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MAINTENANCE MANUAL FOR SMALL FLOOD CONTROL PROJECT  
KINGSTREE BRANCH (TOWN) (U) CORPS OF ENGINEERS  
CHARLESTON SC CHARLESTON DISTRICT JUN 77

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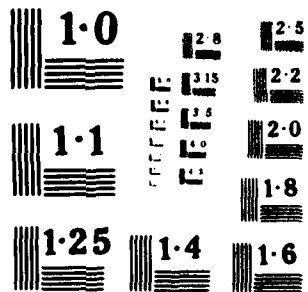
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MAINTENANCE MANUAL  
FOR  
SMALL FLOOD CONTROL PROJECT  
ON  
KINGSTREE BRANCH  
WILLIAMSBURG COUNTY, SOUTH CAROLINA

I. INTRODUCTION

A. Authorization

Authority for the development of a flood control project on Kingstree Branch, Williamsburg County, South Carolina is contained in Section 205 of the Flood Control Act of 1948, as amended.

B. Location

The Kingstree Branch watershed is located in Williamsburg County, South Carolina. The watershed includes part of the town of Kingstree and has an area of 8.7 square miles. Kingstree Branch originates northeast of the town of Kingstree, flows through the town, and outlets into the Black River.

C. Description

The Kingstree Branch flood control project provides approximately 1.36 miles of improved channel with bottom widths varying from 26 feet in the lower reaches to 24 feet in the upper reaches. The average depth of cut is approximately 5 feet with design side slopes of 2:1 in the extreme lower reaches and 1:1 in the middle and upper reaches. The attached plates show pertinent data related to the construction of the improved channel.

D. Protection Provided

Full flood protection against storms up to a 90-year frequency for all residential property will be provided by the project. Public and commercial properties will be protected against storms having a recurrence interval of less than 35 years.

E. Construction History

On 30 September 1976, a contract was awarded to E. L. McLamb Construction Company for construction of the Kingstree Branch Flood Control Project according to specifications published by U. S. Army Engineer District, Charleston (Serial No. DACW60-76-B-0026). Construction was completed on 23 June 1977.

II. LOCAL COOPERATION

A. Local interests are required to:

(1) Provide without cost to the Government all lands, easements, and rights-of-way necessary for project construction and operation of the project;

(2) Provide without cost to the Government all highway, highway bridge, and utility construction and alterations necessary for project construction and locate any new waterlines or sewers on bridges or beneath the design channel grade to avoid interference with the channel capacities;

(3) Hold and save the Government free from damages due to construction and operation of the project except those damages due to the fault or negligence of the Government or its contractors;

(4) Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army;

(5) Protect the channel and other flood control works from future encroachment or obstruction that would reduce their flood-carrying capacity or otherwise impair them;

(6) Provide guidance and leadership in preventing unwise and uneconomical future development of the flood plain area by encouraging prudent use of flood proofing, land use regulations, or other flood plain management techniques to reduce future flood losses;

(7) At least annually, inform affected interests that the channel improvement will not provide complete flood protection;

(8) Comply with the provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970," Public Law 91-646, 91st Congress, approved 2 January 1971; and

(9) Contribute all project costs in excess of the Federal limitation of One Million Dollars (\$1,000,000.00) specified in Section 205 of the Flood Control Act, approved 30 June 1948, as amended by Section 205 of the Flood Control Act approved 23 October 1962.

B. On 30 January 1967, a letter was received from the Town of Kingstree and Williamsburg County requesting that a full detailed investigation and study be made of the Kingstree Branch watershed. A copy of this letter is inclosed in Attachment A.

C. On 14 October 1971, the Town of Kingstree and the Williamsburg County Board of Commissioners, legally constituted governing bodies chartered by the State of South Carolina, assured the District Engineer, U. S. Army District, Charleston, South Carolina, that requirements of local cooperation would be fulfilled. A copy of this letter is inclosed in Attachment A.

D. On 5 February 1976, a local cooperation agreement, prepared in accordance with Section 221 of the Flood Control Act of 1970, was entered into between the United States of America, the Town of Kingstree, and Williamsburg County, South Carolina. The signed agreement represents a binding legal obligation on the Town of Kingstree and the County of Williamsburg to perform the local cooperation items required by Federal legislation. A copy of this agreement is inclosed in Attachment A.

### III. GENERAL PROCEDURES

A. Section 208.10, Title 33 of the Code of Federal Regulations contains regulations for the operation and maintenance of local flood

protection works approved by the Secretary of the Army in accordance with authorities contained in Section 3 of the Flood Control Act of 22 June 1936, as amended and supplemented (pertinent excerpts of Section 208.10 are included as Attachment B).

B. The purpose of this manual is to assist the responsible authorities in carrying out their obligations through provision of information and advice regarding the maintenance requirements of the project in accordance with approved regulations.

C. The following general regulations are prescribed to govern the maintenance of Kingstree Branch Small Flood Control Project:

(1) The improved channels shall be continuously maintained in such a manner as to obtain maximum flood control and drainage benefits.

(2) The Town of Kingstree and Williamsburg County, ~~South Carolina~~ shall jointly appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent" who shall be responsible for the continuing maintenance of the project.

(3) It shall be the duty of the Superintendent to submit a semiannual report to the District Engineer covering the inspection and maintenance of the project. The report should cover such items as number of inspections made, the condition of the channel, maintenance needed, and maintenance work done since the last report.

(4) The District Engineer or his authorized representative shall have access at all times to all portions of the project area.

(5) Maintenance measures which the District Engineer deems necessary shall be promptly taken.

(6) Instructions and sample forms for submission of semi-annual inspection and maintenance reports for the project are attached



(Attachment C). Forms for the reports will be furnished by the District Engineer to the Superintendent, when requested.

#### IV. SPECIFIC MAINTENANCE INSTRUCTIONS

Periodic inspections of the improved channels shall be made by the Superintendent to ascertain whether or not:

- A. The channel is clear of debris, weeds, and wild growth.
- B. The channel is being restricted by the deposition of waste material, the building of unauthorized structures, or other encroachments.
- C. Sloughing of banks has occurred.
- D. The capacity of the channel is being reduced by the formation of shoals.

Inspections shall be made immediately following winds of near hurricane force; immediately following each high water period; and otherwise at intervals not exceeding 90 days and, also, at such intermediate times as may be necessary to insure the unrestricted flow of the creek. Immediate steps shall be taken to remedy any adverse conditions disclosed by such inspections.

ATTACHMENT A

# TOWN OF KINGSTREE

POST OFFICE BOX 207  
KINGSTREE, SOUTH CAROLINA

*Executive Officers*  
FRANK H. MCGILL  
MAYOR  
MILDRED D. WELCH  
CLERK & TREASURER

*Councilmen*  
ROGER M. BROWN  
GROVER C. HYDRICK  
W. P. JOHNSON  
P. K. KOZMA  
CLAUDE H. SMITH  
THOMAS M. CUTCHEN, JR.  
MAYOR PRO TEM

January 30, 1967

Colonel Robert E. Rich  
District Engineer  
U. S. Army Engineer District, Charleston  
P. O. Box 905  
Charleston, South Carolina 29402

Dear Colonel Rich:

The information provided by you and your engineers during your visit here last week regarding the Corps of Engineers' Flood Control Program was appreciated very much. It is hoped that your observations of the problem areas in this community will be of some benefit in making an initial evaluation of our request for assistance.

The Canal, which divides Kingstree in half, has given a great deal of trouble for many years. The origin of this canal is miles north of the city limits. The water from this section as well as the lower portion in the town has created numerous problems during flood stages. During this time the eastern section of our town is completely cut-off from the western section. Disastrous results are caused for our citizens in several areas, fire and police protection, school and private transportation plus sewage disposal.

During heavy rains flooding surrounds business, residential and school districts approximately four feet. As a result land values decrease, heavy damage is inflicted to buildings and roads, sales are lost and merchandise is damaged.

On behalf of the Town Council of the Town of Kingstree and the Board of County Commissioners of Williamsburg County, we respectfully request that a full detailed investigation and study be made of the Canal. Construction of a small flood control project under the authority of Section 205 of the 1948 Flood Control Act is also requested if the investigation and study proves such a project to be feasible and economically justified. The Town of Kingstree and Williamsburg County will furnish whatever is necessary and required as the local sponsoring agency for such a project.

Respectfully yours,  
*Frank H. McGill*  
Frank H. McGill  
Mayor  
Town of Kingstree, S. C.

*J. Hugh McCutchen*  
J. Hugh McCutchen  
Chairman  
Board of Commissioners  
Williamsburg County

TOWN OF KINGSTREE

POST OFFICE BOX 207  
KINGSTREE, SOUTH CAROLINA 29556

*Committee*

MICHAEL HOLMES, M.D.  
P. K. KOZMA  
M. CLIFF MOORE  
THOMAS MCCUTCHEM, JR.  
CLAUDE H. SMITH

LEONARD B. BURGESS  
MAYOR  
TOWN OF KINGSTREE

October 14, 1971

Colonel Robert G. Nelson  
District Engineer  
U.S. Army Engineer District  
P. O. Box 919  
Charleston, S. C. 29402

Dear Colonel Nelson:

The town of Kingstree and Williamsburg County hereby give the Corps of Engineers the following assurances of cooperation for the execution of the Kingstree Branch Flood Control Project in the town of Kingstree when our funds are available and the project is authorized for construction, we will perform the following:

a. Provide without cost to the United States, all lands, easements, and right-of-way necessary for project construction and operation of the project;

b. Provide without cost to the United States, all highway, highway bridge and utility construction and alterations necessary for project construction and locate any new waterlines or sewers on bridges or beneath the design channel grade to avoid interference with the channel capacities;

c. Hold and save the United States free from damages due to construction and operation of the project;

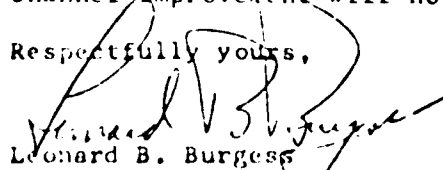
d. Maintain and operate the works after completion in accordance with regulations prescribed by the Secretary of the Army;


e. Protect the channel and other flood control works from future encroachment or obstruction, including waste disposal, that would reduce their flood-carrying capacity or otherwise impair them;

f. Provide guidance and leadership in preventing unwise and uneconomical future development of the flood plain;

g. At least annually, inform affected interests that the channel improvement will not provide complete flood protection.

Respectfully yours,

  
Leonard B. Burgess  
Mayor  
Town of Kingstree, S. C.

  
J. Hugh McCutchen  
Supervisor  
Williamsburg County

AGREEMENT BETWEEN  
THE UNITED STATES OF AMERICA  
AND  
TOWN OF KINGSTREE, SOUTH CAROLINA  
FOR  
LOCAL COOPERATION  
IN THE KINGSTREE BRANCH FLOOD CONTROL PROJECT

THIS AGREEMENT, entered into this *5th* day of *January*, 1973, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executing this agreement, and the TOWN OF KINGSTREE, SOUTH CAROLINA and WILLIAMSON COUNTY, SOUTH CAROLINA, hereinafter called the "Sponsors");

WITNESSETH:

WHEREAS, construction of the Kingstree Branch Flood Control Project (hereinafter called the "Project") was authorized by the Chief of Engineers under authority of the 1954 Flood Control Act, approved 20 June 1954 (Public Law 559, 80th Congress, 2d Session, as amended); and,

WHEREAS, the Sponsors hereby represent that they have the authority and capability to furnish the non-Federal cooperation required by the Federal legislation authorizing the Project and by other applicable laws;

NOW, THEREFORE, the parties agree as follows:

1. The Sponsors agree that, if the Government shall commence construction of the Kingstree Branch Flood Control Project substantially in accordance with all applicable Federal legislation

authorities shall, in full consideration of the Government's interest in such project, fulfill the requirements of local cooperation specified in such legislative enactments:

a. Provide authority to the Government to acquire, construct, maintain, improve, operate, and repair the project;

b. Provide authority to the Government to acquire, construct, maintain, improve, operate, and repair the project and all structures necessary for the project, including but not limited to, bridges, viaducts, culverts, and other structures to avoid interference with the channel project;

c. Hold the Government liable for damages due to construction or operation of the Project except those damages due to the fault or negligence of the Government or its contractors;

d. Restore and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army;

e. Protect the channel and other flood control works from future construction that would reduce their flood-carrying capacity or otherwise impair them;

f. Provide guidance and leadership in preventing unwise and/or uncoordinated development of the flood plain and in encouraging prudent use of flood proofing, land use regulations, or other flood plain management techniques to reduce future flood losses;

g. At least annually, inform affected interests that the channel improvement will not provide complete flood protection;

h. Comply with the provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970," Public Law 91-646, 91st Congress, approved 7 January 1971,

i. Contribute all Project costs in excess of the Federal limitation of One Million Dollars (\$1,000,000.00) specified in Section 205 of the Flood Control Act, approved 30 June 1948, as amended by Section 205 of the Flood Control Act, approved 23 October 1962.

2. The Sponsors hereby give the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the Sponsors own or control, for access to the Project for the purpose of inspection, and for the purpose of operating, repairing, and maintaining the Project, if such inspection shows that the Sponsors for any reason are failing to repair and maintain the Project in accordance with the assurances hereunder and have persisted in such failure after a reasonable notice in writing by the Government delivered to the Mayor, Town of Kingstree, South Carolina, and the Chairman, Board of Commissioners, Williamsburg County, South Carolina. No operation, repair, and maintenance by the Government in such event shall operate to relieve the Sponsors of responsibility to meet their obligations as set forth in paragraph 1 of this Agreement, or to preclude the Government from pursuing any other remedy at law or equity.

3. This Agreement is subject to the approval of the Secretary of the Army, or his authorized representative.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

THE TOWN OF FLYING STAIRS, SOUTH CAROLINA

By *[Signature]*  
Major, United States Army  
Colonel, Corps of Engineers  
District Engineer  
Contracting Officer

*[Signature]*  
LEONARD E. [Name]  
Mayor

Date FEBRUARY 5, 1976

Date FEBRUARY 1976

ATTEST:

APPROVED:

By *[Signature]*  
BETTY K. ARGO, Clerk

Date FEBRUARY 5, 1976

*[Signature]*  
Secretary of the Army  
Authorized Representative

Date 17 May 1976

THE COUNTY OF WILLIAMSBURG, SOUTH CAROLINA

By *[Signature]*  
J. HUGH RECUTCHEN  
Chairman, Board of Commissioners

Date FEBRUARY 3, 1976

Document Text is not Approved for legal publication

*[Signature]*  
Office of Counsel

ATTEST:

By *[Signature]*  
ELIZABETH L. DERRICK, Clerk

Date FEBRUARY 3, 1976



This Agreement has been reviewed and is approved for legal sufficiency as a binding legal obligation on the Town of Kinestree, South Carolina, consistent with Section 231 of Public Law 91-611 (Flood Control Act of 1970).

APPROVED:

By [Signature]  
H. E. [Name]  
Town Attorney  
Town of Kinestree, South Carolina

Date February 1, 1976

This agreement has been approved and reviewed for legal sufficiency as a binding legal obligation on the County of Williamsburg, South Carolina, consistent with Section 231 of Public Law 91-611 (Flood Control Act of 1970).

APPROVED:

By [Signature]  
W. E. [Name]  
County Attorney  
County of Williamsburg, South Carolina

Date February 1, 1976

ATTACHMENT B

Excerpts From  
TITLE 33 - NAVIGATION AND NAVIGABLE WATERS  
CHAPTER 11 - CORPS OF ENGINEERS - DEPARTMENT OF THE ARMY  
PART 208 - FLOOD CONTROL REGULATIONS  
MAINTENANCE AND OPERATION OF FLOOD CONTROL WORKS

Authority: The provisions of this Part 208 issued under sec. 7,58 Stat. 890; 33 U.S.C. 709, unless otherwise noted.

208.10 LOCAL FLOOD PROTECTION WORKS, MAINTENANCE AND OPERATION OF STRUCTURES AND FACILITIES.

(a) General.

(1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible

under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the superintendent to submit a semi-annual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part.

(b) Drainage structures

(i) Maintenance. Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on drainage structures shall be examined, oiled, and trial operated at least once every 90 days. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

(1) Pipes, gates, operating mechanism, riprap, and headwalls are in good condition;

(ii) Inlet and outlet channels are open;

(iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;

(iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

(c) Channels and floodways

(1) Maintenance. Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) Operation. Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, deflection dikes

and walls, drainage outlets, or other flood control structures repaired.

(d) Miscellaneous facilities

(1) Maintenance. Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior runoff during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(2) Operation. Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor.

ATTACHMENT C

## INSPECTION AND MAINTENANCE REPORTS

Kingstree Branch

### GENERAL

1. Reports shall be submitted on or about 1 January and 1 July of each year to:

District Engineer  
U.S. Army Engineer District, Charleston  
Corps of Engineers  
Post Office Box 919  
Charleston, South Carolina 29402

2. Inspections shall be made (a) immediately following winds of near hurricane force; (b) immediately following each high water period; and (c) otherwise at intervals not exceeding 90 days and, also, at such intermediate times as may be necessary to insure the unrestricted flow of the stream.

3. This form shall be used as a check list in making each inspection and the conditions requiring maintenance work shall be inserted in the appropriate spaces. On the form on which the condition requiring maintenance was first reported, there shall be inserted explanatory information describing the methods employed to correct the condition; or, in the event the inspection form is submitted prior to corrective action being taken, information shall be inserted regarding arrangements that have been made to have conditions corrected.

4. Maintenance shall be performed as required to insure unrestricted flow of the stream.

5. If spaces provided for the insertions are insufficient, the information should be continued on plain sheets and attached to the report.

6. Additional forms may be obtained as needed by requesting them from the District Engineer (see address in paragraph 1 above).

ATTACHMENT C



INSPECTION AND MAINTENANCE REPORT OF KINGSTREE BRANCH

INSPECTION AND MAINTENANCE REPORT

Name of Channel: \_\_\_\_\_

Type of Inspection: Check below the type of inspection made.

- ( ) Following high winds  
Date of inspection: \_\_\_\_\_
- ( ) Following high water  
Date of inspection: \_\_\_\_\_
- ( ) Routine  
Date of inspection: \_\_\_\_\_

Condition of Channel: (1) If the channel shows evidence of any of the following conditions, describe briefly the approximate location, degree of obstruction, type of maintenance action taken, etc.

(a) Bank caving: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) Excessive growth of grass and weeds: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(c) Accumulation of trash, drift, or debris: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

INSPECTION AND MAINTENANCE REPORT OF KINGSTREE BRANCH

INSPECTION AND MAINTENANCE REPORT (Cont'd)

(d) Downed trees in channel: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(e) Other damaging conditions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) Give general condition of channel:  
 Good  Fair  Poor

(3) Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

Signed \_\_\_\_\_  
Title \_\_\_\_\_

ATTACHMENT C

PLATES

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KINGSTREE BRANCH

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2100

BRANCH

KINGSTREE



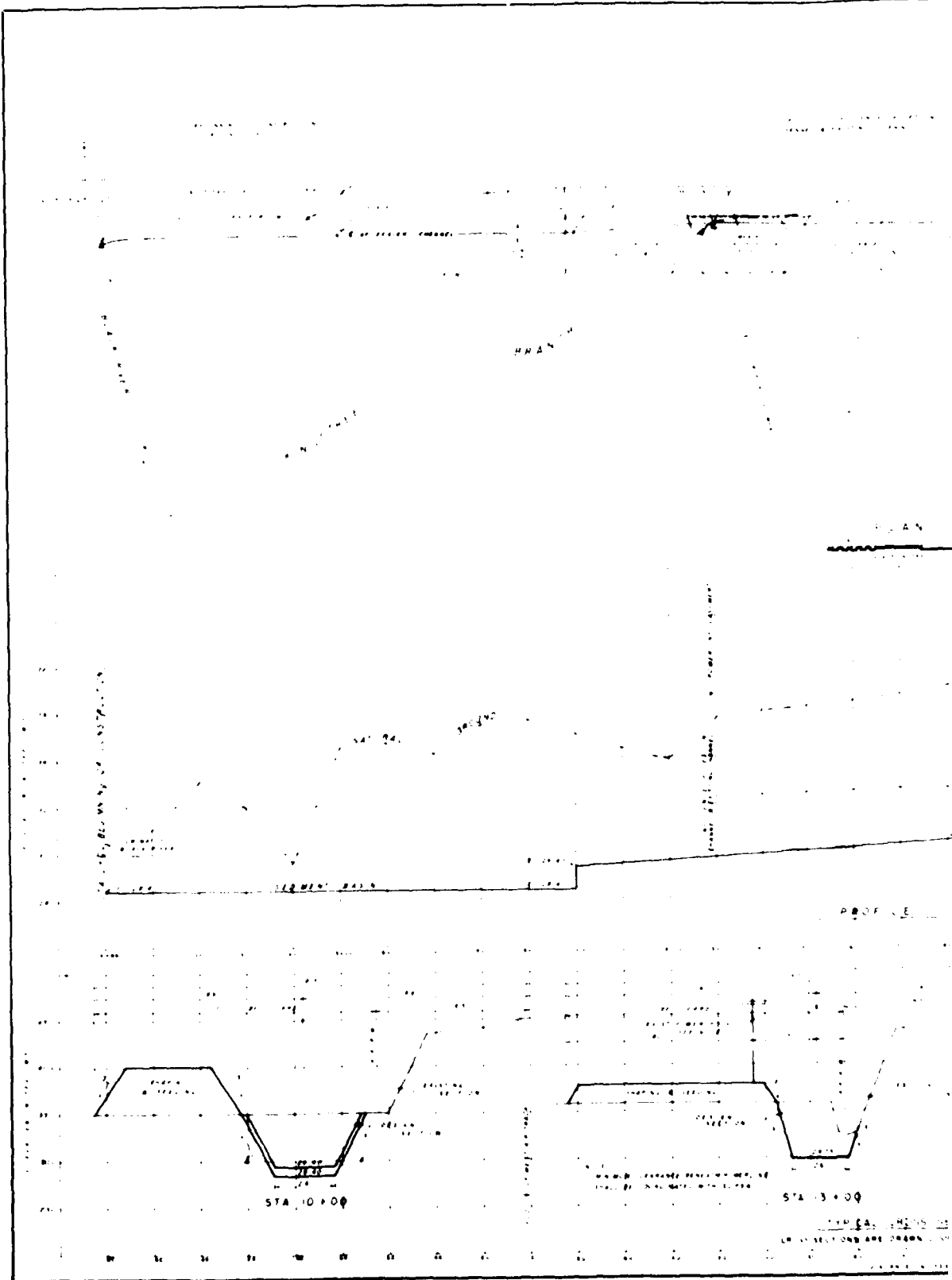
GENERAL DESIGN	
Stationing	Stationing
Right of Way	Right of Way
Clearance	Clearance
Grading	Grading
Structures	Structures
Drainage	Drainage
Utilities	Utilities
Other	Other

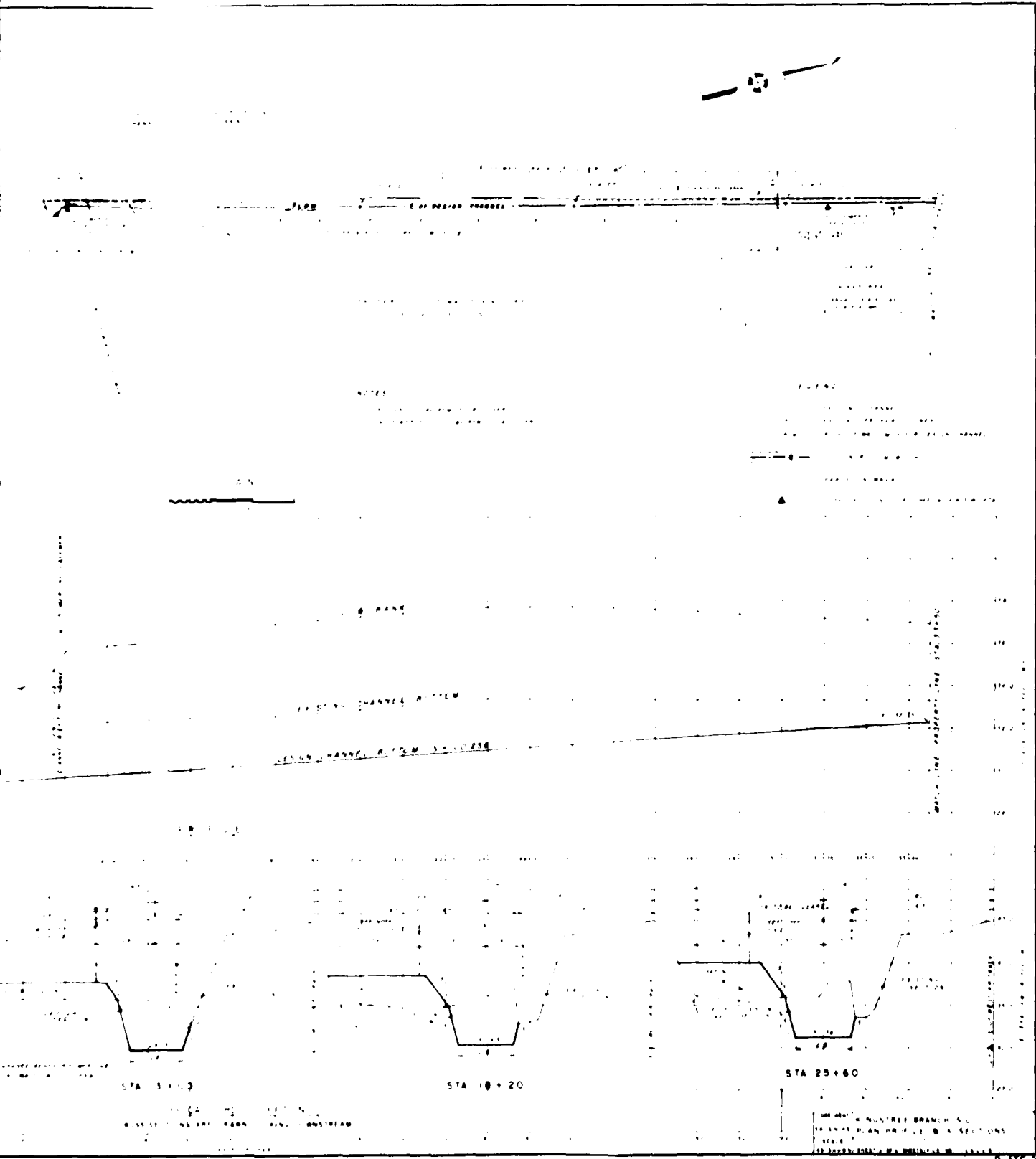
CLEARING REQUIREMENTS

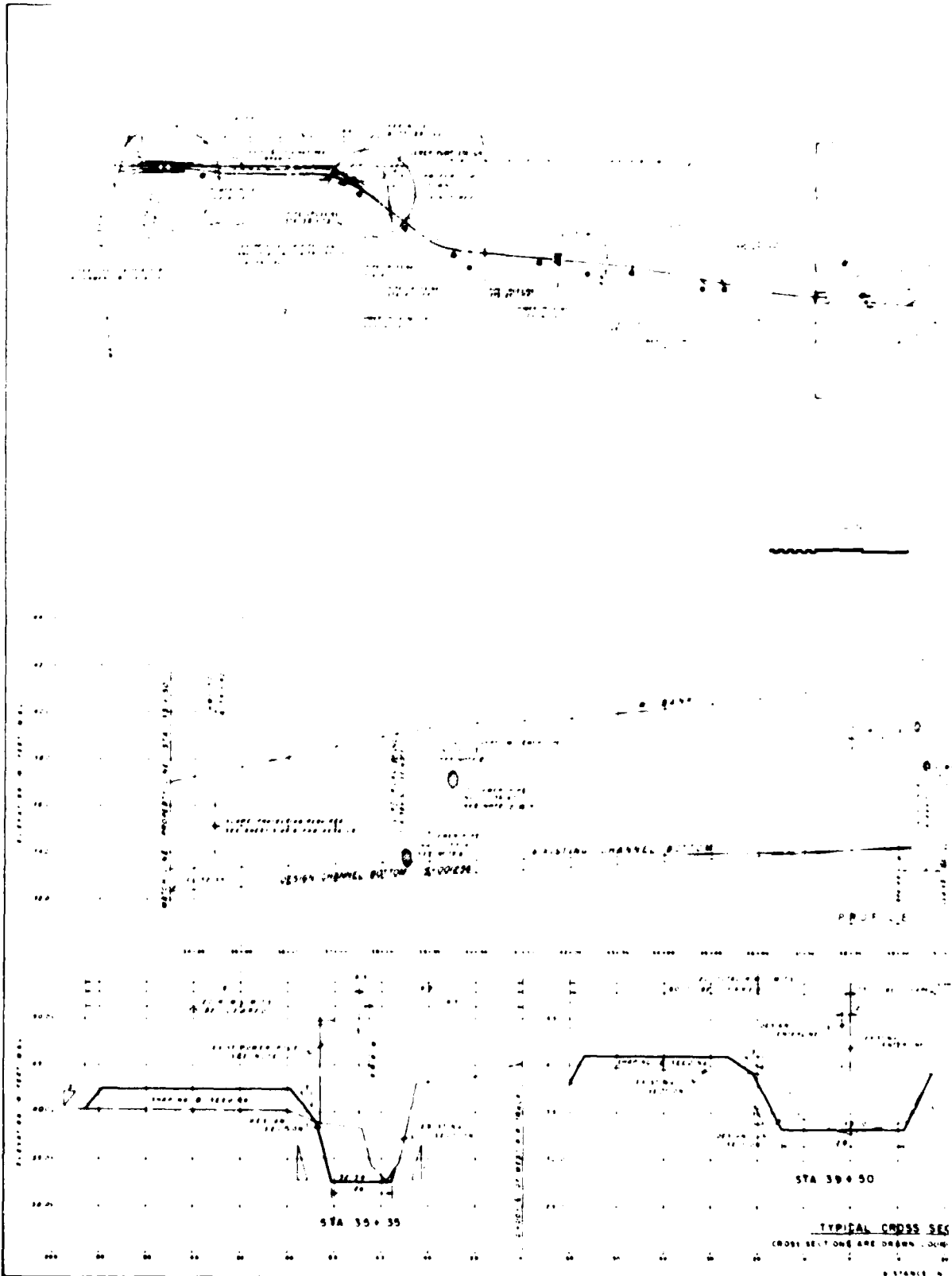
ASSOCIATED MATERIAL MANAGEMENT

U.S. ARMY ENGINEER DISTRICT, CHARLESTON

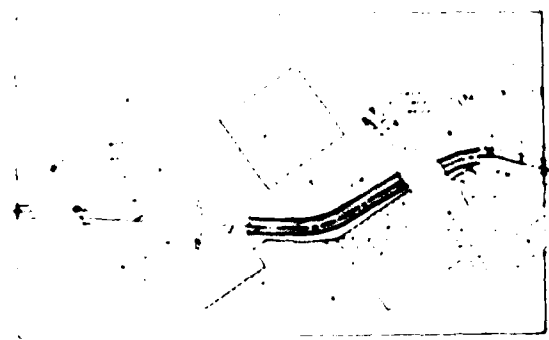
**KINGSTREE BRANCH**  
 WILKINSON COUNTY  
 KINGSTREE, SOUTH CAROLINA  
**GENERAL PLAN**





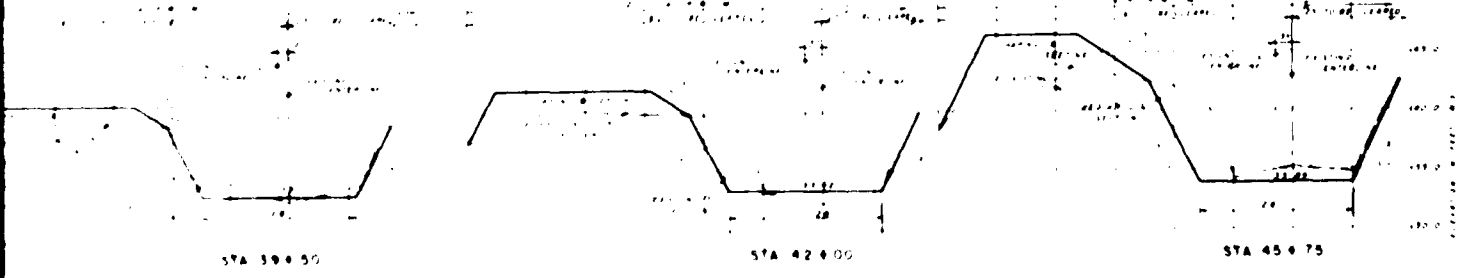
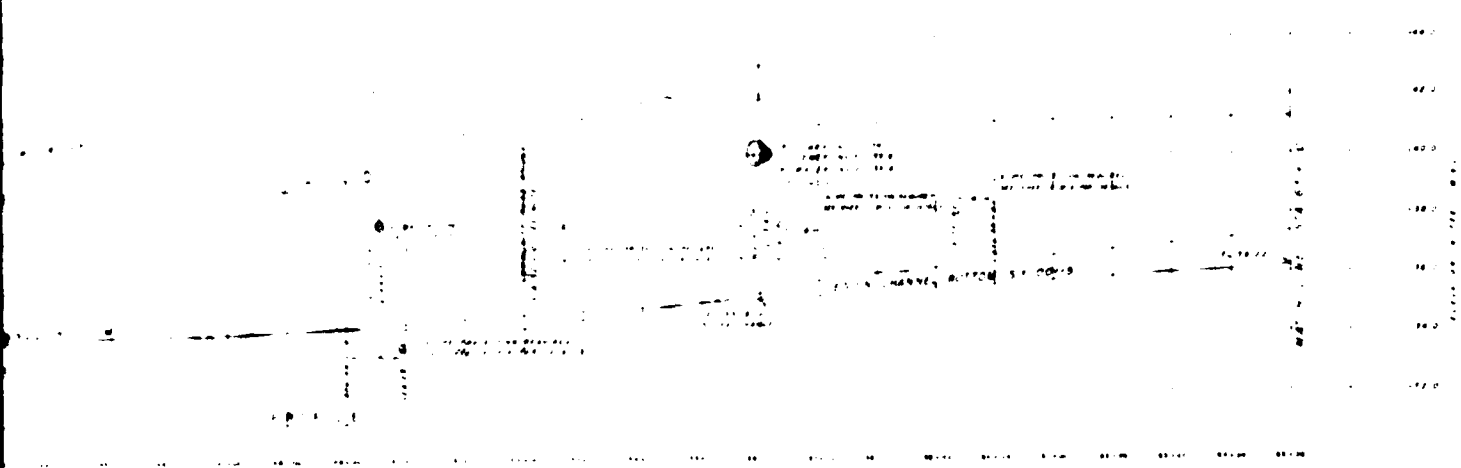






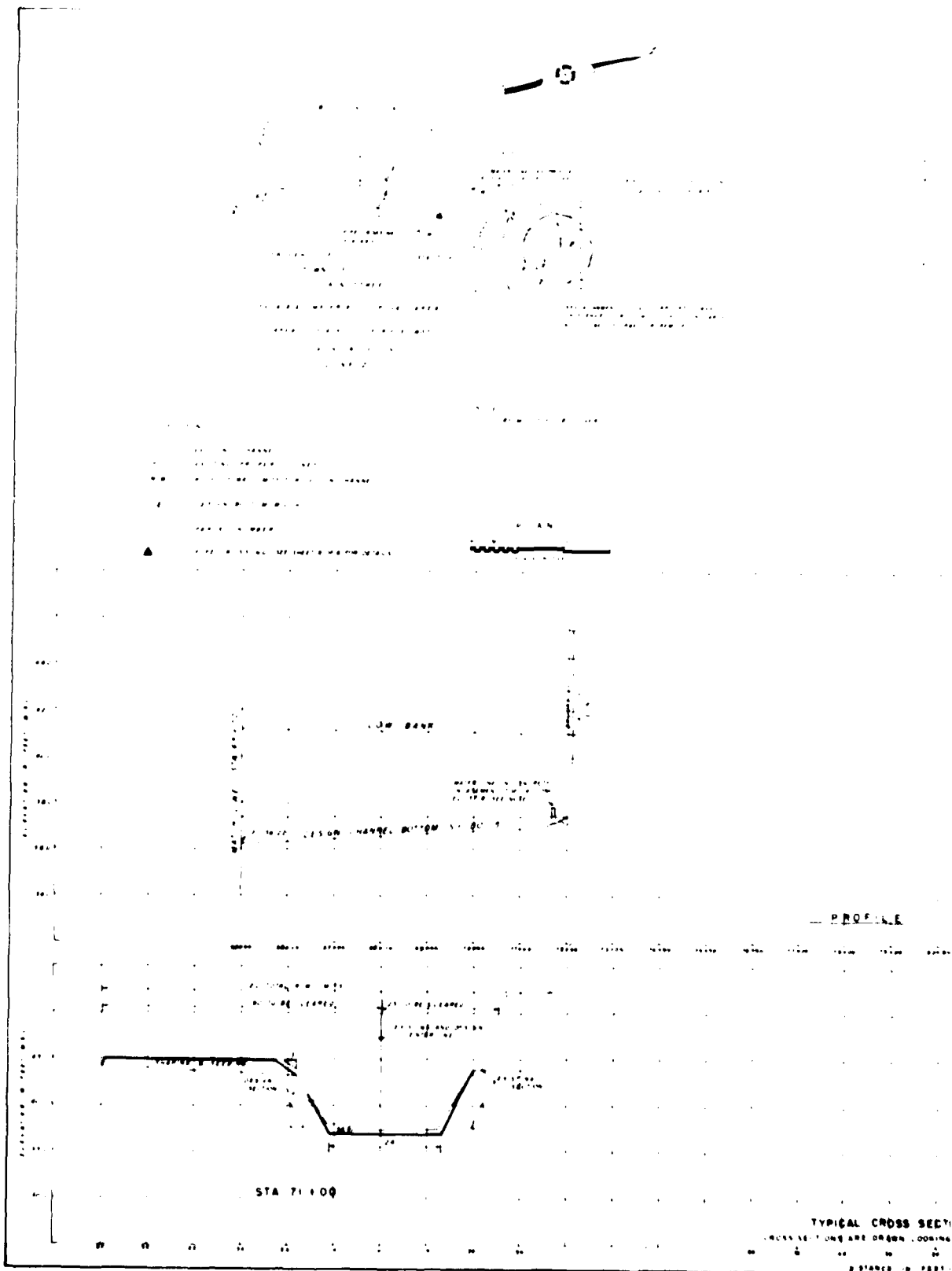
1. ROADWAY WIDTH SHALL BE 30 FEET  
 2. SIDEWALKS SHALL BE 5 FEET WIDE  
 3. CURB SHALL BE 4 INCHES HIGH  
 4. GUTTER SHALL BE 1/2 INCH DEEP  
 5. GRADE SHALL BE 1/4 INCH PER FOOT  
 6. ALL DIMENSIONS SHALL BE IN FEET AND INCHES  
 7. ALL ANGLES SHALL BE 90 DEGREES UNLESS OTHERWISE NOTED  
 8. ALL MATERIALS SHALL BE AS SPECIFIED IN THE SPECIFICATIONS

**LEGEND**  
 - - - - - EXISTING ROADWAY  
 ———— PROPOSED ROADWAY  
 - - - - - EXISTING SIDEWALK  
 ———— PROPOSED SIDEWALK  
 - - - - - EXISTING GUTTER  
 ———— PROPOSED GUTTER  
 - - - - - EXISTING CURB  
 ———— PROPOSED CURB



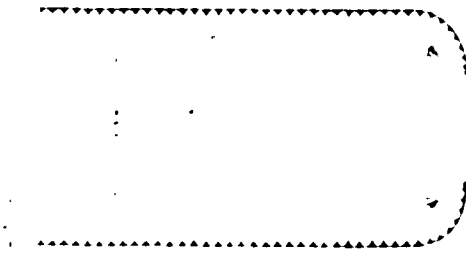
**TYPICAL CROSS SECTIONS**  
 ALL DIMENSIONS SHALL BE IN FEET AND INCHES  
 ALL ANGLES SHALL BE 90 DEGREES UNLESS OTHERWISE NOTED

THE NEW KINGSTREE BRANCH NO.  
 GENERAL PLAN PROFILE & CROSS SECTIONS  
 SHEET NO. 1  
 DRAWN BY: J. P. BROWN, JR.  
 CHECKED BY: J. P. BROWN, JR.



- 1. ...
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- 48. ...
- 49. ...
- 50. ...

TYPICAL CROSS SECTION  
 CROSS SECTION ARE DRAWN LOOKING  
 DISTANCE IN FEET



ALIGNMENT DETAILS BROOKS STREET

PROFILE

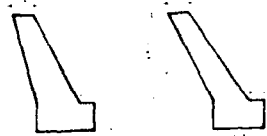
TYPICAL CROSS SECTIONS

NEAR BRIDGE AND DOWNSTREAM

KINGSTREE BRANCH S.C.  
GENERAL PLAN PROFILE & SECTIONS  
SCALE  
AS SHOWN (SEE SHEET 100) 1900



SECTION 53+55 SECTION 53+60

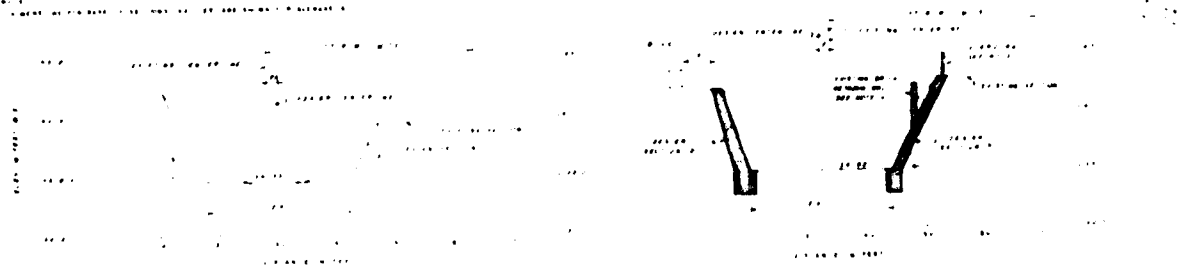


SECTION 53+65 SECTION 53+70



SECTION 53+75 SECTION 53+80

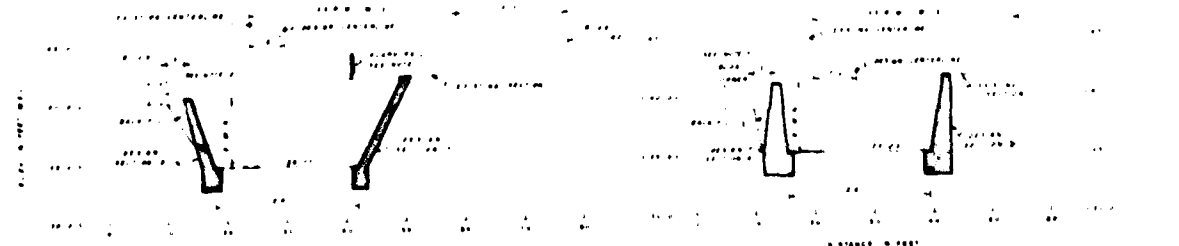
NO PROTECTION



STATION 54+00



STATION 54+55



STATION 55+10

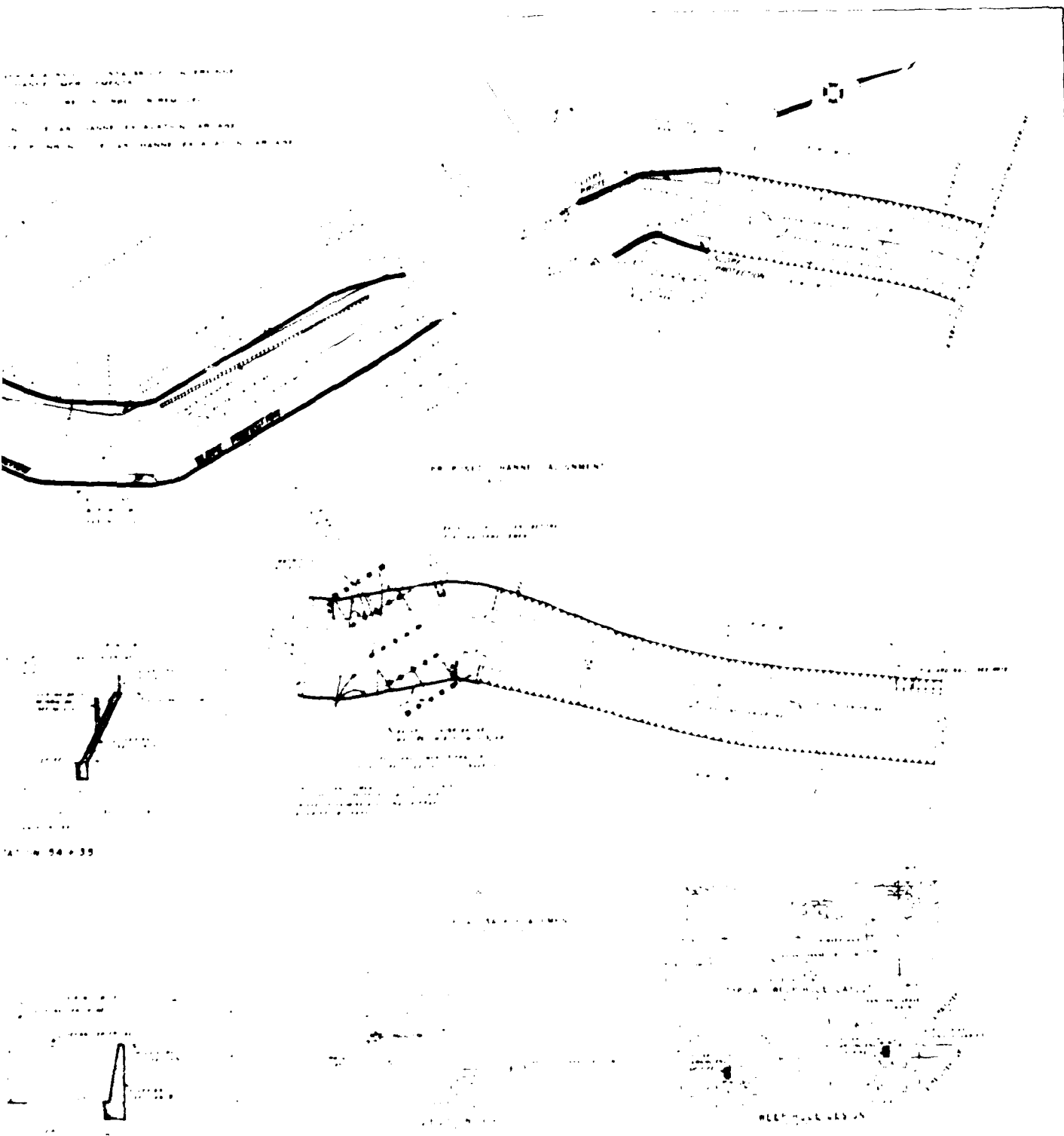
STATION 56+70

TYPICAL CROSS SECTIONS

NOTE: SEE PLAN FOR DRAIN LINES DOWNSTREAM

- NOTES
1. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.
  2. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.
  3. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.
  4. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.
  5. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.
  6. ALL STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR BRIDGE AND UNDERPASS STRUCTURES.

1. THE CHANNEL SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION DETAILS SHOWN ON THIS PLAN.  
 2. THE CHANNEL SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION DETAILS SHOWN ON THIS PLAN.  
 3. THE CHANNEL SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION DETAILS SHOWN ON THIS PLAN.



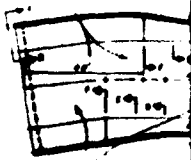
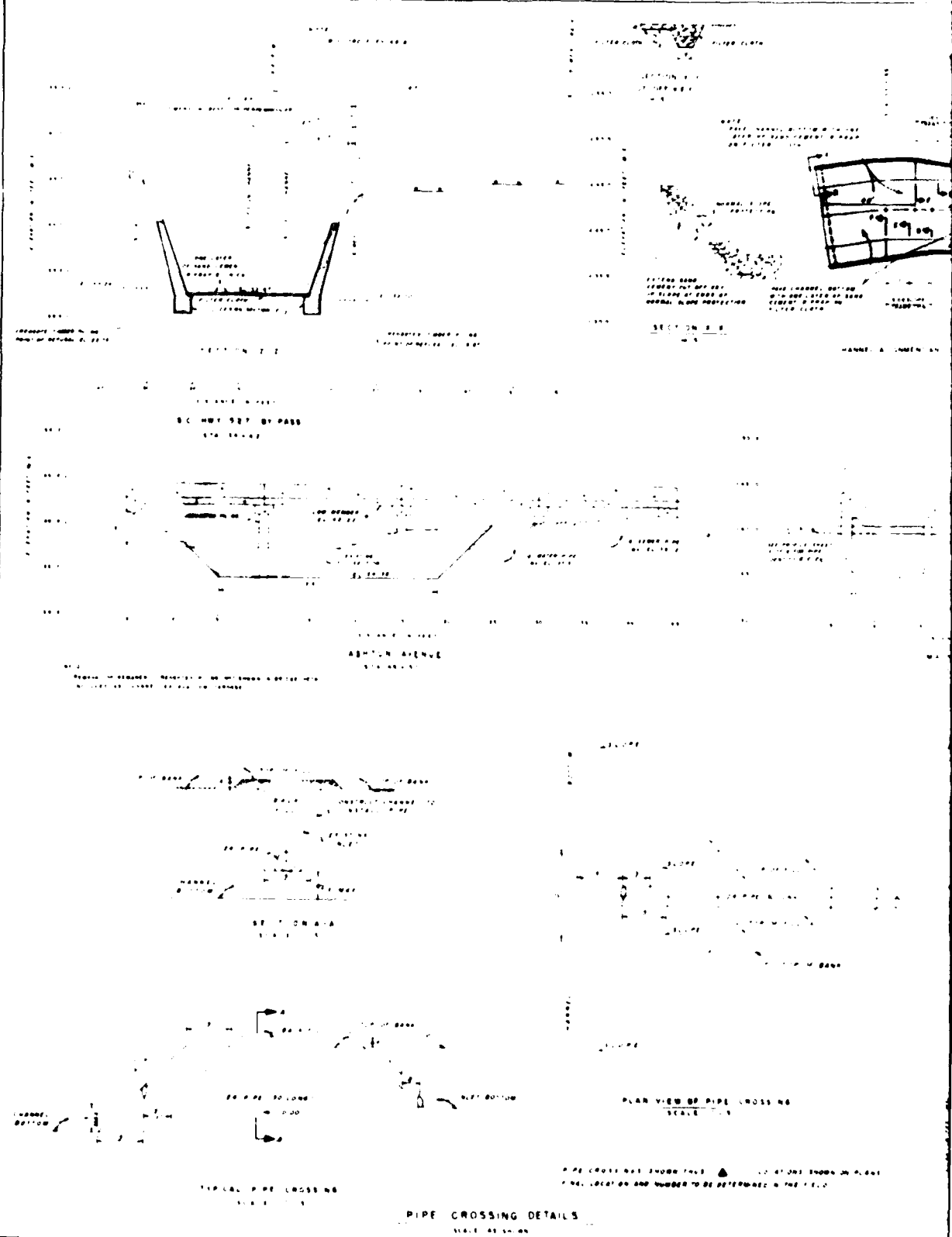
STATION 56 + 35

STATION 56 + 70

TYPICAL SECTIONS AND DETAILS OF SALTED SAND CEMENT SLOPE PROTECTION

DRAWN BY: RINGTREE BRANCH  
 CHECKED BY: CHANNEL ALIGNMENT & DETAILS  
 DATE: 10/15/10  
 PROJECT: WEST COAST BRANCH

PLATE A



HANNE A. LAMBERT

S.C. HWY 527 BYPASS  
STA 10+00

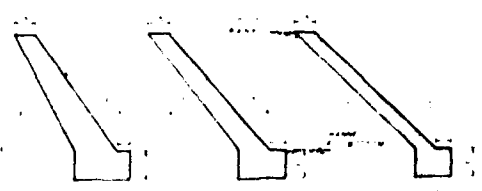
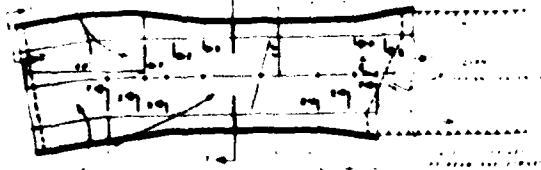
ASHTON AVENUE  
STA 10+00

PLAN VIEW OF PIPE CROSSING  
SCALE 1/4" = 1'-0"

TYPICAL PIPE CROSSING  
SCALE 1/4" = 1'-0"

PIPE CROSSING DETAILS  
SCALE AS SHOWN

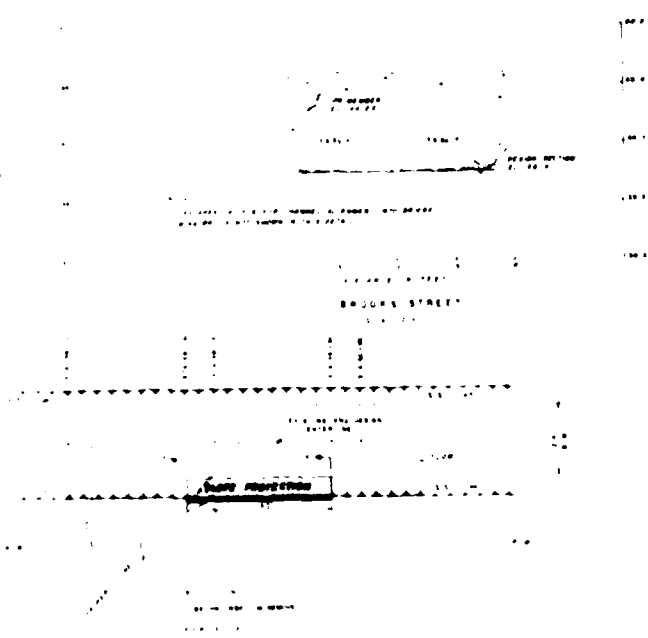
PIPE CROSSING SHALL SHOW TALLEST AT ONE END ON PLAN  
FIELD LOCATION AND NUMBER TO BE DETERMINED IN THE FIELD



SECTION DD SECTION EE SECTION FF  
SLOPE PROTECTION  
SCALE

NOTE: ALL THE BASES OF THE PILES ARE TO BE 1000' FROM THE CENTER OF THE  
CHANNEL AND THE SPACING OF THE PILES

PLAN OF BRIDGE AND SLOPE PROTECTION WITH THE TYPICAL



CHANNEL ALIGNMENT AND SLOPE PROTECTION - STA 58+40 TO STA 59+90



STATION 59+50

BRIDGE BRANCH, S.C.  
BRIDGE SECTIONS & DETAILS  
SCALE

DATE  
ILMED  
— 8