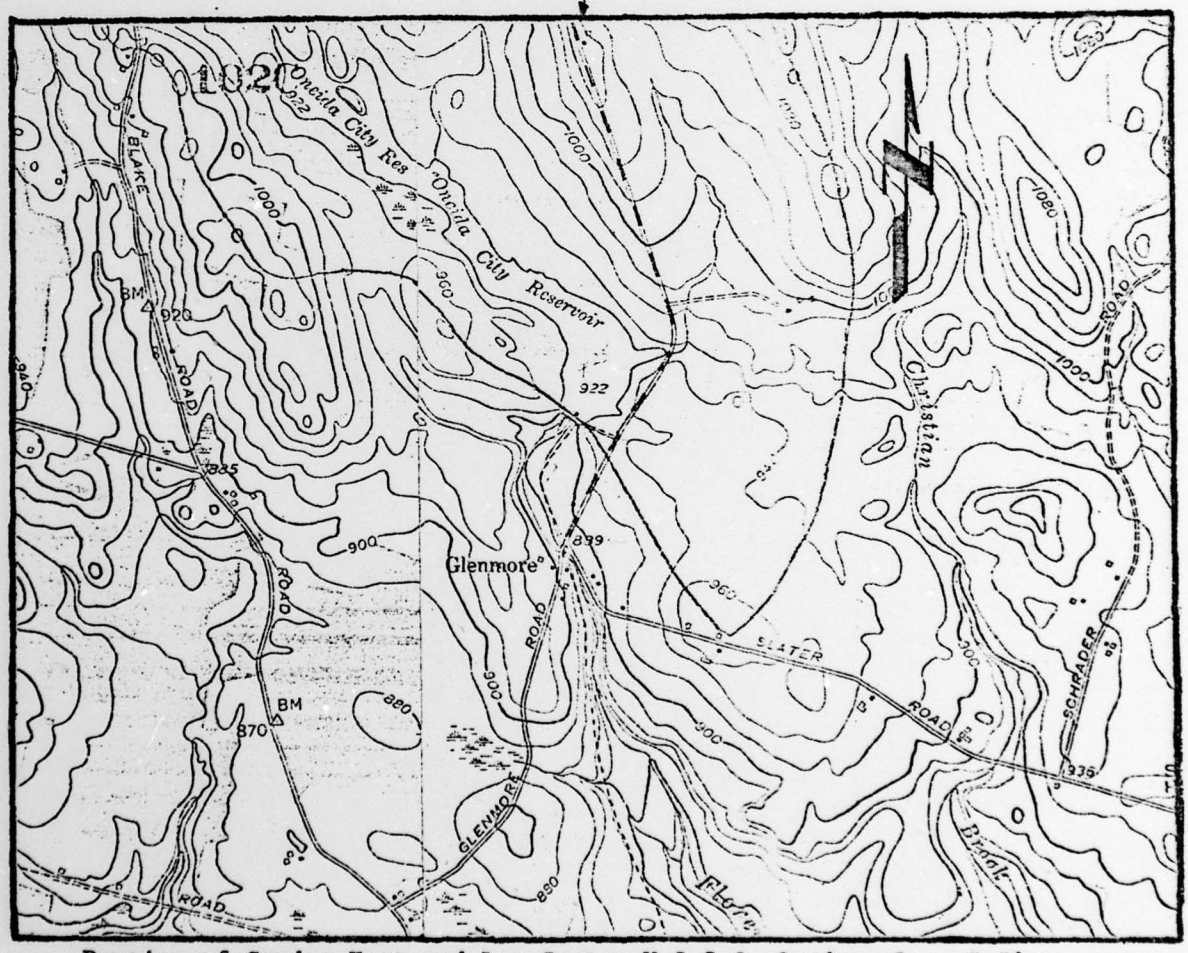
PLATE 1

PLATE 2



NEW YORK

ONEIDA COUNTY



Portion of Camden East and Lee Center U.S.G.S. Quadrangles 7.5'

ONEIDA CITY RESERVOIR DAM

SITE LOCATION MAP

SCALE : 1"=2000'

ONEIDA - GLENMORE RESERVOIR
NEW YORK NO. 421

1.1 General

a. Authority: Authority is provided by the National Dam Inspection Public Law 92-367
Contract No: DACW51-78-C-0025

b. Purpose of Inspection: Evaluation of non-Federal dams to identify dams which are a threat to life and property.

1.2 Description of Project:

a. Description of Dam and Appurtenances: Concrete gravity dam with both overflow and non-overflow sections. The overflow section has a stilling basin at stream level.

b. Location: The dam is located near Glenmore, Oneida County, New York, approximately 14 miles northwest of Rome, New York.

c. Size Classification: The dam is an intermediate size structure with a height of 45' above natural stream bed and a storage capacity of approximately 615 acre feet.

d. Hazard Classification: The dam is classified as high hazard potential with a possibility for limited loss of life and property and inconvenience due to loss of water supply.

e. Ownership: The dam and reservoir are owned by the City of Oneida, New York.

f. Purpose of Dam: The impounded waters are utilized for a single purpose, water supply for Oneida.

g. Design and Construction History: The dam was designed by F.J. Wagner, Syracuse and constructed by G.W. Thompson, Syracuse Construction was performed during 1924-1926 and the dam was placed in service in 1929.

Few construction drawings are available, at the owners office and at the New York Department of Environmental Conservation in Albany. Construction photographs are in the owners possession.

The chronology of the structure is listed briefly below.

1. Construction 1924-1926
2. Placed in service 1926
3. Flashboards and catwalk added in 1950
4. The concrete structure was gunited in 1955
5. A 4 inch concrete cap was added to the non-flow left abutment section.

6. Portions of the structure were gunited in 1970 or 1971.
7. During Hurricane Agnes in 1972 the maximum noted overflow of 6.8 feet (elevation 931.8) was observed. Undermining of the stilling basin occurred during this storm.
8. The stilling basin was replaced in 1973 according to a design by Obrien and Gere, Consulting Engineers.

h. Normal Operational Procedures: Normal operation includes closing of flashboards at mid May (after snowmelt) and opening in November for the winter season.

Under normal conditions water is drawn off for city water supply.

Periodic inspections are conducted by the chlorination plant operator and the Oneida engineering staff.

1.3 Pertinent Data

a. Drainage Area: The structure impounds the water of Florence Creek, a tributary of the East Branch of Fish Creek. The total drainage area is 14.4 square miles.

b. Discharge at Dam Site:

Maximum known flood at dam site: Hurricane Agnes 1972-6.8 feet above spillway crest - 4,600 cfs.

Normal daily outflow is through a 24 inch water distribution pipe.

When the flashboards are open the maximum spillway capacity is approximately 5,500 cfs.

When the flashboards are closed the maximum spillway capacity is approximately 2,100 cfs.

c. Elevations: (all elevations are based on a spillway crest elevation of 925 feet and other elevations were measured during the inspection.)

1. Top of dam: Right abutment section 932.5
   Left abutment section 932.8

2. Maximum pool design surcharge: Unknown

3. Normal pool and spillway crest (flashboards open): 925.0

4. Normal summer pool and spillway crest (flashboards closed): 928.0

5. Drain pipe invert (24"): 892

6. Stream bed at centerline: 888.7

7. Stilling basin elevation: 889.0

8. Maximum tailwater: Dependent on water elevation in stilling

basin created by spillway discharge and associated hydraulic jump.

d. Reservoir:

1. Length of normal pool (at elevation 925): 6,000 feet

2. Length of maximum pool (at elevation 932.5): 6,500 feet

e. Storage (acre-feet):

1. Normal pool (at elevation 925): 615

2. Maximum operating storage (at elevation 928): 900

3. Maximum storm storage (at elevation 932.3): 1,420

f. Reservoir Surface (acres):

1. Normal Pool (at elevation 925): 88

2. Maximum operating storage (at elevation 928): 105

3. Maximum storm storage (at elevation 932.5): 135

g. Dam:

Type: Concrete gravity with overflow and non-overflow sections.

Length: 378 feet

Height: 45 feet above stream

Top Width: 8.33 feet

Side slopes: Variable - see typical sections

Cutoff: Reportedly 3 feet into rock

Grout curtain: None known

h. Diversion & Regulating tunnel:

Type: One 24 inch blow off pipe

Length: Approximately 30 feet long

Closure: Operated by valve at toe of left abutment section

Access: Accessible at toe of dam

Regulating Facilities: Regulated by valve at toe. Reportedly will open but will not close completely.

i. Spillway:

Type: Concrete overflow section - Ogee crest

Length of Weir: 69.67 feet with obstructions from flashboard supports and walkway.

Crest Elevation: 925.0'

Gates: Flashboards closed-crest elevation 928.0'

Downstream Channel: Overflow section slope estimated at 0.5 H to 1.0 V flowing into stilling basin.

j. Regulating Outlet:

One 24 inch water supply line controlled at gate house.

SECTION 2: ENGINEERING DATA

2.1 Design

No design report or calculations were located.

Check calculations of dam stability done in 1925 by H.W. Benedict are available.

2.2 Construction

Typical sections, dam profile and gate house details are available. Cross-sections of the dam and a design drawing of the flashboard installation are available. Drawings of the 1972 stilling basin design are available.

Photographs of the dam construction are available in the City Engineers office.

2.3 Operation

No detailed records of reservoir operation are available.

2.4 Evaluation

a. Only minimal data is available.

b. Engineering data is not adequate to perform a complete review of the structure.

SECTION 3: VISUAL INSPECTION

3.1 Findings

a. General

The structure appeared to be in reasonably good condition for a 52 year old concrete structure. The following items were noted during our inspection.

1. Minor seepage was noted through the concrete on both the left and right concrete gravity sections.

2. A 25 foot diameter area immediately downstream of the right section and abutment was saturated at the time of the inspection. The maximum measured elevation of the saturated area was 915.5 feet.

3. Some cracking and spalling of the most recent gunite coating was noted.

4. Approximately 0.2' of water was flowing over the spillway crest at the time of our inspection.

5. Vegetation on the right abutment downstream indicates movement of the earth material over a period of time.

b. Dam

Minor cracking and spalling of concrete (gunite) was noted.

No visible signs of instability were noted.

c. Appurtenant Structures

The intake structure and house is the only appurtenance. A horizontal crack was noted on the tower but appears to be insignificant.

d. Reservoir Area

Little development was noted, the area is heavily forested.

e. Downstream Channel

No major erosion or cause for concern was noted. Little development has taken place downstream.

3.2 Evaluation

Visual inspection revealed that the dam has seepage passing through the abutment sections. These two sections show cracking and leaching of the gunite facing. Close examination of the concrete was not possible because of the gunite. In addition the upstream face, spillway, and floor of the stilling basin were unobserved because of water spilling over the spillway. Seepage was also noted immediately downstream of the right abutment section in the rubble backfill.

The water supply system appears to be in good working order. The emergency drawdown facilities apparently are not working, they can apparently be opened but not closed.

SECTION 4: OPERATIONAL PROCEDURES

4.1 Procedures

Under normal circumstances the caretaker assigned to the chlorination plant one mile downstream is responsible for operation of the dam. He is on call continually.

4.2 Maintenance of Dam

The structure appeared to be well maintained and records indicate that major maintenance was performed as needed.

4.4 Warning System

No formal warning system is in use.

4.5 Evaluation

Adequate maintenance is performed. Operation appears satisfactory. A written warning and evacuation program should be developed.

SECTION 5: HYDRAULIC/HYDROLOGIC

5.1 Evaluation of Features

a. No design data was available.

b. Experience data indicates that the structure was able to control hurricane Agnes runoff in June 1972.

No historical records of flood stage discharge are available.

c. Visual Observation

The flashboard installation appears to present several problems.

1. With the flashboards closed both storm storage and spillway capacity are reduced.

2. The flashboards and catwalk constitute a major obstruction in the original spillway. The catwalk is below the top of dam elevation.

3. The flashboard and catwalk may act as a trash trap during a major storm and create an even larger obstruction.

4. The condition of the flashboard operating valve makes it difficult to operate. It is reported that two men with special leverage tools are required to open the gates.

The potential exists for trespassers to close the flashboards as no locking device is present.

d. Overtopping Potential: Overtopping potential was investigated through the development of the probable maximum flood (PMF) for the watershed and the subsequent routing of the PMF through the reservoir system. The PMF is that hypothetical flow induced by the most critical combination of precipitation, minimum infiltration losses, and concentration of run-off at a specific location, that is considered reasonably possible for a particular drainage area.

The drainage area contributing to the Oneida City Reservoir is approximately 14.4 square miles. To develop the basic hydrologic working tool, the unit hydrograph, Clark Coefficients were used. To establish equations for determining Clark Coefficients personnel from the Hydrology Division of the Buffalo District Corps of Engineers were contacted. A planning study had been completed for the watershed and we were given the general equations developed from this study. The Upper Hudson and Mohawk River Basins Hydrologic Flood Routing Models study was also reviewed for additional parameters.

Values of Tc = 3.7 and R = 6.3 were calculated for the watershed.

Using hydrometeorological Report No. 33, the PMP index rainfall was determined to be 21.0 inches for a 24 hour duration, 200 square mile basin. The percentages of the index rainfall applied to other durations were interpolated from the plot of drainage area versus percent of 24 hour, 200 square mile. The computed PMF peak flow was 16,000 CFS. Routing the PMF through the impounded storage did not reduce the peak flow as the storage capacity is small. A plot of the PMF inflow and outflow hydrographs is included in the Appendix.

The ability of the Oneida City Reservoir Dam to discharge the standard project flood (SPF) was also evaluated. The SPF peak flow of 10,000 CFS was routed through the reservoir. The SPF outflow is indicative of a pool elevation of 934.6 feet above MSL. The dam is overtopped by 2.3 feet, the spillway crest by 9.6 feet.

The PMF outflow is equivalent to 3.7 feet over the dam (11.0 feet a bove spillway crest).

To allow inflow and outflow hydrographs to be developed and routed several assumptions were made.

1. The equations developed for the Oswego Watershed were accurate for the Oneida City Reservoir Watershed.

2. Discharge values for the spillway obtained from the owner were assumed to be correct. Weir coefficients were calculated from this data and extrapolated for depths above those listed on the owners calculations.

   A coefficient of 2.8 was assumed for flow over the top of the dam and added to the spillway flow.

SUMMARY OF HYDROLOGIC ANALYSIS
ONIEDA CITY RESERVOIR

Elevation Top of Dam = 932.3'

Elevation Crest of Spillway = 925.0'

PMF ROUTING

PMF Peak = 16,000 CFS

PMF After Routing through Reservoir = 16,000 CFS

Elevation of Routed PMF corresponding to 16,000 cfs = 936.0 feet above MSL

Dam Overtopped = 3.7 feet

Spillway Surcharge = 11.0 feet

SPF ROUTING

SPF Peak = 10,100 CFS

SPF After Routing through Reservoir = 10,100 CFS

Elevation of Routed SPF corresponding to 10,100 cfs - 934.6 feet above MSL

Dam Overtopped = 2.3 feet

Spillway Surcharge = 9.6 feet

5.2 Hydraulic Evaluation of Flood Wave:

For the dam break analysis the flood wave for both total and partial failures was computed to a distance of 21,000 feet downstream, the crossing of Palmer Road over the East Branch of Fish Creek. The Oneida Dam is a concrete gravity dam founded partically on rock making partial failure the most likely.

The town of Glenmore is located on Florence Creek 1,500 feet downstream of the dam. For total failure a water depth of 28' was calculated in Glenmore flooding all structures shown on the U.S.G.S. topographic map. For partial failure the water depth at Glenmore is 11 feet flooding 4 structures shown.

Calculated water depths for the downstream channel reach are shown on the following pages.

ONEIDA DAM

HYDRAULIC EVALUATION OF FLOOD WAVE

Hydraulic Evaluation of Flood Waves

Storage Capacity, V_b = 1400 A.F. @ top of D.

$$Q_{MAX} = .29\sqrt{g}\, K^{.23} W_b D_b$$

$$K = \frac{W_d}{W_b} \cdot \frac{Y_b}{D_b} \qquad T_s = \angle t_s, \quad t_s = \frac{\Delta S}{\Delta Q}$$

$$S_i = \frac{12 V_b}{Q_{MAX}}$$

$$\frac{\text{Att. } Q_{MAX}}{Q_{MAX}} = \frac{0.91 S_i}{S_i + T_s}$$

A) Full Breach

$W_b = W_d = 380'$

$D_b = Y_o = 50'$

$Q_{MAX} = 225,800$ cfs

Reach 1 $L = 1500'$ @ Glenmoore Rd. Distance from Dam: 150

$D_{Ds} = 29'$ $W = 800'$

$Q_{MAX} = 199,200$ cfs

ONEIDA DAM

CW 1 JUNE '78

DISTANCE FR DAM

REACH 2 L = 5000' — 6500'

D_{DS} = 33' W = 500'

Q_{MAX} = 159,300 cfs

REACH 3 L = 4000' — 10,500'

D_{DS} = 45' W = 275'

Q_{MAX} = 139,500 cfs

REACH 4 L = 4500' @ COAL HILL ROAD — 15,000'

D_{DS} = 38 W = 300'

Q_{MAX} = 118,100 cfs

DISTANCE FROM DAM

REACH 5 L = 3000' 18,000'

D_{DS} = 24' W = 500'

Q_{MAX} = 98500 cfs

REACH 6 L = 3000' @ PALMER ROAD 21,000'

D_{DS} = 24' W = 400'

$Q_{MAX.}$ = 79,100 cfs

B) PARTIAL BREACH

W_b = 50' $D_b = Y_o$ = 50'

Q_{MAX} = 29,700 cfs

Oneida Dam

cw 1 June '78

Distance from Dam

Reach 1 L = 1500' @ Glenmore Rd. 1500'

D_{DS} = 11' W = 400'

Q_{MAX} = 24,500 cfs

Reach 2 L = 5000' 6500'

D_{DS} = 14' W = 250'

Q_{MAX} = 22,000 cfs

Reach 3 L = 4000' 10,500'

D_{DS} = 20' W = 130'

Q_{MAX} = 19,500 cfs

ONEIDA DAM CAW 1 JUNE '73 5/

DIST. FROM DAM

REACH 4 L = 4500' @ COAL HILL ROAD 15,000'

D_{DS} = 14' W = 200'

Q_{MAX} = 17,600 cfs

REACH 5 L = 3000' 18,000'

D_{DS} = 9' W = 350'

Q_{MAX} = 15,900 cfs

REACH 6 L = 3000' @ PALMER ROAD 21,000'

D_{DS} = 9' W = 300'

Q_{MAX} = 13,600 cfs

SECTION 6: STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations: No distress was observed at the time of our inspection.

b. Design and Construction Data: H.W. Benedict calculations of February 1925 were reviewed.

Our review of these calculations indicates that two near critical conditions are present. First, with a water surface at Elevation 930, no ice pressure and an uplift pressure of zero at the toe and one third at the heel the resultant is 0.3 feet inside the middle third. The second case assumes a water surface of 925, an ice pressure of 10,000#, and an uplift pressure the same as case one. With these assumptions the resultant is again 0.3' inside the middle third. Since the resultants in each case fall just inside the middle third, with higher water levels (PMF), it can be assumed that significantly less stablity can be expected,

c. Operating Records: Withstood record storm - Hurricane Agnes - 1972.

d. Post construction changes: Gunite added for cosmetic maintenance. Flashboards and catwalk added which result in increase in design pool elevation.

e. Seismic Stability: The structure is located in seismic zone 2 having a seismic coefficient of acceleration equivalent to 0.5 g (acceleration due to gravity 32.2 ft/sec^2).

SECTION 7: ASSESSMENT/REMEDIAL MEASURES

7.1 Dam Assessment

a. Safety: This dam does not appear to present an immediate danger to life and property. However, the cracks, seepage, and leaching of the concrete may increase with time and reduce the stability of the structure. The spillway is inadequate to pass the SPF. The dam does not appear to present any serious operational deficiencies.

b. Adaquacy of Information: The information available is inadequate for complete analysis of the dam. The validity of the information appears to be good. More detailed seepage and stability analyses are necessary.

c. Urgency: The condition of the Oneida City Reservoir Dam is considered to be a non-emergency situation not requiring immediate action to protect downstream development. However due to the presence of cracking, seepage, and leaching, detailed studies are required in the future. Remedial measures should be initiated in the near future to increase spillway capacity if stability analyses indicate the structure cannot withstand overtopping.

d. Necessity of Future Analyses:

1. A test boring, pressure testing, and laboratory testing program should be conducted to evaluate the internal integrity of the structure. This program should include monitor installation to define and locate the source of seepage downstream of the right abutment section.

2. Piezometers should be installed to monitor the uplift pressure on the structure.

3. The stability of the structure should be re-evaluated using the data obtained above and considering maximum high water (PMF).

7.2 Remedial Measures:

a. Alternatives:

1. The flashboards should remain open and, as soon as practical, the flashboards and man walk should be removed. Replacement of the flashboards or gates should be considered only after completion of stability analysis.

2. Remedial modifications should be made within the next two years to increase the storm storage and/or spillway capacity if the structural stability is inadequate based on the high water level (PMF).

3. An adequate regulation plan and warning system should be developed for use in the event of a threatened failure.

4. The stability and seepage analyses and detailed study of the structure should be implemented as soon as possible.

APPENDIX A
GEOLOGY

ONEIDA RESERVOIR

This region is located in a relatively tectonically stable area. The bedrock is classified as the Upper Hudson River Shale of Upper Ordivician Age. The only geological feature of interest is the pronounced joint pattern. It appears the major joint direction is N 12° E , with a secondary pattern oriented at N 78° W.

This region, like most areas in New York State, was heavily glaciated during the late Cenozoic. Glacial sediments are composed of varying sizes and thicknesses, particularly in the valley bottoms.

APPENDIX B
HYDROLOGIC COMPUTATIONS

L. ROBERT KIMBALL
Consulting Engineers

JOB NAME _____ BY KHC DATE ___
JOB NUMBER _____ SHEET NO. ___ OF ___

Oneida Dam

Oswego Watershed

from Draft report of Hydrology & Hydraulic, Oswego River Basin, 1970 Provid by Mr. Charlie Mierek Buffalo District, C.O.E.

$$\text{Log } T_c = 1.2874 + .2035 \text{ Log } A - .7675 \text{ Log } S + .2707 \text{ Log } L \quad \text{—①}$$

$$\text{Log } (T_c + R) = 1.5459 - .3100 \text{ Log } A - .5991 \text{ Log } S + .8787 \text{ Log } L \quad \text{—②}$$

Where A = Drainge Area (sq. mi).

L = Channel Length (mi)

S = Mean Stream Channel Slope (ft/mi

$$S = \left[\frac{N}{\sum S_{st}^{-\frac{1}{2}}}\right]^2$$

$$S = \left[\frac{5}{(21.1)^{-1/2} + (52.8)^{-1/2} + (35.2)^{-1/2} + (26.4)^{-1/2} + (52.8)^{-1/2}}\right]^2$$

$$S = \left(\frac{5}{.856}\right)^2 = \underline{34.} \text{ ft/mile}$$

$A = 14.4$ sq. mi.

$L = 6.8$ miles

from Eq. 1 $\underline{T_c = 3.7 \text{ (hr.)}}$

Eq. 2 $\underline{T_c + R = 10.0 \text{ (hr.)}}$ $\therefore$ $\underline{R = 6.3}$

L. ROBERT KIMBALL
Consulting Engineers

JOB NAME _____ BY KHC DATE ___
JOB NUMBER _____ SHEET NO. ___ OF ___

Base on Mohawk River Basin

Use Initial Loss = 1.0"

Uniform Loses = .075 in/hr

Initial Flow = 1 cfs/sq. mi START Q = 14 cfs

QRCSN, Assume 7× STARTQ, 14×7 = 98 cfs

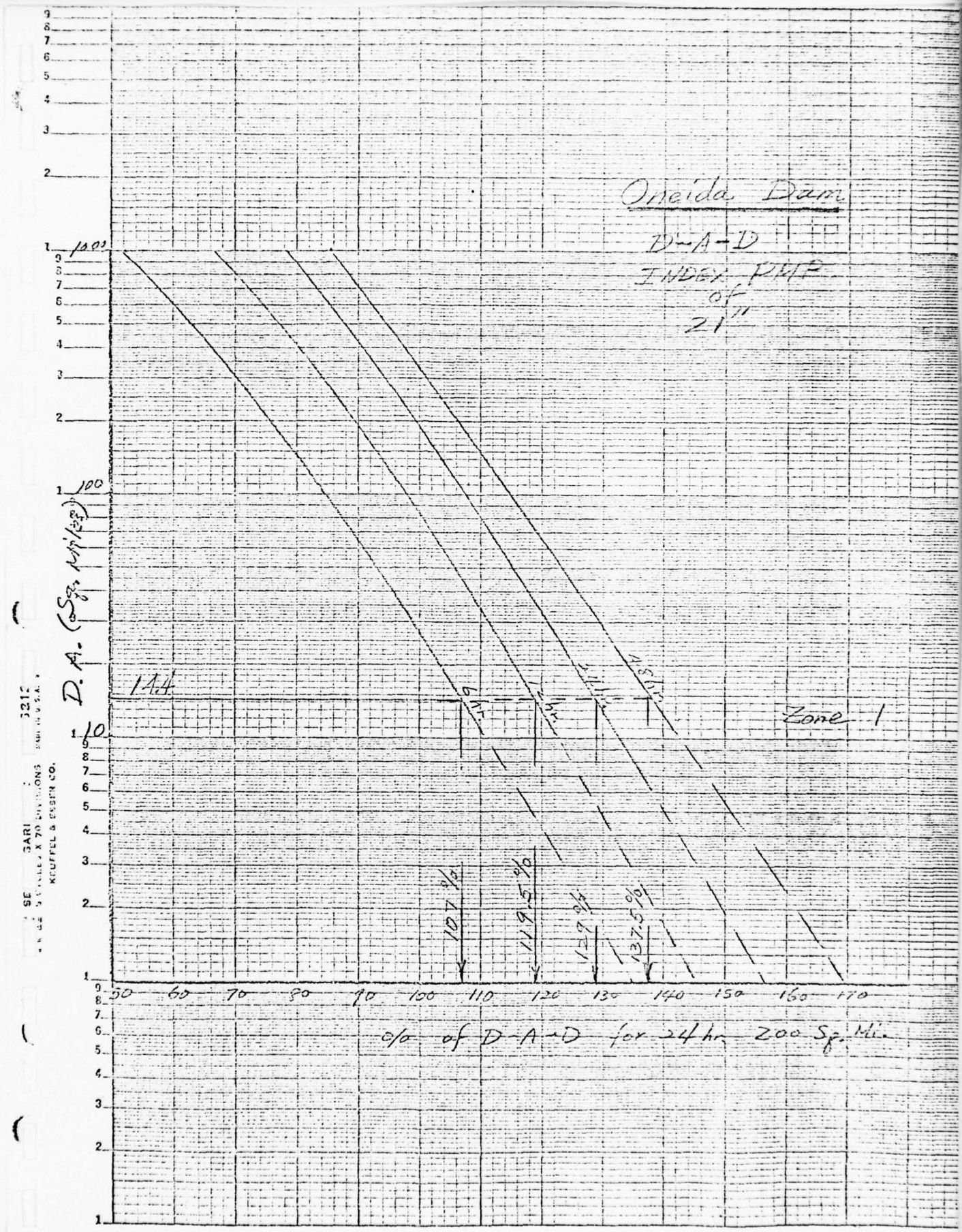
RTIOR, use 1.3

from Hydrometeorological Report No. 33

PMP INDEX RAINFALL – 21"

RATIO FOR OTHER DURATIONS:

6 HR	107 %
12 HR	119.5%
24 HR	129 %
48 HR	137.5%


Oneida Dam
D-A-D
INDEX PAPER
of
21"
D. A. (Sq. Mi)
1000
100
10
1.44
6 hr
12 hr
24 hr
48 hr
72 hr
Zone 1
107 %
119.5 %
129 %
137.5 %
50 60 70 80 90 100 110 120 130 140 150 160 170
% of D-A-D for 24 hr 200 Sq. Mi.

L. ROBERT KIMBALL
Consulting Engineers

JOB NAME NY Dam Exp BY DG DATE 5/31
JOB NUMBER SHEET NO. 1 OF

ONEIDA CITY RESERVOIR DAM

ELEVATION - DISCHARGE RELATIONSHIP

UNGATED OGEE TYPE OVERFLOW SECTION
$Q = CLH^{3/2}$ $L_{OVERFLOW} = 69'8''$ NEGLECTING FLASHBOARDS & WALKWAY

ELEV. (FT.)	OVERFLOW SECTION C	H	Q (C.F.S.)		NON-OVERFLOW SECTION C	H	Q (C.F.S.)		TOTAL Q (C.F.S.)
925.0		0	0	A	—	—	—		0
925.5	3.27	.5	80.5	C FROM DESIGN INFO USING MEASURED L NOT DESIGN FLOWS	—	—	—		80.5
926.0	3.38	1	235.5		—	—	—		235.5
927.0	3.51	2	692		—	—	—		692
928.0	3.58	3	1296		—	—	—		1296
929.0	3.68	4	2051		—	—	—		2051
930.0	3.80	5	2960	ASSUMED "C"	—	—	—		2960
931.0	3.85	6	3942		—	—	—		3942
932.0	3.90	7	5032		—	—	—		5032
932.3	3.98	7.3	5359	TOP OF DAM	—	0	—		5359
933.0	3.90	8	6148		2.8	0.7	474		6622
934.0	3.90	9	7336		2.8	1.7	1794		9130
935.0	3.90	10	8592	ASSUMED "C"	2.8	2.7	3590		12182
937.0	3.90	12	11294		2.8	4.7	8245	L = 289'	19539
939.0	3.90	14	14233		2.8	6.7	14034		28267
941.0	3.90	16	17389		2.8	8.7	20765		38154

L. ROBERT KIMBALL
Consulting Engineers

JOB NAME N.Y. Dam Insp. BY D.G. DATE 5/3
JOB NUMBER SHEET NO. 2 OF

ONEIDA CITY RESERVOIR DAM

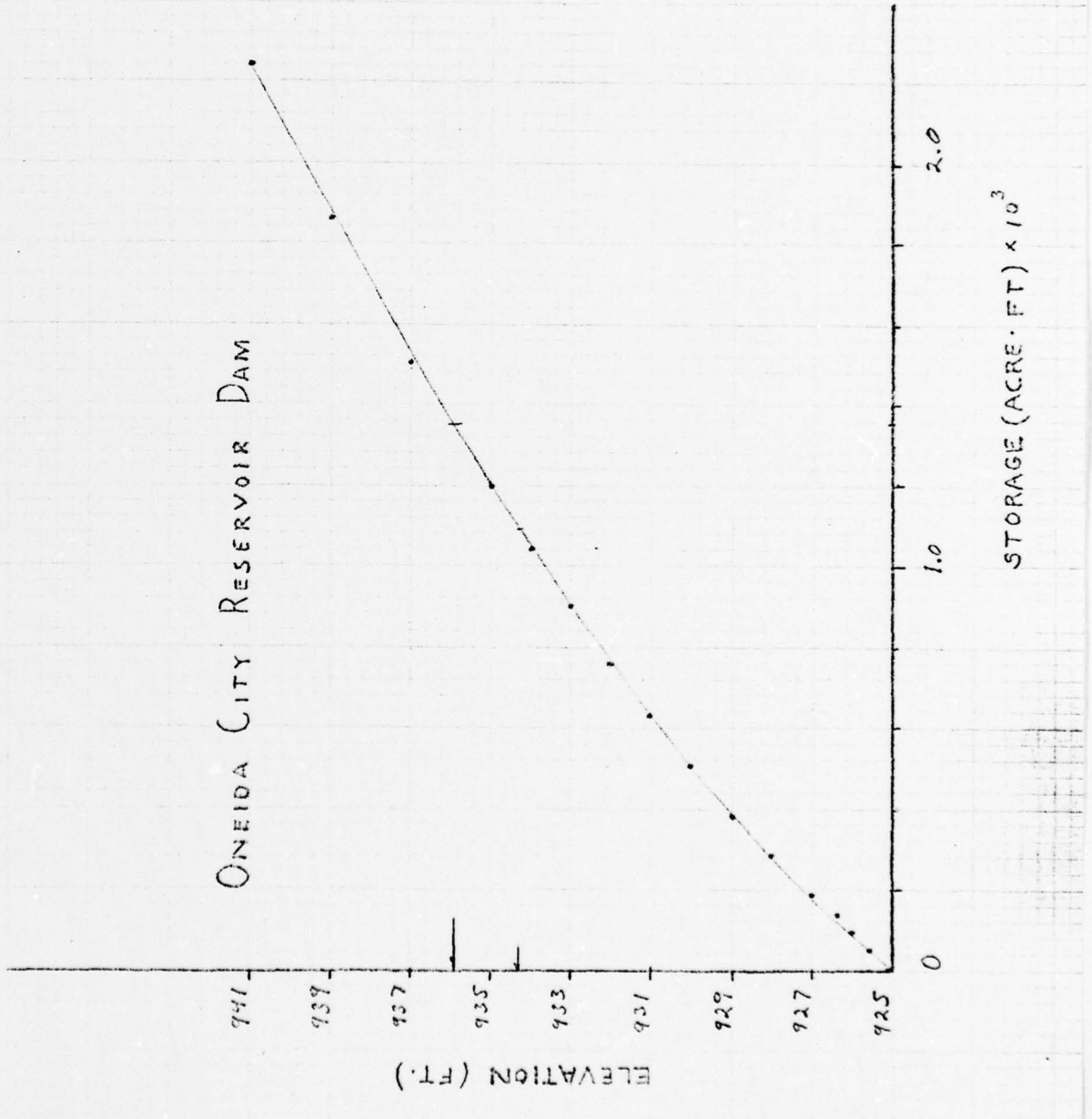
ELEVATION-STORAGE RELATIONSHIP

ELEV. (FT.)	SURFACE AREA (ACRES)	Δ ELEV. (FT.)	TOTAL STORAGE (AC.-FT.)	DISCHARGE TOTAL Q (C.F.S.)
925.0	84.94		0	0
		0.5		
925.5	88.38		42.33	80.5
		0.5		
926.0	91.83		87.38	235.5
		0.5		
926.5	95.27		135.15	—
		0.5		
927.0	98.72		183.66	692
		1.0		
928.0	105.60		285.82	1296
		1.0		
929.0	112.49		394.87	2051
		1.0		
930.0	119.38		513.81	2960
		1.0		
931.0	126.27		633.64	3942
		1.0		
932.0	133.15		763.35	5032
		0.3		
932.3	135.22		803.61	5359
		0.7		
933.0	140.04		879.95	6622
		1.0		
934.0	146.93		1043.44	9130
		1.0		
935.0	153.82		1193.92	12182
		2.0		
937.0	167.59		1515.23	19539
		2.0		
939.0	181.37		1864.19	28267
		2.0		
941.0	195.14		2240.70	38154

L. ROBERT KIMBALL
Consulting Engineers

JOB NAME NY Dam Emp
JOB NUMBER

BY DG DATE 6/
SHEET NO. 3 OF



HEC-1 VERSION DATED JAN 1973
UPDATED AUG 74
CHANGE NO. 01

ONEIDA DAM
RESERVOIR AT TOP OF FLOOD CONTROL POOL
TEST PMP

JOB SPECIFICATION

NQ	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
50	2	0	0	0	0	0	2	1	0

JOPER	NAT
3	0

SUB-AREA RUNOFF COMPUTATION

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
1	0	0	0	0	0	0

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	0	14.40	0.0	14.40	0.0	0.0	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	21.00	107.00	119.50	129.50	137.50	0.0	0.0

TRSPC COMPUTED BY THE PROGRAM IS 0.612

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	1.00	0.07	0.0	0.0

UNIT HYDROGRAPH DATA
TC# 3.70 R# 5.30 NTA# 0

RECESSION DATA
STRTQ# 14.00 QRCSN# 95.00 RTIOR# 1.30

UNIT HYDROGRAPH 18 END-OF-PERIOD ORDINATES, LAG# 3.81 HOURS, CP# 0.41 VOL# 1.00

358.	895.	930.	675.	490.	356.	258.	188.	136.	99.
72.	52.	38.	27.	20.	14.	11.	8.		

END-OF-PERIOD FLOW

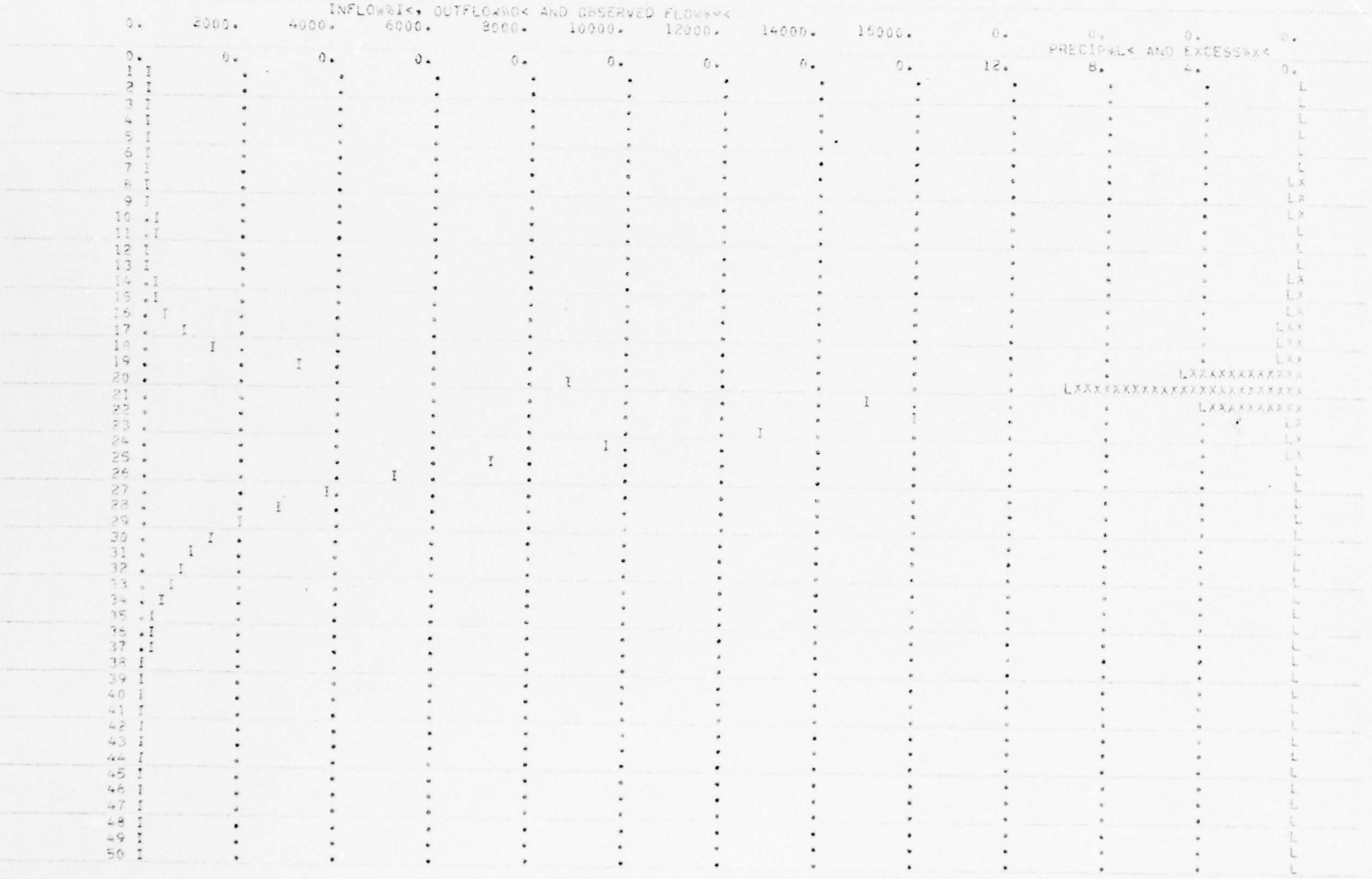
TIME	RAIN	EXCS	COMP Q
1	0.01	0.00	14.
2	0.01	0.00	13.
3	0.01	0.00	13.
4	0.04	0.00	13.
5	0.04	0.00	12.
6	0.04	0.00	12.
7	0.20	0.00	12.
8	0.60	0.05	29.
9	0.24	0.09	86.
10	0.02	0.00	134.
11	0.02	0.00	124.
12	0.02	0.00	98.
13	0.23	0.08	97.
14	0.23	0.08	150.
15	0.23	0.08	210.

16	0.71	0.56	425.
17	0.71	0.56	889.
18	0.71	0.56	1362.
19	4.75	4.60	3141.
20	9.68	9.53	6755.
21	3.83	3.68	15010.
22	0.34	0.19	15986.
23	0.34	0.19	12830.
24	0.34	0.19	9560.
25	0.0	0.0	7118.
26	0.0	0.0	5223.
27	0.0	0.0	3793.
28	0.0	0.0	2756.
29	0.0	0.0	2002.
30	0.0	0.0	1455.
31	0.0	0.0	1058.
32	0.0	0.0	769.
33	0.0	0.0	559.
34	0.0	0.0	405.
35	0.0	0.0	292.
36	0.0	0.0	210.
37	0.0	0.0	129.
38	0.0	0.0	96.
39	0.0	0.0	94.
40	0.0	0.0	91.
41	0.0	0.0	89.
42	0.0	0.0	87.
43	0.0	0.0	85.
44	0.0	0.0	82.
45	0.0	0.0	80.
46	0.0	0.0	78.
47	0.0	0.0	76.
48	0.0	0.0	74.
49	0.0	0.0	72.
50	0.0	0.0	70.
SUM	23.44	20.44	95826.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	15986.	14611.	7303.	2646.	95826.
INCHES		9.44	18.87	20.51	20.63
AC-FT		7249.	14493.	15753.	15847.

OVF

STATION 1



OVL

HYDROGRAPH ROUTING

ISTAO	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
2	1	0	0	2	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME
0.0	0.0	0.0	1	0

NSTPS	NSTOL	LAG	AMSKK	X	TSK	STORA
1	0	0	0.0	0.0	0.0	-1.

STORAGE*	0.	88.	285.	510.	763.	803.	899.	1190.	1515.	1869.
OUTFLOW*	0.	236.	1296.	2960.	5030.	5360.	6822.	12180.	19640.	28300.

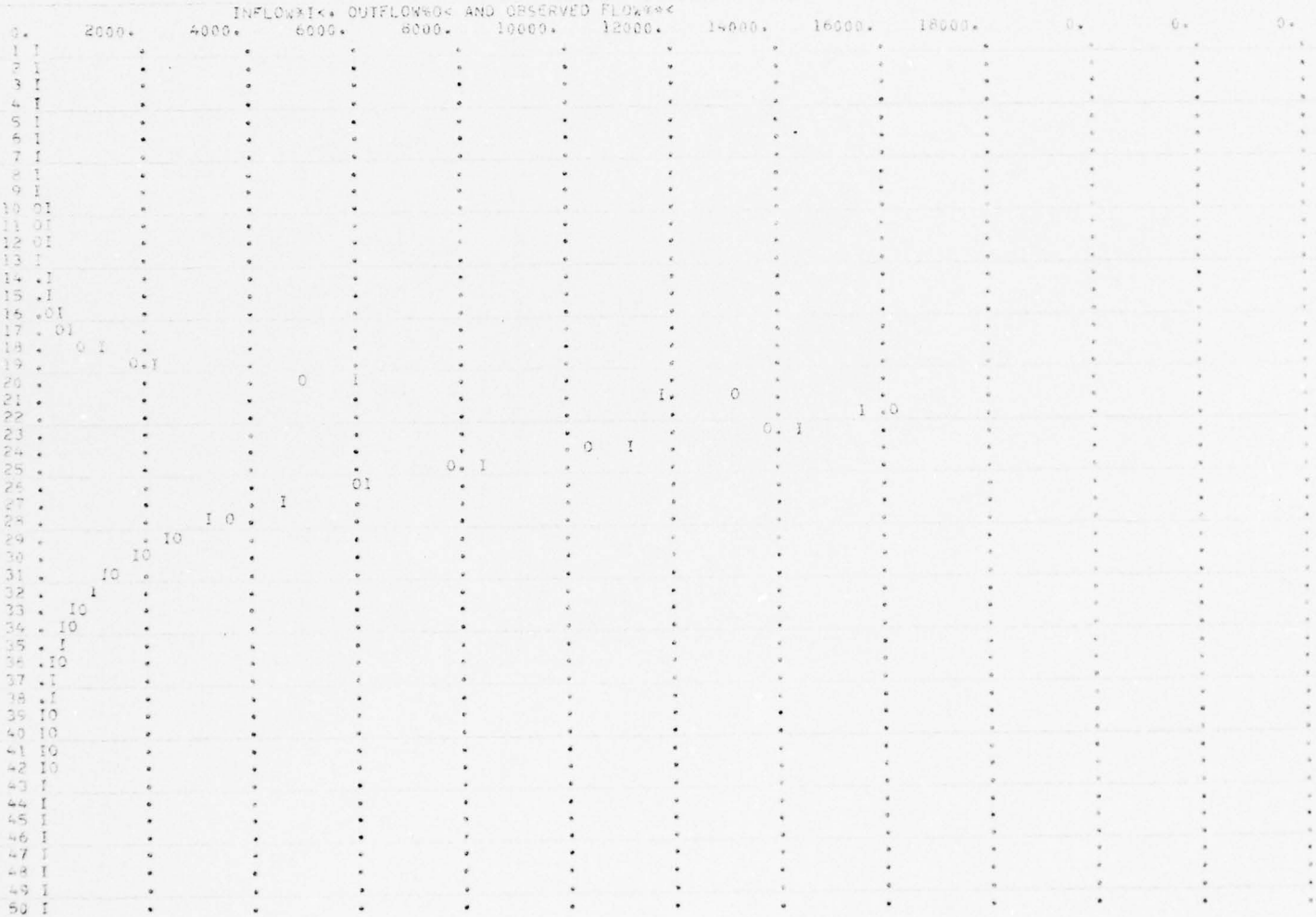
TIME	EOP STOR	AVG IN.	EOP OUT
1	5.	14.	14.
2	5.	13.	14.
3	5.	13.	13.
4	5.	13.	13.
5	5.	12.	13.
6	5.	12.	13.
7	5.	12.	12.
8	6.	20.	15.
9	11.	57.	36.
10	22.	110.	58.
11	32.	129.	84.
12	35.	111.	94.
13	36.	97.	95.
14	40.	124.	105.
15	50.	140.	132.
16	75.	316.	199.
17	129.	687.	486.
18	206.	1126.	884.
19	356.	2251.	1619.
20	769.	5948.	5078.
21	1231.	11866.	13105.
22	1369.	15402.	16230.
23	1264.	14408.	13855.
24	1102.	11196.	10497.
25	964.	8339.	7858.
26	845.	6171.	5917.
27	717.	4508.	4653.
28	581.	3276.	3541.
29	465.	2379.	2629.
30	373.	1729.	1945.
31	302.	1257.	1423.
32	246.	913.	1085.
33	198.	664.	826.
34	158.	482.	614.
35	128.	348.	480.
36	105.	251.	327.
37	87.	169.	233.
38	71.	112.	189.
39	58.	95.	155.
40	50.	93.	133.
41	44.	90.	117.
42	40.	88.	107.
43	37.	86.	98.
44	35.	83.	93.

45	33.	81.	89.	
46	32.	79.	85.	
47	31.	77.	82.	
48	30.	75.	80.	
49	29.	73.	77.	
50	28.	71.	75.	
SUM			95690.	

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	16230.	14396.	7280.	2644.	95690.
INCHES		9.30	18.76	20.49	20.60
AC-FT		7142.	14407.	15740.	15825.

OVF

STATION 2



RUNOFF SUMMARY, AVERAGE FLOW

		PEAK	6-HOUR	24-HOUR	72-HOUR	AREA
HYDROGRAPH AT	1	15986.	14511.	7303.	2546.	14.40
ROUTED TO	2	16230.	14396.	7260.	2544.	14.40

HEC-1 VERSION DATED JAN 1973
UPDATED AUG 74
CHANGE NO. 01

ONEIDA DAM
RESERVOIR AT TOP OF FLOOD CONTROL POOL
TEST SPF

JOB SPECIFICATION

NO	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
50	2	0	0	0	0	0	2	1	0

JOPER NWT
3 0

SUB-AREA RUNOFF COMPUTATION

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
1	0	0	0	0	0	0

HYDROGRAPH DATA

IHYDG	IUNG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	0	14.40	0.0	14.40	0.0	0.0	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
19.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TRSPC COMPUTED BY THE PROGRAM IS 0.812

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	1.00	0.07	0.0	0.0

UNIT HYDROGRAPH DATA
TC# 3.70 R# 6.30 NTA# 0

RECESSION DATA
STRTQ# 14.00 QRCSN# 98.00 RTIOR# 1.30

UNIT HYDROGRAPH 18 END-OF-PERIOD ORDINATES. LAG# 3.81 HOURS. CP# 0.41 VOL# 1.00

356.	895.	930.	675.	490.	356.	258.	188.	136.	99.
72.	52.	38.	27.	20.	14.	11.	8.		

END-OF-PERIOD FLOW

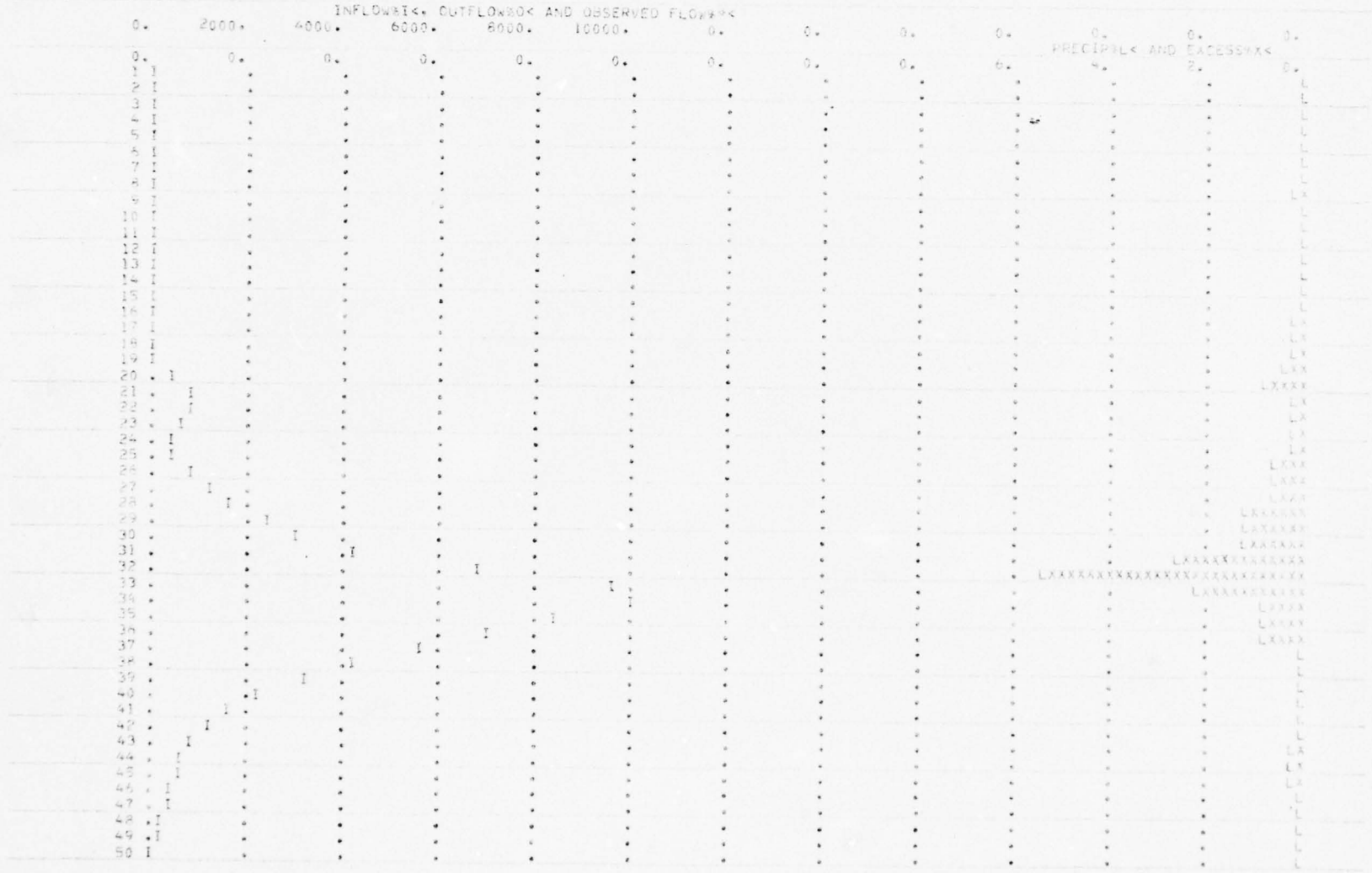
TIME	RAIN	EXCS	COMP Q
1	0.02	0.00	14.
2	0.02	0.00	13.
3	0.02	0.00	13.
4	0.04	0.00	13.
5	0.04	0.00	12.
6	0.04	0.00	12.
7	0.05	0.00	12.
8	0.16	0.00	11.
9	0.06	0.00	11.
10	0.02	0.00	11.
11	0.02	0.00	10.
12	0.02	0.00	10.
13	0.08	0.00	10.
14	0.08	0.00	10.
15	0.08	0.00	9.

16	0.16	0.00	9.
17	0.16	0.01	12.
18	0.16	0.01	20.
19	0.35	0.20	99.
20	0.72	0.57	409.
21	0.29	0.14	787.
22	0.10	0.00	804.
23	0.10	0.00	824.
24	0.10	0.00	455.
25	0.59	0.44	488.
26	0.59	0.44	792.
27	0.59	0.44	1136.
28	1.22	1.07	1811.
29	1.22	1.07	2360.
30	1.22	1.07	3081.
31	2.66	2.51	4116.
32	5.43	5.28	5768.
33	2.15	2.00	9689.
34	0.74	0.64	10014.
35	0.79	0.64	8665.
36	0.74	0.64	6959.
37	0.03	0.00	5637.
38	0.03	0.00	4269.
39	0.03	0.00	3100.
40	0.06	0.00	2252.
41	0.06	0.00	1636.
42	0.06	0.00	1189.
43	0.14	0.00	862.
44	0.28	0.13	670.
45	0.11	0.00	557.
46	0.04	0.00	443.
47	0.04	0.00	317.
48	0.04	0.00	225.
49	0.0	0.0	150.
50	0.0	0.0	97.
SUM	21.88	17.30	80263.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	10014.	9389.	5859.	2225.	80264.
INCHES		6.07	14.36	17.25	17.28
AC-FT		4658.	11032.	13247.	13274.

<OVER>

STATION 1



DVN

********** ********** ********** ********** **********

HYDROGRAPH ROUTING

ISTAV	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
2	1	0	0	2	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME
0.0	0.0	0.0	1	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA
1	0	0	0.0	0.0	0.0	-1.

STORAGE=	0.	86.	245.	510.	763.	803.	899.	1043.	1190.	1515.
OUTFLOW=	0.	234.	1296.	2980.	5030.	5360.	6622.	9130.	12180.	18540.

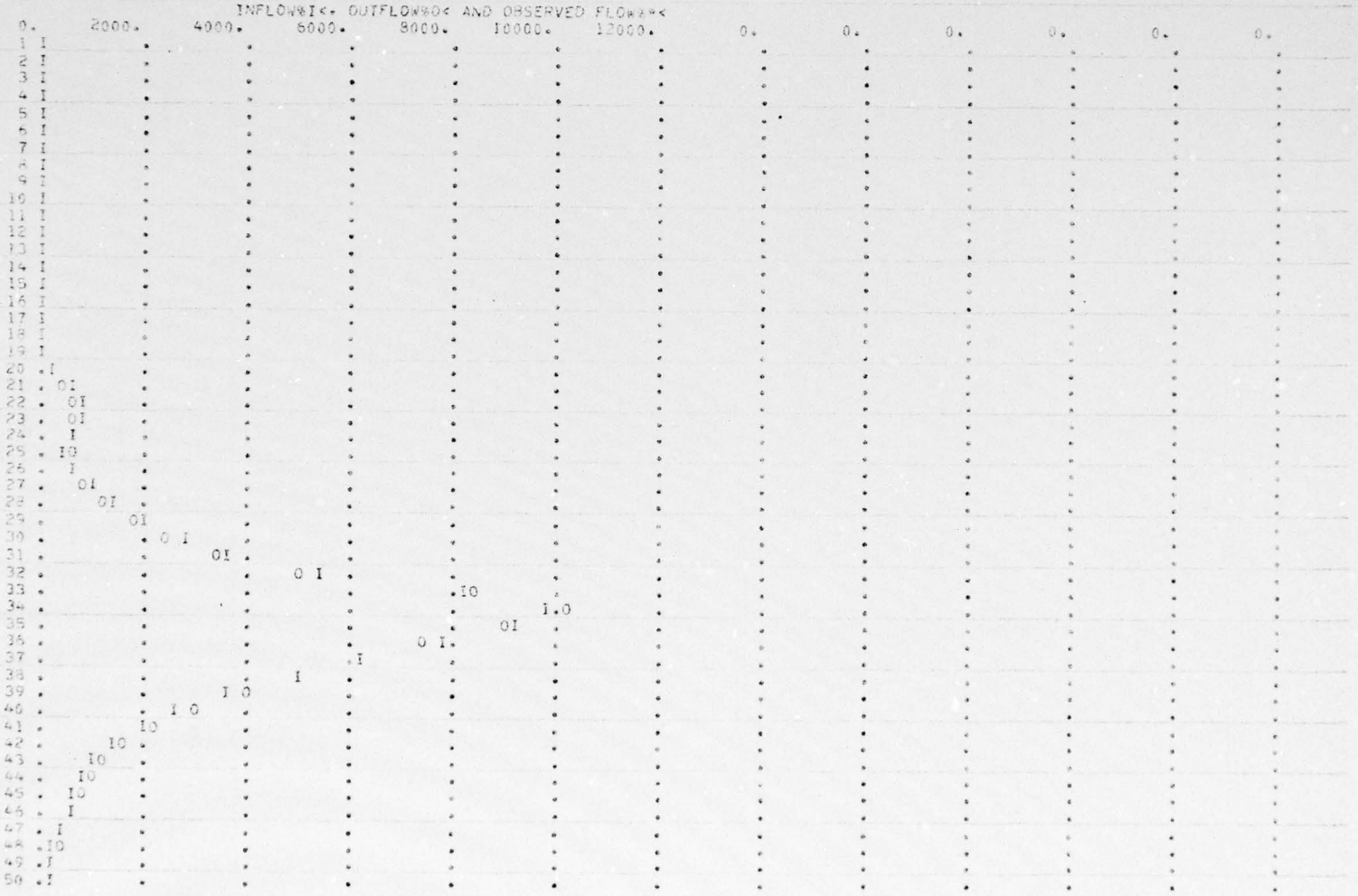
TIME	EOP STOR	AVG IN	EOP OUT
1	5.	14.	14.
2	5.	13.	14.
3	5.	14.	13.
4	5.	13.	13.
5	5.	12.	13.
6	5.	12.	13.
7	5.	12.	12.
8	5.	12.	12.
9	4.	11.	12.
10	4.	11.	11.
11	4.	11.	11.
12	4.	10.	11.
13	4.	10.	11.
14	4.	10.	10.
15	4.	10.	10.
16	4.	9.	10.
17	4.	10.	10.
18	5.	16.	12.
19	11.	59.	29.
20	41.	254.	110.
21	103.	580.	314.
22	167.	785.	606.
23	166.	714.	672.
24	154.	539.	598.
25	141.	472.	517.
26	155.	640.	593.
27	197.	965.	822.
28	260.	1373.	1162.
29	347.	1913.	1758.
30	448.	2720.	2487.
31	558.	3594.	3354.
32	764.	5442.	5039.
33	1606.	8228.	8489.
34	1093.	9851.	10165.
35	1036.	8240.	9005.
36	944.	7712.	7979.
37	863.	6298.	6148.
38	780.	4953.	5005.
39	630.	3685.	3648.
40	505.	2676.	2523.
41	405.	1944.	2180.
42	326.	1413.	1598.
43	259.	1026.	1169.
44	217.	766.	929.

45	181.	619.	737.
46	155.	505.	594.
47	130.	380.	462.
48	108.	271.	344.
49	91.	188.	248.
50	74.	124.	196.
SUM			79896.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	10165.	9219.	5518.	2215.	79896.
INCHES		5.96	14.26	17.17	17.20
AC-FT		4574.	10950.	13185.	13213.

OVF

STATION 2



RUNOFF SUMMARY. AVERAGE FLOW

		PEAK	6-HOUR	24-HOUR	72-HOUR	AREA
HYDROGRAPH AT	1	10814.	9389.	5559.	2225.	14.40
ROUTED TO	2	10165.	9219.	5518.	2215.	14.40

APPENDIX C
PHOTOGRAPHS

Description of Photographs

Oneida City Reservior

1. Overall view of dam from downstream
   Visible: Overflow and non-overflow dam sections, flashboards, stilling basin, gate house, drain pipe discharge in stilling basin left wall.

2. View from right abutment

APPENDIX C

3. View from left of spillway showing right abutment and flashboards.

4. View from right of spillway showing flashboards and manwalk.
   Note: Location below top of dam and control valve for opening flashboards.

5. View from toe of right abutment section of dam at transition from vertical to battered section, spillway wall at right.
   Note: Deterioration of gunite facing, exposed reinforcing and seepage.

6. Close up of dam showing deterioration of gunite and seepage.

7. Close up of dam (left section) showing build up of calcium carbonate due to seepage, seepage as shown.

8. Downstream of right abutment section, showing voids in rubble used as back fill.

PLATE 3

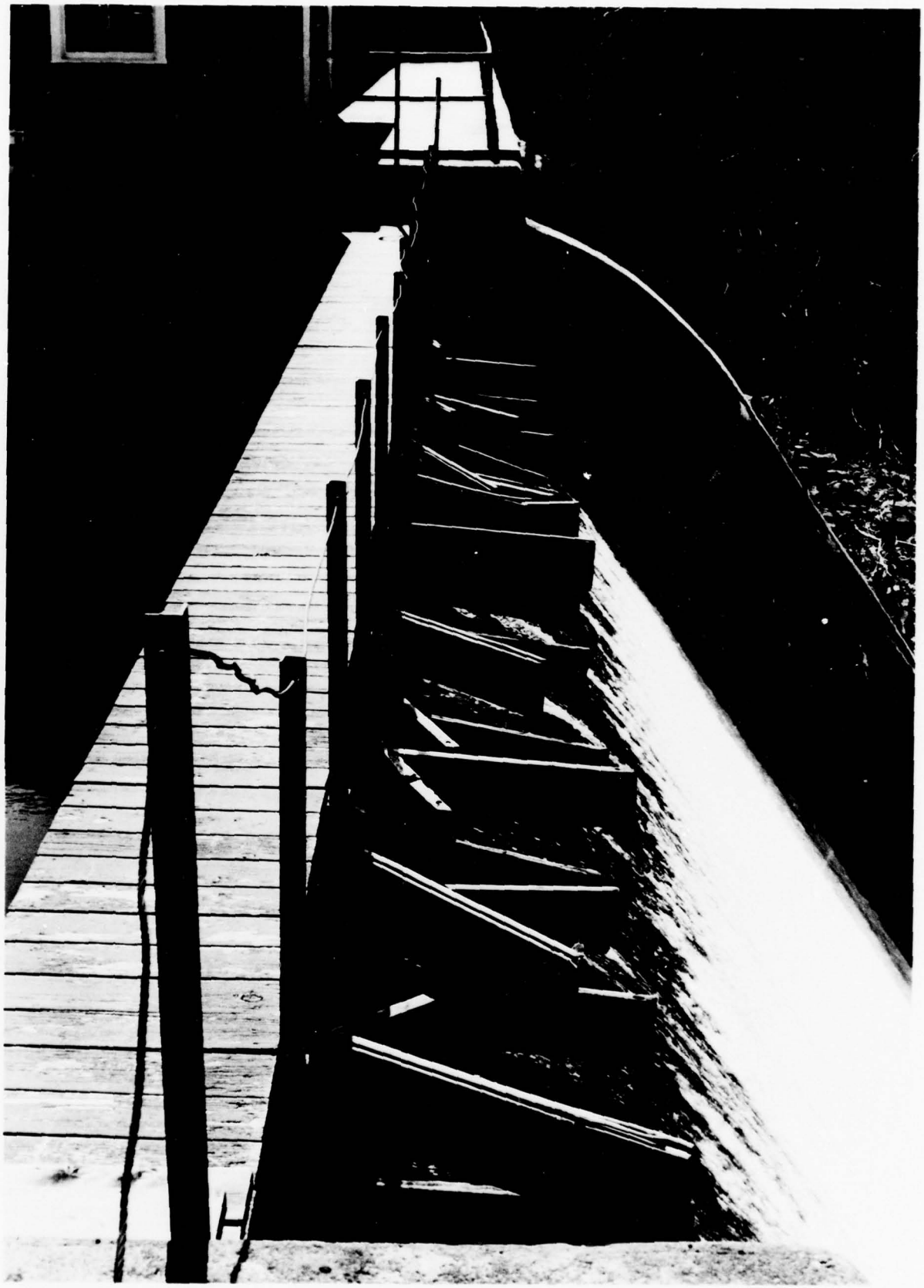


PLATE 4

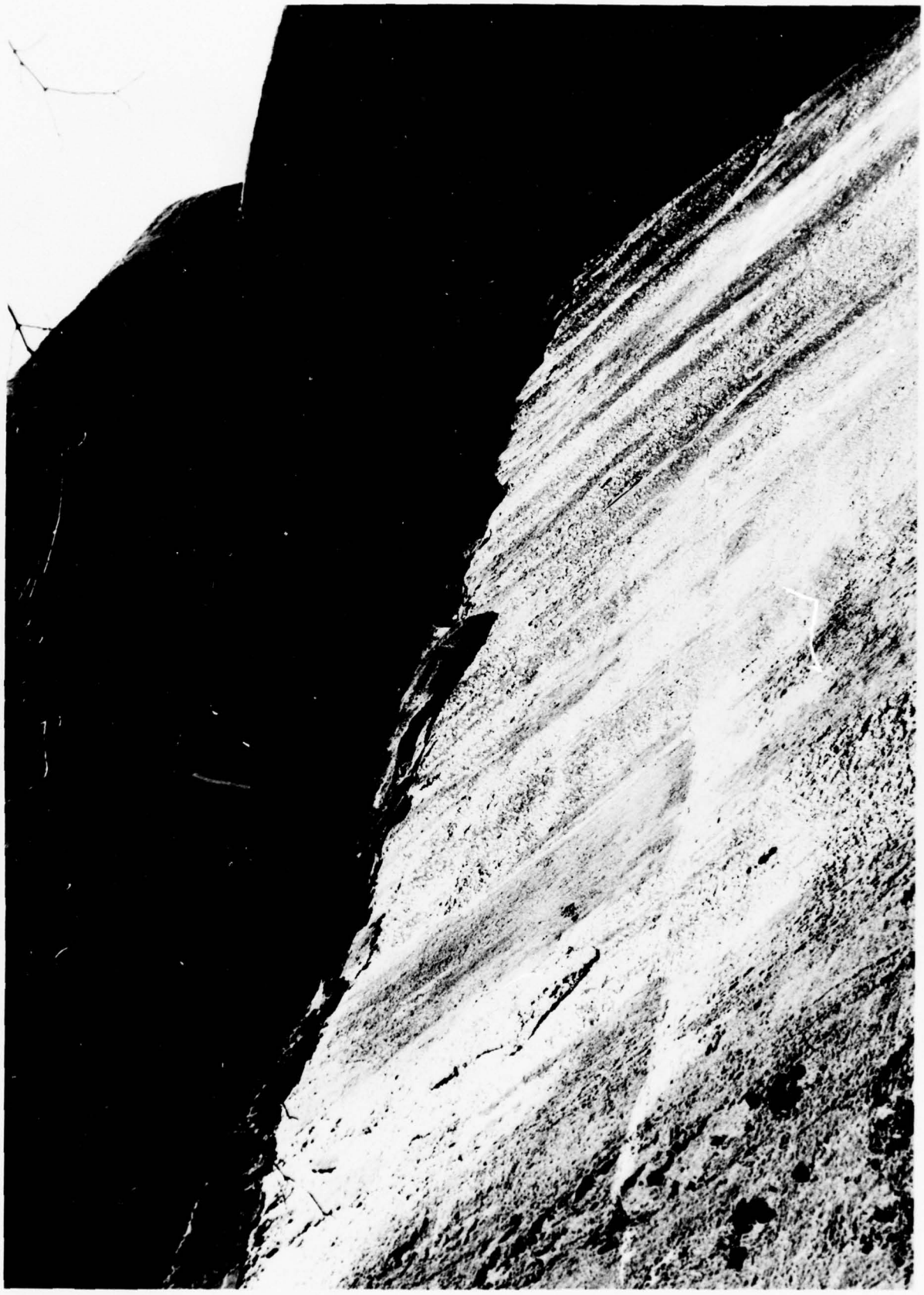


PLATE 5

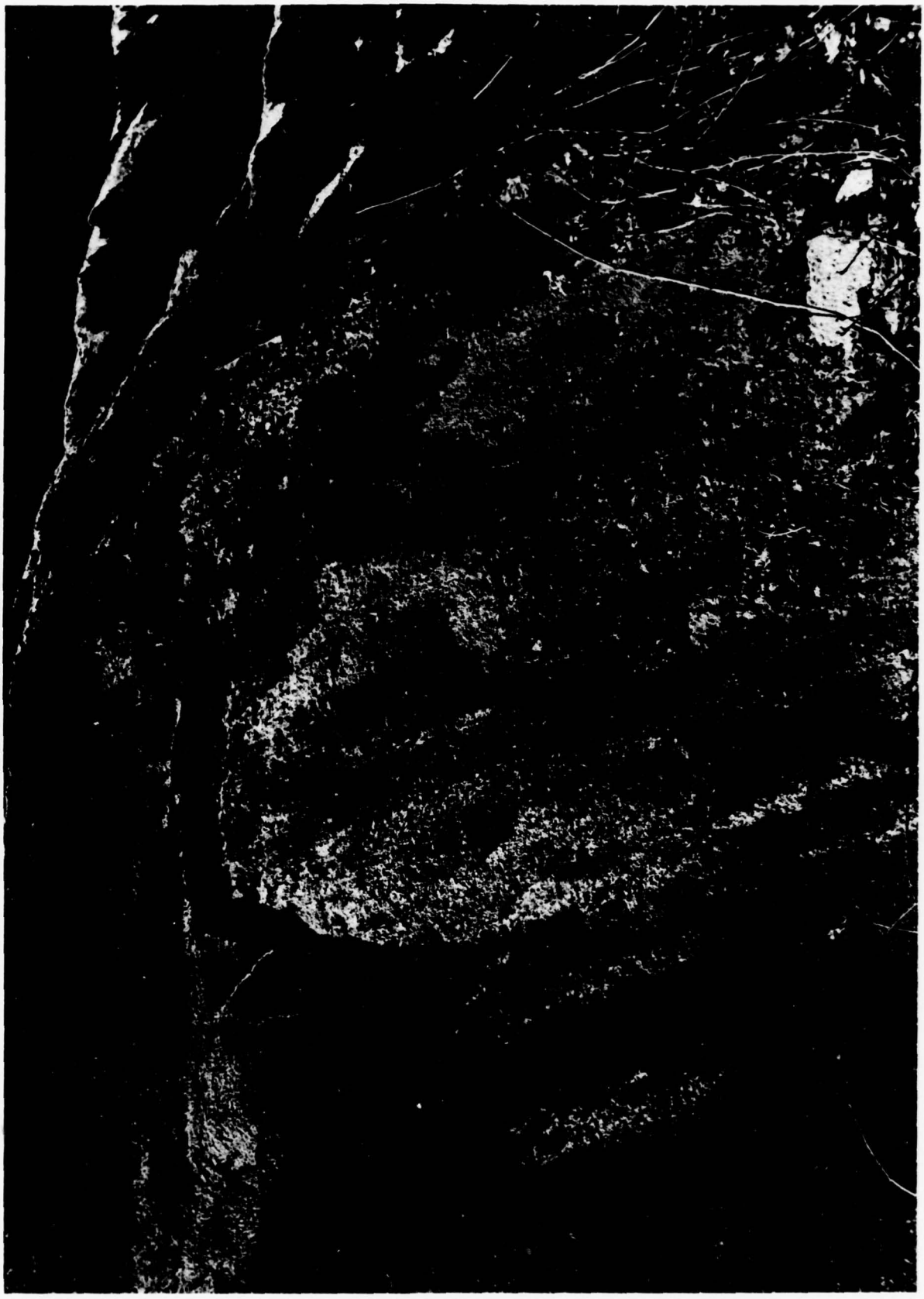


PLATE 6

PLATE 7

PLATE 8

APPENDIX D
PERTINENT CORRESPONDENCE AND REPORTS

FRED J. WAGNER
MEMBER AM. SOC. OF C. E.
CONSULTING ENGINEER
ONEIDA, N. Y.

January 23,1925.

Roy G.Finch,
State Engineer,
Albany,N.Y.

Dear Sir:-

I am enclosing herewith blue prints in duplicate showing the proposed construction of a concrete dam across Florence Creek, said dam being a part of the proposed water system of the city of Oneida. Application for building same is now before the Water Control Commission.

There is also enclosed application for the construction of this dam signed by Mr.William M.Baker, Chairman of the Board of Water Commissioners of the city of Oneida.

I trust you will pass upon these plans at as early a date as consistent as we are desirous of getting contracts let and work started on same early the coming spring.

The specification for the building of this dam are not quite complete as yet, however it is intended to build the same of concrete having a mix of 1-2½-5 and practically the same specification will govern as were covered for Barge canal work. The write is also considering the placing of water proofing by the Gun-ite method on the upstream face of dam.

This Gun-ite would consist of mortar proportion one volu of cement to two volumes of sand, being 2 ½ inches thick and coveri two layers of wire mesh.

Very truly yours,

F. J. Wagner

FRED J. WAGNER
MEMBER AM. SOC. OF C. E.
CONSULTING ENGINEER
ONEIDA, N. Y.

February 2,1925.

R.J.Finch,
State Engineer,
Albany,N.Y.

Dear Sir:-

Replying to your letter of recent date relative to the computations for the Glenmore dam of the Florence Creek Water supply for the City of Oneida,N.Y. I would say that after talking the matte over with your Mr.McKim and receiving his idea regarding the amount which should be allowed for uplift and ice pressure on such a struct re we would be compelled to change our sections A-A(spillway section) to 20 feet-11 1/3 inches in place of 19 feet-6 inches as shown on the section, blue print of which you have. This would give us a base of 31 feet for this section.

On section B-B this base width would be 36 feet in place of 3 as shown on blue print.

I wish to state that on the down stream side of section B-B e from the excavation will be placed to elevation 908 having a width o top of 30 feet and slope at the front of 1 on 1 ½, however the placing this earth has not been taken in consideration in our computations.

The writer is not entirely convinced as to the necessity of al ing for ice pressure on this structure however if this is deemed nece s by your Department we will, of course, comply.

If the above computations agree with your conclusions and plac this structure in line for your approval we will make our plans accor i upon receipt of notice that you have approved same.

Should your computations show that the section B-B can be of l width than I have indicated I would ask you to kindly so state.

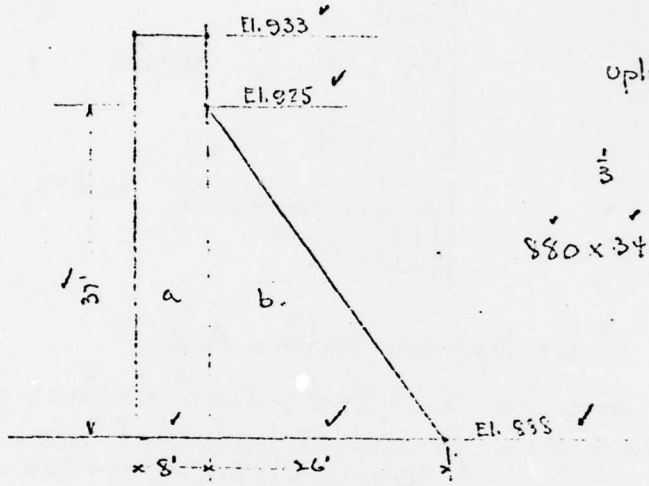
Very truly yours,

F. J. Wagner

Water Supply for City of Oneida -

Stability of Non spillway section B-B - (Shd no of plans)

Conditions - Water Surface El. 930.0
Ice El. 929.0 (10,000#)
Concrete 141# per cu'
1/3 uppres of water at heel - Zero at toe -



uplift head = 930 − 888 = 42'

1/3 Intensity = 42 × 62.5 = 880#

880 × 34½ = 14900

$\frac{1}{2} \cdot \frac{b^3}{6} = 62.5 \times \frac{42^3}{6}$

				Arm	1#
a = 8 × 45	= 360	× 141	= +50,700 ×	30'	= +1,521,000
b = 37 × 26½	= 481	× 141	= +67,700 ×	17.3'	= +1,172,000
uplift			− 14900	22.7'	− 338,000
Ice - Water	10,000# ×			41.0'	− 410,000
			+103,500		− 772,000
					+1,173,000

R = 11.33

$\frac{B}{3}$ = 11.33

0 -

Resultant intersects middle third.

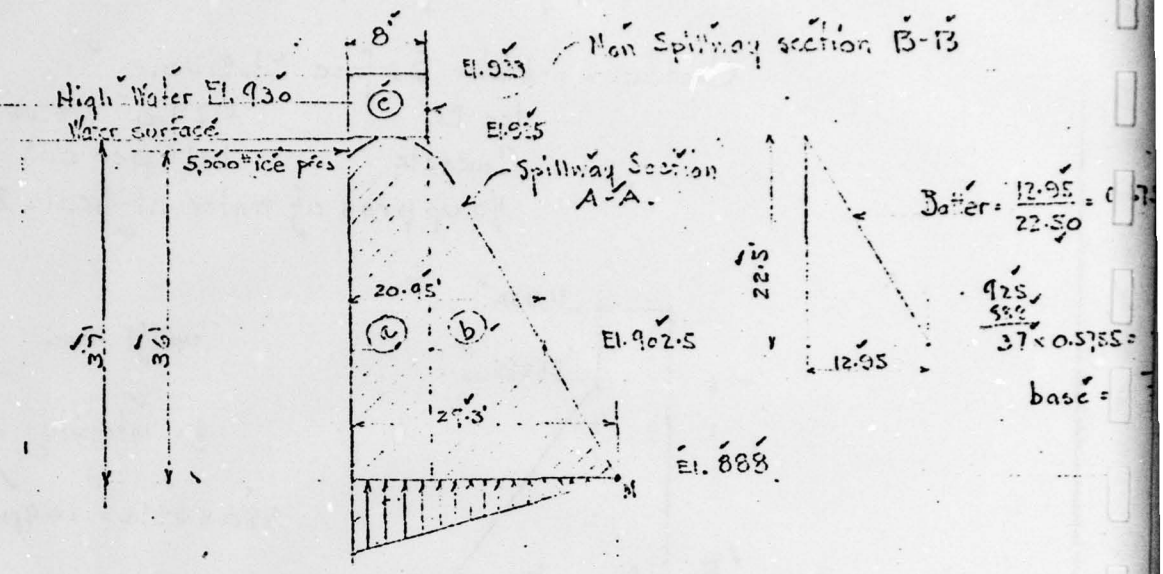
Hartsdale, July 1925

Revised

Dam for Water Supply - City of Oneida

Revised Section of Spillway - Section A-A.

(See letter Fred J. Wagner to R. G. Finch - Dated Feb 2 - 1925)



Conditions - Spillway Section A-A.

I - Water pressure to El. 925; 5000# ice pres per lin ft at El. 925
Up water pres. 1/3 head at heel, 0 at toe. Concrete 140#/c.f.
Result - R is 0.5' inside middle third.

II - Water surface El. 930. No ice pres. Up pres same except he
Result R is 0.3' inside middle third a.c.

Conditions - Non Spillway Section B-B

III - Water pres. El. 920;

Up pres. same as I except head - No earth on back. (Se
Wagners letter re back fill on Section B-B) (R is 1.4 inside middle
II Water pres 925 - 10,000# ice El. 924, Up pres as before (R is 0.3' s

a	5x37 =	296 x 140 = 41,400#	x 25.3	= 1,049,000 ft#
b	21.3x37÷2	39.4 x 140 = 55,000	x 14.2	= 780,000 ft#
		96,400		1,829,000
c	8x8 -	64 x 140 = 8960#	x 25.3	= 227,000
		105,360#		2,056,000 ft#

Water Moments for various heads.

El. 930 - 888 = 42' M = 771,700 ft#
925 - 888 = 37' - M = 527,600 ft#

42 x 62.5 / 2 = 57,500 ft#
37 x 62.5 / 3 = 770 "

H. T. Benedict Jr. 1925
E. Larson 7/1/25

Revised

Dam for Water Supply - City of Cuzida -

Up water pres due to 42' head =

$$\frac{875 \times 29.3}{2} = 12,820^{\#} \times \frac{2}{3} \times \frac{(19.3)}{2} = 247,500'^{\#}$$

Up water pres due to 37' head =

$$\frac{770 \times 29.3}{2} = 11,250^{\#} \times 19.3 = 218,000'^{\#}$$

5000# Ice pres × 36' arm = 180,000'#

10000# do × 41' " = 410,000'#

Condition I -

Concrete	+96,400#		+1,829,000'#
Water up pres	−11,250		−218,000
Ice overturning			−150,000
Water "			−527,600
	+83,150	(10.6')	+903,400
		B/3 = 9.5'	R is 0.8 inside

Condition II -

Concrete	+96400#		+1,829,000'#
Water up pres	−12820		−247500
Water overturning			−741600
	+83,580	(10.1)	+829,900
			R is 0.3' inside middle third

Condition III

Concrete	+105,360#		+2,056,000'#
Water up pres	−12,820		−247,500
Water overturning			−771,700
	+92,540	(11.2')	+1,036,800
			R is 1.4 inside middle third

Revised: Feb 1945

Revised

Dam for water Supply City of Oneida

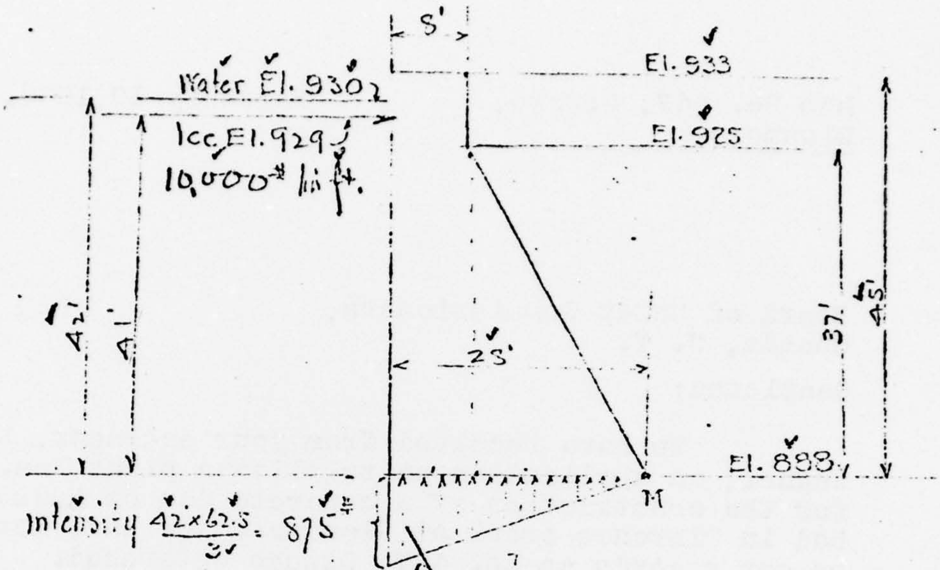
Condition IV

Concrete	+105,360	+2,052,
Up water pres.	- 11,250	- 215.
Ice: 10000# x 36'		- 360.0
Water moment		- 527 6
	94,110 (10.1)	+950,450

R is 0.3' inside mid

Hydraulic Jet 1925

Analysis of dam for water supply for City of Oneida -



Section B-B Sheet 20 -

Superseded

Assumptions

Uplift of water - 1/3 head upstream - 0 downstream -

Ice pres 10,000# per lin ft. as shown -

8'×45' = 360 × 140#	= 50,400# × 24 =		1,210,000
37'×20' ÷ 2 = 370 × 140#	= 51,800 × 13.33 =		692,000
	+102,200		+1,902,000
Uplift 875×28÷2 =	− 12,300 × $\frac{2}{3}$×28 =		− 230,000
Ice press 10,000# × 41' =			− 410,000
Water below ice (40' head)			− 660,000
	+89,900		+ 602,000

$\frac{602,000}{89,900}$ = 6.7' from toe - = R.

9.3 = B/3

Resultant 2.6' outside middle third -

H.W. Benedict - Jan 1925

✓ Green 1/25/25

Dam No. 447, Oswego, Glenmore. February 19,1925.

Board of Water Commissioners,
Oneida, N. Y.

Gentlemen:

We have received from your engineer, Mr. Fred J. Wagner, an application on triplicate plans Nos. 19, 20 and 21 for the construction of a concrete dam on Hudson river shale bed in Florence creek at Glenmore. We have designated this on our records as No. 447, Oswego watershed.

We will require that our Division Engineer W. W. Cr Weighlock Building, Syracuse, New York, be given notice one w in advance of the date when any section of the bed will be cl and ready for construction.

The construction of the above dam according to the dr ings submitted, is approved in so far as the matter involves t jurisdiction conferred upon this office by Chapter LXV of the Consolidated Laws and Chapter 647, Laws of 1911, Section 32, a amended, and permission is given for the construction of this up to December 1, 1926.

This approval shall not be deemed to authorize any invasion of property rights, either public or private, in ca out the above work; nor to create any claim or demand agains State of New York; nor to authorize the flooding or the use of State lands, nor to acquiesce in the flooding or use of such l and is contingent upon and effective only when the Water Sup l Commission shall have approved of the application made to such Commission under the provisions of Article IX of the Conserv Law.

Board of Water Commissioners 32 2/19/25.

We enclose shipping tag No. 95 in order that you may ship to our laboratory for testing one-half a cubic foot, exclusive of any stones over 1/4 inch in size mixed therewith, of the sand to be used in the concrete for the above dam.

We are returning to you under separate cover one set of the above prints stamped with our approval.

Please acknowledge the receipt of this letter and advise us when the work is started.

Very truly yours,

Roy C. Finch,
State Engineer

By_____
Deputy State Engineer.

Enclosure.

ARM/F.

Copy to-
Mr. Fred J. Wagner,
Oneida, N.Y.

Division Engineer Cronin.

ONEIDA

WATER SUPPLY APPLICATION NO. 36

(3-28-21-1000) (6-1905)

STATE OF NEW YORK
DEPARTMENT OF

State Engineer and Surveyor

ALBANY

Received Jan 26th 1925 Dam No. 447 Oswego Watershed

Disposition Approved Feb 19-1925 Serial No. 606

Foundation inspected

Structure inspected

Application for the Construction or Reconstruction of a Dam

Application is hereby made to the State Engineer, Albany, N. Y., in compliance with the provisions of Chapter LXV of the Consolidated Laws and Chapter 647, Laws of 1911, Section 22 as amended, for the approval of specifications and detailed drawings, marked 1 (made from U.S. Geological Maps) 19.20 and 21 herewith submitted for the { construction / ~~reconstruction~~ } of a dam located as stated below. All provisions of law will be complied with in the erection of the proposed dam. It is intended to complete the work covered by the application about December 1, 1926 (Date)

1. The dam will be on Florence Creek flowing into Fish Creek in the town of Annsville, County of Oneida and 4 Miles north from village of Taberg (Give exact distance and direction from a well-know bridge, dam, village, main cross-roads or mouth of a stream)

2. The name and address of the owner is City of Oneida, N.Y.

3. The dam will be used for Impounding water for Municipal Supply

4. Will any part of the dam be built upon or its pond flood any State lands? No

5. The watershed at the proposed dam draining into the pond to be formed thereby is 17 square miles.

6. The proposed dam will have a pond area at the spillcrest elevation of approx. 125 acres and will impound 26,737,968 cubic feet of water.

7. The lowest part of the natural shore of the pond is 20 feet vertically above the spillcrest and everywhere else the shore will be at least 25 feet above the spillcrest.

8. The maximum known flow of the stream at the dam site was 576 cubic feet per second on March 1916 (Date)

9. State if any damage to life or to any buildings, roads or other property could be caused by any possible failure of the proposed dam No buildings. Possibly highway or bridges would be washed away

10. The natural material of the bed on which the proposed dam will rest is (clay, sand, gravel, boulders, granite, shale, slate, limestone, etc.) Hudson River Shale

11. The material of the right bank, in the direction with the current, is Clay & Gravel at the spillcrest elevation this material has a top slope of 4/8 inches vertical to a foot horizontal on the center line of the dam, a vertical thickness at this elevation of 50 feet, and the top surface extends for a vertical height of 75 feet above the spillcrest.

12. The material of the left bank is clay & gravel; has a top slope of 4/8 inches to a foot horizontal, a thickness of 50 feet, and a height of 75 feet.

13 State the character of the bed and the banks in respect to the hardness, perviousness, water bearing, effect of exposure to air and to water, uniformity, etc. after removal of thin layer of top soil the material is sand, clay and gravel approaching hard pan: foundation of dam is rock and from holes drilled into same indicated a hard well formed rock

14. If the bed is in layers, are the layers horizontal or inclined? Horizontal If inclined what is the direction of the horizontal outcropping relative to the axis of the main dam and the inclination and direction of the layers in a plane perpendicular to the horizontal outcropping

15. What is the thickness of the layers? two to four ft.

16. Are there any porous seams or fissures? No

17. WASTES. The spillway of the above proposed dam will be 70 feet long in the clear; the waters will be held at the right end by a Concrete the top of which will be 8 feet above the spillcrest, and have a top width of 8 feet; and at the left end by a Concrete the top of which will be 8 feet above the spillcrest, and have a top width of 8 feet.

18. There will be also for flood discharge 2 pipes 24 inches inside diameter and the bottom will be 35 feet below the spillcrest, a sluice or gate feet wide in the clear by feet high, and the bottom will be feet below the spillcrest.

19. APRON. Below the proposed dam there will be an apron built of Concrete 70 feet long across the stream, 40 feet wide and 3 feet thick. The downstream side of the apron will have a thickness of feet for a width of feet.

20. PLANS. Each application for a permit of a dam over 12 feet in height must be accompanied by a location map and complete working drawings in triplicate of the proposed structure, one set of which will be returned if they are approved. Each drawing should have a title giving the parts shown, the name of the town and county in which the dam site is located, and the name of the owner and of the engineer.

The location map (U. S. Geological Quadrangle or other map) should show the exact location of the proposed dam; of buildings below the dam which might be damaged by any failure of the dam; of roads adjacent to or crossing the stream below the dam, giving the lowest elevation of the roadway above the stream bed and giving the shape,

the height and the width of stream openings; and of any embankments or steep slopes that any flood could pass over. Also indicate the character and use made of the ground below the dam.

The complete working drawings should give all the dimensions necessary for the calculations of the stability of the structure, and all the information asked for below under "Sketches." There may be attached to the application any written reports, calculations, investigations or opinions that may aid in showing the data and method used by the designer. State the assumed ice and uplift pressures and the conditions on which based.

21. SKETCHES. For small and unimportant structures, if plans have not been made, on the back of this application make a sketch to scale for each different cross-section at the highest point; giving the height and the depth from the surface of the foundation, the bottom width, the top width (for a concrete or masonry spill at 18 inches below the crest), the elevation of the top in reference to the spillcrest, the length of the section, and the material of which the section is to be constructed; on the spillway section show a cross section of the apron, giving its width, thickness and material, and show the abutment or wash wall at the end of the spillway, giving its heights and thickness. Mark each section with a capital letter. Also sketch a plan; show the above sections by their top lines, giving the mark and the length of each; the openings by their horizontal dimensions; the abutments by their top width and top lengths from the upstream face of the spillcrest; and outline the apron. Also sketch an elevation of each end of the dam with a cross section of the banks, giving the depth and width excavated into the banks.

22. ELEVATIONS. Also give the elevations, if possible from the Mean Sea Level, of at least two permanent Bench Marks; of the spillcrest for any existing dam on the proposed dam site, at the middle and at the ends of the spill; of the spillcrest for the above proposed dam; and of the spillcrest of any adjacent dams.

23. SAMPLES. When so instructed, send samples of the materials to be used in the construction of the proposed dam, using shipping tags which will be furnished. For sand, one-half a cubic foot is desired (exclusive of any stone over ¼ inch in size mixed therewith); for cement, three pints; and for the natural bed, twenty cubic inches if of ledge and one-half a cubic foot if of soil.

24. INSPECTION. State how inspection is to be provided for during construction Engineers and Inspectors to be appointed by Water Commission

25. WATER SUPPLY. Are the waters impounded by the above dam to be used for a public water supply? yes Has an application under the provisions of Article IX of the Conservation Law for such use been made to the Water Control Commission, Albany, N. Y.? yes

The above information is correct to the best of my knowledge and belief.

Oneida, N.Y.
(Address of signer)

Jan. 23, 1925
(Date)

Chairman Board of Water Commissioners
(A person signing for owner should indicate his title or authority)

WM. W. CRONIN, Division Engineer

STATE OF NEW YORK
DEPARTMENT OF STATE ENGINEER AND SURVEYOR
MIDDLE DIVISION
WEIGH LOCK BUILDING
SYRACUSE

SUBJECT: DAM NO. 447 6
Oswego Watershed

July 2, 1925.

Mr. Wm. W. Cronin,
Division Engineer,
Syracuse, N.Y.

Dear Sir:

Under your instructions I visited the site of Dam No.447 on June 30, 1925, for the purpose of inspecting the foundation.

This dam is being constructed by the City of Oneida at Glenmore on Florence Creek, a small stream about twenty miles north of Oneida, for the purpose of impounding water for a city water supply.

Only one 30 ft. section of the foundation had been uncovered and most of the loose rock removed. At this point the dam is to be about 32 ft. wide at the base, with a 4 ft. cut-off wall on the upstream face extending 3 ft. into rock. This cut-off wall excavation had not been started, so a complete and thorough inspection could not be made. The rock is a shaley sandstone in horizontal layers of 3 to 8 inches thick, with the seams fairly tight. Overlying the rock is a layer of gravelly loam from 2 to 3 ft. deep, but increasing in depth as the dam extends into the bank.

The rock had been excavated to a depth of 2 to 3 ft. and is quite hard at the bottom, and it seems suitable for the foundation provided there are no open seams. Before any concrete is placed it is proposed to put down three or four holes in the foundation and a test made to see if any grout can be forced into the seams.

Photos Nos. 1 and 2 show the nature of the rock layers. Photo No. 3 is a view looking upstream from the dam site showing clearing of reservoir site, which is about 75% complete. Note the shale in the creek bottom. Work on the pipe line from dam to city has not been started, being delayed pending arrival of pipe from France.

Respectfully submitted,

C. L. Bennicki
Asst. Engr.

CSB:ALG

WM. W. CRONIN, DIVISION ENGINEER

STATE OF NEW YORK
DEPARTMENT OF STATE ENGINEER AND SURVEYOR
MIDDLE DIVISION
WEIGH LOCK BUILDING
SYRACUSE

SUBJECT: DAI NO. 447
Glenmore - Oswego

August 19, 1925.

Mr. Wm. W. Cronin,
Division Engineer,
Syracuse, N.Y.

Dear Sir:

Acting under your instructions I made a second inspection trip on August 18th to the dam being constructed by the City of Oneida at Glenmore, on Florence Creek, in connection with a new city water supply syatem.

Since my first inspection, June 30th, two full sections of concrete have been completed, and a third, at the gatehouse, completed to elevation of outlet pipes, which were being put in place.

The first section placed is about 80 ft. from the easterly end of dam and the others adjoining on the west. The foundation of the second and third sections was carried two or three feet deeper than the first section, and in the third a hole was drilled about 5 ft. below the bottom of foundation to test the nature of the underlying rock, which was found to be satisfactory.

Respectfully submitted,

C. L. Bannister
Asst. Engr.

CLB:ALG

DEC DAM INSPECTION REPORT

DW.

RB	CTY	YR. AP.	DAM NO.	INS. DATE	USE	TYI
08	33	26	00047	07/06/72	03	41

Reconst

AS BUILT INSPECTION

- [ ] Location of Spillway and outlet
- [ ] Elevations
- [ ] Size of Spillway and outlet
- [ ] Geometry of Non-overflow section

[1] GENERAL CONDITION OF NON-OVERFLOW SECTION

[1] Settlement	[2] Cracks	[1] Deflection
[2] Joints	[2] Surface of Concrete	[2] Leakage
[1] Undermining	[1] Settlement of Embankment	[1] Crest of Dam
[2] Downstream Slope	[1] Upstream Slope	[2] Toe of Slope

[1] GENERAL CONDITION OF SPILLWAY AND OUTLET WORKS

[2] Auxiliary Spillway	[2] Service or Concrete Spillway	[2] Stilling Basin
[2] Joints	[2] Surface of Concrete	[ ] Spillway Toe
[2] Mechanical Equipment	[4] Plunge Pool	[2] Drain

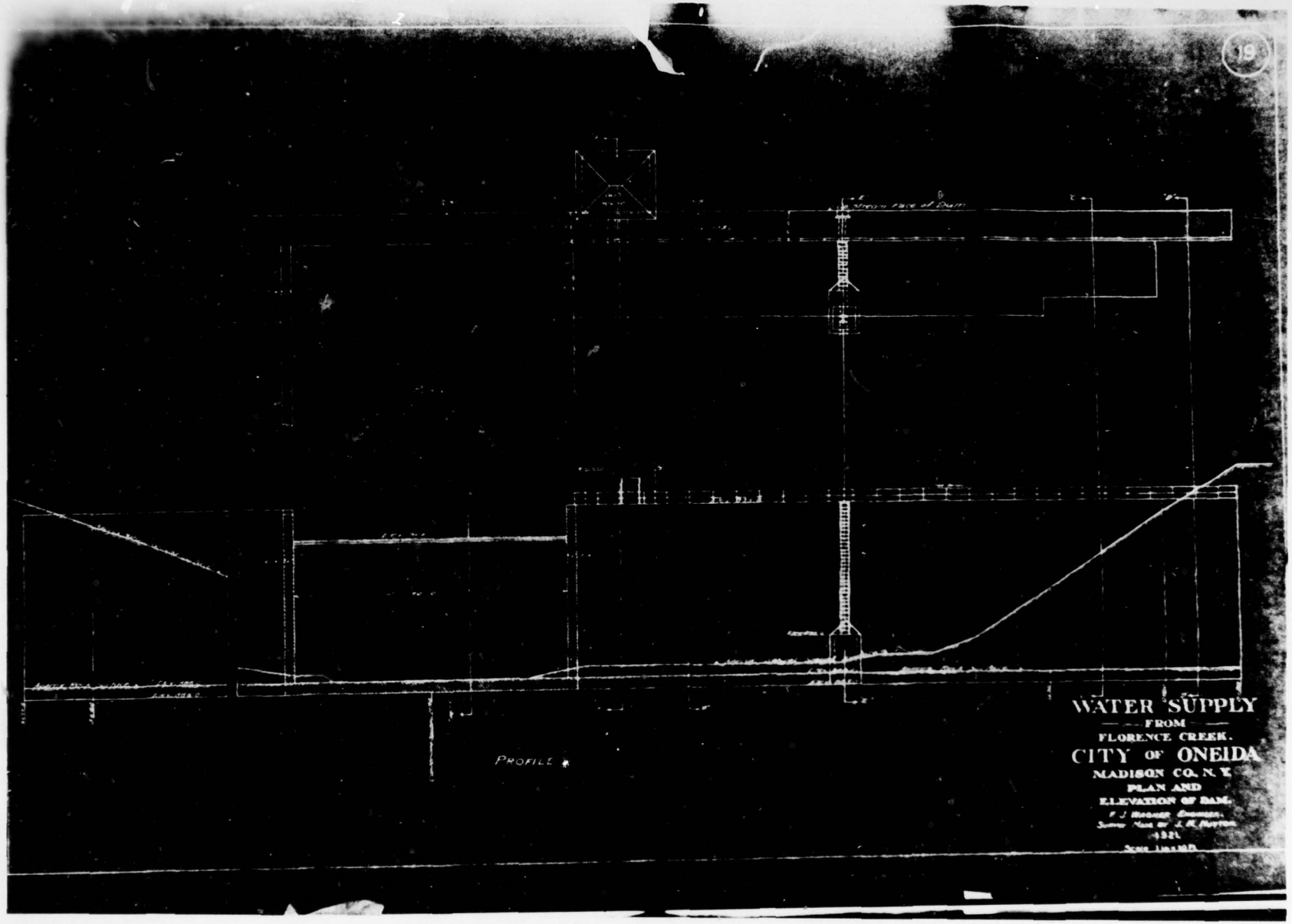
[1] Maintenance	[C] Hazard Class
[3] Evaluation	[-4] Inspector

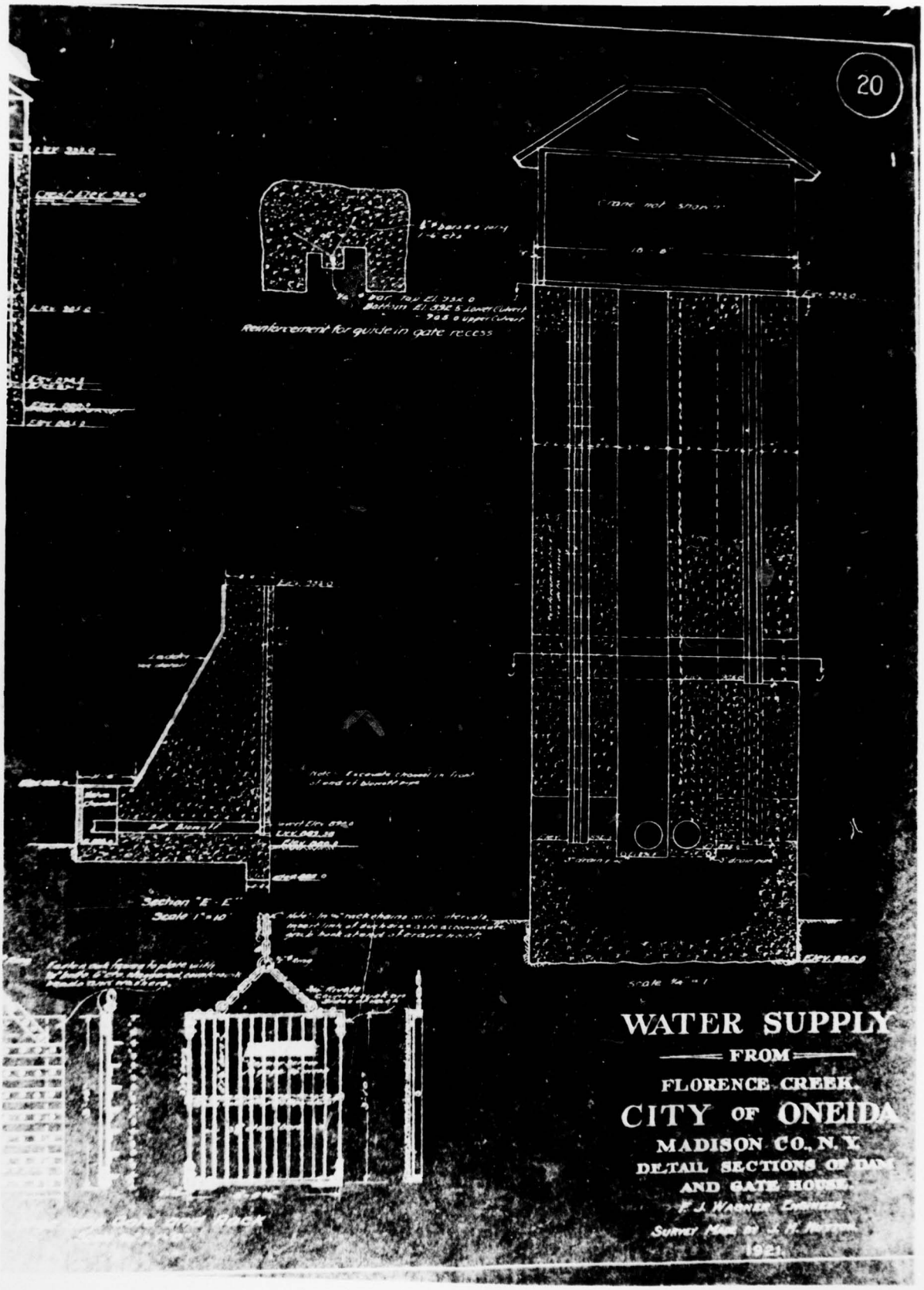
COMMENTS:

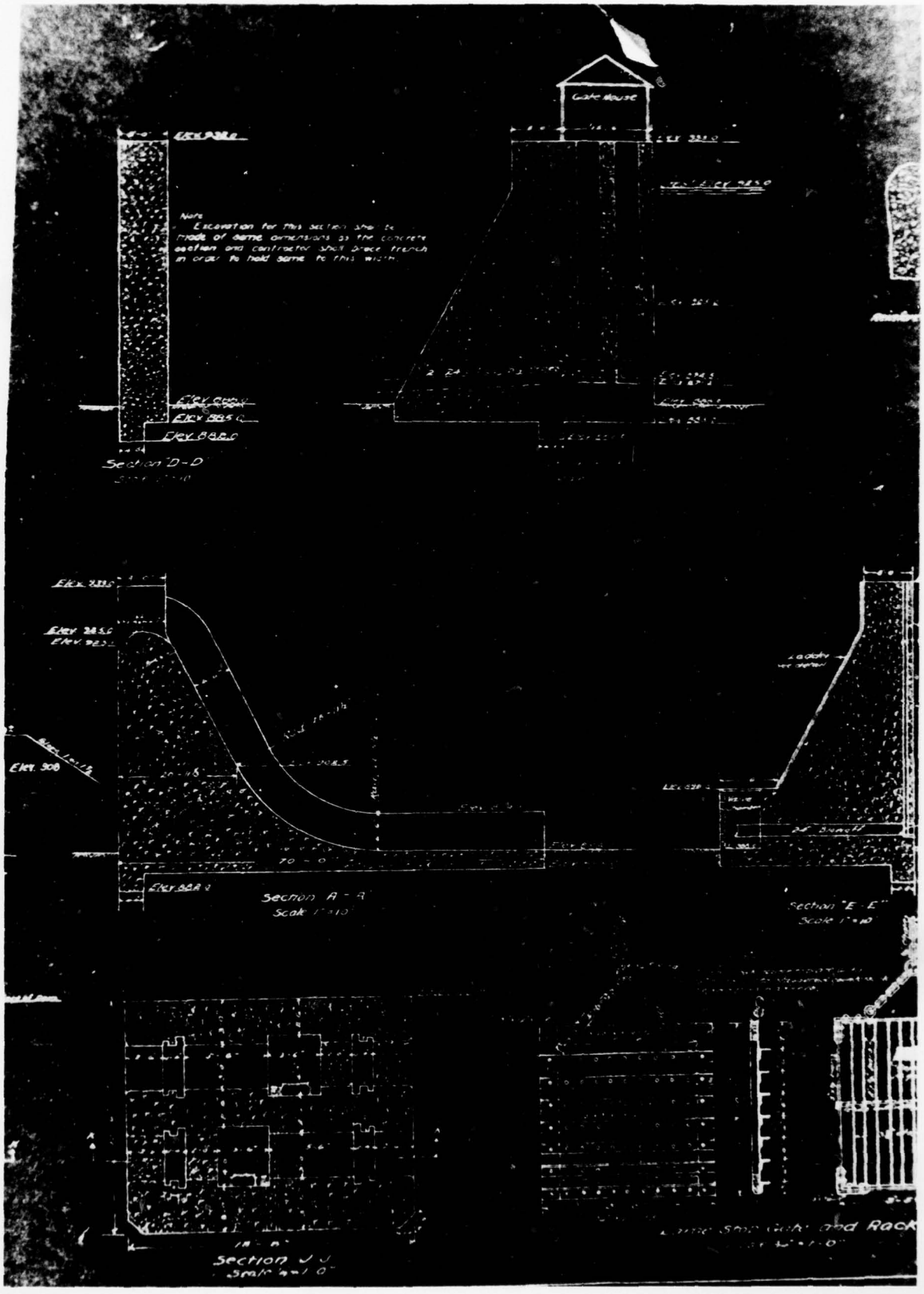
GUNITE APPLIED ON DOWNSTREAM FACE IN SPRING OF 72

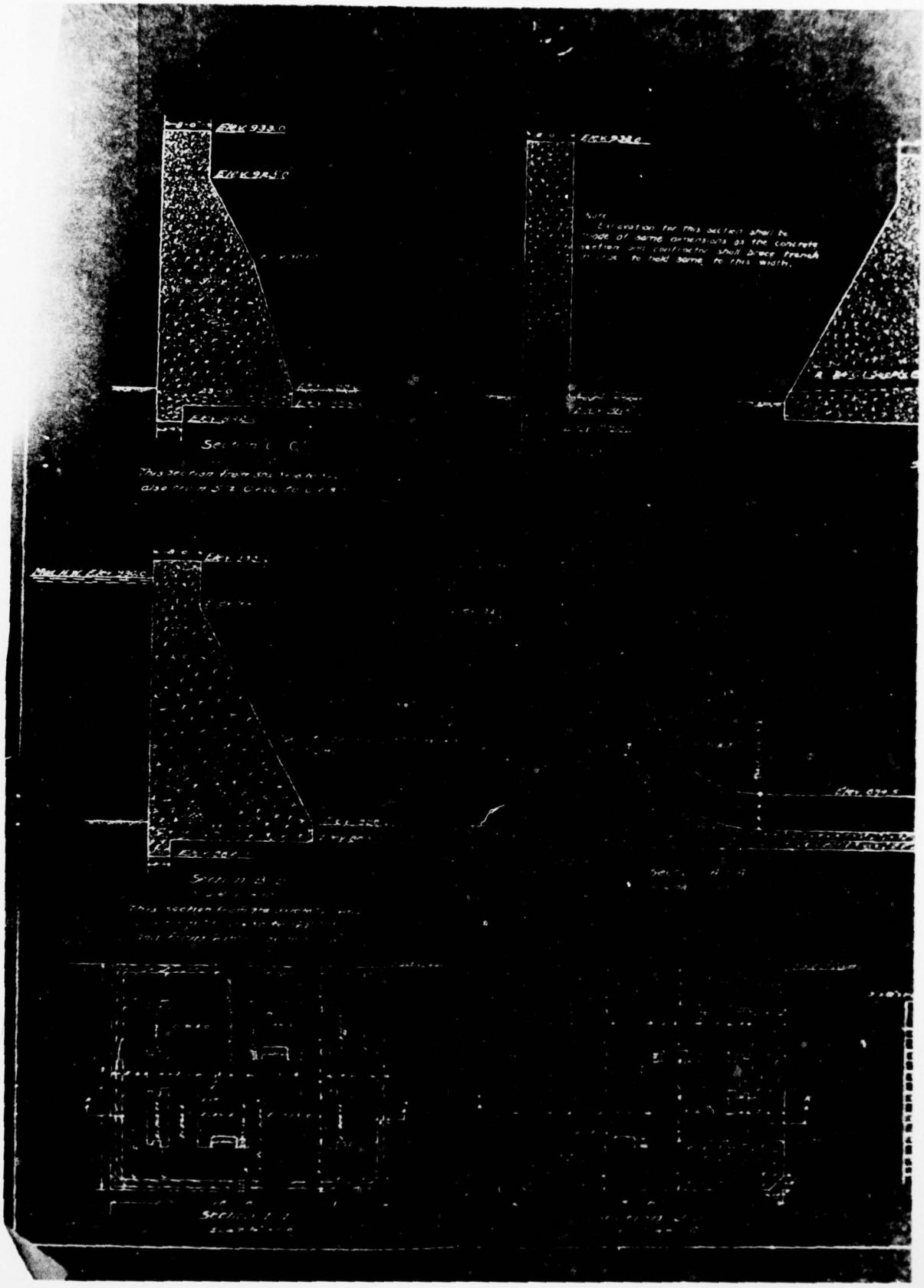
STILLING BASIN DAMAGED IN STORM OF JUNE 72 WITH POSSIBLE UNDERMINING OF SPILLWAY APRON

APPENDIX E
CONSTRUCTION DRAWINGS


PROFILE
WATER SUPPLY
FROM
FLORENCE CREEK.
CITY OF ONEIDA
MADISON CO. N. Y.
PLAN AND
ELEVATION OF DAM.


20
Reinforcement for guide in gate recess
Section "E-E"
Scale 1" = 10
WATER SUPPLY
FROM
FLORENCE CREEK
CITY OF ONEIDA
MADISON CO., N.Y.
DETAIL SECTIONS OF DAM
AND GATE HOUSE
1921


Gate House
Note
Excavation for this section shall be made of same dimensions as the concrete section and contractor shall brace trench in order to hold same to this width.
Section "D-D"
Section A - A
Scale 1"=10'
Section "E-E"
Section J-J
Scale 1"=10'


EL. 933.0
Note
Excavation for this section shall be made of same dimensions as the concrete section and contractor shall brace trench as may be necessary to hold same to this width.

APPENDIX F
VISUAL CHECK LIST

CHECK LIST
VISUAL INSPECTION
PHASE 1

NAME DAM (Glenmore Reservoir) Oneida City Reservoir Dam) COUNTY Oneida STATE New York ID# 421

TYPE OF DAM Mass Concrete HAZARD CATEGORY High Hazard

DATE(s) INSPECTION May 4, 1978 WEATHER partly cloudy TEMPERATURE 60°

POOL ELEVATION AT TIME OF INSPECTION 925.2 M.S.L. TAILWATER AT TIME OF INSPECTION 891.0 M.S.L.

INSPECTION PERSONNEL:

R. Jeffrey Kimball, P.E. Bob Mayer, City Engineer

James T. Hockensmith Rex Niles, City Engineer

John Pierchoski, P.E.

John C. Pierchoski RECORDER

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS	N/A	
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE	N/A	
SLOUGHING OR EROSION OF EMBANKMENT AND ABUTMENT SLOPES	N/A	
VERTICAL AND HORIZONTAL ALINEMENT OF THE CREST	N/A	
RIPRAP FAILURES	N/A	

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
JUNCTION OF EMBANKMENT AND ABUTMENT, SPILLWAY AND DAM	N/A	
ANY NOTICEABLE SEEPAGE	N/A	
STAFF GAGE AND RECORDER	N/A	
DRAINS	N/A	

CONCRETE/MASONRY DAMS

ONEIDA

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
ANY NOTICEABLE SEEPAGE	West (Right) abutment large soft seepage spot just below concrete face. East (left) abutment - none.	
STRUCTURE TO ABUTMENT/EMBANKMENT JUNCTIONS	Right abutment - no noticeable distress Left abutment - no noticeable distress	Snow on Downstream face Left abutment.
DRAINS	Emptying conduit thru east wall of stilling basin running slightly Mayer says can't close the valve completely.	
WATER PASSAGES	None	
FOUNDATION	Appears to be on shelf rock which is noticeable downstream just beyond the stilling basin. Dam was keyed into rock (3') - Hudson River shale.	

CONCRETE/MASONRY DAMS

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS CONCRETE SURFACES	Minor seepage thru concrete mass, except adjacent to spillway wall on right abutment section where seepage is noticeable, but not serious.	
STRUCTURAL CRACKING	Entire face downstream received gunite coating twenty years ago and again 7-8 years ago. No structural cracking noticeable.	
VERTICAL AND HORIZONTAL ALIGNMENT	Looks good. no deviations noticed	
MONOLITH JOINTS	Seepage along right abutment at horizontal joints & vertical joints to sloped walls. Joints show evidence of past seepage. Horizontal joint seeps at right abutment. Tops of joints must have been severly weathered. Gunite paving is extensive at tops.	
CONSTRUCTION JOINTS	No excessive settlement or opening of joints apparent.	
STAFF GAGE OF RECORDER:	NONE	

OUTLET WORKS ONEIDA

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATION
CRACKING AND SPALLING OF CONCRETE SURFACES IN OUTLET CONDUIT	Unknown	
INTAKE STRUCTURE	Clapboard shack on concrete intake - insignificant crack 6' down from floor on left side.	
OUTLET STRUCTURE	Will open but will not close completely	
OUTLET CHANNEL	None- Discharges to stilling basin of emergency spillway.	
EMERGENCY GATE	None	

UNGATED SPILLWAY

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE SILL	Good condition	
APPROACH CHANNEL	2 1/2' long, good shape	
DISCHARGE CHANNEL	Riprapped both sides; 60% of riprap is too small and will be washed away. Energy dissipation chute blocks built in 1973 are in good shape.	Horizontal crack half of the way up causes water to splash (difficult to see because of water flowing over spillway)
BRIDGE AND PIERS	Wood manway on pipe piers in good condition. Creates obstruction to flow.	
GATES AND OPERATION EQUIPMENT	Wood flashboard gates in fair to good condition, some boards need replaced. Open valve located at left end of spillway, not locked. Reportedly very difficult to open.	

DOWNSTREAM CHANNEL
ONEIDA

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONDITION (OBSTRUCTIONS, DEBRIS, ETC.)	Wide enough to take flow. Lots of trees and brush in outer banks. No debris or other obstructions.	
SLOPES	Flat - no slides visible.	
APPROXIMATE NO. OF HOMES AND POPULATION	4 houses - population approximately 16, immediately downstream.	

RESERVOIR
ONEIDA

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SLOPES	Gentle, no slope failures noticed reservoir area wooded.	
SEDIMENTATION	Minor	

AD-A064 317 KIMBALL (L ROBERT) AND ASSOCIATES EBENSBURG PA F/G 13/2
NATIONAL DAM SAFETY PROGRAM. ONEIDA CITY RESERVOIR DAM (N.Y.-42--ETC(U)
JUN 78 R J KIMBALL DACW51-78-C-0025

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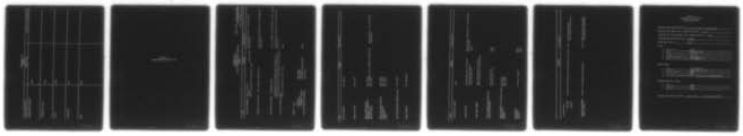

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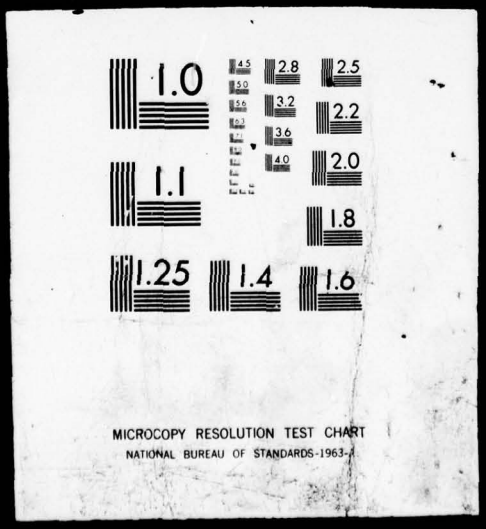

INSTRUMENTATION
ONEIDA

VISUAL EXAMINATION	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
MONUMENTATION/SURVEYS	None	
OBSERVATION WELLS	None	
WEIRS	None	
PIEZOMETERS	None	
OTHER	None	

APPENDIX C
ENGINEERING DATA CHECK LIST

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION
PHASE I

NAME OF DAM Oneida City Res Dam (Glenmore Res.)
ID# NY 421

ITEM	REMARKS	ITEM HELD BY
AS-BUILT DRAWINGS	Plan & Profile Details (Blue Prints) Detail sections of dam and gate house	New York State Dept. of Environmental Conservation
REGIONAL VICINITY MAP	Site Location (Blue Prints)	New York State Department of Environmental Conservation
CONSTRUCTION HISTORY	Photograph Book	City of Oneida, City Engineers Office (owner)
	Correspondence with Deputy State Engineer on Application for the construction of a dam (State of New York Dept. of State Engineering & Surveying)	New York State Department of Environmental Conservation
TYPICAL SECTIONS OF DAM	Sections along center line of dam	Owner
OUTLETS - PLAN		
- DETAILS	None known	
- CONSTRAINTS	None known	
- DISCHANCE RATINGS	Elevation Discharge Data	Owner
RAINFALL/RESERVOIR RECORDS	None known	

ITEM	REMARKS	ITEMS HELD BY
DESIGN REPORTS	None known	
GEOLOGY REPORTS	None known	
DESIGN COMPUTATIONS		
HYDROLOGY & HYDRAULICS	None known	
DAM STABILITY	H.W. Benedict 1925, Stability Computations	New York Dept. of Environmental Conservation
SEEPAGE STUDIES	None known	
MATERIALS INVESTIGATIONS	None known	
BORING RECORDS	None known	
LABORATORY	None known	
FIELD	None known	
POST-CONSTRUCTION SURVEYS OF DAM	None known	
BORROW SOURCES	Not applicable	

ITEM	REMARKS	ITEMS HELD BY
MONITORING SYSTEMS	None	
MODIFICATIONS	Flash Boards (Plan & Details)	New York State Department of Environmental Conservation
	Stilling Basin Repairs (plan and details)	Owner
HIGH POOL RECORDS	Agnes 1972 Reported 15" below crest elevation no written record	
POST CONSTRUCTION ENGINEERING STUDIES AND REPORTS	Flash Boards 1950	Owner
	Stilling Basin 1972	Owner
PRIOR ACCIDENTS OR FAILURE OF DAM	None known	
DESCRIPTION	None known	
REPORTS	None known	
MAINTENANCE	No formal records	Owner
OPERATION		Owner
RECORDS		Owner

	REMARKS	ITEMS HELD BY
SPILLWAY PLAN SECTIONS DETAILS	Construction drawings and stilling basin revisions	Owner - New York Department Environmental Conservation
OPERATING EQUIPMENT PLANS & DETAILS	Details of flashboards and gatehouse	Owner & New York State Department Environmental Conservation

CHECK LIST
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

DRAINAGE AREA CHARACTERISTICS: 14.4 sq. mi. wooded rolling hills

ELEVATION TOP NORMAL POOL (STORAGE CAPACITY): 925.0

ELEVATION TOP FLOOD CONTROL POOL (STORAGE CAPACITY): N/A

ELEVATION MAXIMUM DESIGN POOL: Unknown

ELEVATION TOP DAM: 932.3

CREST:

a.	Elevation	925.0
b.	Type	Concrete ogee
c.	Width	1' - 0
d.	Length	69' - 8
e.	Location Spillover	At center of Dam
f.	Number and Type of Gates	Flashboards

OUTLET WORKS:

a.	Type	Stilling Basin
b.	Location	Downstream of ogee
c.	Entrance inverts	N/A
d.	Exit inverts	890
e.	Emergency draindown facilities	24" pipe into stilling basin

HYDROMETEOROLOGICAL GAGES:

a.	Type	None
b.	Location	N/A
c.	Records	None

MAXIMUM NON-DAMAGING DISCHARGE Agnes Flood - approximately 4,600 cfs