

AD-A076 166

NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/2
NATIONAL DAM SAFETY PROGRAM. FINCH HOLLOW WATERSHED PROJECT, SI--ETC(U)
AUG 79 G KOCH DACW51-79-C-0001

UNCLASSIFIED

NL

1 OF 2
AD
A076166



AD A076166

Finch Hollow Watershed Project, Site 1. Inventory Number NY-697
Susquehanna River Basin. Broome County,
New York. Phase 1 Inspection Report,

⑩ George /Koch

12 97

DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DDC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS
BEFORE COMPLETING FORM

1. REPORT NUMBER		2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Phase I Inspection Report Finch Hollow Watershed Project - Site 1 Susquehanna River Basin, Broome County, New York Inventory No. NY 697		5. TYPE OF REPORT & PERIOD COVERED Phase I Inspection Report National Dam Safety Program	
7. AUTHOR(s) George Koch, P.E.		6. PERFORMING ORG. REPORT NUMBER	
9. PERFORMING ORGANIZATION NAME AND ADDRESS New York State Department of Environmental Conservation/ 50 Wolf Road Albany, New York 12233		8. CONTRACT OR GRANT NUMBER(s) DAEW-51-79-C-0001	
11. CONTROLLING OFFICE NAME AND ADDRESS New York State Department of Environmental Con- servation/ 50 Wolf Road Albany, New York 12233		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Department of the Army 26 Federal Plaza/ New York District, CofE New York, New York 10007		12. REPORT DATE 24 September 1979	
		13. NUMBER OF PAGES	
		15. SECURITY CLASS. (of this report) UNCLASSIFIED	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; Distribution unlimited.			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20) (if different from Report) D D C RECEIVED NOV 7 1979 RECEIVED E			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Dam Safety National Dam Safety Program Visual Inspection Hydrology, Structural Stability Finch Hollow Watershed Project Site 1 Broome County 79 11 05			
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. Finch Hollow Watershed Project-Site 1 did not reveal conditions which pose a hazard to humanlife or property. Total spillway discharge capacity is adequate for the PMF. An immediate investigation is required to ascertain the flooding potential of homes located between the dam and the highway embankment. Subsequent remedial measures must be completed within 1 year of notification.			

AD A 076166

DDC FILE COPY

129
50
11
6
79 11 05

CON

Cont

Several remedial actions during construction season are required.

[Faint, mostly illegible text, possibly bleed-through from the reverse side of the page]

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.

Accession For	<input checked="" type="checkbox"/>
NTIS	<input type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	<input type="checkbox"/>
By	
Distribution	
Availability	
Available for	
special	232
Dist	A

SUSQUEHANNA RIVER BASIN
FINCH HOLLOW WATERSHED PROJECT - SITE I
NY 697
PHASE I INSPECTION REPORT

TABLE OF CONTENTS

	<u>PAGE NO.</u>
- ASSESSMENT	-
- OVERVIEW PHOTOGRAPH	-
1 PROJECT INFORMATION	1
1.1 GENERAL	1
a. Authority	1
b. Purpose of Inspection	1
1.2 DESCRIPTION OF PROJECT	1
a. Description of Dam and Appurtenances	1
b. Location	2
c. Size Classification	2
d. Hazard Classification	2
e. Ownership	2
f. Purpose of the Dam	2
g. Design and Construction History	2
h. Normal Operating Procedures	2
1.3 PERTINENT DATA	2
a. Drainage Area	2
b. Discharge at Dam	2
c. Elevation	2
d. Reservoir	3
e. Storage Capacity	3
f. Dam	3
g. Principal Spillway	3
h. Auxiliary Spillway (Emergency)	3
i. Reservoir Drain	3
2 ENGINEERING DATA	4
2.1 GEOLOGY	4
2.2 SUBSURFACE INVESTIGATION	4
2.3 EMBANKMENT AND APPURTENANT STRUCTURES	4
2.4 CONSTRUCTION RECORDS	5
2.5 OPERATION RECORD	5
2.6 EVALUATION OF DATA	5

	<u>PAGE NO.</u>	
3	VISUAL INSPECTION	6
3.1	FINDINGS	6
a.	General	6
b.	Embankment	6
c.	Principal Spillway	6
d.	Auxiliary Spillway	6
e.	Reservoir Drain	7
f.	Downstream Channel	7
g.	Reservoir	7
3.2	EVALUATION	7
4	OPERATION AND MAINTENANCE PROCEDURES	8
4.1	PROCEDURES	8
4.2	MAINTENANCE OF THE DAM	8
4.3	WARNING SYSTEM IN EFFECT	8
4.4	EVALUATION	8
5	HYDROLOGIC/HYDRAULIC	9
5.1	DRAINAGE AREA CHARACTERISTICS	9
5.2	ANALYSIS CRITERIA	9
5.3	SPILLWAY CAPACITY	9
5.4	RESERVOIR CAPACITY	9
5.5	FLOODS OF RECORD	9
5.6	OVERTOPPING POTENTIAL	10
5.7	EVALUATION	10
6	STRUCTURAL STABILITY	11
6.1	EVALUATION OF STRUCTURAL STABILITY	11
a.	Visual Observations	11
b.	Design and Construction Data	11
c.	Post Construction Changes	11
d.	Seismic Stability	11
7	ASSESSMENT/RECOMMENDATIONS	12
7.1	ASSESSMENT	12
a.	Safety	12
b.	Adequacy of Information	12
c.	Need for Additional Investigations	12
7.2	RECOMMENDED MEASURES	12

PHASE I REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: Finch Hollow Watershed Project - Site 1
I.D. No. NY 697

State Located: New York

County Located: Broome

Watershed: Susquehanna River Basin

Stream: Unnamed tributary of Little Choconut Creek

Date of Inspection: July 23, 1979

ASSESSMENT

The examination of documents and visual inspection of the Finch Hollow Site 1 dam and appurtenant structures did not reveal conditions which constitute a hazard to human life or property.

The total discharge capacity of the spillways is adequate for the Probable Maximum Flood (PMF).

Although the dam and appurtenances do not present conditions considered to be hazardous in nature, the location of a highway embankment immediately downstream; coupled with a box culvert of low capacity (as compared to the auxiliary spillway capacity) may promote flooding of the homes located between the dam and the highway embankment during periods of unusually heavy runoff. Therefore, an immediate investigation is required to ascertain the flooding potential in this area. Remedial measures resulting from this investigation must be completed within 1 year from notification.

The following remedial actions are required during this construction season:

1. Remove the tree growth at the entrance and exit of the auxiliary spillway channel to permit the unimpeded flow of discharge water;
2. Repair the bolting units of the principal spillway riser grating;
3. Remove the debris surrounding the principal spillway riser intake. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including operation and lubrication of the slide gate mechanism. Document this information for future reference;

4. Develop an emergency action plan for notification of downstream residents and the proper authorities.

George Koch

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

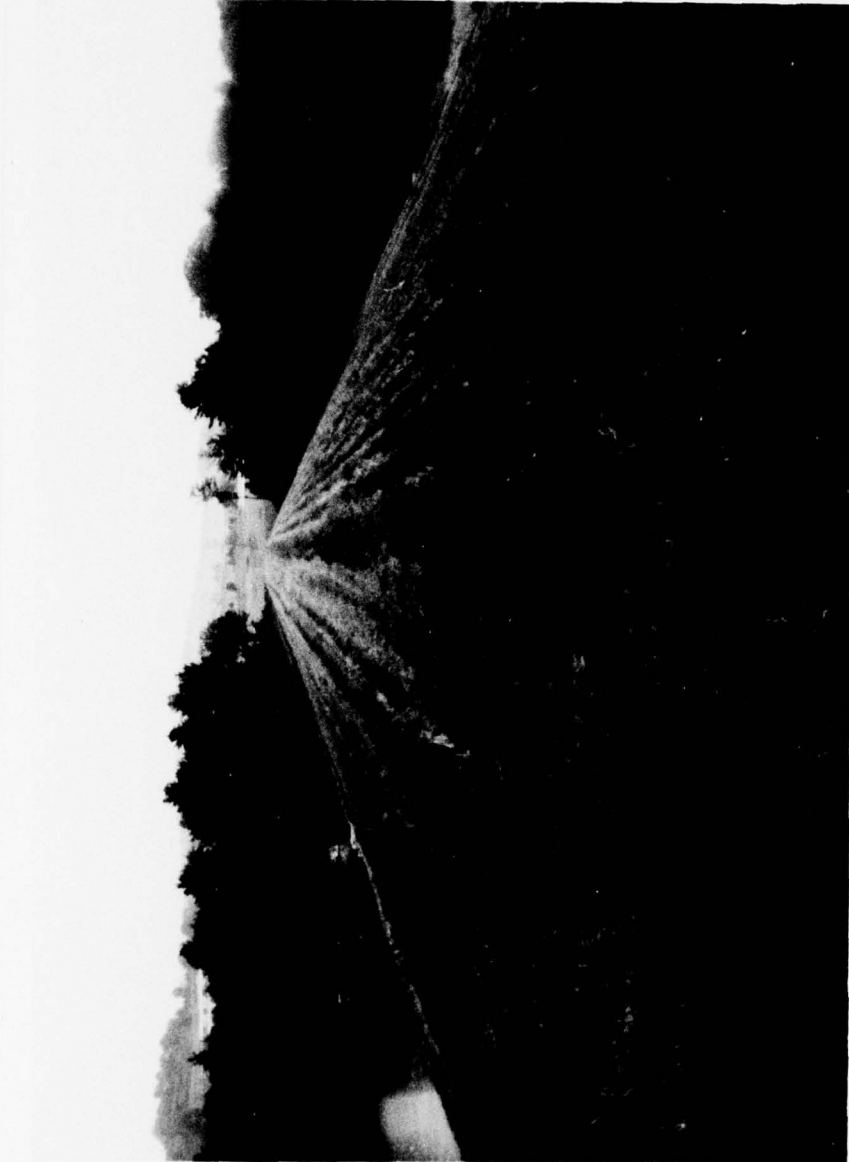
Approved By:

Clark H. Benn

Col. Clark H. Benn
New York District Engineer

Date:

24 September 79



Overview of Finch Hollow Site 1 Dam
Photo #1

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
FINCH HOLLOW WATERSHED PROJECT - SITE I
I.D. No. NY 697
DEC #96A-3852
SUSQUEHANNA RIVER BASIN
BROOME COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I 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

Evaluation of the existing conditions of the subject dam to identify deficiencies and hazardous conditions, determine if they constitute hazards to life and property and recommend remedial measures where necessary.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam and Appurtenances

The Site I dam consists of a 750-foot long zoned earth embankment, 62 feet high, with a principal and auxiliary spillway. The embankment has 2 zones, the primary being composed of gravelly silt and the second zone located on the downstream side of the dam being composed of gravelly silt containing oversized material up to 16 inches in diameter. The upstream slope is 1 vertical on 3 horizontal with a 20-foot wide bench at elevation 974.5 and the downstream slope is 1 on 2.5 with a 10-foot wide bench at elevation 964.7. The crest width is 19 feet.

An internal drainage system is located under the downstream portion of the dam to control the phreatic surface and provide a safe outlet for seepage. A cut-off trench is located at the dam centerline to reduce seepage.

The principal spillway is a drop inlet structure consisting of a single stage reinforced concrete riser, 36-inch diameter reinforced concrete pipe conduit, an impact basin, and an excavated outlet channel.

The 350-foot wide auxiliary spillway, located beyond the left (east) abutment, is designed as an earth cut with vegetation. Side slopes are 1 on 3.0.

A 16-inch diameter cast iron pipe with reinforced concrete inlet serves as a reservoir drain. The drain is controlled by a 16-inch diameter flat frame slide gate, the stem of which extends to the top of the riser having stem guides located on the inside of the riser.

b. Location

The dam is located in Finch Hollow north of Johnson City, New York, along an unnamed tributary of Little Choconut Creek which is a tributary of the Susquehanna River.

c. Size Classification

The dam is 62 feet high and is classified as "intermediate" in size (40 to 100 feet in height).

d. Hazard Classification

The dam is classified as high hazard, because of its location immediately above approximately 20 homes and above Johnson City.

e. Ownership

The dam is owned and operated by the County of Broome, New York.

f. Purpose of the Dam

The dam is a flood water retarding structure.

g. Design and Construction History

The dam was designed by the U.S. Department of Agriculture, Soil Conservation Service (SCS). Construction of the dam was completed in July 1973 by Jones and Meade Construction, Appalachin, New York. The SCS office located at the Broome County Airport has all design and construction information.

h. Normal Operating Procedures

Normal flows are discharged through the principal spillway. This structure has sufficient capacity to store and discharge a 100 year flood without use of the auxiliary spillway. For storms in excess of this flood, the auxiliary spillway will outlet the discharge.

1.3

PERTINENT DATA

a. <u>Drainage Area (sq. mi.)</u>	2.7
b. <u>Discharge at Dam (cfs)</u>	
Principal spillway at maximum high water	220
Principal spillway at auxiliary spillway crest elevation	207
Reservoir drain at principal spillway crest elevation	20
Maximum known flood: 9/25/75	161
Auxiliary spillway at maximum high water	26,050
c. <u>Elevation (USGS Datum)</u>	
Top of dam	1,009.6
Auxiliary spillway crest	1,001.2
Principal spillway crest	974.5
Reservoir drain, invert elevation	952.0

d.	<u>Reservoir (acres)</u>		
	Surface area at top of dam		32
	Surface area at crest of auxiliary spillway		22
	Surface area at crest of principal spillway		5
e.	<u>Storage Capacity (acre-feet)</u>		
	Top of dam		460
	Auxiliary spillway crest		224
	Principal spillway crest		41
f.	<u>Dam</u>		
	Embankment Type: 2 zoned earth with keyed earth cut-off trench and drain parallel to axis of dam		
	Embankment length (ft.)		750
	Slopes	Upstream	1 vertical on 3 horizontal
		Downstream	1 vertical on 2.5 horizontal
	Benches	Upstream	1 - 20 feet wide at elevation 974.5
		Downstream	1 - 10 feet wide at elevation 964.7
	Crest width (ft.)		19
g.	<u>Principal Spillway</u>		
	Type: Ungated, reinforced concrete drop inlet (3.0 x 9.0 ft.), rising 25.5 feet above the 36-inch diameter reinforced concrete pipe invert; length of pipe 288 feet; reinforced concrete impact basin		
	Weir length (ft.)		16.33
h.	<u>Auxiliary Spillway (Emergency)</u>		
	Type: Single grass-lined earth channel having trapezoidal cross-section.		
	Bottom width (ft.)		350
	Side slopes (vert.:horiz.)		1:3.0
	Length of level section (in profile) (ft.)		50
	Exit slope (ft./ft.)		0.027
i.	<u>Reservoir Drain</u>		
	Type: 16-inch diameter cast iron pipe with reinforced concrete inlet		
	Control: Manually operated vertical slide gate mounted along the inside of the principal spillway riser		

SECTION 2: ENGINEERING DATA

2.1 GEOLOGY

The Finch Hollow Watershed Project Site 1 Dam is located in the glaciated portion of the Appalachian uplands (norther extreme of the Appalachian Plateau) physiographic province of New York State. These uplands were formed by dissection of the uplifted but flat lying sandstones and shales of the Middle and Upper Devonian Catskill Delta. The plateau surface is represented by flat-topped divides with drainage generally southwest toward the Susquehanna River system.

Glacial cover is generally thin, although some north-south valleys are so thick that they are completely buried. The present surficial deposits have resulted primarily from glaciations during the Cenozoic Era, the last of which was the Wisconsin glaciation, approximately 11,000 years ago.

2.2 SUBSURFACE INVESTIGATION

A subsurface investigation was conducted by SCS in 1966. This program consisted of 19 drill holes and 23 test pits at locations along the dam, auxiliary spillway, structural elements, and borrow area. Applicable subsurface information is included in Appendix G, Drawings #21 and 22.

In general, the soils in the vicinity of the dam are of glacial till origin, gravelly silts and silts overlying a shaly silt - stone bedrock from 10 to 30 feet below the original ground surface. The depth to bedrock in the vicinity of the abutments is in excess of 40 feet. With the exception of those soils having high gravel contents, the soils are of low or very low permeability.

2.3 EMBANKMENT AND APPURTENANT STRUCTURES

The dam was designed and constructed under the supervision of SCS. "As-Built" drawings of this dam are on file at the SCS office in Broome County. Selected drawings of the dam and appurtenances are included in Appendix G. The dam is composed of 2 zones of compacted earth fill (max. height 62 feet), a cut-off trench having side slopes of 1 on 2, and an internal drain parallel to the axis of the dam approximately 60 feet from the downstream toe and outletting in the walls of the impact basin. A reinforced concrete riser with a 36-inch diameter reinforced concrete pipe conduit and impact basin serves as the principal spillway.

The auxiliary spillway is a 350-foot wide vegetated earth channel located at the left (east) abutment. A 16-inch diameter cast iron pipe with a manually operated slide gate serves as a reservoir drain.

2.4 CONSTRUCTION RECORDS

Complete construction records are available from the SCS office in Broome County. No major changes were incorporated during construction.

2.5 OPERATION RECORD

Since the dam is an ungated floodwater retarding structure, no operating records are maintained regarding water levels. During periods of extreme rainfall, SCS personnel do monitor the reservoir.

2.6 EVALUATION OF DATA

The data presented in this report has been compiled from information obtained from Mr. Gary Page, Project Engineer for SCS in Broome County and Mr. Donald Lake, Head of the SCS Design Section in Syracuse, New York. This information appears adequate and reliable for Phase I inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspection of the Site 1 Dam was conducted on July 23, 1979. The weather was partly cloudy and the temperature ranged in the eighties. The water surface was at the inlet elevation of the principal spillway (974.5).

b. Embankment

No signs of distress were observed in the earth embankment and no evidence of seepage, misalignment, sloughing, subsidence, depressions, surface cracking, or undesirable growth were noted in connection with the embankment. Riprap was in place on the upstream slope in the vicinity of the normal pool level for wave protection. (See photos #1, 2, & 12)

An internal drainage system composed of 2-10 inch diameter pipes surrounded by "drain fill" material and extending parallel to the axis of the dam provide drainage at the embankment-subgrade contact. These pipes exit through the concrete walls of the impact basin (See photo #6). No discharge was apparent.

c. Principal Spillway

The principal spillway consists of a vertical drop inlet structure, a reinforced concrete pipe through the embankment; an impact basin at the toe of the embankment, and an outlet channel. (See photos #3, 4, 6, 7, & 11). These components appear to be in satisfactory condition with the following exceptions:

1. The riser top grating is loose and the bolting units require repair. (See photo #5);
2. Considerable debris is surrounding the intake of the principal spillway. This debris should be removed with periodic removals conducted in the future. (See photos #3 & 4).

d. Auxiliary Spillway

The vegetated auxiliary spillway (earth cut section) is located beyond the left (east) abutment of the embankment (See photos #8, 9, & 10). The channel is in good condition, however, the following problem areas were noted:

1. Extensive tree growth is completely blocking the entrance and exit to the auxiliary spillway. If use of this spillway is required during significant storms, clogging of the channel may cause excessive water levels and overtopping of the dam. (See photos #2 & 8 for trees at entrance and photos #10, 12, & 13 for exit);
2. The exit of the auxiliary spillway is directed such that all flow will be concentrated immediately below the dam. This is standard design procedure.

However, in this case, a highway embankment has been placed downstream from the channel. The only outlet for the flow is through a box culvert approximately 4 x 5 feet located at the base of the highway embankment. (See photo #14) The dam is designed for more than 26,000 cfs discharge without overtopping. This design flow is far in excess of the capacity of the box culvert. Consequently, significant flows resulting from heavy rainfalls will impound water upstream of the highway embankment. Since approximately 20 homes are within this vicinity and of elevations lower than the highway crest, flooding may occur. This problem should be investigated thoroughly. Increased culvert capacity may be required, including trash racks and an emergency action plan.

e. Reservoir Drain

The 16-inch diameter reservoir drain and manually operated slide gate may be used to lower the reservoir. The slide gate control mechanism is located at the top of the riser. This system is reported to be operational.

f. Downstream Channel

The downstream channel below the impact basin is riprapped (See photo #11). The channel appears to be stable. An earth embankment is located approximately 2000 feet downstream from the dam. (See photos #13 & 14) A box culvert approximately 4 x 5 feet controls the flow through the embankment. Since approximately 20 homes could be flooded during periods of high runoff, the capacity of the box culvert should be investigated.

g. Reservoir

There are no visible signs of instability or sedimentation problems within the reservoir area.

3.2 EVALUATION

The problem areas observed during the inspection are listed below in order of importance:

- a. Investigate the flooding potential and capacity of the box culvert at the highway embankment;
- b. Remove the tree growth at the entrance and exit of the auxiliary spillway channel in order that the spillway will function as designed;
- c. Repair the bolting units of the grating at the top of the principal spillway riser;
- d. Remove the debris which surrounds the intake of the principal spillway riser. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including lubrication of the slide gate mechanism.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The normal water surface elevation is at the crest elevation of the principal spillway riser. Downstream flows are limited by the 36-inch diameter principal spillway pipe, except during extremely heavy runoff when the auxiliary spillway is in service. The dam provides 340 acre feet of flood storage between normal water level and the crest of the auxiliary spillway.

4.2 MAINTENANCE OF THE DAM

The dam is maintained by the County of Broome, New York. Maintenance is not considered satisfactory as evidenced by the deterioration of the riser grating and debris surrounding the riser. In addition, trees at the entrance and exit of the auxiliary spillway must be removed.

4.3 WARNING SYSTEM IN EFFECT

There is no warning system in effect or in preparation.

4.4 EVALUATION

The dam and appurtenant structures have not been maintained in a satisfactory condition as noted in "Section 3: Visual Inspection".

SECTION 5: HYDROLOGIC/HYDRAULIC

5.1 DRAINAGE AREA CHARACTERISTICS

Delineation of the watershed of the Site 1 dam was made using the USGS 7.5 minute quadrangle for Castle Creek, New York. The watershed consists of woodlands and fields situated in a semi urban section. Relief ranges from moderate to steep. The drainage area is 1745 acres or 2.7 square miles.

5.2 ANALYSIS CRITERIA

The analysis of the spillway capacity of the dam and storage of the reservoir was performed using the Corps of Engineers HEC-1 computer program, incorporating the "Snyder Synthetic Unit Hydrograph" method, and 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 principal and auxiliary spillway are uncontrolled structures. The principal spillway operates under weir or orifice flow conditions depending upon the floodwater inflow to the reservoir pool. The auxiliary spillway was analyzed as a broad-crested weir having a discharge coefficient (c) of 3.087.

The spillways have sufficient capacity for discharging the peak outflow from the PMF. For this storm, the peak inflow is 4408 cfs and the peak outflow is 4320 cfs. When the spillways are discharging the peak outflow, the water surface will be 5.4 feet below the top of the dam. Further information concerning this analysis is included in Appendix D.

5.4 RESERVOIR CAPACITY

Normal flood control storage capacity of the reservoir between the principal and auxiliary spillways is 183 acre-feet which is equivalent to a runoff depth of 1.3 inches over the drainage area. Surcharge storage capacity to the maximum high water elevation is an additional 236 acre-feet, equivalent to a runoff depth over the drainage area of 1.6 inches. Total storage capacity of the dam is 419 acre-feet, equivalent to 2.9 inches of direct runoff.

5.5 FLOODS OF RECORD

The maximum known flood occurred on September 25, 1975. The pool level at this time was reported to be about 5.8 feet above the principal spillway crest. The calculated discharge for this flood is as follows:

<u>Elevation (USGS)</u>	<u>Discharge (cfs)</u>
980.3	161

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

No signs of distress were observed in connection with the earth embankment.

b. Design and Construction Data

A stability analysis was conducted by SCS during the design of the dam. The analyses were performed using the Infinite Slope Method. The soil parameters assumed were $\phi = 31^\circ$, $\psi = 18.4^\circ$ $\gamma_s = 141$.

To achieve a factor of safety equal to 1.3 for the upstream slope of 1 on 3, a 20-foot wide berm was incorporated in the design. The berm was placed to elevation 974.5, which approximates the normal pool elevation.

No computations could be located relating to analysis of the downstream slope.

The calculated factor of safety for the upstream slope of the dam is in excess of the minimum factors recommended by the Corps of Engineers. The upstream slope of the dam is, therefore, considered to have an adequate factor of safety for stability. A summary of the analysis is included in Appendix F.

c. Post Construction Changes

No major post construction changes were noted during construction of the dam.

d. Seismic Stability

The dam is located in Seismic Zone 1. Therefore, a seismic analysis is not warranted.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

The Phase 1 inspection of the Finch Hollow Dam Site 1 did not reveal conditions which constitute a hazard to human life or property. The earth embankment is not considered to be unstable. The dam is capable of retarding flood waters resulting from the PMF. However, the location of the highway embankment below the outlet of the auxiliary spillway and the limited hydraulic capacity of the box culvert beneath the embankment may cause an impoundment of flood waters which could flood the homes which are located between the dam and the highway embankment.

b. Adequacy of Information

Information reviewed for Phase 1 inspection purposes is considered adequate.

c. Need for Additional Investigations

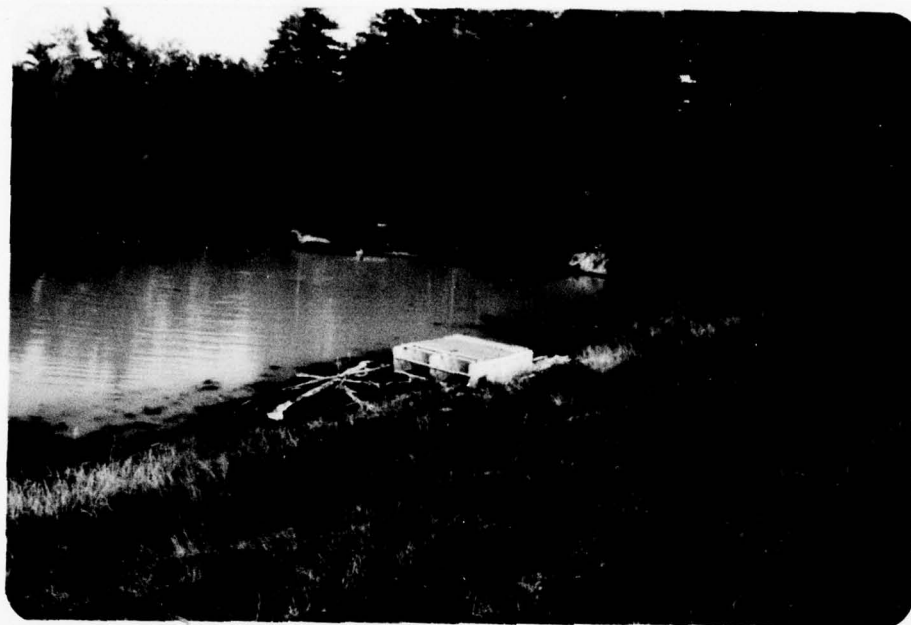
No additional investigations are required at this time concerning the dam and appurtenances. However, the capacity of the highway embankment box culvert and the potential flooding of the downstream homes must be investigated.

7.2 RECOMMENDED MEASURES

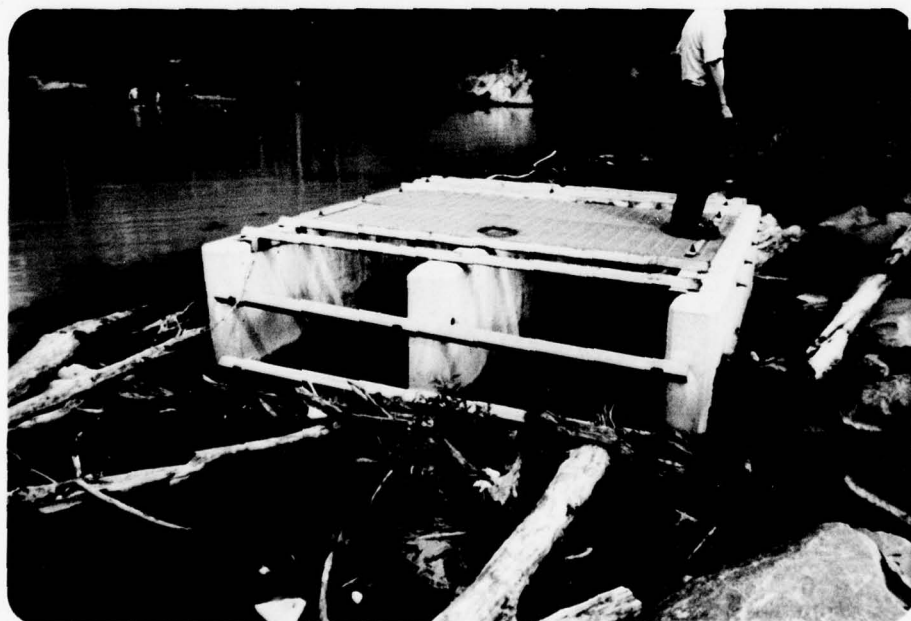
- a. Results of the highway embankment box culvert investigation will determine the type and extent of remedial measures required.
- b. Remove the tree growth at the entrance and exit of the auxiliary spillway channel to provide for unobstructed passage of flow.
- c. Repair the bolting units of the grating at the top of the principal spillway riser.
- d. Remove the debris which surrounds the intake of the principal spillway riser. Provide a program of periodic inspection and maintenance of the dam and appurtenances, including operation and lubrication of the slide gate mechanism. Document this information for future reference.
- e. Develop an emergency action plan for notification of downstream residents and the proper authorities in the event of heavy auxiliary spillway discharge.

APPENDIX A

PHOTOGRAPHS



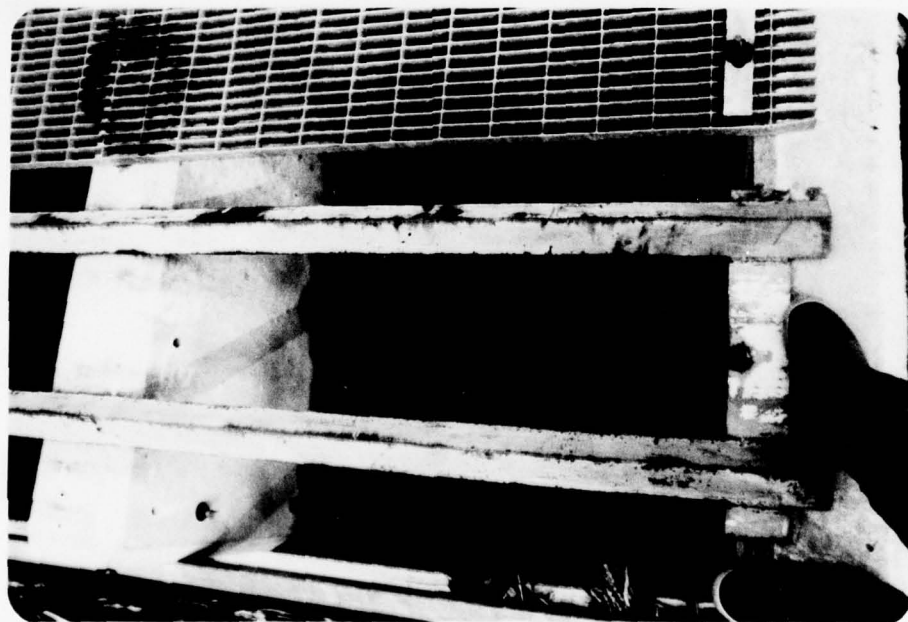
Upstream Face of Dam
Photo #2



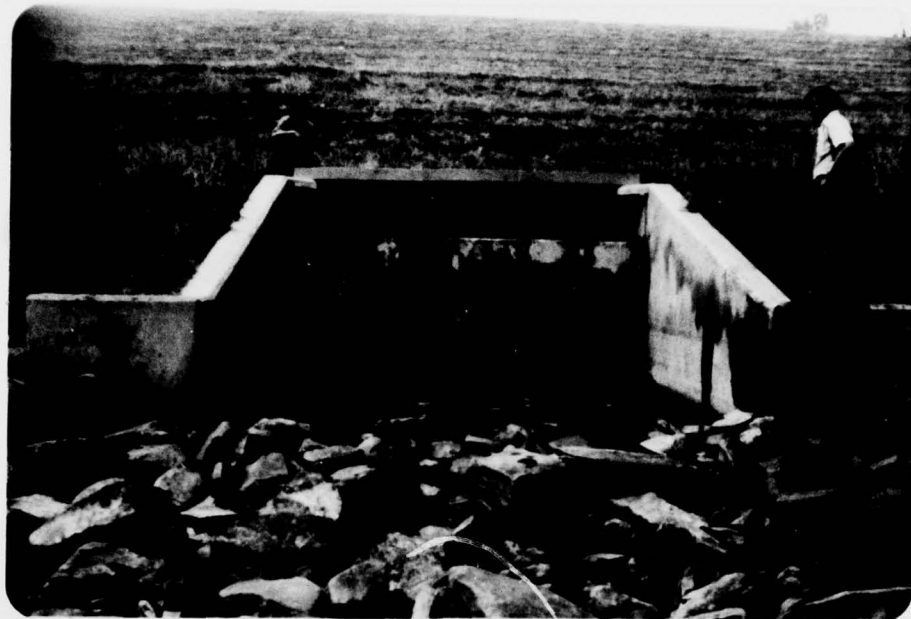
Right Side of Principal Spillway Riser
Photo #3



Left Side of Principal Spillway Riser
Photo #4



Grating Atop Riser
Not Missing Bolting Unit Near Boot
Photo #5



Impact Basin
Photo #6



Outlet of 36" Concrete Pipe in Impact Basin
Photo #7



Entrance of Auxiliary Spillway
Note Trees Blocking Entrance
Photo #8



Level Section of Auxiliary Spillway
Photo #9



Exit of Auxiliary Spillway
Note Trees Blocking Exit
Photo #10



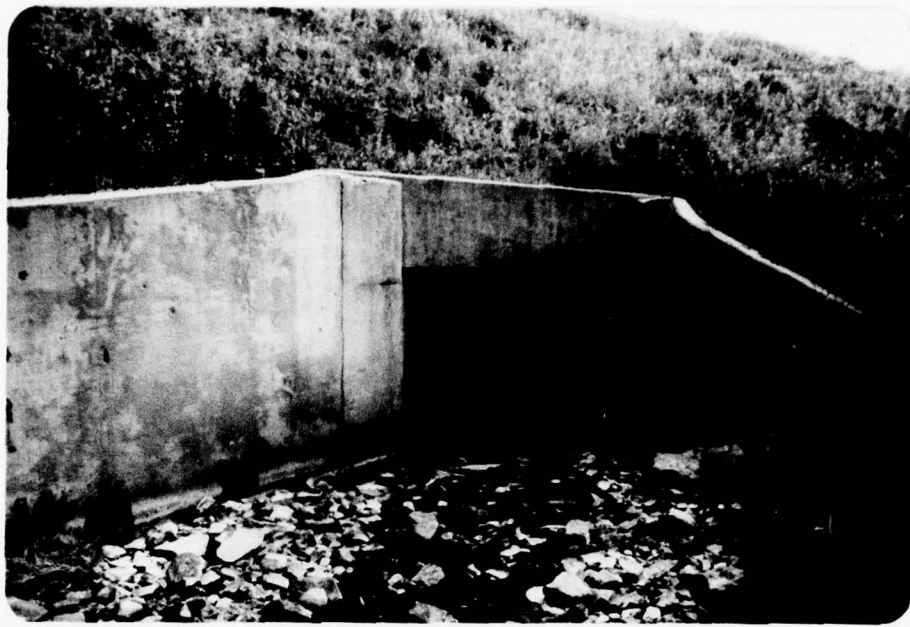
Downstream Channel Below Impact Basin
Photo #11



Area Between Dam and Highway Embankment
Photo #12



Highway Embankment Below Dam
Photo #13



Box Culvert Beneath Highway Embankment
Photo #14

APPENDIX B

ENGINEERING DATA CHECKLIST

Item

Remarks

Construction History

Info on file at SCS offices

Surveys, Modifications,
Post-Construction Engineering
Studies and Reports

None

Accidents or Failure of Dam
Description, Reports

None

Operation and Maintenance Records
Operation Manual

None

APPENDIX C

VISUAL INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam FINCH HOLLOW SITE 1

I.D. # NY 697 . DEC 96A-3852

Location: Town Oakdale County Broome
Johnson Cty

Stream Name Finch Hollow → Little Chocout → Susquehanna

Tributary of Susquehanna

Longitude (W), Latitude (N) 75° 53.5' / 42° 03.2'

Hazard Category C

Date(s) of Inspection July 23, 1979

Weather Conditions Partly Cloudy 80°F

b. Inspection Personnel _____

Ken Harmer Bob McCarty Lee Sepelak

c. Persons Contacted Roy Thomas (315) 423-5501 & Gary Page
S.C.S. Broome County Airport

d. History:

Date Constructed July 1973

Owner Broome County

Designer S.C.S.

Constructed by Jones & Meade Constr.
Appalachian NY

2) Technical Data

Type of Dam Earth - 2 Zone embankment

Drainage Area 1745 Ac = 2.73 sq miles

Height 62.0' Length 750'

Upstream Slope 1:3.0 Downstream Slope 1:2.5

2) Technical Data (Cont'd.)

External Drains: on Downstream Face NONE @ Downstream Toe NONE

Internal Components:

Impervious Core NONE

Drains Yes

Cutoff Trench Yes

Grout Curtain NONE

embankment has 2 zones the primary zone (Zone #1) is of compacted gravelly silt the 50 feet wide Zone #2 on the downstream side of the dam is of compacted gravelly silt with oversize material up to 16" incorporated in the fill from scalplings of Zone #1

3) Embankment

a. Crest

(1) Vertical Alignment good

(2) Horizontal Alignment good

(3) Surface Cracks none evident

(4) Miscellaneous _____

b. Slopes

(1) Undesirable Growth or Debris, Animal Burrows _____

NONE

(2) Sloughing, Subsidence or Depressions _____

NONE

(3) Slope Protection riprap on upstream slope
at normal pool elev.

(4) Surface Cracks or Movement at Toe none

(5) Seepage none evident

(6) Condition Around Outlet Structure good condition

c. Abutments

(1) Erosion at Embankment and Abutment Contact _____

none

(2) Seepage along Contact of Embankment and Abutment _____

none evident

(3) Seepage at toe or along downstream face _____

none evident

d. Downstream Area - below embankment

(1) Subsidence, Depressions, etc. _____

none

(2) Seepage, unusual growth _____

none

(3) Evidence of surface movement beyond embankment toe _____

none

(4) Miscellaneous _____

e. Drainage System

2 - 10" diameter internal drains exit
in walls of impact basin

(1) Condition of relief wells, drains, etc. _____

good condition of foundation drains

(2) Discharge from Drainage System _____

no discharge

4) Instrumentation

(1) Monumentation/Surveys none

(2) Observation Wells none

(3) Weirs none

(4) Piezometers none

(5) Other _____

5) Reservoir

a. Slopes appear stable

b. Sedimentation none reported

6) Spillway(s) (including tail race channel)

a. General Principal riser in upstream slope
grated top auxiliary spillway on left side
grassed channel

b. Principle Spillway structurally good
grate on right side on top of riser is loose
bolting units require repair

upstream slope @ riser elev. is ripraped
considerable debris around intake

c. Emergency or Auxiliary Spillway good condition
many trees at entrance and exit of auxiliary
spillway which block any flow to the spillway
trees should be removed

no instability or problems with aux. spillway
houses adjacent to left side of channel at outlet.

d. Condition of Tail race channel good condition - ripraped

e. Stability of Channel side/slopes no problems

7) Downstream Channel

- a. Condition (debris, etc.) very little
highway embankment & box culvert
see notes below
- b. Slopes good condition
- c. Approximate number of homes 20 homes near base of dam
on right side of downstream channel, highway embankment
below homes with small box culvert to carry flow from dam
if dam failure occurred flow would back up behind this
- 8) Miscellaneous embankment and flooding of these homes would
occur, particularly if highway embankment culvert
was clogged w/debris

also emergency spillway flows will return to downstream channel on upstream side of highway embankment. so that if the dam remains intact flooding could still result. Area below highway embankment is a paved parking lot & stopping center (large) flow from downstream channel is channeled beneath the parking lot. If debris gets into entrance flooding will definitely result.

This is a very bad situation.

9) Structural

a. Concrete Surfaces _____

good condition

b. Structural Cracking _____

none evident

c. Movement - Horizontal & Vertical Alignment (Settlement) _____

none evident

d. Junctions with Abutments or Embankments _____

N/A

e. Drains - Foundation, Joint, Face _____

foundation drains

appear satisfactory - no flow observed

f. Water passages, conduits, sluices _____

good condition

g. Seepage or Leakage _____

foundation drains - no

flow apparent

h. Joints - Construction, etc. _____

N/A

i. Foundation _____ appears stable

j. Abutments _____ N/A

k. Control Gates _____ reported operational

l. Approach & Outlet Channels _____ approach area to riser

lots of debris

m. Energy Dissipators (plunge pool, etc.) _____

impact basin - good condition

n. Intake Structures _____ good condition of concrete

surfaces - bolting units of

grating on right side require

repair

o. Stability _____ appears good

p. Miscellaneous _____

APPENDIX D
HYDROLOGIC/HYDRAULIC
ENGINEERING DATA AND COMPUTATIONS

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

AREA-CAPACITY DATA:

	<u>Elevation</u> (ft.)	<u>Surface Area</u> (acres)	<u>Storage Capacity</u> (acre-ft.)
1) Top of Dam	<u>1009.6</u>	<u>32.3</u>	<u>460</u>
2) Design High Water (Max. Design Pool)	<u>1004.3</u>	<u>26.5</u>	<u>298</u>
3) Auxiliary Spillway Crest	<u>1001.2</u>	<u>22.2</u>	<u>224</u>
4) Pool Level with Flashboards	<u>N/A</u>	<u> </u>	<u> </u>
5) Service Spillway Crest	<u>974.5</u>	<u>5.2</u>	<u>41.3</u>

DISCHARGES

	<u>Volume</u> (cfs)
1) Average Daily	<u>unknown</u>
2) Spillway @ Maximum High Water	<u>20050</u>
3) Spillway @ Design High Water	<u>4485</u>
4) Spillway @ Auxiliary Spillway Crest Elevation	<u>207</u>
5) Low Level Outlet	<u>-</u>
6) Total (of all facilities) @ Maximum High Water	<u>26,050</u>
7) Maximum Known Flood 9/25/75	<u>161</u>

CREST:

ELEVATION: 1009.6 Top of Dam

Type: Earth Embankment

Width: 19 feet Length: _____

Spillover Principal Spillway 3' x 9' R/C Riser weir length 16.33'

Location center of upstream slope - Principal

At left abutment of embankment - Auxiliary

SPILLWAY:

PRINCIPAL

EMERGENCY

974.5 Elevation 1001.2

Reinforced Concrete Type vegetated Earth

3' x 9' Rectangular Width 350 ft

Type of Control

Uncontrolled Uncontrolled Uncontrolled

Controlled:

_____ Type _____
(Flashboards; gate)

1 Number 1

weir length 16.33 ft Size/Length length of level section 50 ft

Invert Material Earth - Glacial Till

Anticipated Length of operating service 100 year storm

288.33' of 36" R/C Pipe Chute Length 900 ft.

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

OUTLET STRUCTURES/EMERGENCY DRAWDOWN FACILITIES:

Type: Gate ✓ Sluice _____ Conduit ✓ Penstock _____

Shape : Gate: Flat Frame Slide Gate, Conduit Round Cast Iron

Size: 16" 16" Diameter

Elevations: Entrance Invert 952.0

Exit Invert 940.0

Tailrace Channel: Elevation 932.0

HYDROMETEROLOGICAL GAGES:

Type : NONE

Location: _____

Records:

Date - _____

Max. Reading - _____

FLOOD WATER CONTROL SYSTEM:

Warning System: NONE

Method of Controlled Releases (mechanisms):

NONE

except for manually operated reserve drain system

DRAINAGE AREA: 1745 Acres 2.73 Sq. mi.

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: Fields & Forest Semi-Urban

Terrain - Relief: Moderate to steep

Surface - Soil: Glacial till

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: NONE

Elevation: _____

Reservoir:

Length @ Maximum Pool N/A (Miles)

Length of Shoreline (@ Spillway Crest) N/A (Miles)

DESIGN REPORT SUMMARY

By JEP 9/69

I. Watershed data

A. Structure class	c
B. Drainage area	1,745 Ac.
C. Time of concentration - T_c	1.02 Hrs.
D. Hydrologic curve number - C_n Moisture Condition II	75.

II. Principal spillway

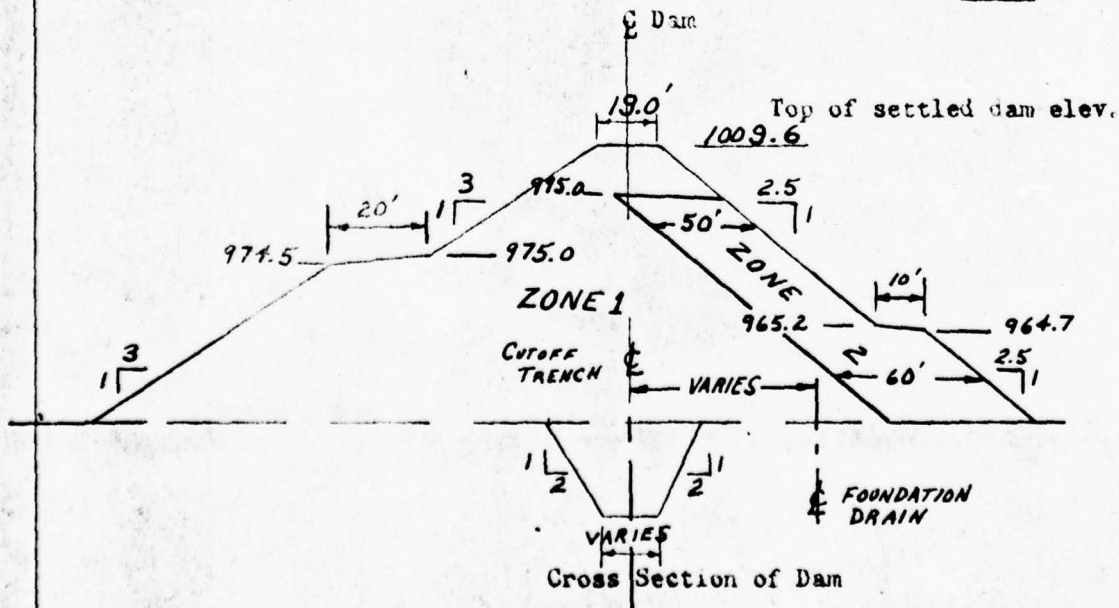
A. Conduit	
1. Size (I.D.)	36 In.
2. Length	28.33 Ft.
B. Riser	
1. Size	3.0 x 9.0 Ft.
2. Height (floor to crest)	25.50 Ft.
C. Weir length	17.33 Ft.
D. Reservoir drain size	14 In.
E. Type of energy dissipator	R/C Impact Basin

III. Emergency spillway

A. Width	350. Ft.
B. Side slopes	3:1
C. Length of level section	50. Ft.
D. Exit slope	0.027 Ft./Ft.
E. Maximum velocity - in exit section (ESH)	8.1 Ft./Sec.
F. Duration of flow (ESH) through emergency spillway	6.00 Hrs.
G. Frequency of use	100 yrs

IV. Earth fill

A. Height	62. Ft.
B. Volume	C.Y.
C. Compaction	Classes A and C



DESIGN SECTION, SYRACUSE, N. Y.

SHEET 3

BY JEP 9/69

U S DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

Element of Structure	Determining Factor	Elev.	Surface Area Acres		Storage		Inflow		Peak Outflow c.f.s.
			Ac.	Pt.	Ac.	Pt.	Volume Inches ³	Rate c.f.s.	
Crest of riser	100 yr. submerged sediment accumulation.	974.5	5.2	41.3	0.28	--	--	--	--
Crest of emergency spillway	100 yr. frequency storm AMC II	1001.2	24.2	224. 1/	1.54				207.
Design high water	ES-1020 Sh. 4 of 5 ^{1/2} moisture cond. II	1004.3	26.5	298. 1/	2.05	6.61	4720	4435	
Top of Dam	ES-1020 Sh. 5 of 5 ^{1/2}	1009.6	32.3	460 1/	3.16	20.92	26,270	26,050	

Volume expressed in inches of runoff from controlled watershed area of 1,455 acres. Refer to hydrologic criteria in National Engineering Memorandum SCS-27 (Rev.)

1/ Does not include 115.8 ac. ft. of sediment storage. (100 yr total sediment)

FINCH HOLLOW DAM
SITE 1

D.A. = Drainage area in square miles

L = River mileage from the given station to the upstream limits of the drainage area

LCA = River mileage from the station to the center of gravity of the drainage area

PMP = Probable Maximum Precipitation in inches

t_p = Lag time from mid-point of unit rainfall duration, t_r , to peak of unit hydrograph, in hours.

t_r = Unit rainfall duration, equal to $\frac{t_p}{5.5}$, in hours.

C_t = Coefficient depending upon units and drainage basin characteristics

t_r = Unit rainfall duration other than standard unit; t_r adopted in specific study, in hours.

t_{pr} = Lag time from mid-point of unit rainfall duration, t_r , to peak of unit hydrograph, in hours

D.A. = 2.73 square miles, L = 4.0 miles, LCA = 1.96 miles

PMP = 21 inches $C_t = 2$

$C_p = 0.625$ from average 640 $C_p = 400$

$$t_p = C_t (L \cdot LCA)^{0.3} = 2(4 \times 1.96)^{0.3} = 3.71 \text{ hours}$$

$$t_r = \frac{t_p}{5.5} = \frac{3.71}{5.5} = .67 \text{ hours (Use 1 hr. hydrograph)}$$

$$t_{pr} = t_p + 0.25(t_r - t_p) = 3.71 + 0.25(1 - .67) = 3.79 \text{ hrs.}$$

From HMR 33 - Figure 2, Depth - Area - Duration

6 hour % = 111, 12 hour % = 123
24 hour % = 133, 48 hour % = 142

 FLOOD HYDROGRAPH PACKAGE (HEC-1)
 DAM SAFETY VERSION JULY 1971
 LAST MODIFICATION 26 FEB 79
 MODIFIED FOR HONEYWELL SP4 T5

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

PLEASE REPORT ANY UNUSUAL OPERATING PROBLEMS
 TO MIKE TILLSON (PH. 423) PH. 7-5566

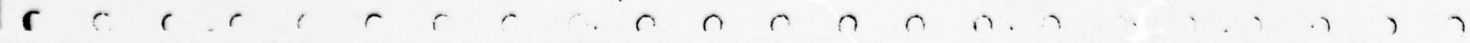
1 A1 FLECH HOLLOW DAM SITE 1
 2 A2 HYDROLOGIC/HAUTALIC ANALYSES OF THE DAM
 3 A3 RATIOS OF PPF ROUTED THROUGH THE RESERVOIR
 4 B 100 1 0 0 0 0 0 0 0 0
 5 B1 5
 6 J 1 1 1 1
 7 J1 1
 8 K 0 1 0 0 0 0 0 0 0 1
 9 K1 CALCULATION OF INFLOW HYDROGRAPH TO RESERVOIR

10 M 1 1 2.73 2.73 1
 11 P 21 111 123 133 142
 12 T 0 0 0 0 0 0 0 0 0 0
 13 I 3.71 .625
 14 X 5.46 5.46 1
 15 K 1 2

16 K1 ROUTED FLOWS THROUGH THE RESERVOIR
 17 Y 1 1 1
 18 Y1 1
 19 Y4 974.5 1001.2 1004.3 1009.6
 20 Y5 0 207 4495 26050
 21 \$S 41.3 224 298 460
 22 \$E 974.5 1001.2 1004.3 1009.6
 23 \$B 974.5
 24 \$D 1010 3.087 1.5 730
 25 K 99
 26 A

41.3 -1

4
26
29
30



PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

1

RUNOFF HYDROGRAPH AT

ROUTE HYDROGRAPH TO

END OF NETWORK

 FLUID HYDROGRAPH PACKAGE (HEG-1)
 DAM SAFETY VERIFIED JULY 1973
 LAST MODIFICATION 26 FEB 79
 MODIFIED FOR HONEYWELL GPC 79

 THIS PROGRAM IS CURRENTLY BEING IDENTIFIED
 TO RUN ON THE OGS HONEYWELL SYSTEM

PLEASE REPORT ANY UNUSUAL OPERATIONAL PROBLEMS
 TO: JIM TILLSON (Rm. 623) PH: 7-5666

RUN DATE 09/06/79

FISH HOLLOW DAM SITE 1
 HYDROLOGIC/HYDRAULIC ANALYSIS OF THE DAM
 RATIOS OF ONE ROUTED THROUGH THE RESERVOIR

JOB SPECIFICATION									
NQ	IHR	IMH	IDAY	IHR	IMH	NETC	IPLT	IPRT	NSTAI
100	1	0	0	0	0	0	0	0	0
			JOPEP	NWT	LROPT	TRACE			
			5	0	0	0			

MULTI-PLAN ANALYSES TO BE PERFORMED
 NPLAN= 1 RTIO= 1 LRTIO= 1

RTIO= 1.00

SUB-AREA RUNOFF COMPUTATION

CALCULATION OF INFLOW HYDROGRAPH TO RESERVOIR

ISTAC	ICOMP	IFCON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
1	0	0	0	0	0	1	0	0

HYDROGRAPH DATA									
IHYDG	IUNG	TAREA	SIAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	2.73	0.	2.73	0.	0.	0	1	0

PRECIP DATA

SPFE	PHS	P6	R12	R24	R48	R72	R96
0.	21.00	111.00	123.00	133.00	142.00	0.	0.

TRSPC COMPUTED BY THE PROGRAM IS 0.000

LOSS DATA										
LROPT	STRKK	DLTKR	RTIDL	ERAIN	STRKS	RTIUK	SIRTL	CNSTL	ALSMX	RTIMP
0	0.	0.	1.00	0.	0.	1.00	1.00	0.10	0.	0.

UNIT HYDROGRAPH DATA
 TP= 3.71 CP=0.63 NTA# 0

RECESSION DATA

STKQ= 5.46 ORCSN= 5.46 RTIOR= 1.00
 APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SHYDER CP AND TP ARE TC= 4.27 AND R= 3.40 INTERVALS

30. 12.7 23.4 22.2 20.5 15.3 11.3 8.6 4. 6.3 3.
 4. 3. 26. 19. 11. 6. 4. 3. 3. 3.
 3. 3. 26. 19. 11. 6. 4. 3. 3. 3.

U	HR, IN	PERIOD	RAI	EXCS	LUSS	END-UP-PERIOD FLOW	HR, IN	PERIOD	RAI	EXCS	LUSS	END-UP-PERIOD FLOW	HR, IN	PERIOD	RAI	EXCS	LUSS	CUNP, Q
1.01	1.00	1	0.01	0.	0.01	5.	1.03	3.00	0.	0.	0.	51	0.	0.	0.	0.	0.	708.
1.01	2.00	2	0.01	0.	0.01	5.	1.03	4.00	0.	0.	0.	52	0.	0.	0.	0.	0.	532.
1.01	3.00	3	0.01	0.	0.01	5.	1.03	5.00	0.	0.	0.	53	0.	0.	0.	0.	0.	397.
1.01	4.00	4	0.01	0.	0.01	5.	1.03	6.00	0.	0.	0.	54	0.	0.	0.	0.	0.	246.
1.01	5.00	5	0.01	0.	0.01	5.	1.03	7.00	0.	0.	0.	55	0.	0.	0.	0.	0.	221.
1.01	6.00	6	0.01	0.	0.01	5.	1.03	8.00	0.	0.	0.	56	0.	0.	0.	0.	0.	166.
1.01	7.00	7	0.02	0.	0.02	5.	1.03	9.00	0.	0.	0.	57	0.	0.	0.	0.	0.	124.
1.01	8.00	8	0.02	0.	0.02	5.	1.03	10.00	0.	0.	0.	58	0.	0.	0.	0.	0.	91.
1.01	9.00	9	0.02	0.	0.02	5.	1.03	11.00	0.	0.	0.	59	0.	0.	0.	0.	0.	65.
1.01	10.00	10	0.02	0.	0.02	5.	1.03	12.00	0.	0.	0.	60	0.	0.	0.	0.	0.	45.
1.01	11.00	11	0.02	0.	0.02	5.	1.03	13.00	0.	0.	0.	61	0.	0.	0.	0.	0.	22.
1.01	12.00	12	0.02	0.	0.02	5.	1.03	14.00	0.	0.	0.	62	0.	0.	0.	0.	0.	13.
1.01	13.00	13	0.13	0.	0.13	5.	1.03	15.00	0.	0.	0.	63	0.	0.	0.	0.	0.	8.
1.01	14.00	14	0.15	0.	0.15	5.	1.03	16.00	0.	0.	0.	64	0.	0.	0.	0.	0.	7.
1.01	15.00	15	0.19	0.	0.19	5.	1.03	17.00	0.	0.	0.	65	0.	0.	0.	0.	0.	7.
1.01	16.00	16	0.48	0.10	0.38	9.	1.03	18.00	0.	0.	0.	66	0.	0.	0.	0.	0.	6.
1.01	17.00	17	0.18	0.08	0.10	21.	1.03	19.00	0.	0.	0.	67	0.	0.	0.	0.	0.	6.
1.01	18.00	18	0.14	0.04	0.10	41.	1.03	20.00	0.	0.	0.	68	0.	0.	0.	0.	0.	6.
1.01	19.00	19	0.01	0.	0.01	41.	1.03	21.00	0.	0.	0.	69	0.	0.	0.	0.	0.	5.
1.01	20.00	20	0.01	0.	0.01	64.	1.03	22.00	0.	0.	0.	70	0.	0.	0.	0.	0.	5.
1.01	21.00	21	0.01	0.	0.01	58.	1.03	23.00	0.	0.	0.	71	0.	0.	0.	0.	0.	5.
1.01	22.00	22	0.01	0.	0.01	47.	1.04	0.	0.	0.	0.	72	0.	0.	0.	0.	0.	5.
1.01	23.00	23	0.01	0.	0.01	37.	1.04	1.00	0.	0.	0.	73	0.	0.	0.	0.	0.	5.
1.02	0.	24	0.01	0.	0.01	29.	1.04	2.00	0.	0.	0.	74	0.	0.	0.	0.	0.	5.
1.02	1.00	25	0.11	0.01	0.10	23.	1.04	3.00	0.	0.	0.	75	0.	0.	0.	0.	0.	5.
1.02	2.00	26	0.11	0.01	0.10	20.	1.04	4.00	0.	0.	0.	76	0.	0.	0.	0.	0.	5.
1.02	3.00	27	0.11	0.01	0.10	20.	1.04	5.00	0.	0.	0.	77	0.	0.	0.	0.	0.	5.
1.02	4.00	28	0.11	0.01	0.10	21.	1.04	6.00	0.	0.	0.	78	0.	0.	0.	0.	0.	5.
1.02	5.00	29	0.11	0.01	0.10	22.	1.04	7.00	0.	0.	0.	79	0.	0.	0.	0.	0.	5.
1.02	6.00	30	0.11	0.01	0.10	23.	1.04	8.00	0.	0.	0.	80	0.	0.	0.	0.	0.	5.
1.02	7.00	31	0.34	0.24	0.10	32.	1.04	9.00	0.	0.	0.	81	0.	0.	0.	0.	0.	5.
1.02	8.00	32	0.34	0.24	0.10	62.	1.04	10.00	0.	0.	0.	82	0.	0.	0.	0.	0.	5.
1.02	9.00	33	0.34	0.24	0.10	115.	1.04	11.00	0.	0.	0.	83	0.	0.	0.	0.	0.	5.
1.02	10.00	34	0.34	0.24	0.10	180.	1.04	12.00	0.	0.	0.	84	0.	0.	0.	0.	0.	5.
1.02	11.00	35	0.34	0.24	0.10	261.	1.04	13.00	0.	0.	0.	85	0.	0.	0.	0.	0.	5.
1.02	12.00	36	0.34	0.24	0.10	287.	1.04	14.00	0.	0.	0.	86	0.	0.	0.	0.	0.	5.
1.02	13.00	37	1.86	1.76	0.10	376.	1.04	15.00	0.	0.	0.	87	0.	0.	0.	0.	0.	5.
1.02	14.00	38	2.24	2.14	0.10	613.	1.04	16.00	0.	0.	0.	88	0.	0.	0.	0.	0.	5.
1.02	15.00	39	2.80	2.70	0.10	1058.	1.04	17.00	0.	0.	0.	89	0.	0.	0.	0.	0.	5.
1.02	16.00	40	7.09	6.99	0.10	1833.	1.04	18.00	0.	0.	0.	90	0.	0.	0.	0.	0.	5.
1.02	17.00	41	2.61	2.51	0.10	2886.	1.04	19.00	0.	0.	0.	91	0.	0.	0.	0.	0.	5.
1.02	18.00	42	2.95	1.95	0.10	3876.	1.04	20.00	0.	0.	0.	92	0.	0.	0.	0.	0.	5.
1.02	19.00	43	0.17	0.07	0.10	4408.	1.04	21.00	0.	0.	0.	93	0.	0.	0.	0.	0.	5.
1.02	20.00	44	0.17	0.07	0.10	4230.	1.04	22.00	0.	0.	0.	94	0.	0.	0.	0.	0.	5.
1.02	21.00	45	0.17	0.07	0.10	3562.	1.04	23.00	0.	0.	0.	95	0.	0.	0.	0.	0.	5.
1.02	22.00	46	0.17	0.07	0.10	2791.	1.05	0.	0.	0.	0.	96	0.	0.	0.	0.	0.	5.
1.02	23.00	47	0.17	0.07	0.10	2118.	1.05	1.00	0.	0.	0.	97	0.	0.	0.	0.	0.	5.
1.03	0.	48	0.17	0.07	0.10	1608.	1.05	2.00	0.	0.	0.	98	0.	0.	0.	0.	0.	5.
1.03	1.00	49	0.	0.	0.	1226.	1.05	3.00	0.	0.	0.	99	0.	0.	0.	0.	0.	5.
1.03	2.00	50	0.	0.	0.	934.	1.05	4.00	0.	0.	0.	100	0.	0.	0.	0.	0.	5.

SUM 23.86 20.16 3.69 35884.
 (606.)(512.)(94.)(1016.12)

PEAK: 4408. 3561. 1444. 497. 497. 35099.
 125. 101. 41. 14. 14. 1017.
 12.14 19.69 20.30 20.39

CFS 4408. 3561. 1444. 497. 497. 35099.
 GNS 125. 101. 41. 14. 14. 1017.
 INCHES 12.14 19.69 20.30 20.39

HYDROGRAPH AT STA		1 FOR PLAI 1, RTID 1	
5.	5.	5.	5.
5.	5.	0.	21.
37.	23.	20.	21.
115.	41.	267.	613.
3876.	4231.	2791.	1053.
700.	197.	165.	1220.
24.	7.	0.	65.
5.	5.	5.	5.
5.	5.	5.	5.
5.	5.	5.	5.

PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
4508.	3521.	1944.	497.	35999.
125.	101.	41.	14.	1017.
	12.14	19.69	20.30	20.39
	309.24	500.05	515.71	917.84
	1766.	2865.	2955.	2967.
	2178.	3534.	3645.	3660.

CFS
 CWS
 INCHES
 AC-FT
 THOUS CUM

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

HYDROGRAPH ROUTING

ROUTED FLOWS THROUGH THE RESERVOIR									
ISTAG	ICURP	ITAPE	JPLT	JPRC	INAME	ISTAGE	IAUTO		
2	1	0	0	0	1	0	0		
ROUTING DATA									
QLUSS	CLUSS	AVG	IRCS	ISAME	IDPT	IPRP	LSTR		
0.	0.	0.	1.	1	0	0	0		

INSTPS	INSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT		
1	0	0	0.	0.	0.	41.	-1		

STAGE 974.50 1001.20 1004.30 1009.60
 FLOW 0. 297.00 4485.00 24050.00
 CAPACITY= 41. 224. 298. 460.
 ELEVATION= 975. 1001. 1004. 1010.

CREL	SPWID	CUQH	EXPW	ELEVL	COQL	CAPEA	EXPL
974.5	0.	0.	0.	0.	0.	0.	0.
DAH DATA							
TOPEL	COOD	EXPO	DAHWID				
1010.0	3.1	1.5	730.				

WARNING *** TOP OF DAM, BOTTOM OF BREACH, OR LOW-LEVEL OUTLET IS NOT WITHIN RANGE OF GIVEN ELEVATIONS IN STORAGE-ELEVATION DATA
 BOTTOM OF RESERVOIR ASSUMED TO BE AT 974.50
 STORAGE-ELEVATION DATA WILL BE EXTRAPOLATED ABOVE ELEVATION 1009.60

STATION: 1		2, PLAI 1, RATIO 1	
MO. DA	HR. MIN	PERIOD	HOURS
1.01	1.00	1	1.00
1.01	2.00	2	2.00
1.01	3.00	3	3.00
1.01	4.00	4	4.00
1.01	5.00	5	5.00
1.01	6.00	6	6.00
1.01	7.00	7	7.00
1.01	8.00	8	8.00
1.01	9.00	9	9.00
1.01	10.00	10	10.00
1.01	11.00	11	11.00
1.01	12.00	12	12.00
1.01	1.00	13	1.00
1.01	2.00	14	2.00
1.01	3.00	15	3.00
1.01	4.00	16	4.00
1.01	5.00	17	5.00
1.01	6.00	18	6.00
1.01	7.00	19	7.00
1.01	8.00	20	8.00
1.01	9.00	21	9.00
1.01	10.00	22	10.00
1.01	11.00	23	11.00
1.01	12.00	24	12.00
1.01	1.00	25	1.00
1.01	2.00	26	2.00
1.01	3.00	27	3.00
1.01	4.00	28	4.00
1.01	5.00	29	5.00
1.01	6.00	30	6.00
1.01	7.00	31	7.00
1.01	8.00	32	8.00
1.01	9.00	33	9.00
1.01	10.00	34	10.00
1.01	11.00	35	11.00
1.01	12.00	36	12.00
1.01	1.00	37	1.00
1.01	2.00	38	2.00
1.01	3.00	39	3.00
1.01	4.00	40	4.00
1.01	5.00	41	5.00
1.01	6.00	42	6.00
1.01	7.00	43	7.00
1.01	8.00	44	8.00
1.01	9.00	45	9.00
1.01	10.00	46	10.00
1.01	11.00	47	11.00
1.01	12.00	48	12.00
1.01	1.00	49	1.00
1.01	2.00	50	2.00
1.01	3.00	51	3.00
1.01	4.00	52	4.00
1.01	5.00	53	5.00
1.01	6.00	54	6.00
1.01	7.00	55	7.00
1.01	8.00	56	8.00
1.01	9.00	57	9.00
1.01	10.00	58	10.00
1.01	11.00	59	11.00
1.01	12.00	60	12.00
1.01	1.00	61	1.00
1.01	2.00	62	2.00
1.01	3.00	63	3.00
1.01	4.00	64	4.00
1.01	5.00	65	5.00
1.01	6.00	66	6.00
1.01	7.00	67	7.00
1.01	8.00	68	8.00
1.01	9.00	69	9.00
1.01	10.00	70	10.00
1.01	11.00	71	11.00
1.01	12.00	72	12.00
1.01	1.00	73	1.00
1.01	2.00	74	2.00
1.01	3.00	75	3.00
1.01	4.00	76	4.00
1.01	5.00	77	5.00
1.01	6.00	78	6.00
1.01	7.00	79	7.00
1.01	8.00	80	8.00
1.01	9.00	81	9.00
1.01	10.00	82	10.00
1.01	11.00	83	11.00
1.01	12.00	84	12.00
1.01	1.00	85	1.00
1.01	2.00	86	2.00
1.01	3.00	87	3.00
1.01	4.00	88	4.00
1.01	5.00	89	5.00
1.01	6.00	90	6.00
1.01	7.00	91	7.00
1.01	8.00	92	8.00
1.01	9.00	93	9.00
1.01	10.00	94	10.00
1.01	11.00	95	11.00
1.01	12.00	96	12.00
1.01	1.00	97	1.00
1.01	2.00	98	2.00
1.01	3.00	99	3.00
1.01	4.00	100	4.00

STAGE 974.6
 874.4

1.01	4.00	4	3.00	4	7	43	974.7
1.01	5.00	5	5.00	5	2	43	974.8
1.01	6.00	6	6.00	5	2	43	974.8
1.01	7.00	7	7.00	5	3	44	974.9
1.01	8.00	8	8.00	5	3	44	974.9
1.01	9.00	9	9.00	5	3	44	974.9
1.01	10.00	10	10.00	5	3	44	974.9
1.01	11.00	11	11.00	5	4	44	975.0
1.01	12.00	12	12.00	5	4	45	975.0
1.01	13.00	13	13.00	5	4	45	975.0
1.01	14.00	14	14.00	5	4	45	975.0
1.01	15.00	15	15.00	5	4	45	975.0
1.01	16.00	16	16.00	5	4	45	975.1
1.01	17.00	17	17.00	21	5	46	975.2
1.01	18.00	18	18.00	41	8	48	975.5
1.01	19.00	19	19.00	59	11	51	976.0
1.01	20.00	20	20.00	64	16	55	976.5
1.01	21.00	21	21.00	58	20	59	977.1
1.01	22.00	22	22.00	47	23	61	977.4
1.01	23.00	23	23.00	37	25	63	977.7
1.02	0	24	24.00	29	25	64	977.8
1.02	1.00	25	25.00	23	25	64	977.8
1.02	2.00	26	26.00	20	25	63	977.7
1.02	3.00	27	27.00	20	25	63	977.7
1.02	4.00	28	28.00	21	24	63	977.5
1.02	5.00	29	29.00	22	24	62	977.6
1.02	6.00	30	30.00	23	24	62	977.6
1.02	7.00	31	31.00	32	24	63	977.6
1.02	8.00	32	32.00	62	26	64	977.9
1.02	9.00	33	33.00	115	32	69	978.6
1.02	10.00	34	34.00	189	42	78	979.9
1.02	11.00	35	35.00	241	57	92	981.9
1.02	12.00	36	36.00	287	76	108	984.3
1.02	13.00	37	37.00	376	99	128	987.2
1.02	14.00	38	38.00	613	134	160	991.8
1.02	15.00	39	39.00	1058	197	215	999.9
1.02	16.00	40	40.00	1833	1806	252	1002.4
1.02	17.00	41	41.00	2886	2587	265	1002.9
1.02	18.00	42	42.00	3876	3707	285	1003.7
1.02	19.00	43	43.00	4408	4320	295	1004.2
1.02	20.00	44	44.00	4230	4319	295	1004.2
1.02	21.00	45	45.00	3562	3722	285	1003.7
1.02	22.00	46	46.00	2791	2953	271	1003.2
1.02	23.00	47	47.00	2118	2250	259	1002.7
1.03	0	48	48.00	1600	1704	250	1002.3
1.03	1.00	49	49.00	1226	1299	243	1002.0
1.03	2.00	50	50.00	934	990	238	1001.8
1.03	3.00	51	51.00	708	752	233	1001.6
1.03	4.00	52	52.00	532	566	230	1001.5
1.03	5.00	53	53.00	397	423	224	1001.4
1.03	6.00	54	54.00	296	315	226	1001.3
1.03	7.00	55	55.00	221	236	224	1001.2
1.03	8.00	56	56.00	166	205	222	1000.9
1.03	9.00	57	57.00	124	200	213	1000.3
1.03	10.00	58	58.00	91	191	210	999.2
1.03	11.00	59	59.00	65	181	201	997.9
1.03	12.00	60	60.00	45	170	191	996.4
1.03	13.00	61	61.00	22	158	181	994.8
1.03	14.00	62	62.00	13	145	169	993.2
1.03	15.00	63	63.00	8	133	159	991.7
1.03	16.00	64	64.00	7	122	149	990.2
1.03	17.00	65	65.00	7	112	140	988.9
1.03	18.00	66	66.00	6	102	132	987.7
1.03	19.00	67	67.00	6	94	124	986.6
1.03	20.00	68	68.00	6	87	117	985.1

1.03	22.00	70	70.00	3.	72.	973.0
1.03	23.00	71	71.00	5.	66.	982.0
1.04	0.	72	72.00	5.	61.	982.3
1.04	1.00	73	73.00	5.	50.	981.7
1.04	2.00	74	74.00	5.	87.	981.1
1.04	3.00	75	75.00	5.	83.	980.6
1.04	4.00	76	76.00	5.	80.	980.1
1.04	5.00	77	77.00	5.	77.	979.7
1.04	6.00	78	78.00	5.	74.	979.3
1.04	7.00	79	79.00	5.	71.	978.9
1.04	8.00	80	80.00	5.	69.	978.6
1.04	9.00	81	81.00	5.	67.	978.3
1.04	10.00	82	82.00	5.	27.	978.0
1.04	11.00	83	83.00	5.	25.	977.7
1.04	12.00	84	84.00	5.	23.	977.5
1.04	13.00	85	85.00	5.	22.	977.3
1.04	14.00	86	86.00	5.	20.	977.1
1.04	15.00	87	87.00	5.	19.	977.0
1.04	16.00	88	88.00	5.	18.	976.8
1.04	17.00	89	89.00	5.	17.	976.7
1.04	18.00	90	90.00	5.	16.	976.5
1.04	19.00	91	91.00	5.	15.	976.4
1.04	20.00	92	92.00	5.	14.	976.3
1.04	21.00	93	93.00	5.	13.	976.2
1.04	22.00	94	94.00	5.	12.	976.1
1.04	23.00	95	95.00	5.	12.	976.0
1.05	0.	96	96.00	5.	11.	976.0
1.05	1.00	97	97.00	5.	11.	975.9
1.05	2.00	98	98.00	5.	10.	975.8
1.05	3.00	99	99.00	5.	10.	975.8
1.05	4.00	100	100.00	5.	9.	975.7

PEAK OUTFLOW IS 4320. AT TIME 43.00 HOURS

CFS	4320.	PEAK	3573.	24-HOUR	1391.	72-HOUR	495.	TOTAL VOLUME	35804.
CMS	122.		101.		39.		14.		1014.
INCHES			12.18		18.96		20.24		20.33
MI			309.26		481.64		514.04		516.40
AC-FT			1772.		2759.		2945.		2959.
THOUS CU H			2186.		3404.		3633.		3650.

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

RATIOS APPLIED TO FLOWS

OPERATION	STATION	AREA	PLAN	RATIO	1
HYDROGRAPH AT	1	2.73 (7.07)	1	440%	1.00
ROUTED TO	2	2.73 (7.07)	1	432%	122.33%

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1	ELEVATION STORAGE OUTFLOW	INITIAL VALUE 974.50 41. 0.	SPILLWAY CREST 974.50 41. 0.	TOP OF DAM 1010.00 472. 27578.	RATIO OF PIF 1.00	MAXIMUM DEPTH OVER DAM 0.	MAXIMUM STORAGE AC-FT 295.	MAXIMUM OUTFLOW CFS 4320.	DURATION DAYS 0.	TIME OF MAX OUTFLOW HOURS 43.00	TIME OF FAILURE HOURS 0.
--------------	---------------------------------	--------------------------------------	---------------------------------------	---	----------------------------	------------------------------------	-------------------------------------	------------------------------------	------------------------	--	-----------------------------------

LIST OF REFERENCES

APPENDIX E

APPENDIX E

REFERENCES

- 1) U.S. Department of Commerce, Technical Paper No. 40, Rainfall Frequency Atlas of the United States, May 1961.
- 2) Soil Conservation Service, National Engineering Handbook, Section 4, Hydrology, August 1972 (U.S. Department of Agriculture).
- 3) H.W. King and E.F. Brater, Handbook of Hydraulics, 5th edition, McGraw-Hill, 1963.
- 4) T.W. Lambe and R.V. Whitman, Soil Mechanics, John Wiley and Sons, 1965.
- 5) W.D. Thornbury, Principles of Geomorphology, John Wiley and Sons, 1969.
- 6) University of the State of New York, Geology of New York, Education Leaflet 20, Reprinted 1973.
- 7) Cornell University Agriculture Experiment Station (compiled by M.G. Cline and R.L. Marshall), General Soil Map of New York State and Soils of New York Landscapes, Information Bulletin 119, 1977.

APPENDIX F
STABILITY ANALYSES

STATE	NY	PROJECT	LITTLE CHOCONUT - SITE 1		
BY	mt	DATE	9/62	CHECKED BY	DATE
SUBJECT	SLOPE STABILITY				JOB NO. NY-201A-D
					SHEET OF Pg 3-1

INFINITE SLOPE METHOD

CASE A :

$$F_s = \frac{\gamma_s \tan \phi}{\gamma_s \tan \theta}$$

WHERE $\gamma_s = 141$
 $\gamma_w = 78.6$
 $\tan 31^\circ = 0.6$
 $\tan \theta = \frac{1}{3}$ ($\theta = 18.5^\circ$)

$$F_s = \frac{78.6 (0.6)}{141 (0.315)} = 1.0$$

CASE B :

$$F_s = \frac{(\gamma_s \cos^2 \theta - \gamma_w) \tan \phi}{\gamma_s \sin \theta \cos \theta}$$

$$F_s = \frac{[141 (0.948^2) - 78.6] (0.6)}{141 (0.3155) (0.948)} = 0.92$$

NOTE : TO OBTAIN F.S. = 1.3 (FROM COMPUTER SLOPE STABILITY)

IT IS RECOMMENDED THAT A 20' WIDE BERM BE
USED @ PERM. POOL EL.

LITTLE CHICKEN SITE 1 BY

UPSTREAM SLOPE
 RUN w/ 2 ca. 10' BERMS

Pg 3-2

PROFILES

H = -241.0 G = 260.0

FOS = 1.270 Q = 520.0
 FOS = 1.270 Q = 518.0

H = -260.0 G = 185.0

FOS = 1.227 Q = 245.0

H = -260.0 G = 110.0

H = -165.0 G = 260.0

FOS = 1.580 Q = 520.0
 FOS = 1.578 Q = 518.0
 FOS = 1.561 Q = 516.0
 FOS = 1.522 Q = 514.0
 FOS = 1.297 Q = 512.0 - 15' HA SURFACE
 FOS = 1.278 Q = 510.0
 FOS = 1.255 Q = 508.0
 FOS = 1.200 Q = 506.0
 FOS = 1.165 Q = 504.0
 FOS = 1.145 Q = 502.0
 FOS = 1.093 Q = 500.0
 FOS = 0.713 Q = 278.0 - TOP W/ SURFACE

H = -165.0 G = 185.0

FOS = 1.256 Q = 245.0
 FOS = 1.262 Q = 243.0
 FOS = 1.270 Q = 241.0
 FOS = 1.215 Q = 239.0
 FOS = 1.217 Q = 237.0
 FOS = 1.214 Q = 235.0
 FOS = 1.215 Q = 233.0
 FOS = 1.187 Q = 231.0
 FOS = 1.184 Q = 229.0
 FOS = 1.227 Q = 227.0
 FOS = 0.613 Q = 225.0

H = -165.0 G = 110.0

FOS = 1.295 Q = 170.0
 FOS = 1.291 Q = 168.0
 FOS = 1.508 Q = 156.0
 FOS = 1.516 Q = 154.0
 FOS = 1.528 Q = 152.0
 FOS = 1.567 Q = 150.0
 FOS = 1.554 Q = 158.0
 FOS = 1.557 Q = 156.0
 FOS = 1.391 Q = 154.0
 FOS = 1.321 Q = 152.0

FOS = 1,228 2 = 319,0
 FOS = 1,232 2 = 318,0
 FOS = 1,170 2 = 318,0
 FOS = 1,000 2 = 316,0

H = -100,0 2 = 165,0

FOS = 1,038 2 = 245,0
 FOS = 1,021 2 = 245,0

H = -100,0 2 = 110,0

H = -100,0 2 = 200,0

FOS = 1,515 2 = 320,0
 FOS = 1,402 2 = 310,0
 FOS = 1,354 2 = 310,0
 FOS = 1,300 2 = 310,0
 FOS = 1,350 2 = 312,0
 FOS = 1,328 2 = 310,0
 FOS = 1,305 2 = 300,0
 FOS = 1,277 2 = 305,0
 FOS = 1,232 2 = 300,0
 FOS = 1,209 2 = 302,0
 FOS = 1,110 2 = 300,0
 FOS = 0,732 2 = 298,0

H = -165,0 2 = 185,0

FOS = 1,208 2 = 245,0
 FOS = 1,270 2 = 247,0
 FOS = 1,270 2 = 247,0
 FOS = 1,270 2 = 251,0
 FOS = 1,275 2 = 257,0
 FOS = 1,207 2 = 255,0
 FOS = 1,215 2 = 257,0
 FOS = 1,230 2 = 251,0
 FOS = 1,207 2 = 220,0
 FOS = 1,210 2 = 227,0
 FOS = 1,201 2 = 225,0
 FOS = 0,700 2 = 223,0

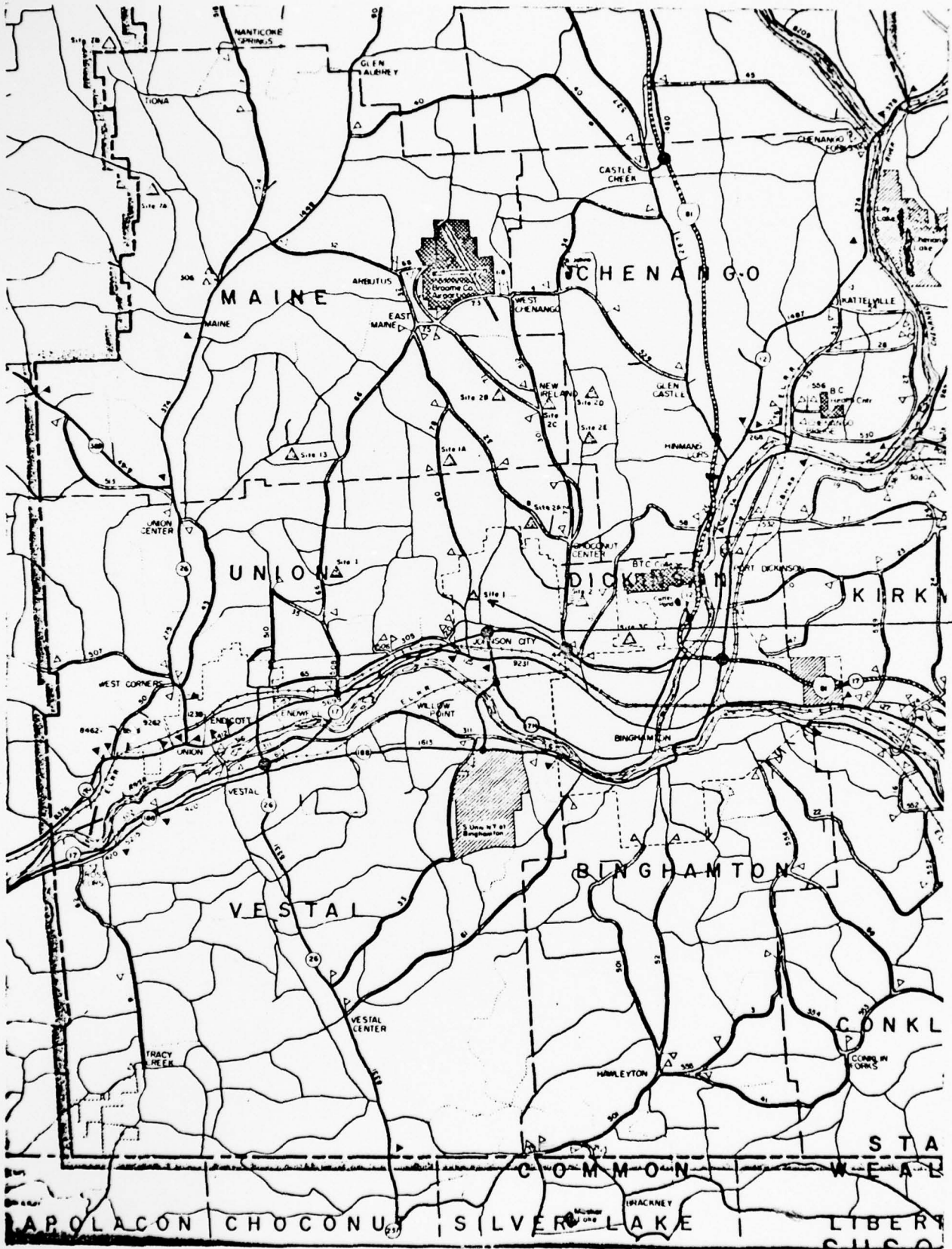
H = -115,0 2 = 110,0

FOS = 1,355 2 = 170,0
 FOS = 1,360 2 = 168,0
 FOS = 1,333 2 = 160,0
 FOS = 1,215 2 = 160,0
 FOS = 1,215 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0
 FOS = 1,201 2 = 150,0

Pg 3-4

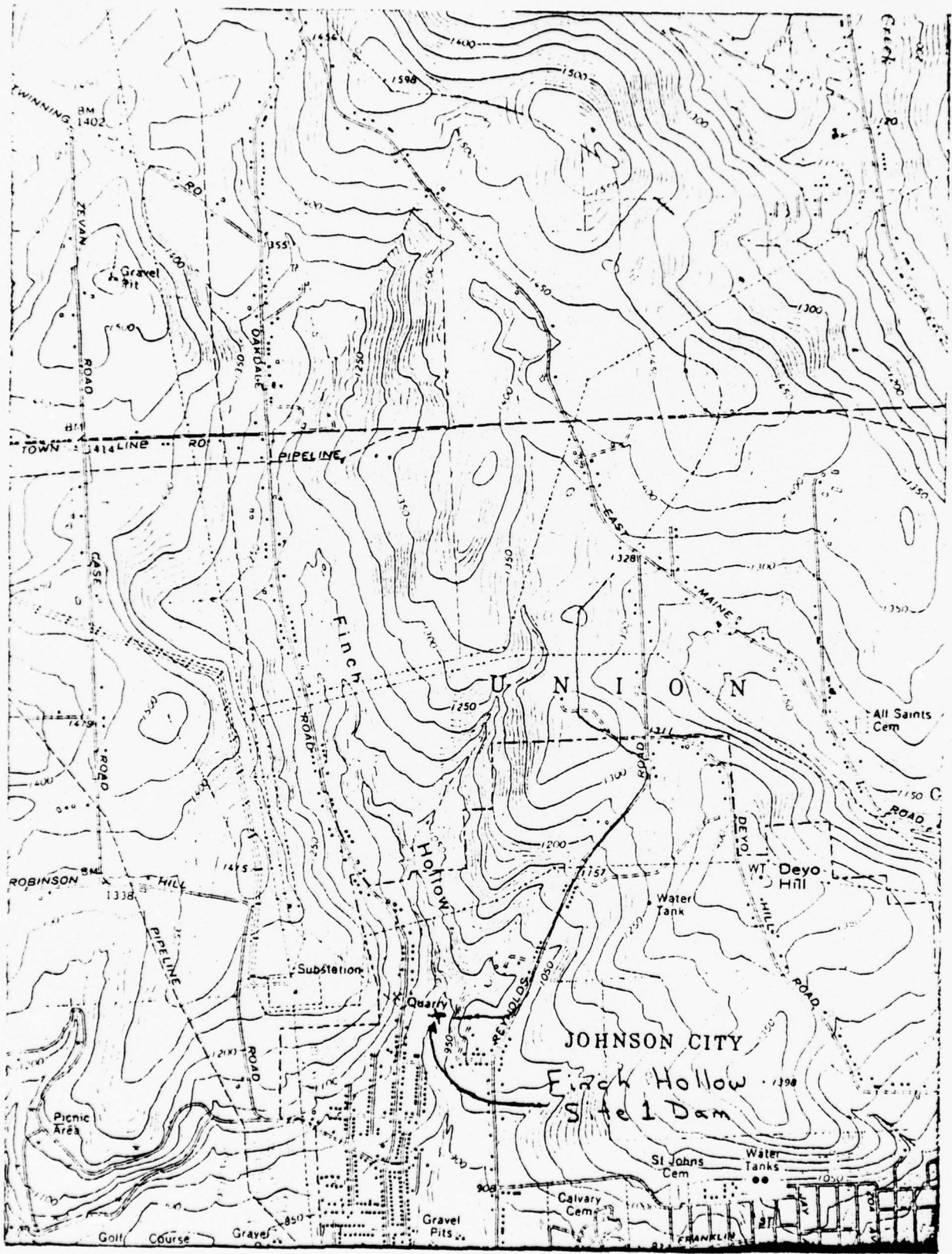
APPENDIX G

DRAWINGS



Finch Hollow Site 1 Dam

Location Plan
 Finch Hollow
 Site 1 Dam
 Broome County



Topographic Map

List of Drawings

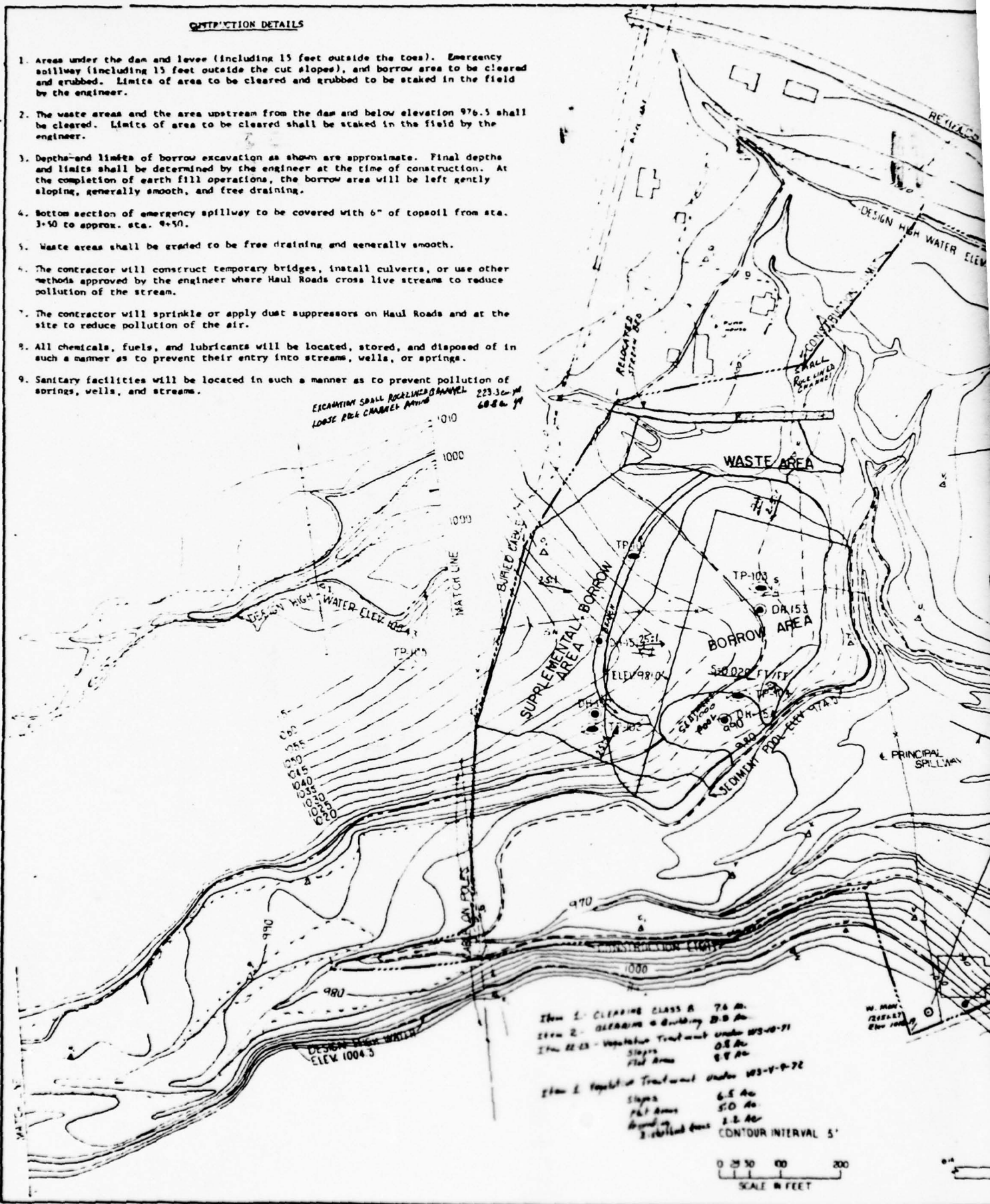
FINCH HOLLOW SITE I DAM

Drawing # of 22

Plan	2
Plan of Structural Works	3
Cutoff Trench Excavation	4
Emergency Spillway	5
Emergency Spillway	6
Fill Placement and Principal Spillway Excavation	8
Drainage System	9
Drainage System	10
Plan Profile of Principal Spillway	11
Riser Structural Details	12
Conduit Details	17
Logs of Test Holes	21
Logs of Test Holes	22

CONSTRUCTION DETAILS

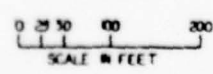
1. Areas under the dam and levee (including 15 feet outside the toes). Emergency spillway (including 15 feet outside the cut slopes), and borrow area to be cleared and grubbed. Limits of area to be cleared and grubbed to be staked in the field by the engineer.
2. The waste areas and the area upstream from the dam and below elevation 976.5 shall be cleared. Limits of area to be cleared shall be staked in the field by the engineer.
3. Depths and limits of borrow excavation as shown are approximate. Final depths and limits shall be determined by the engineer at the time of construction. At the completion of earth fill operations, the borrow area will be left gently sloping, generally smooth, and free draining.
4. Bottom section of emergency spillway to be covered with 6" of topsoil from sta. 1+50 to approx. sta. 9+50.
5. Waste areas shall be graded to be free draining and generally smooth.
6. The contractor will construct temporary bridges, install culverts, or use other methods approved by the engineer where Haul Roads cross live streams to reduce pollution of the stream.
7. The contractor will sprinkle or apply dust suppressors on Haul Roads and at the site to reduce pollution of the air.
8. All chemicals, fuels, and lubricants will be located, stored, and disposed of in such a manner as to prevent their entry into streams, wells, or springs.
9. Sanitary facilities will be located in such a manner as to prevent pollution of springs, wells, and streams.



EXCAVATING SMALL ROCKLINED CHANNEL
LOOSE ROK CHANNEL APPROX 223.30-44
68.84-71

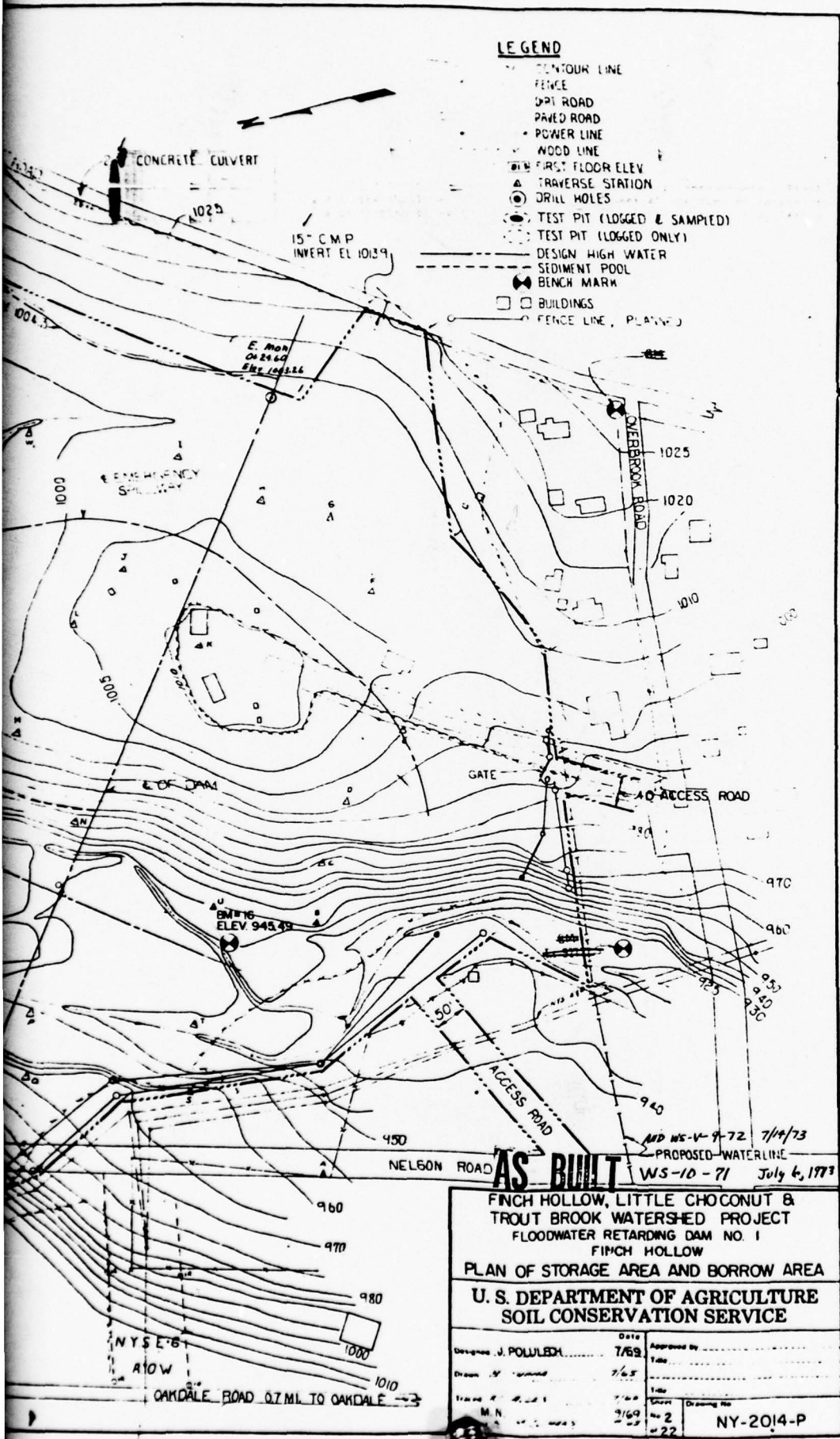
985
980
975
970
965
960
955
950
945
940
935
930
925
920

Item 1 - CLEARING CLASS B 74 Ac
Item 2 - CLEARING & Grubbing 21.9 Ac
Item 2-23 - Vegetation Treatment under 103-10-71
Slopes 0.8 Ac
Flat Area 8.8 Ac
Item 2 - Vegetation Treatment under 103-V-9-72
Slopes 6.5 Ac
Flat Area 5.0 Ac
Ground 1.2 Ac
CONTOUR INTERVAL 5'



LEGEND

- CONTOUR LINE
- - - FENCE
- - - DIRT ROAD
- - - PAVED ROAD
- - - POWER LINE
- - - WOOD LINE
- FIRST FLOOR ELEV
- △ TRAVERSE STATION
- DRILL HOLES
- TEST PIT (LOGGED & SAMPLED)
- TEST PIT (LOGGED ONLY)
- - - DESIGN HIGH WATER
- SEDIMENT POOL
- BENCH MARK
- BUILDINGS
- - - FENCE LINE, PLANNED



AS BUILT

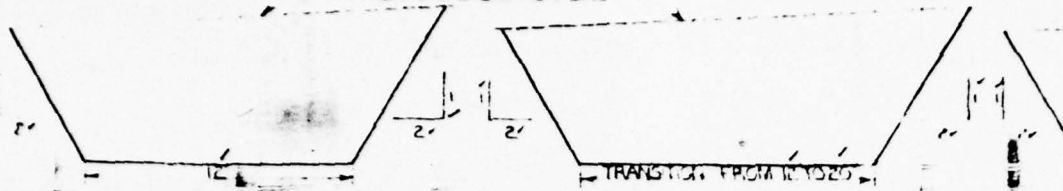
FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
FINCH HOLLOW
PLAN OF STORAGE AREA AND BORROW AREA

**U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE**

Designed by J. POLLEDA	Date 7/69	Approved by
Drawn by [unclear]	7/65	Title
Traced by [unclear]	7/68	Title
M. N.	3/69	Sheet No 2 of 22
Drawing No. NY-2014-P		

9

STRIPPED GROUND OR FOUNDATION EXCAVATION LINE



SECTION OF CUTOFF AT STA 6+00

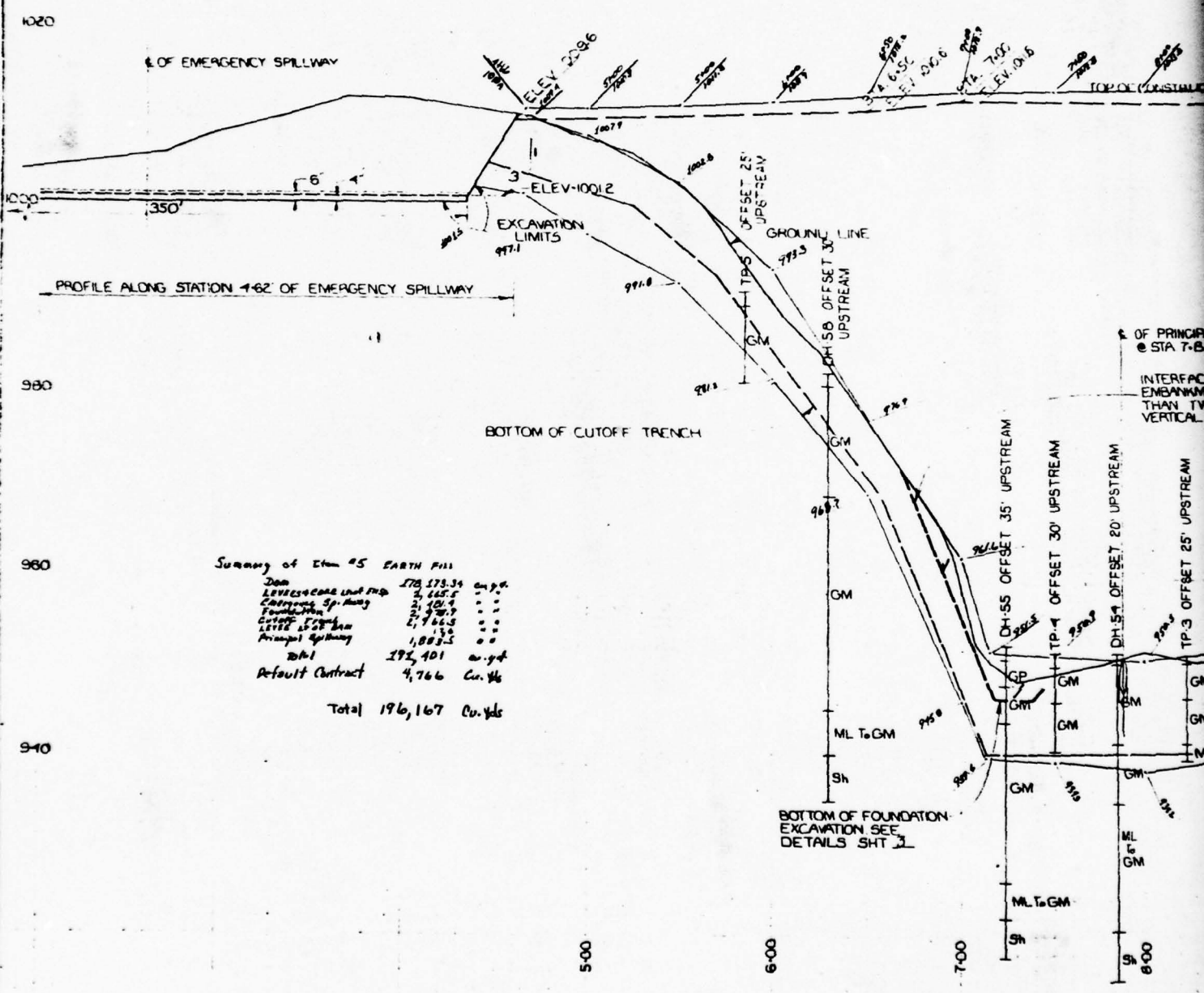
TYPICAL FROM STA 4+45 TO STA 6+50 AND FROM STA 11+00 TO STA 12+05

SECTION OF CUTOFF AT STA 6+75

TYPICAL FROM STA 6+50 TO STA 7+00 AND FROM STA 10+50 TO STA 11+00

SECTION OF CUTOFF AT STA 7+25

TYPICAL FROM STA 7+00 TO STA 7+50 AND FROM STA 8+00 TO STA 10+50



Summary of ELEM #5 EARTH FILL

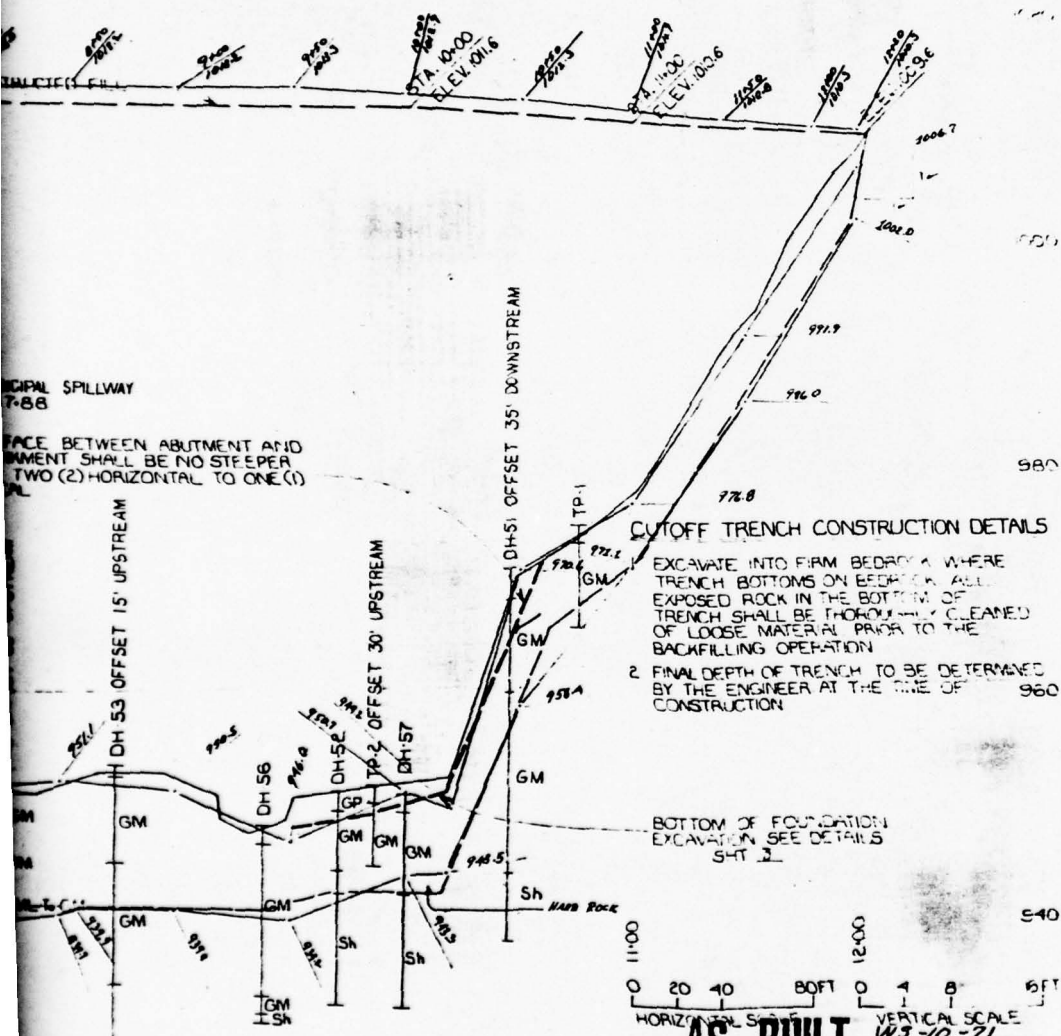
Dam	178,179.34	Cu. Yds.
Levees/Canals and Pip.	2,165.5	
Canals, Sp. Hwy	2,120.4	
Excavation	2,920.9	
Cutoff, 5' x 8' Dam	2,766.5	
LEVEE 15' x 8' Dam	130	
Principal Spillway	1,883.5	
Total	196,167	Cu. Yds

PROFILE ALONG LINE OF CUTOFF TRENCH, LOOKING DOWN

STRIPPED GROUND OR
FOUNDATION EXCAVATION LINE

USE SIDE SLOPES 4 HORIZONTAL
TO 1 VERTICAL BETWEEN STA 942
AND STA 950

SECTION OF CUTOFF AT STA 945,
TYPICAL FROM STA 935 TO 955

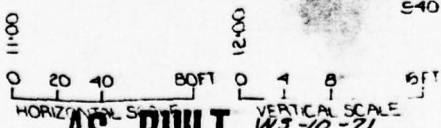


CUTOFF TRENCH CONSTRUCTION DETAILS

EXCAVATE INTO FIRM BEDROCK WHERE
TRENCH BOTTOMS ON BEDROCK ARE
EXPOSED ROCK IN THE BOTTOM OF
TRENCH SHALL BE THOROUGHLY CLEANED
OF LOOSE MATERIAL PRIOR TO THE
BACKFILLING OPERATION

2 FINAL DEPTH OF TRENCH TO BE DETERMINED
BY THE ENGINEER AT THE TIME OF
CONSTRUCTION

BOTTOM OF FOUNDATION
EXCAVATION SEE DETAILS
SHT 2



AS BUILT

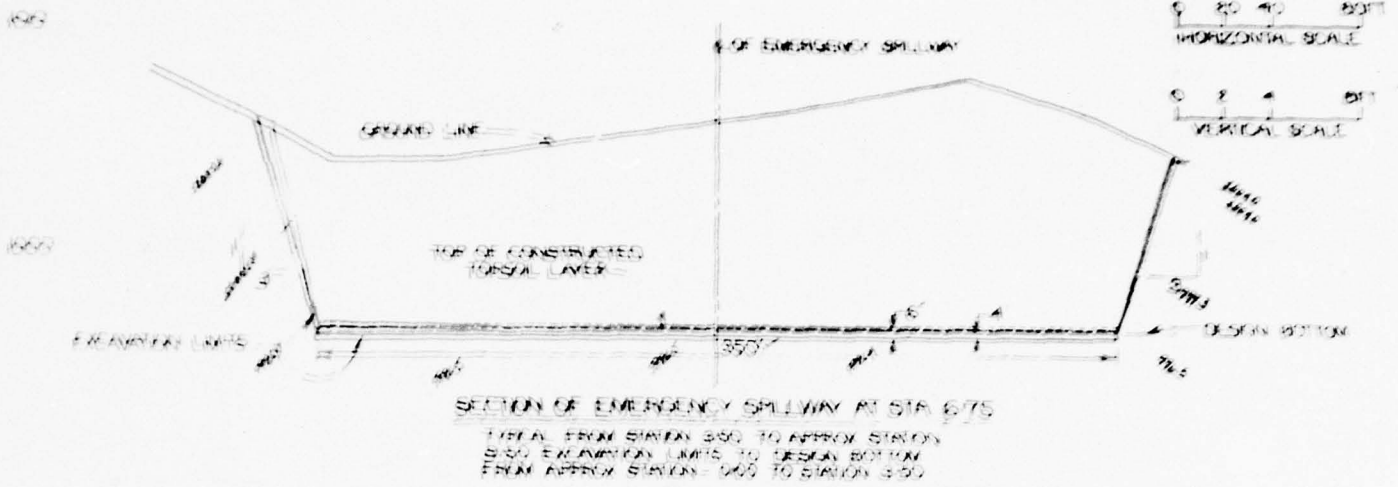
WS-10-71
July 6, 1973

FINCH HOLLOW, LITTLE CHOCONUT &
TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
FINCH HOLLOW
CUTOFF TRENCH EXCAVATION
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

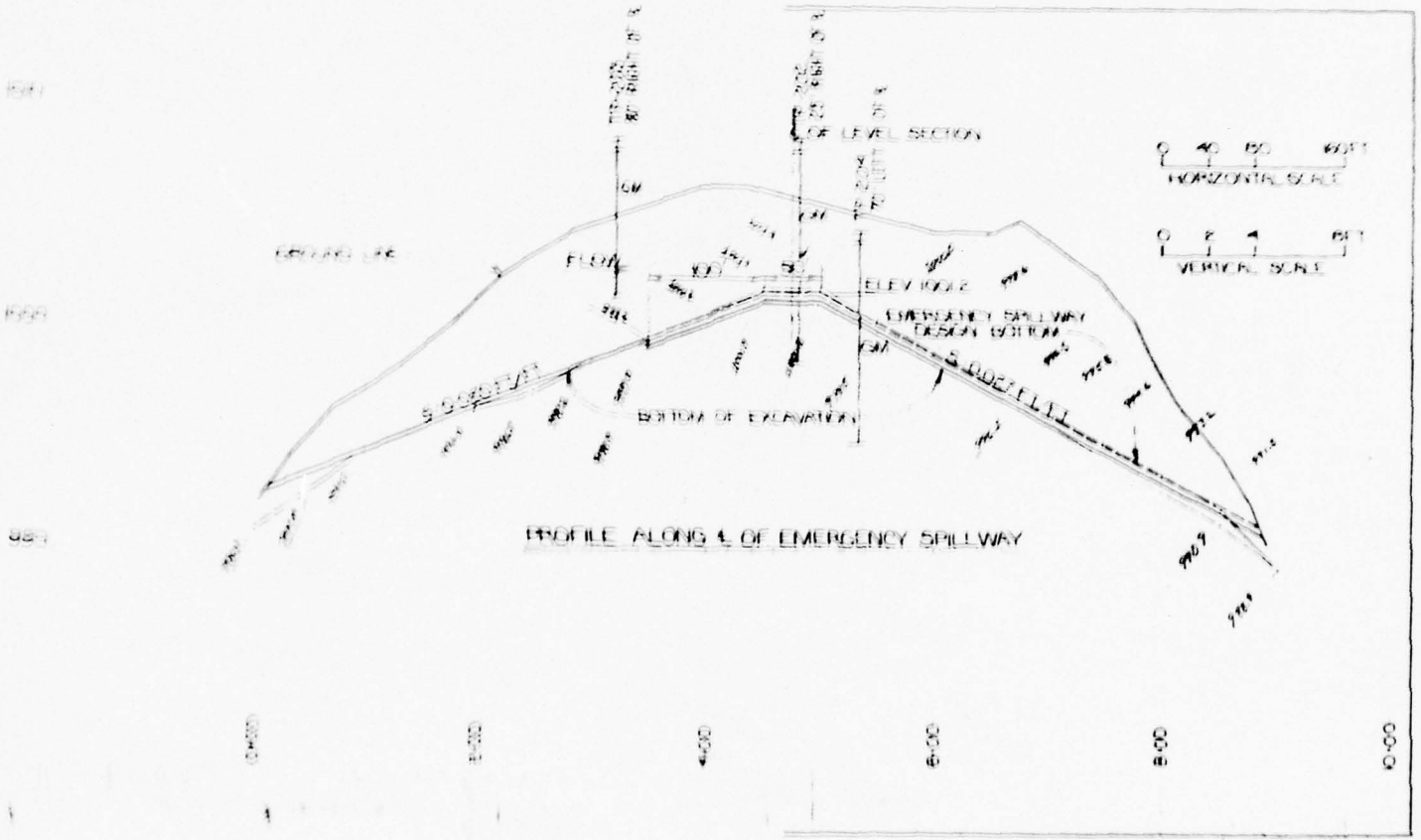
Foundation Excavation - 2812.2 cu yd
Cutoff Trench Excavation - 7,966.5 cu yd

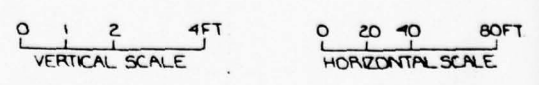
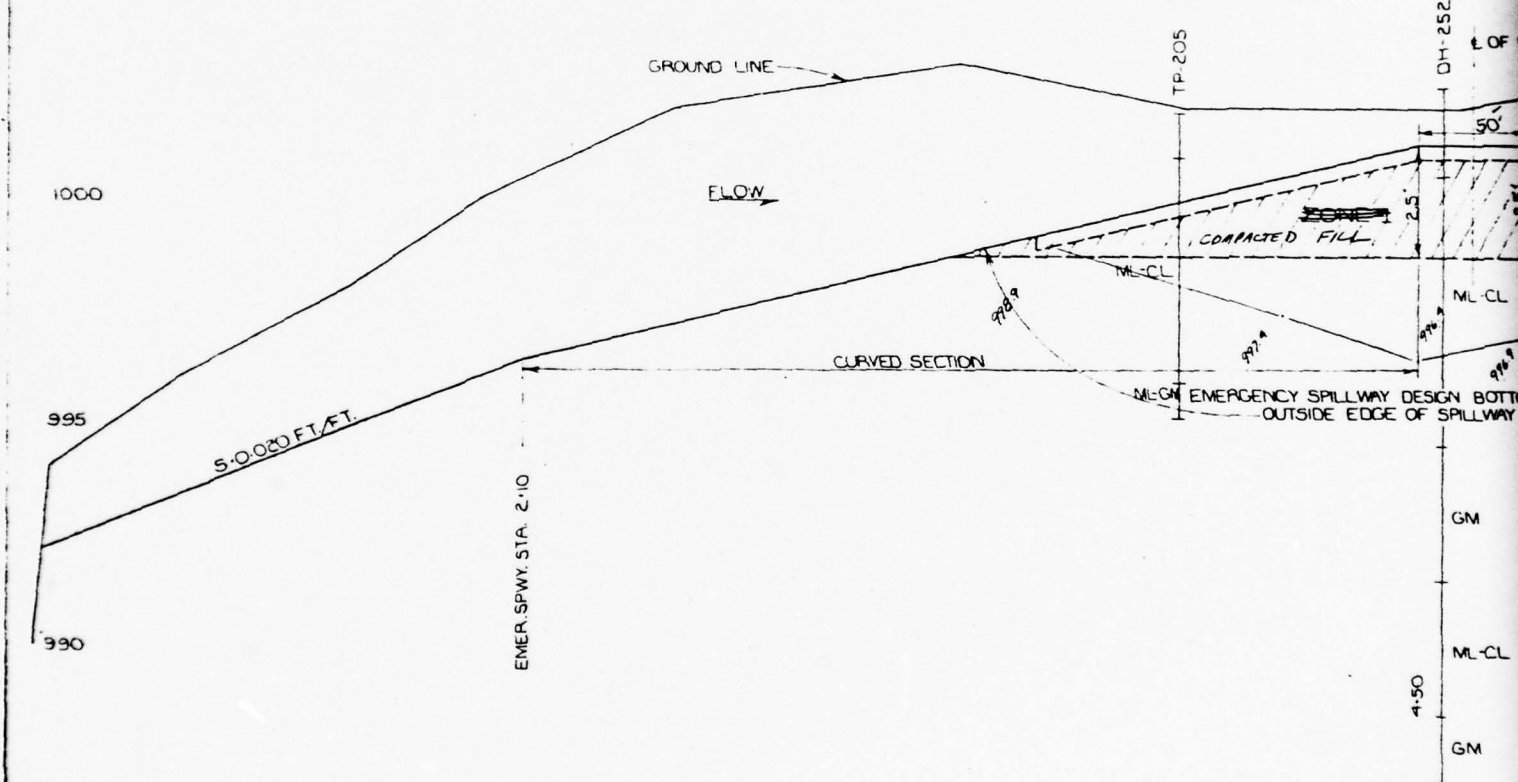
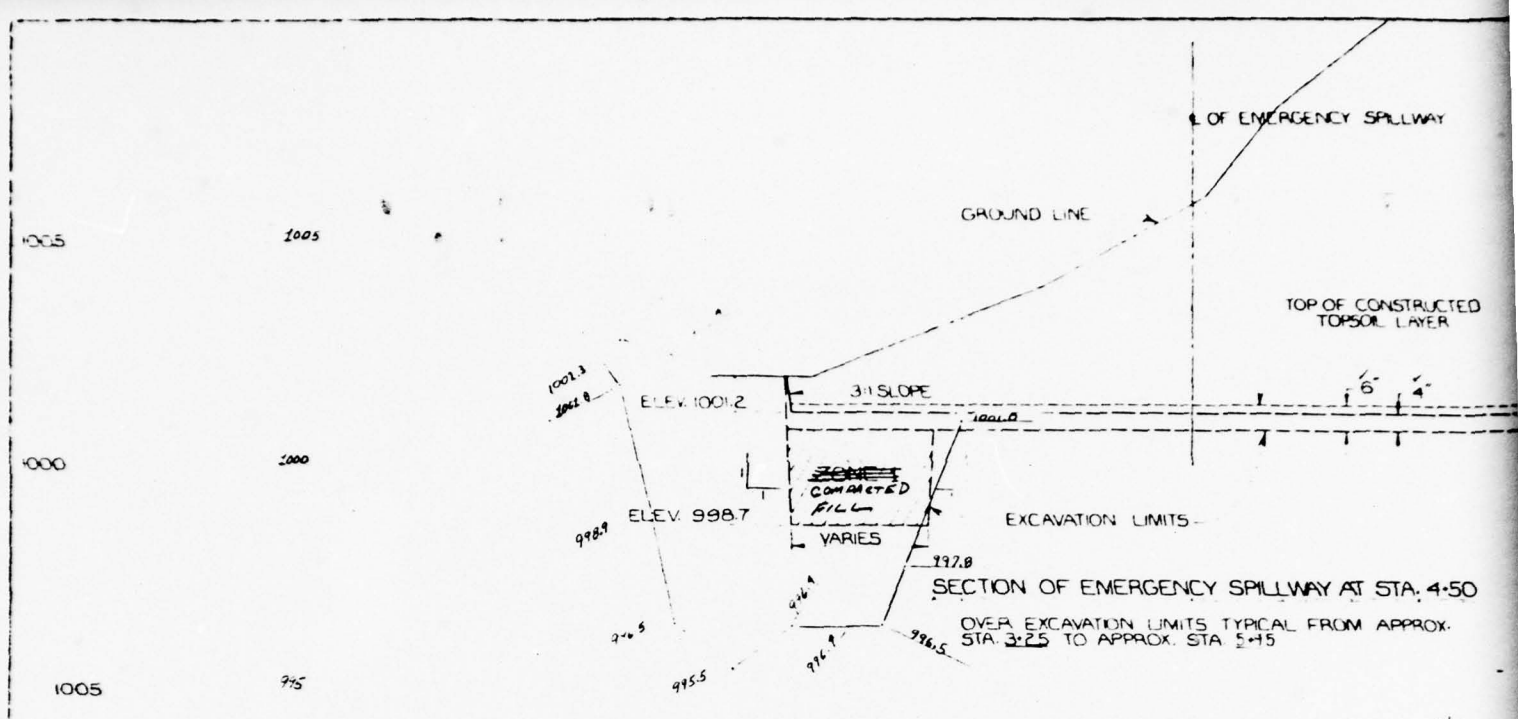
J. W. LECH 769
J. W. LECH III 769

2



11,566 97





PROFILE ALONG OUTSIDE EDGE OF EMERGENCY SPILLWAY

GROUND LINE

CONSTRUCTION NOTE

SEE SHEET B FOR EARTH
REQUIREMENTS

DESIGN BOTTOM

OF LEVEL SECTION

ELEV 1001.2

OVER EXCAVATE TO ELEV. 998.7
OR TO SILTY GRAVEL AS REPRESENTED
BY TP-205 FROM 6.0' TO 7.0' IF THE
SILTY GRAVEL IS ENCOUNTERED AT A
HIGHER ELEVATION.

EMERGENCY SPILLWAY EXCAVATION 3950.3 cu yd

5:00 FT. FT

CL

BOTTOM ALONG
SPILLWAY

CURVED SECTION

5:50

6:50

EMER. SPWY. STA. 6.75

AS BUILT

WS-10-71
July 6, 1979

FINCH HOLLOW, LITTLE CHOCONUT &
TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO 1
FINCH HOLLOW
EMERGENCY SPILLWAY

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

J. E. POLULECH 8/69

J. DE VITA III 8/69

8/69 6/22 NY-2014-P

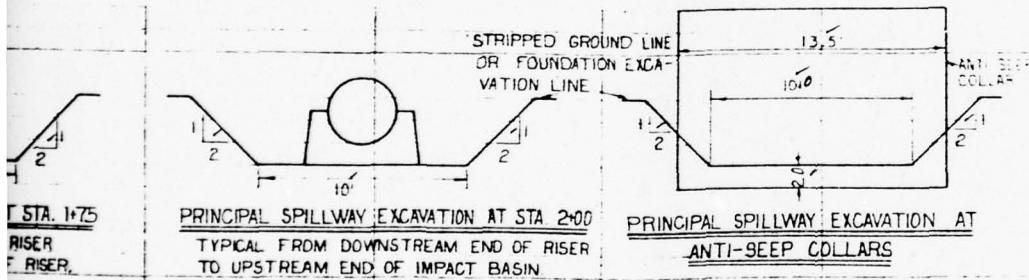
EARTH FILL REQUIREMENTS

Material 1/	Max. Rock Size 2/	Max. Lift Thick 3/	Min. Required Water Content 4/	Compaction 5/	
				Class	Definition
Materials represented by: TP 203 from 0.5 to 7.0' TP 102 from 0.5 to 10.0' TP 104 from 4.0 to 10.5'	6"	9"	2 percentage points below optimum	A	100% of maximum density by ASTM D-698 Method C

- 1/ a. The placement table indicates estimated use of material.
 b. Excavated material (Represented by TP-102 from 0.5' to 10.0' in borrow area) shall be used as earth fill adjacent to the drain fill material. Minimum covering of this material-2.0'.
 2/ a. Maximum rock size placed in backfill compacted by means of hand tamping or manually directed power tampers or plate vibrators shall be 3".
 b. Maximum rock size of 18" dumped in the earth fill that is not used in the construction of the principal spillway outlet channel or the rocklined outlet channel shall be raked to the portion of the dam labeled "oversize rock section" as shown on the drawings.
 3/ Maximum lift thickness prior to compaction. The maximum lift thickness of the rock section shall be no greater than 18" prior to compaction.
 4/ Water content at time of compaction.
 5/ a. For typical compaction curves see sheet 22.
 b. Use Class C compaction in areas of the dam containing oversize material. Class C compaction shall consist of: Three passes per lift of fill by a tamping roller exerting a minimum contact pressure of 450 p.s.i., or equivalent as approved by the engineer.

CONSTRUCTION DETAILS

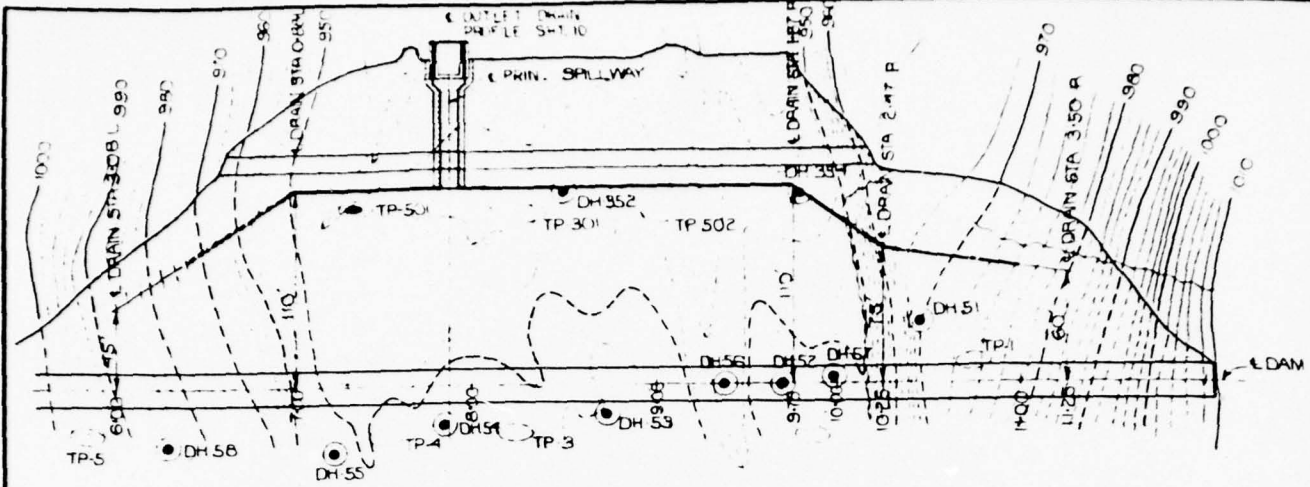
- Material placed in the oversize rock section shall contain oversize material raked from the earth fill. This Section shall be essentially free of materials less than 3". The indicated boundaries of this section are approximate. Adjustments will be made by the engineer to utilize the oversize material.
- Topsoil that is suitable for use and not used on the specified area of the emergency spillway shall be incorporated within the slopes of the earth fill as directed by the engineer.



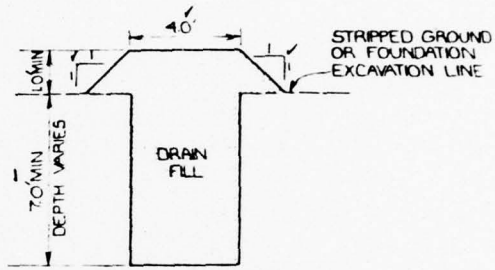
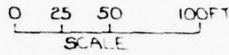
SHOW #4 EXCAVATION OF STRUCTURE AREA 1,003.5 AS SHOWN

AS BUILT W-5-10-71
July 6, 1973

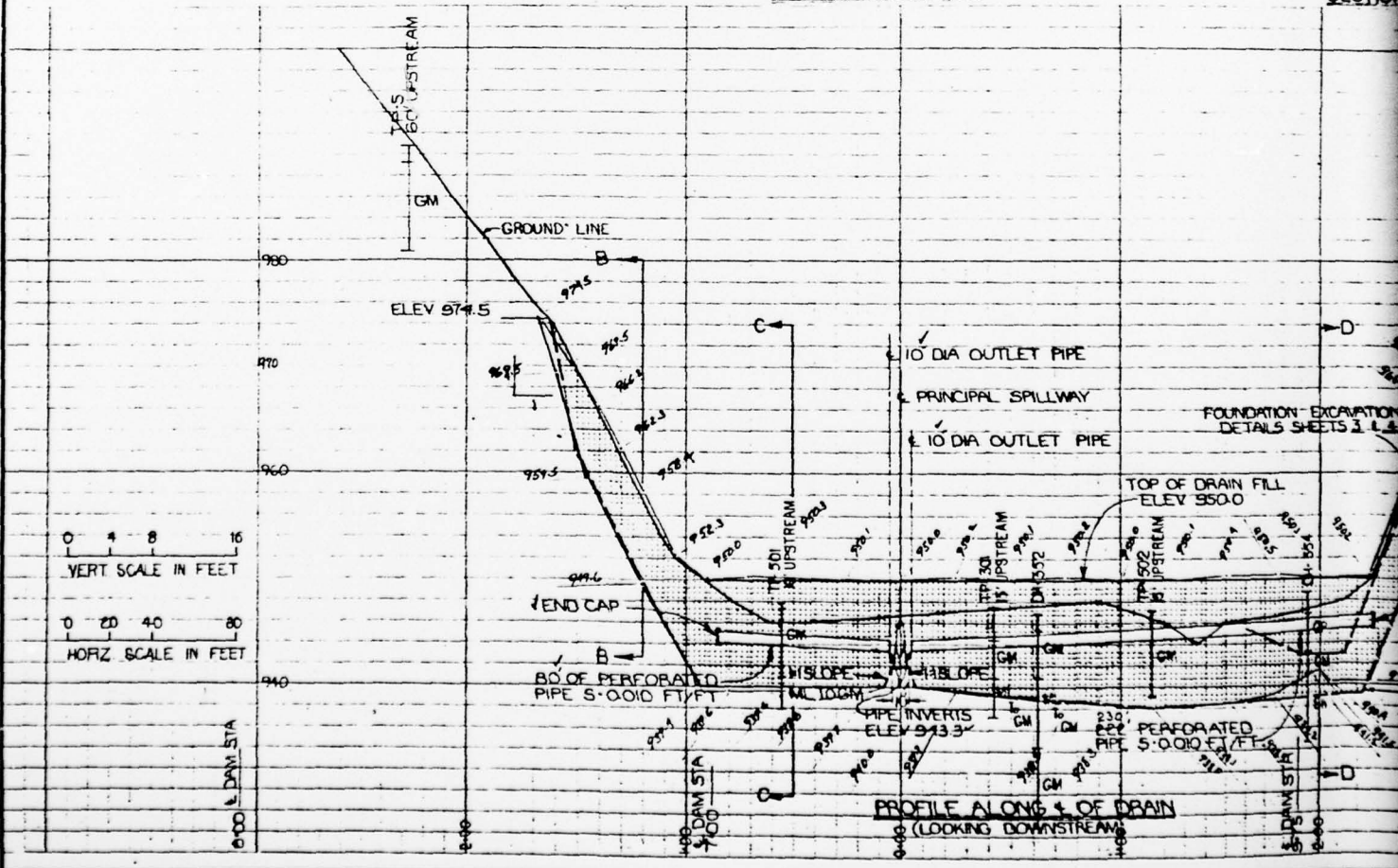
DEC 1970	FILL PLACEMENT	<i>CRZP</i>
DATE	ITEM	APPROVED
REVISIONS		
FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT FLOODWATER RETARDING DAM NO. 1 FINCH HOLLOW FILL PLACEMENT & PRIN. SPWY. EXCAVATION		
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE		
Designed by J. POLJALECH	Date 7/69	Approved by Title
Drawn by D. BURDICK	Date 7/69	Title
Checked by M.N.	Date 8/69	Sheet No. 8 Drawing No. NY-2014-P



PLAN VIEW



SECTION B-B AND E-E

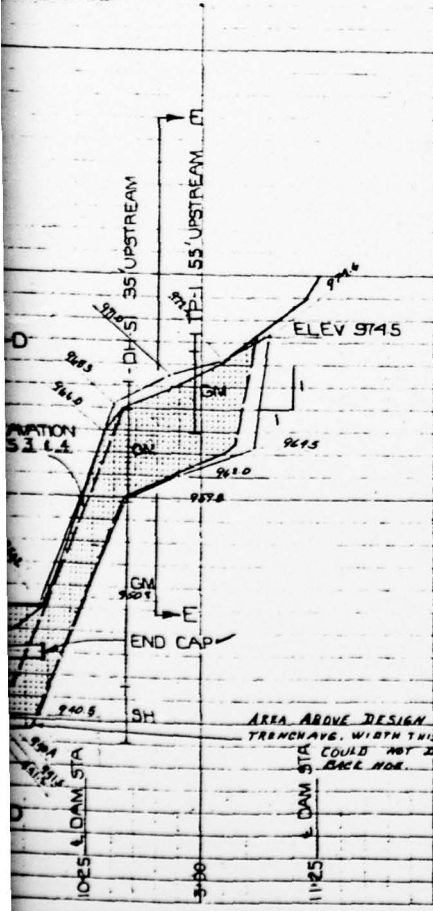
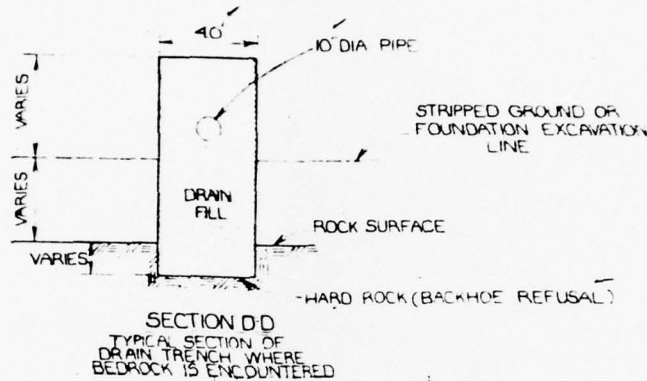
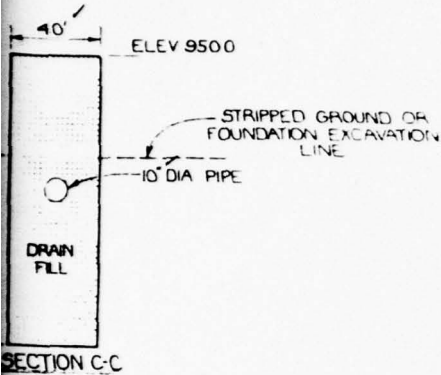


DRAINAGE SYSTEM DETAILS

- 1 PERFORATED DRAIN PIPE SHALL CONFORM TO SPECIFICATION 545 AND SHALL BE 10" DIA PRESSURE PIPE, CLASS 200.
- 2 THE PROFILES AT THE BOTTOM OF ALL EXCAVATIONS AS SHOWN ARE ONLY APPROXIMATE. THE REQUIRED FINISHED GRADES WILL BE ESTABLISHED IN THE FIELD AT THE TIME OF CONSTRUCTION BY THE ENGINEER.

QUANTITY SUMMARY

- 977 CU. YDS. DRAIN FILL
- 111.11 LIN. FT. STRAIGHT SECTION OF PERFORATED ASBESTOS CEMENT PIPE
- 2" END CAPS
- 1-45° ELBOW 10" DIA. INTERNAL ANGLE (CAST IRON)
- 2-90° ELBOWS (10" DIA.) (CAST IRON)
- 4-45° ELBOWS (10" DIA.) (CAST IRON)



GRAIN SIZE DISTRIBUTION TABLE FOR DRAIN FILL

SIEVE NO.	% PASSING	% $\frac{2.0}{100}$	% $\frac{75}{100}$
3"	100	100	100
3/4"	86.100	86	86
3/8"	80.96	81	81
3/16"	60.85	61	62
#4	37.68	38	35
#10	18.50	19	26
#16	3.27	3	20
#30	0.11	0	10
#50	0.4	0	2
#100	0.3	0	1
#200	0.3	0	0

Item 1. EXCAVATION DRAIN TRENCH 5477 cu. yd.
 Item 6. DRAIN FILL 9780 cu. yd.

AS BUILT WS-10-71
 July 6, 1973

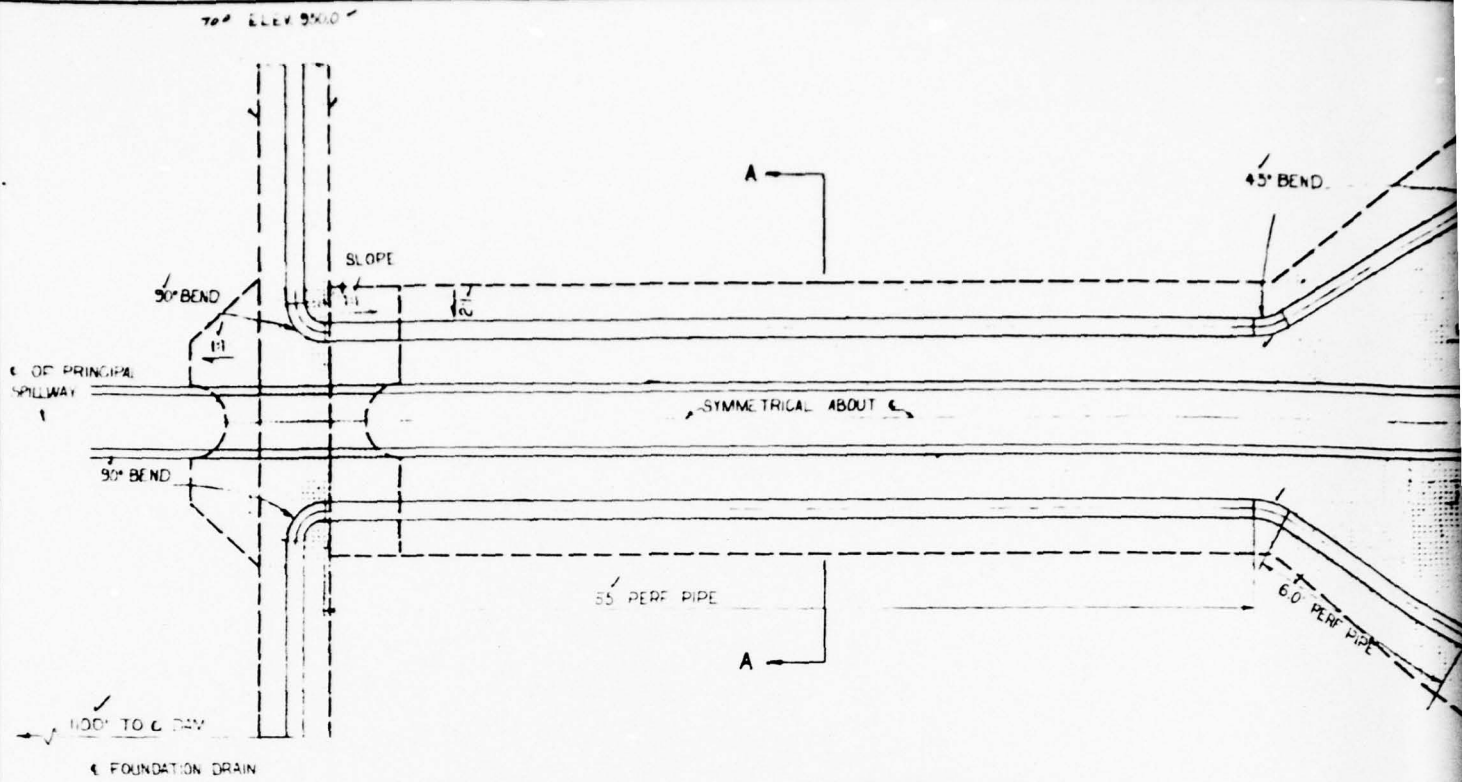
FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT FLOODWATER RETARDING DAM NO. 1 FINCH HOLLOW DRAINAGE SYSTEM

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

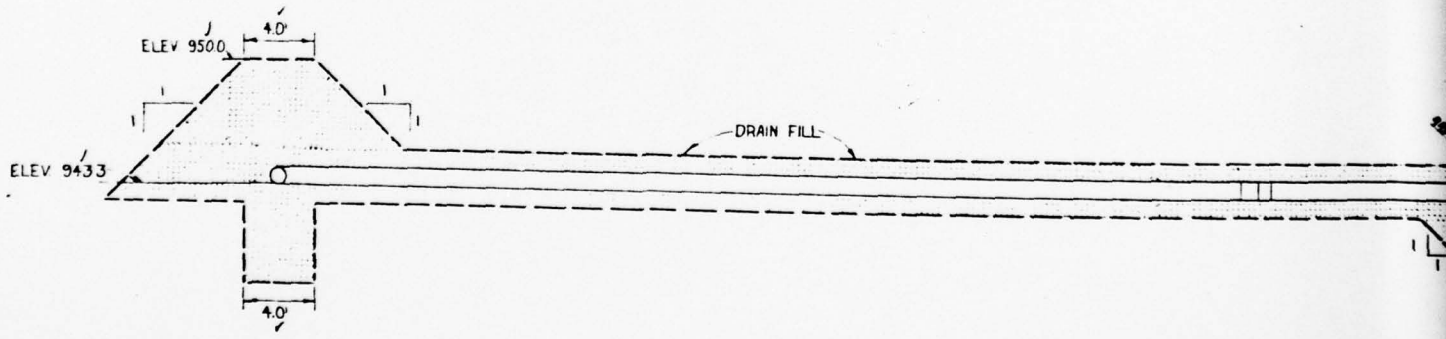
Designed J.E. POLJALECH	Date 8/69	Approved by Title
Drawn J. DE VITA II	Date 8/69	Title
Checked A.R.T. & J.M.Z.	Date 9/69	Sheet 9 Draw No. NY-2014-P

AREA ABOVE DESIGN BOTTOM IN R.R. TRENCHES. WIDTH THIS AREA COULD NOT DIG MORE ROCK WITH BACK HOE.

2

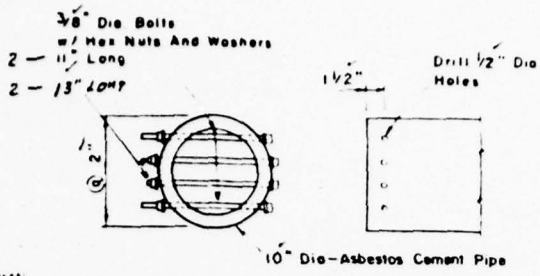
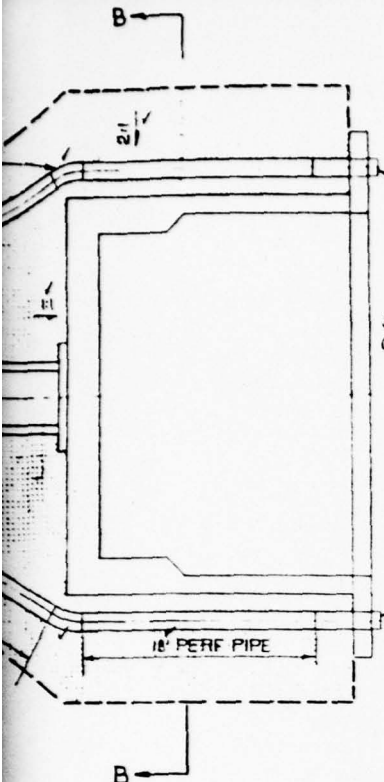


PLAN OF OUTLET DRAIN
 (NOT TO SCALE)



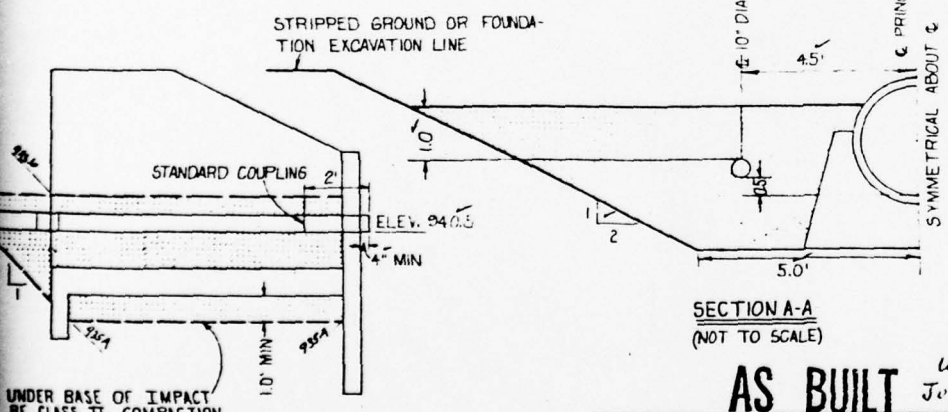
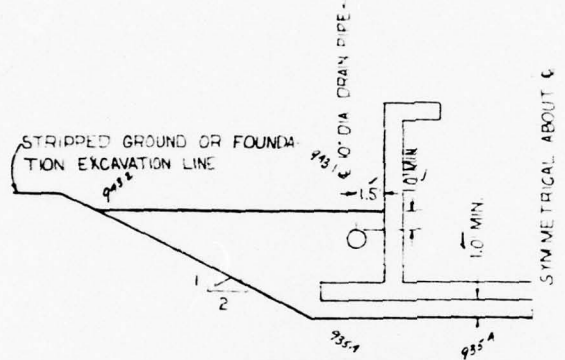
TYPICAL SECTION ALONG OUTLET DRAIN
 (NOT TO SCALE)

DRAIN FILL LINE
 BASIN WILL BE



SMALL ANIMAL GUARD SEE DETAIL

SMALL ANIMAL GUARD DETAILS (2-Req)

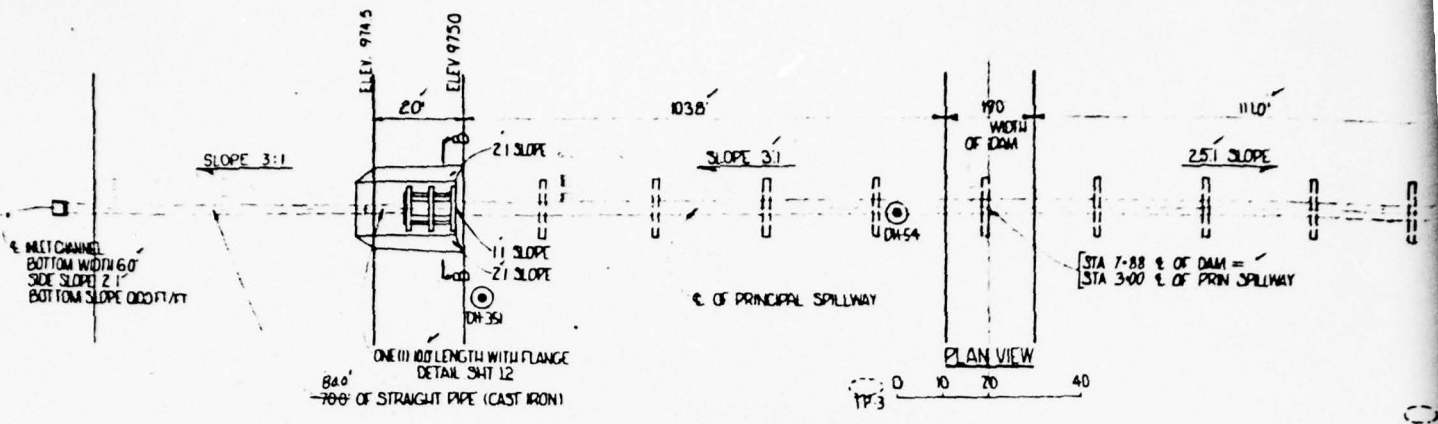


UNDER BASE OF IMPACT BE CLASS II COMPACTION.

AS BUILT 105-10-71
July 6, 1978

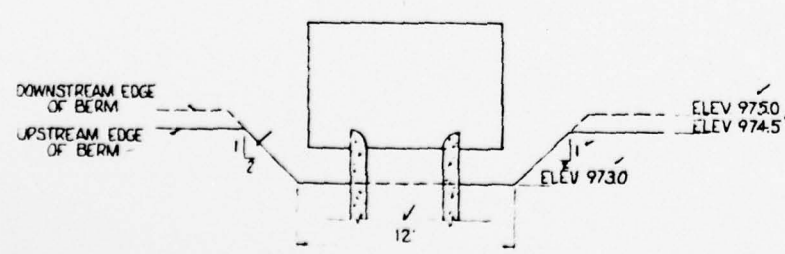
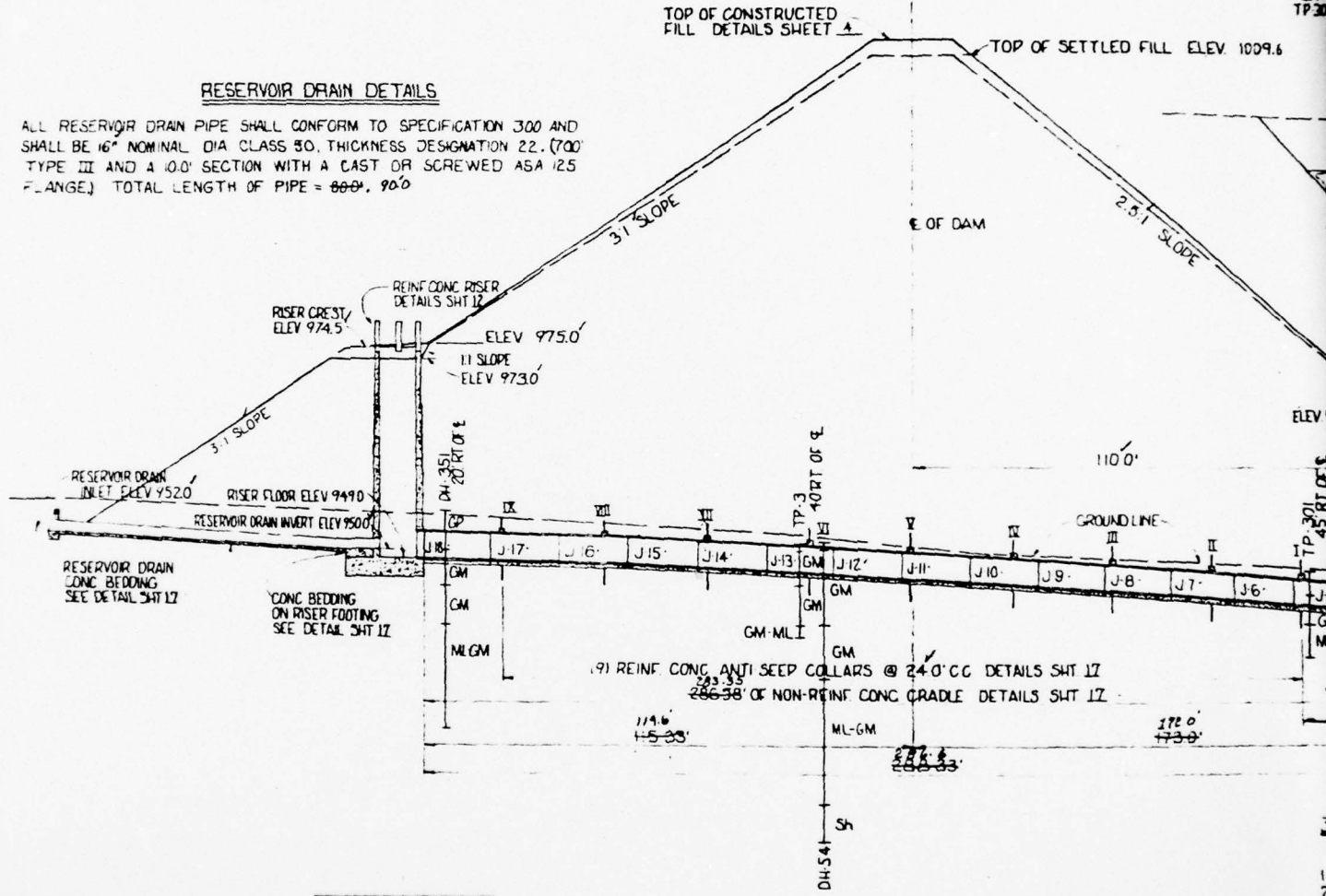
FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT FLOODWATER RETARDING DAM NO 1 FINCH HOLLOW DRAINAGE SYSTEM			
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE			
Designed	J. POLULECH	Date	8/69
Drawn	D. BURDICK	Approved	8/69
Traced			
Checked	A.R.T., LB	Date	9/69
		Scale	10/22
		Project No.	NY-2014-P

2



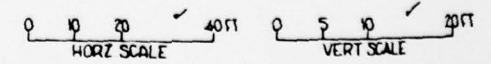
RESERVOIR DRAIN DETAILS

ALL RESERVOIR DRAIN PIPE SHALL CONFORM TO SPECIFICATION 300 AND SHALL BE 16" NOMINAL DIA CLASS 50, THICKNESS DESIGNATION 22, (700' TYPE III AND A 10.0' SECTION WITH A CAST OR SCREWED ASA 125 FLANGE) TOTAL LENGTH OF PIPE = 880', 90.0'



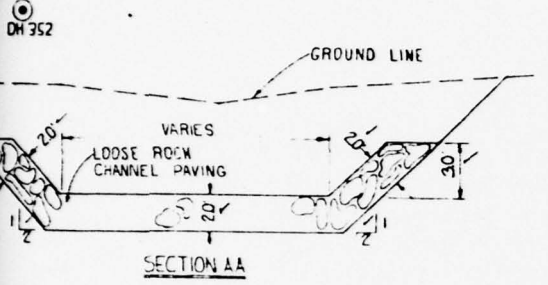
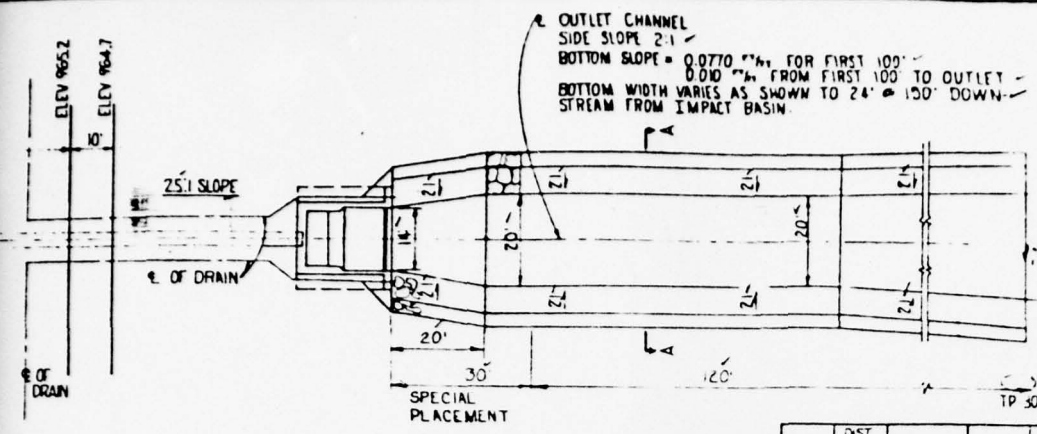
SECTION B-B
NOT TO SCALE

PROFILE ALONG C OF PRINCIPAL SPILLWAY



36'
1 P
2 U
3 B
4 N
5 P
6 P
7 O
WHEN
OUTS
CALL
EDGE
FURN
GREA
EDGE
BY T
OF T
OUTS

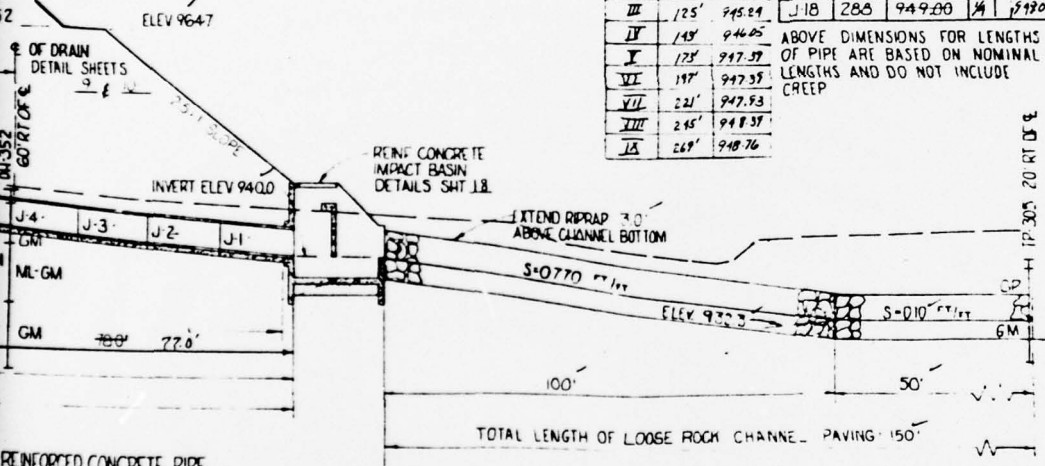
OUTLET CHANNEL
SIDE SLOPE 2:1
BOTTOM SLOPE = 0.0770 "/ft. FOR FIRST 100'
0.010 "/ft. FROM FIRST 100' TO OUTLET
BOTTOM WIDTH VARIES AS SHOWN TO 24' @ 150' DOWN-
STREAM FROM IMPACT BASIN



COLLAR	DIST FROM OUTLET	INVERT OF 36" DIA PIPE
I	78	943.43
II	102	944.39
III	126	945.28
IV	150	946.07
V	174	946.78
VI	198	947.41
VII	222	947.96
VIII	246	948.41
IX	270	948.78

JOINT	DIST FROM OUTLET	INVERT OF 36" DIA PIPE	SLOPE
OUTLET	0	940.00	
J-1	16	940.71	1/4"
J-2	32	941.41	1/4"
J-3	48	942.12	1/4"
J-4	64	942.83	1/4"
J-5	80	943.51	1/4"
J-6	96	944.16	1/4"
J-7	112	944.77	1/4"
J-8	128	945.35	3/16"
J-9	144	945.89	1/4"
J-10	160	946.36	1/4"
J-11	176	946.84	1/4"
J-12	192	947.26	1/4"
J-13	208	947.65	1/4"
J-14	224	948.00	1/4"
J-15	240	948.30	1/8"
J-16	256	948.57	1/8"
J-17	272	948.80	1/8"
J-18	288	949.00	1/4"

ABOVE DIMENSIONS FOR LENGTHS OF PIPE ARE BASED ON NOMINAL LENGTHS AND DO NOT INCLUDE CREEP



REINFORCED CONCRETE PIPE STRENGTH REQUIREMENTS

PRESSURE HEAD 63 FT
LOAD 53,483 LBS PER LIN FT
BASED ON O.D. OF 36.7 FT
MIN 3 EDGE BEARING STRENGTH
FOR 0.001" CRACK 13,434 LBS
PER LIN FT FOR PRESTRESSED PIPE
(AWWA C 301)
O.D. 3.91' 286.6 L.F.F.
WHERE THE PIPE FURNISHED HAS AN
INSIDE DIAMETER GREATER THAN THAT
CALLED FOR ON THE PLANS, THE THREE-
EDGE BEARING STRENGTH OF THE PIPE
FURNISHED MUST BE EQUAL TO OR
GREATER THAN THE SPECIFIED THREE-
EDGE BEARING STRENGTH MULTIPLIED
BY THE RATIO OF THE OUTSIDE DIAMETER
OF THE PIPE FURNISHED TO THE
INSIDE DIAMETER SPECIFIED.

FABRICATION INSTRUCTIONS
(18) 16'0" SECTIONS
ONE (1) SPIGOT
RING WALL FITTING
FOR 21" WALL

PIPE SUPPLIERS NOTE
CAST OUTSIDE OF
SPIGOT RING WITH CON-
CRETE ON ONE 16'0" SECTION

WHEN PIPE IS SUPPLIED IN LENGTHS
OTHER THAN SHOWN THE
ENGINEER WILL PROVIDE THE
CONTRACTOR WITH A REVISION
OF THIS SHEET

AS BUILT W-10-71
July 6, 1973

FINCH HOLLOW, LITTLE CHOCONUT &
TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
FINCH HOLLOW
PLAN PROFILE OF PRINCIPAL SPILLWAY
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by J. POLJLECH 7/69
Checked by W. EBERSBACH 8/69
Drawn by T. B. 8/69
NY-2014-P

STEEL SCHEDULE

MARK	SIZE	QUANTITY	LENGTH	TYPE	B	C	TOTAL LENGTH
B1	5	22	17-6	1	-	-	385-0
B2	6	14	18-6	1	-	-	333-0
B3	7	34	8-6	1	-	-	784-0
B4	8	46	4-7	21	4-3	5-4	440-10
B5	6	18	18-6	1	-	-	333-0
B6	6	12	17-6	1	-	-	210-0
B7	8	14	17-6	1	-	-	245-0
B8	6	4	8-3	1	-	-	33-0
B9	5	12	6-2	21	0-11	5-3	74-0
B10	5	4	6-1	21	0-11	5-2	24-8
B11	5	30	6-0	21	0-11	5-1	180-0
B12	6	12	10-0	1	-	-	120-0
B13	5	7	4-0	1	-	-	28-0
B14	6	14	11-2	21	4-1	7-1	156-4
B15	6	4	10-8	21	3-10	6-10	47-8
B16	6	2	9-2	21	2-1	7-1	18-4
B17	6	4	8-10	21	1-9	7-1	35-4
B18	6	4	8-6	21	1-5	7-1	34-0
B19	6	4	8-4	21	1-3	7-1	33-4
B20	8	46	4-7	1	-	-	210-10
B21	5	12	3-8	1	-	-	44-0
B22	5	2	2-7	1	-	-	5-2
B23	5	2	2-3	1	-	-	4-6
B24	5	2	3-0	1	-	-	6-0
B25	5	2	2-4	1	-	-	4-8
B26	5	1	2-3	1	-	-	2-3
B27	5	30	1-8	1	-	-	50-0
R1	5	26	11-7	1	-	-	301-2
R2	7	8	11-7	1	-	-	92-8
R3	5	30	9-6	1	-	-	285-0
R4	7	14	9-6	1	-	-	133-0
R5	7	16	10-0	1	-	-	160-0
R6	5	14	4-0	1	-	-	56-0
R7	7	40	11-0	21	4-0	7-0	440-0
R8	6	16	10-0	1	-	-	160-0
R9	5	14	4-0	1	-	-	56-0
R10	6	36	10-2	21	3-7	6-10	384-0
R11	6	4	10-2	21	3-7	6-7	40-8
R12	5	30	3-8	1	-	-	110-0
R13	7	14	4-4	1	-	-	60-8
R14	5	26	6-7	1	-	-	171-2
R15	5	8	6-7	1	-	-	52-8
R16	5	30	4-6	1	-	-	135-0
R17	5	14	4-6	1	-	-	63-0
R18	6	16	9-8	1	-	-	154-8
R19	5	14	3-8	1	-	-	51-4
R20	6	36	10-2	21	3-7	6-7	366-0
R21	6	4	9-8	21	3-4	6-4	38-8
R22	5	30	3-8	1	-	-	110-0
R23	5	10	9-8	1	-	-	31-4
R24	5	20	6-2	1	-	-	123-4
R25	5	6	6-1	1	-	-	30-6
R26	5	22	6-4	1	-	-	139-4
R27	5	10	6-1	1	-	-	60-10
R28	6	20	9-8	1	-	-	193-4
R29	5	12	3-8	1	-	-	44-0
R30	6	52	9-8	21	3-4	6-4	502-4
T1	5	6	4-10	1	-	-	29-0
T2	5	10	4-10	1	-	-	48-4
T3	5	4	4-2	1	-	-	16-8
T4	5	16	3-2	1	-	-	50-8
T5	5	8	10-7	1	-	-	84-8
T6	5	12	3-2	1	-	-	36-0
T7	5	6	10-7	1	-	-	63-6
T8	5	6	10-7	1	-	-	63-6
T9	5	4	4-5	21	1-0	3-5	17-8
T10	5	12	3-2	1	-	-	38-0
T11	5	6	2-8	1	-	-	16-0
T12	5	8	4-10	1	-	-	36-8

The B-N slabs have been 0-2 by 7/8" B11 was added to make up diff. w/ sphere of slab.

CONSTRUCTION DETAILS

- SPECIFIED BAR DIMENSIONS ARE MEASURED TO THE OUTSIDE EDGE OF ALL BENDS.
- RADIUS OF BENDS EQUALS 3 BAR DIAMETERS FOR SIZES EQUAL TO OR LESS THAN #7.
- THE PLANE OF DISTANCE FROM FACE OF CONCRETE CURBLED ARE CLEAR OF ALL REINFORCING WHERE NOT OTHERWISE SPECIFIED. REINFORCING SHALL BE PLACED IN CONCRETE TO A MINIMUM OF 4" FROM THE BOTTOM. SHALL HAVE A MINIMUM OF 4" FROM THE TOP. ALL REINFORCING SHALL BE PLACED IN CONCRETE TO A MINIMUM OF 4" FROM THE TOP.
- ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" CHAMFER UNLESS OTHERWISE SPECIFIED.

SLIDE GATE DETAILS

- 16" DIAMETER FLAT FRAME SLIDE GATE SHALL BE MAINTAINED UNLT
- CLASS 30
- SLIDE GATE SHALL CONFORM TO SPEC 301
- IT SHALL BE TYPE MHS-1
- IF THE WALL THIMBLE IS DEEP
- STEM SHALL BE SIZED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. STEM SHALL BE EQUIPPED WITH A REMOVABLE T-HANDLE WITH A WRENCH SOCKET. THE WRENCH SOCKET SHALL BE LOCATED ABOVE THE TOP STEM GUIDE AND 28" OF ABOVE THE FLOOR OF THE RISER (3"). ALL OTHER STEM GUIDES WILL BE LOCATED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- PAIN IN ACCORDANCE WITH SPEC 301
- HOLES DRILLED IN BACK FLANGE OF WALL THIMBLE BY GATE MANUFACTURER ACCORDING TO ASA CLASS 125 FLANGE SPECIFICATION. DIAMETER OF BOLT CIRCLE 2 1/4" NUMBER OF BOLT HOLES 16 DIAMETER OF BOLT HOLES 1 1/4"

QUANTITIES

STEEL			
# 5 BARS -	2703-7	2820	LBS
# 6 BARS -	3574-0	5368	LBS
# 7 BARS -	1115-4	2403	LBS
# 8 BARS -	876-8	2396	LBS
CONCRETE	691	112,787	CY

AS BUILT

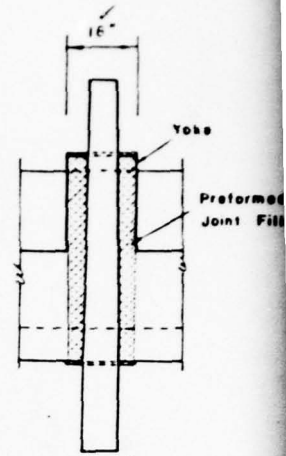
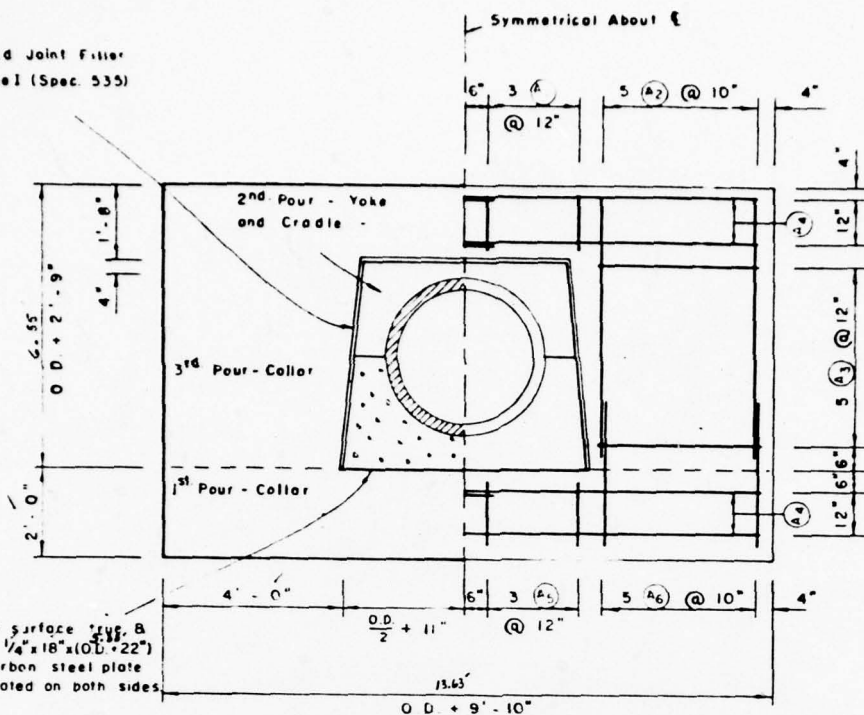
WS-10-71
July 6, 1973

FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
FINCH HOLLOW
RISER STRUCTURAL DETAILS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Approved	D. C. CHAPMAN	Date	8/69	Approved By	
Drawn		Title			
Checked		Sheet	12	Drawing No.	
Checked	T. BROWN	Date	8/69		NY-2014-P

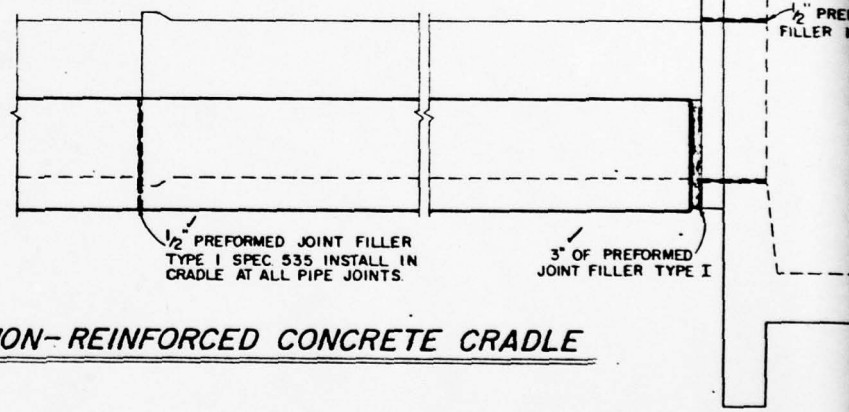
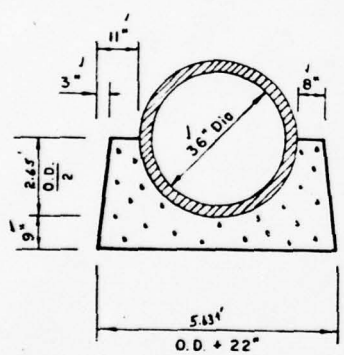
1/2" Preformed Joint Filler
18" Wide, Type I (Spec. 535)



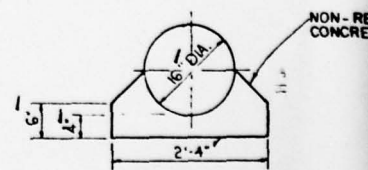
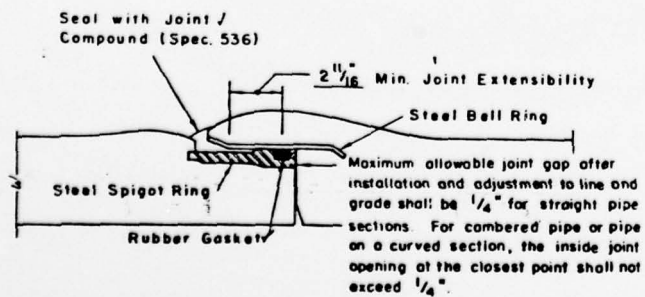
ALL STEEL PLACED AS SHOWN

REINFORCED CONCRETE ANTI-SEEP COLLAR

9' - Req'd



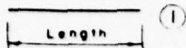
NON-REINFORCED CONCRETE CRADLE



RESERVOIR DRAIN CONCRETE BEDDING

REINFORCED CONCRETE PIPE - JOINT DETAILS

BAR TYPE



ANTI-SEEP COLLAR STEEL SCHEDULE

Mark	Size	Length	Type	Quan / Collar	Total Quan	Total Length
A-1	4	1-3	1	6	54	67-6
A-2	4	6-0	1	10	90	540-0
A-3	4	3-6	1	10	90	315-0
A-4	4	7-6	1	8	72	540-0
A-5	4	1-6	1	6	54	81-0
A-6	4	3-9	1	10	90	337-6

NOTE

Bar lengths do not change with changes in outside diameter of pipe.

QUANTITIES (This Sheet Only)

STEEL

No. 4 Bar 1881-0 = 1,257 Lbs

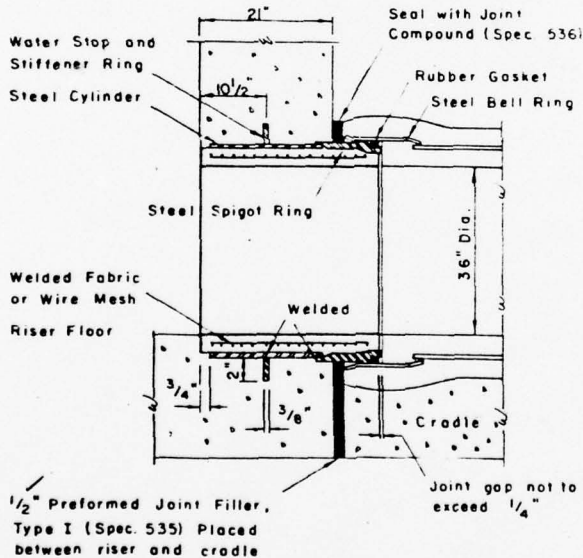
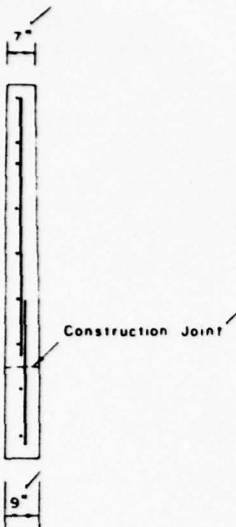
CONCRETE

20.98 cu yd.

REINFORCED 20.98 Cu Yds

NON-REINFORCED 89.6 Cu Yds

98.2 Cu yds



SPIGOT WALL FITTING

AS BUILT

WS-70-71
July 6, 1973

FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
FINCH HOLLOW

CONDUIT DETAILS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	J.E. POLWLECH	Date	7/69	Approved by	
Drawn	J. DE VITA	Date	7/69	Title	
Traced		Date		Sheet	
	J.C. CHAPMAN	Date	8/69	Drawing No.	NY-2014-P

PREFORMED
FILLER 18" WIDE

NON-REINFORCED
CONCRETE BEDDING

RISER FOOTING CONCRETE BEDDING

RISER FOOTING

2

MATERIAL DESCRIPTIONS

A
Topsoil, silty - sandy to material - some organic matter - brown to black - dry to moist - rapidly permeable - loose

B
Gravel, silt & sand matrix, approx. 40 percent fines - many 20 percent coarse angular to subangular 1/4" to 24" flags - brown - moist - moderately to rapidly permeable - loose to dense - glacial drift? (GM)

C
Silty gravel - subangular to subrounded - gray to blue-green - moist to saturated w/depth - slight permeability - dense to very dense - glacial till. (GM)

D
Silt, w/little gravel - some minor clay seams - gray to gray-green mottled - moist to saturated - slightly permeable - dense to very dense - (reworked glacial till or glacial lacustrine material). (ML to GM)

E
Silt, little or no sands or gravel - some clay lenses - some organic material - slate gray - moist to saturated - slight to very slowly permeable - very dense - recent alluvium. (ML)

F
Silt, sandy w/clay lenses - brown - very moist to saturated - very slowly permeable - soft - recent alluvium (swamp area). (ML-CL)

G
Silt w/clay lenses - slate gray - very moist to saturated - very slowly permeable - soft - recent alluvium (swamp area). (ML-CL)

H
Gravel, small percent fines - many 1/4" cobbles - gray - moist to wet - w/depth - moderately to rapidly permeable - loose. (GF)

I
Shaly siltstone or silty shale - upper 2 ft. fractured - occasional mud seams in this area - dense and very tight w/depth. Sh

BACKHOE PIT LOGS

TP 1. C/L. Elev. 974.6

0 1.5 Material A
1.5 9.0 " B

TP 2. C/L. Elev. 951.0

0 1.5 Material A
1.5 7.0 " B

TP 3. C/L. Elev. 950.8

0 1.0 Material A
1.0 3.0 " B
3.0 10.0 " C
10.0 11.5 " D

TP 4. C/L. Elev. 951.1

0 1.5 Material A
1.5 5.5 " B
5.5 11.0 " C

TP 5. C/L. Elev. 950.8

0 1.5 Material A
1.5 10.0 " B

TP 101. Borrow Area. Elev. 1012.0

0 1.5 Material A
1.5 9.0 " B
9.0 12.0 " B (SAMPLE 101.1)

TP 102. Borrow Area. Elev. 1019.6

0 0.5 Material A
0.5 10.0 " B (SAMPLE 102.1, 4.5'-10.0')

TP 103. Borrow Area. Elev. 1002.3

0 3.0 Material A
3.0 7.5 " B
7.5 10.0 " C (SAMPLE 103.1)

TP 104. Borrow Area. Elev. 1000.7

0 1.0 Material A
1.0 4.0 " B
4.0 10.5 " C (SAMPLE 104.1)

TP 105. Borrow Area. Elev. 1016. (approx.)

0 0.5 Material A
0.5 10.5 " B

TP 201. Emergency Spillway. Elev. 1012.1

0 0.5 Material A
0.5 6.0 " B

TP 202. Emergency Spillway. Elev. 1008.1

0 0.5 Material A
0.5 10.0 " B

TP 203. Emergency Spillway. Elev. 1008.3

0 0.5 Material A
0.5 7.0 " B (SAMPLE 203.1 - 70')

TP 204. Emergency Spillway. Elev. 1004.0

0 0.5 Material A
0.5 9.5 " B

TP 205. Emergency Spillway (Borrow Area). Elev. 1001.8

0 1.0 Material A
1.0 6.0 " F
6.0 7.0 " D

TP 206. Emergency Spillway (Borrow Area). Elev. 1001.0

0 1.0 Material A
1.0 6.5 " F
6.5 7.5 " G

TP 301. Principal Spillway. Elev. 941.4

0 3.0 Material A
3.0 6.5 " B
6.5 10.5 " D

TP 302. Principal Spillway. Elev. 954.4

0 1.0 Material M
1.0 5.0 " B
5.0 11.0 " C (SAMPLE 302.1)

TP 303. Principal Spillway. Elev. 944.7

0 1.0 Material A
1.0 5.0 " B
5.0 8.5 " C

TP 304. Principal Spillway. Elev. 954.2

0 1.0 Material A
1.0 5.5 " B
5.5 12.0 " C

TP 305. Principal Spillway. Elev. 938.8

0 1.0 Material A
1.0 6.5 " H
6.5 11.5 " C

TP 501. Drain Line. Elev. 947.9

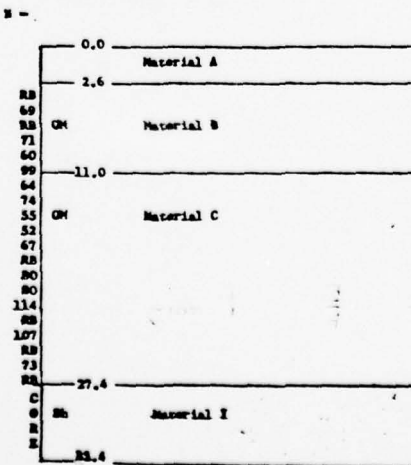
0 0.5 Material A
0.5 7.0 " B
7.0 10.0 " B (SAMPLE 501.1)

TP 502. Drain Line. Elev. 947.2

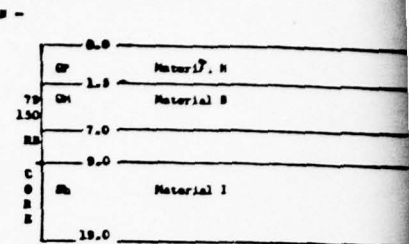
0 0.5 Material M
0.5 8.0 " B
8.0 - " I (7)

DRILL HOLE LOGS

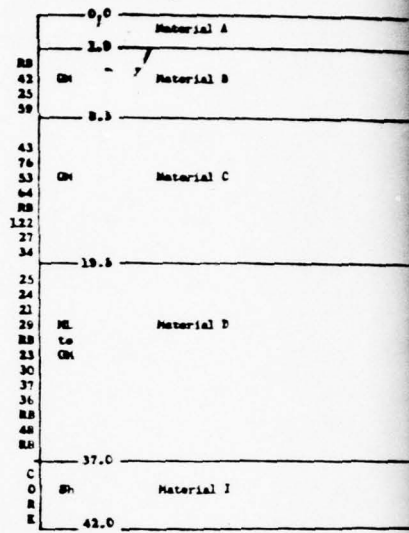
DM #51. C/L. Elev. 970.3



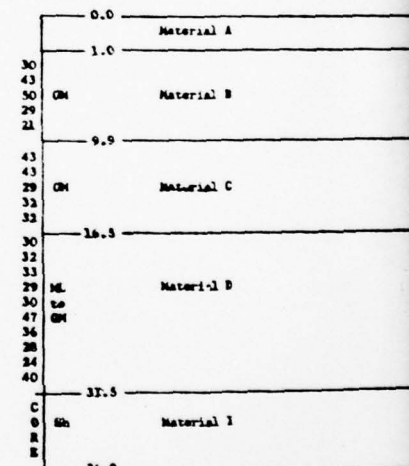
DM #52. C/L. Elev. 951.5



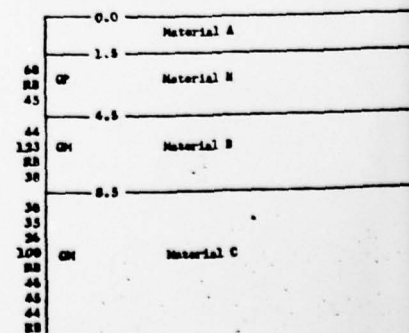
DM #53. C/L. Elev. 931.7



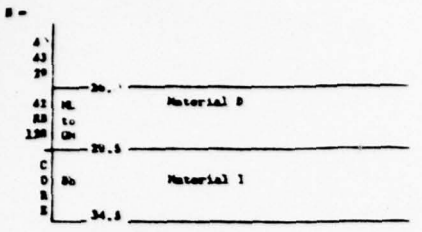
DM #54. C/L. Elev. 951.1



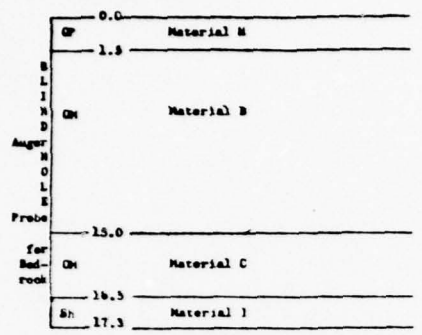
DM #55. C/L. Elev. 932.0



PH #151, BORROW AREA, Elev. 1022.1

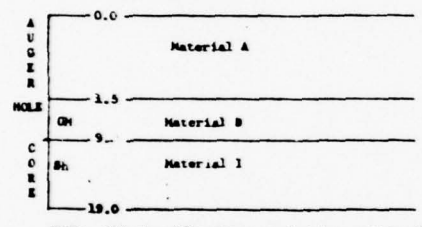


PH #56, C/L Elev. 917.3



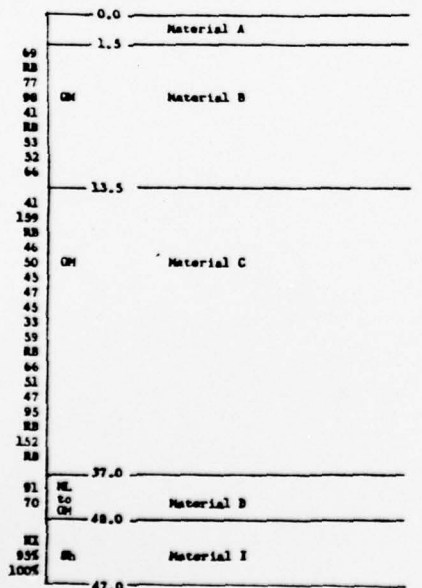
NOTE: All classifications are based on action of drill & cuttings on auger flights.

PH #57, C/L Elev. 950.3

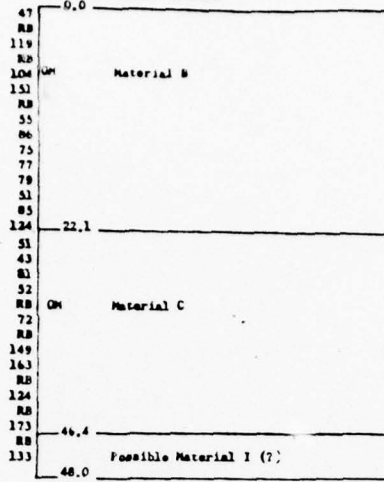


NOTE: All classifications are based on action of drill & cuttings on auger flights.

PH #58, C/L Elev. 951.2

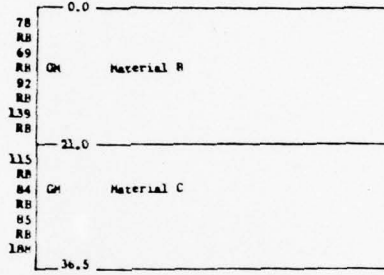


Topsoil scalped by dozer

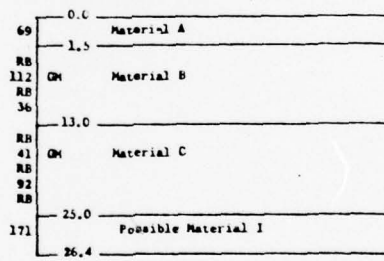


PH #52, BORROW AREA, Elev. 1022.1

Scalped by Dozer



PH #53, BORROW AREA, Elev. 1011.8



AS BUILT

W.S-10-71
July 6, 1973

FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
LITTLE CHOCONUT CREEK
LOGS OF TEST HOLES

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Drawn by <i>J. A. Christ</i>	Date 7/66	Approved by
Checked		Title
Traced		Title
Copy	Sheet No. 21 of 22	Drawing No. NY-2014

DN #134, Highway Spillway, Elev. 284.1

11	0.0	Material A
11	1.5	
12		
13	0.0	Material B
14		
15		
16		
17	11.5	
18	0.0	Material C
19		
20	27.0	

DN #135, Highway Spillway, Elev. 281.5

45	0.0	Material A
46	0.5	
47		
48	0.0	Material B
49		
50		
51	11.5	

DN #136, Highway Spillway, Elev. 282.4

3	0.0	Material A
4	2.0	
5		
6	0.0	Material B
7		
8		
9		
10	8.0	
11	0.0	Material C
12		
13		
14	11.0	
15	0.0	Material D
16		
17		
18	14.0	
19	0.0	Material C
20	15.5	

DN #137, Principal Spillway, Elev. 284.2

17	0.0	
18	0.0	Material A
19		
20	5.0	
21		
22	0.0	Material B
23		
24		
25	9.3	
26	0.0	Material C
27		
28	14.0	
29		
30		
31		
32		
33	0.0	Material D
34		
35		
36		
37		
38		
39		
40	26.5	

DN #138, Principal Spillway, Elev. 284.2

18	0.0	Material A
19	1.5	
20		
21	0.0	Material B
22		
23		
24	0.0	
25		
26		
27	12.5	
28		
29		
30		
31		
32		
33	0.0	Material C
34		
35		
36		
37		
38		
39		
40	30.0	

DN #139, Principal Spillway, Elev. 284.1

23	0.0	Material A
24		
25	2.0	
26	0.0	Material B
27		
28		
29	3.0	
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		
101		
102		
103		
104		
105		
106		
107		
108		
109		
110		
111		
112		
113		
114		
115		
116		
117		
118		
119		
120		
121		
122		
123		
124		
125		
126		
127		
128		
129		
130		
131		
132		
133		
134		
135		
136		
137		
138		
139		
140		
141		
142		
143		
144		
145		
146		
147		
148		
149		
150		
151		
152		
153		
154		
155		
156		
157		
158		
159		
160		
161		
162		
163		
164		
165		
166		
167		
168		
169		
170		
171		
172		
173		
174		
175		
176		
177		
178		
179		
180		
181		
182		
183		
184		
185		
186		
187		
188		
189		
190		
191		
192		
193		
194		
195		
196		
197		
198		
199		
200		
201		
202		
203		
204		
205		
206		
207		
208		
209		
210		
211		
212		
213		
214		
215		
216		
217		
218		
219		
220		
221		
222		
223		
224		
225		
226		
227		
228		
229		
230		
231		
232		
233		
234		
235		
236		
237		
238		
239		
240		
241		
242		
243		
244		
245		
246		
247		
248		
249		
250		
251		
252		
253		
254		
255		
256		
257		
258		
259		
260		
261		
262		
263		
264		
265		
266		
267		
268		
269		
270		
271		
272		
273		
274		
275		
276		
277		
278		
279		
280		
281		
282		
283		
284		
285		
286		
287		
288		
289		
290		
291		
292		
293		
294		
295		
296		
297		
298		
299		
300		
301		
302		
303		
304		
305		
306		
307		
308		
309		
310		
311		
312		
313		
314		
315		
316		
317		
318		
319		
320		
321		
322		
323		
324		
325		
326		
327		
328		
329		
330		
331		
332		
333		
334		
335		
336		
337		
338		
339		
340		
341		
342		
343		
344		
345		
346		
347		
348		
349		
350		
351		
352		
353		
354		
355		
356		
357		
358		
359		
360		
361		
362		
363		
364		
365		
366		
367		
368		
369		
370		
371		
372		
373		
374		
375		
376		
377		
378		
379		
380		
381		
382		
383		
384		
385		
386		
387		
388		
389		
390		
391		
392		
393		
394		
395		
396		
397		
398		
399		
400		
401		
402		
403		
404		
405		
406		
407		
408		
409		
410		
411		
412		
413		
414		
415		
416		
417		
418		
419		
420		
421		
422		
423		
424		
425		
426		
427		
428		
429		
430		
431		
432		
433		
434		
435		
436		
437		
438		
439		
440		
441		
442		
443		
444		
445		
446		
447		
448		
449		
450		
451		
452		
453		
454		
455		
456		
457		
458		
459		
460		
461		
462		
463		
464		
465		
466		
467		
468		
469		
470		
471		
472		
473		
474		
475		
476		
477		
478		
479		
480		
481		
482		
483		
484		
485		
486		
487		
488		
489		
490		
491		
492		
493		
494		
495		
496		
497		
498		

AD-A076 166

NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION ALBANY F/G 13/2
NATIONAL DAM SAFETY PROGRAM. FINCH HOLLOW WATERSHED PROJECT, SI--ETC(U)
AUG 79 G KOCH DACW51-79-C-0001
NL

UNCLASSIFIED

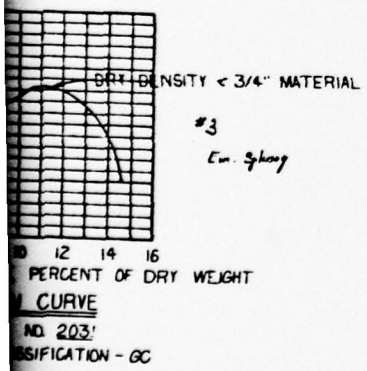
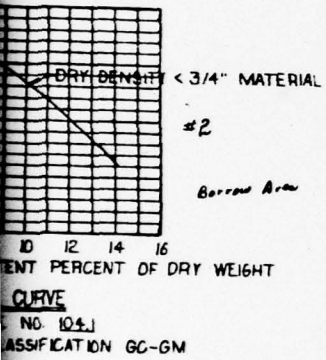
2 of 2
AD
A076166



END
DATE
FILMED
11-79
DDC

made at SML #3
 Dr. Em Spier
 128.0
 10.3%

made at SML #3
 Dr. Em Spier
 127.5
 10.3%



TEST HOLE RECORDING SYSTEM

Number of test holes	1 - 99
Number of test holes	100 - 199
Number of test holes	200 - 299
Number of test holes	300 - 399
Number of test holes	400 - 499
Number of test holes	500 - 599

- UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOLS**
- GW Well-sorted gravels; gravel-sand mixtures
 - GM Moderately sorted gravels
 - GC Clayey gravels; gravel-sand-silt mixtures
 - GW Well-sorted sands; sand-gravel mixtures
 - GM Moderately sorted sands
 - GC Clayey sands; sand-silt mixtures
 - ML Silty clay, to fine sand; sandy or clayey silts
 - CL Clays of low to medium plasticity; silty, sandy or gravelly clays
 - CH Clays of high plasticity; fat clays
 - OH Organic silts; silty or clayey silts
 - OL Organic silts and organic silty clays of low plasticity
 - OH Organic clays or silts of medium to high plasticity

ROCK SYMBOLS

S Sandstone	SL Shale
GS Granite	SH Shale
GR Granite	SL Shale
LS Limestone	SL Slate
MR Marble	ST Sandstone

NOTES

MS Moistured
 US Undisturbed
 Core or Core

KEY TO TEST HOLE LOGS

22 Number of blows required for 1-ft. standard penetration, using 1.0" O.D. split barrel sampler, 140 lb. hammer, and 30" drop. ASTM D 1586.

9.0 Depth in hole (ft.)

CL Unified Soil Classification Symbol

12.0 Dry barrel sampler

23 Refill bit to advance hole by wash boring

17.0 Depth in hole

24 Rock core, 2-1/8" diameter

73 Percent rock core recovery in each drilled run

302

307 Ls Rock symbol

M. (dots) Water Level

All soil and rock descriptions and classifications were determined by visual examination.

AS BUILT W-5-10-71
 July 6 1973

FINCH HOLLOW, LITTLE CHOCONUT & TROUT BROOK WATERSHED PROJECT
 FLOODWATER RETARDING DAM NO. 1
 LITTLE CHOCONUT CREEK
 LOGS OF TEST HOLES

**U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE**

Investigator: J. A. Chisholm	Date: 8/6/73	Approved by:
Drawn:	Scale:	Title:
Sheet: 22	Drawing No: NY-204	
Checked:	of 22	