HISTORY OF CONSTRUCTION FOR EXISTING CCR SURFACE IMPOUNDMENT
PLANT YATES ASH POND 2
40 CFR 257.73(c)(1)(i)-(xii)

(i) Site Name and Ownership Information:

Site Name: Eugene A. Yates Power Plant

Site Location: Newnan, Georgia
Site Address: 708 Dyer Road
Newnan, GA 30263

Owner: Georgia Power Company
Address: 241 Ralph McGill Boulevard
Atlanta, GA 30308

CCR Impoundment Name: Plant Yates Ash Pond 2 (AP-2)
NID ID: GA04184 (038-063-04138 Georgia State ID)

EPA's "Disposal of Coal Combustion Residuals from Electric Utilities" Final Rule (40 C.F.R. Part 257 and Part 261), §257.73(c)(1), requires the owner or operator of an existing CCR surface impoundment to compile a history of construction. To the extent feasible, the following information is provided:

(ii) Location:

33.459091, -84.907674
See Location Map in the Appendix

(iii) Purpose of CCR Impoundment:

The Eugene A. Yates Power Plant (Plant Yates) was once a seven unit, coal fired, power generation facility. Currently Plant Yates Units 1-5 are in the process of demolition and Plant Yates Units 6 and 7 have been converted to natural gas. AP-2 was designed to receive and store coal combustion residuals produced during the electric power generating process at Plant Yates. Plant Yates ceased burning coal in 2015 and thus ceased sluicing ash to AP-2 at that time. AP-2 also serves as a low-volume waste treatment pond for the plant.

(iv) Watershed Description:

Plant Yates and Ash Pond 2 are located within the Acorn Creek-Chattahoochee River HUC-12 watershed which has a total area of 28,284 acres. The Acorn Creek-Chattahoochee River watershed is part of the larger Middle Chattahoochee-Lake Harding HUC-8 watershed which has an area of 1,950,182 acres. The inflow to Ash Pond 2 consists of the rainfall that falls within the limits of the surface impoundment, runoff from approximately 622 acres of adjoining watershed, and a nominal amount (relative to rainfall)

of process flows. Additionally, run-off from Ash Ponds B, B', and 3 are ultimately routed into AP-2. The drainage area for these basins totals an additional 723 acres (total drainage area of 1,408 acres).

(v) Description of physical and engineering properties of CCR unit foundation/abutments:

AP-2 is located in the Piedmont Physiographic Provence of Georgia. The Piedmont is characterized by igneous and metamorphic rocks. According to the Geologic Map of Georgia, 1976, Plant Yates is located in an Undifferentiated Granite formation of the Piedmont. The residual soils in the Piedmont are a result of weathering of the underlying bedrock. Piedmont residual soils and alluvial soils (due to its proximity to the Chattahoochee River) are present within the footprint of AP-2. The alluvial soils consist of firm to very stiff silts and clays which were underlain by partially weathered rock and residual soils. The foundation materials below AP-2 have been classified as hard to very fine sandy silts and very dense silty fine to coarse sands based on subsurface investigations.

(vi) Summary of Site Preparation and Construction Activities:

AP-2, commissioned in 1966 and also known as the "new ash pond" and the "common pond," was designed by Georgia Power Company's Chief Engineer. The original construction, supervised by a professional engineer, had a top of dike elevation of 721 ft and a corresponding surface area of 50 acres. During an expansion that took place between 1969 and 1970 the embankment height was raised to EL 729 ft. As part of that construction, a bench was created on the downstream slope of the new structure at EL 710 ft. The bench is approximately 475 feet in length and 23 feet in width. The primary discharge structure was relocated approximately 20 feet to the east to allow for the new upstream toe.

In 1976, a diversion dike was constructed in AP-2 to allow increased detention time of wastewater. The two areas are hydraulically connected by an open channel ditch which flows from the upper section to the lower section. The upper portion has been used as a settling basin for coal combustion residuals while the lower portion is utilized as a pool for recycling water back to the plant and/or to prepare water for final discharge.

In 1980, a trench drain was added to the Ash Pond embankment to enhance stability. In 1983, additional drains were added.

(vii) Engineering Diagram:

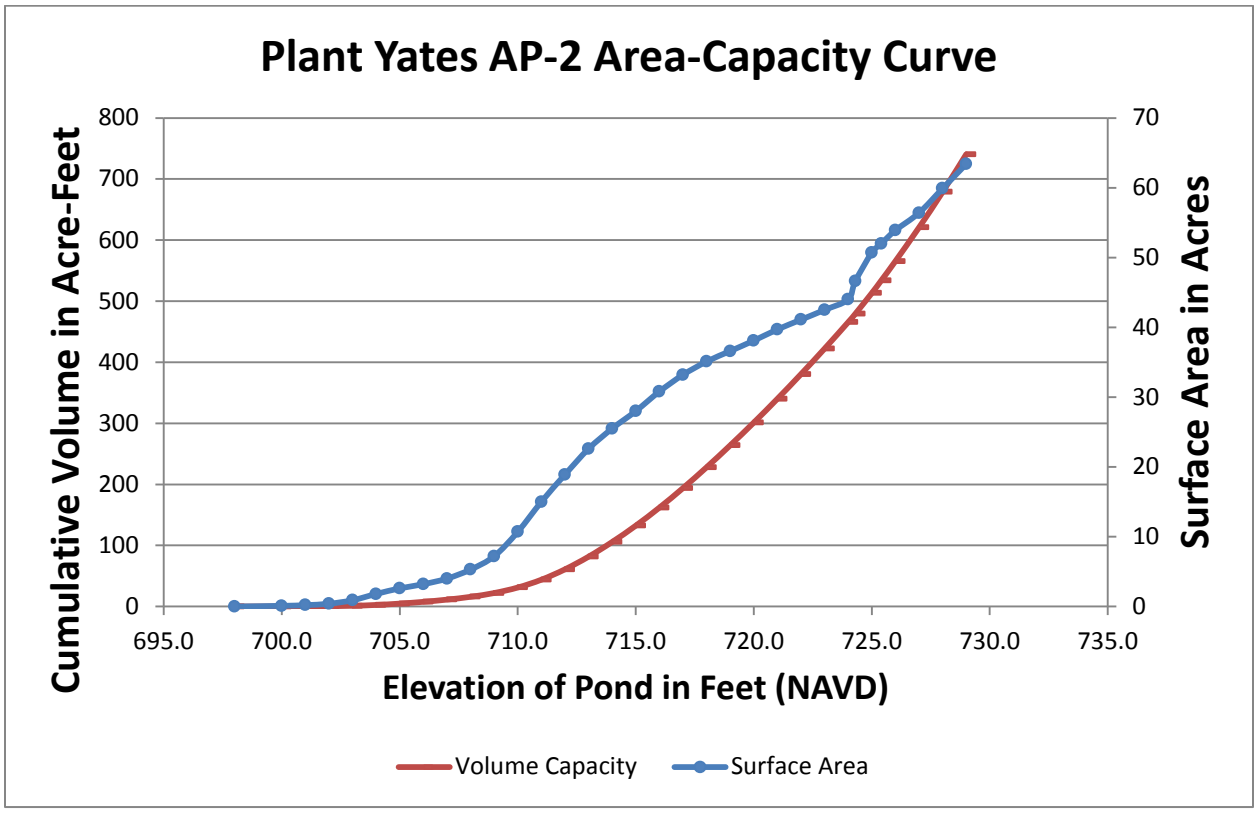
The following drawings reflecting the construction of AP-2 can be found in the Appendix:

- 1966 Plan View of Initial Construction
- 1969-1970 Dike Elevation Raise Location Map
- 1969-1970 Plan View and Sections of Dike elevation Raise
- 1969-1970 Emergency Spillway Rip-Rap Additions
- 1969-1970 Overflow Structure Modification Details
- 1976 Diversion Dike Plan View and Sections

(viii) Description of Instrumentation:

There are four piezometers located within the vicinity of AP-2 used to measure water levels around the impoundment.

(ix) Area-capacity curves:



(x) Spillway/Diversion design features and capacity calculations:

The primary discharge structure at AP-2 is located on the northeast corner of the lower pond and consists of a channel that leads to a concrete holding tank. A pump transfers water from the tank to the plant for recycling. If necessary, the pump may discharge through a 30-in diameter fiberglass lined steel pipe to the permitted NPDES discharge point on the river. The primary discharge from Ash Pond 2 is equipped with a control system designed to automatically maintain the Ash Pond water level within a specified range. The auxiliary spillway is a 20-ft wide open channel and is located on the left abutment. The spillway entrance includes rip-rap on the upstream slope and a concrete control structure. The spillway channel through the abutment is lined with a concrete filled erosion protection blanket. The spillway outfall is constructed with stair-stepping gabion baskets with concrete on the top surface. The spillway outlet bottom is comprised of bedrock, while the side slopes are armored with gabion baskets.

Capacity calculations indicate that the 20-ft wide auxiliary spillway has a capacity of 1,078 cubic feet per second (cfs) during the 1000-year design storm and the principal spillway has a capacity of 130 cfs during this same event at the top of embankment elevation.

(xi) Provisions for surveillance, maintenance and repair:

Inspections of dikes are critical components and are conducted on a regular basis – at least annually by professional dam safety engineers and at least weekly by trained plant personnel. In addition, inspections are performed after periods of heavy rainfall and storms. The inspections provide assurance that structures are sound and that action is taken, as needed, based on the findings. Weekly safety inspections include numerous items including pond levels, weather conditions and rainfall since the prior inspection, conditions of slopes and drains, erosion, animal damage, ant hills, alignment of retaining structures and more. During annual inspections, dam safety engineers assess instrument readings, inspect any maintenance or remediation performed since the previous inspection, check the status of work recommended at prior inspections, ensure that the posting of emergency notification information is up to date and evaluate any items noted during plant personnel inspections.

Construction specifications:

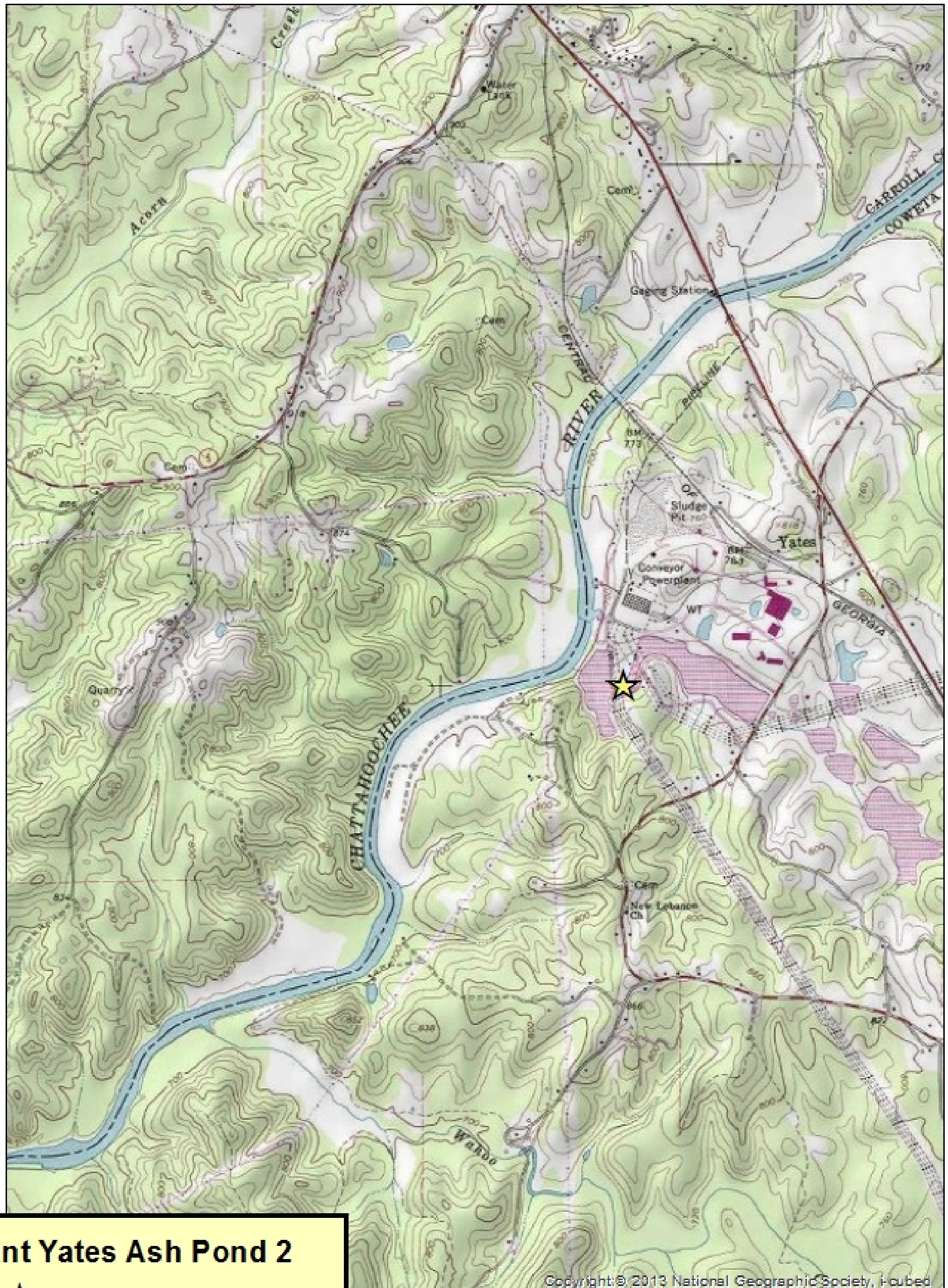
The following specifications relevant to the construction of the AP-2 can be found in the Appendix:

- 1969-1970 Detail Specifications for Ash Pond Dike Addition

(xii) Known record of structural instability:

There is no known record of major structural instability or repairs to the AP-2 impoundment. In 1971, a small seep developed in the ash pond embankment and was subsequently repaired.

Appendix



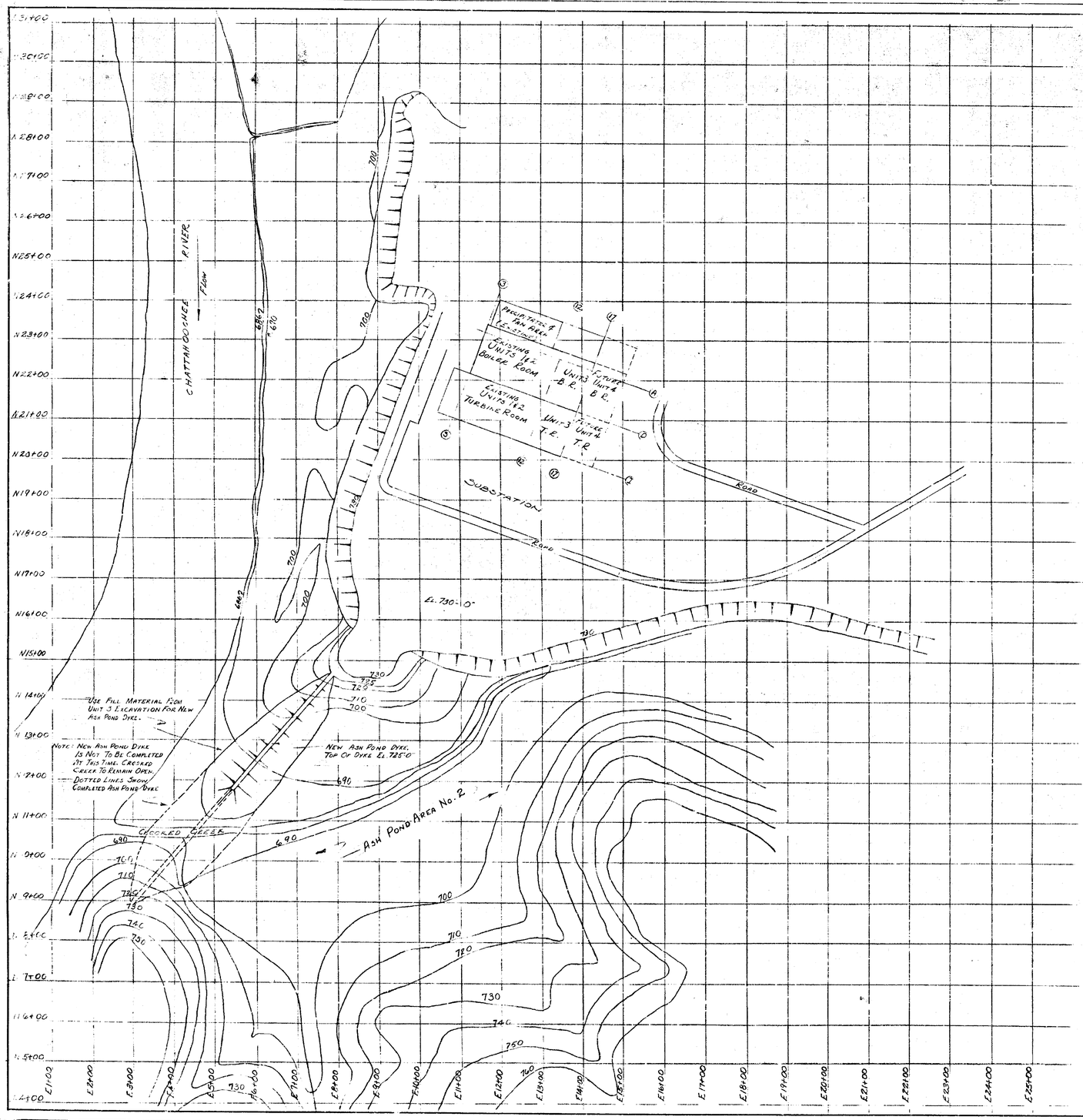
Plant Yates Ash Pond 2

N

☆ Ash Pond Location

USA Topo Maps

0 0.25 0.5 1 Miles

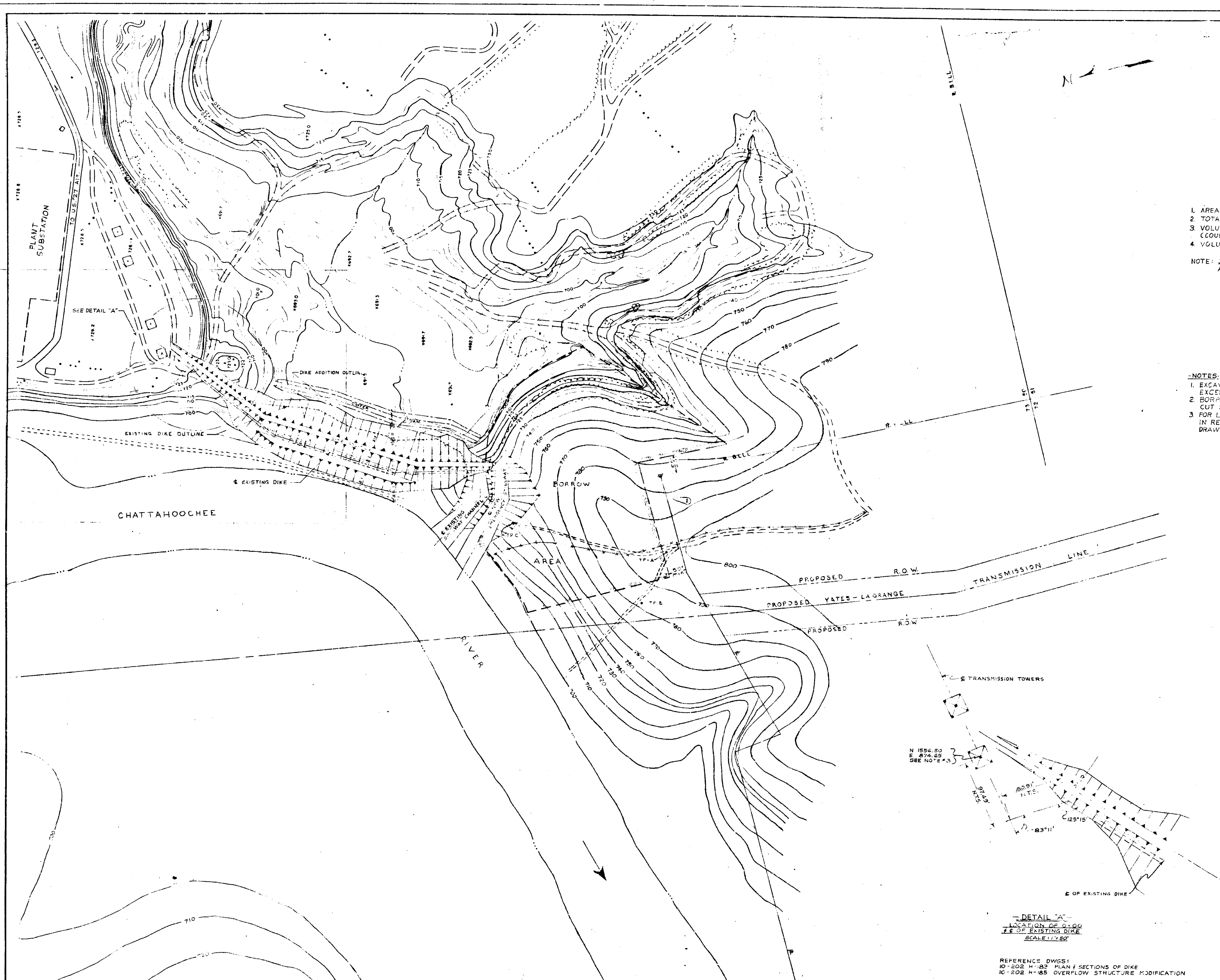


GEORGIA POWER CO., ATLANTA, GA
ENGINEERING DEPARTMENT

PLANT YATES UNIT NO 3
DYKE FOR ASH DISPOSAL AREA No. 2

REVISIONS | NO. | DATE | BY | APPR. | SCALE | DATE

DRAWING NUMBER
LOCATION | SHEET No.
C-106 | H-502



- DETAIL "A" -
LOCATION OF 0+00
E ℄ OF EXISTING DIKE
SCALE: 1" = 50'

REFERENCE DWGS:
10-202 H-183 PLAN & SECTIONS OF DIKE
10-202 H-185 OVERFLOW STRUCTURE MODIFICATION

BORROW AREA QUANTITY ESTIMATES:

1. AREA 7½ ACRES (325,000 Ft²)
2. TOTAL VOLUME OF SOIL TO BE STRIPPED 10,000 c.y.
3. VOLUME OF USABLE STRIPPED SOIL (COULD BE USED IN COFFER DAM) 4,000 c.y.
4. VOLUME OF AVAILABLE FILL MATERIAL 36,000 c.y.

NOTE: 3,400 c.y. OF FILL MATERIAL WILL ALSO BE AVAILABLE FROM THE BERM EXCAVATION

-NOTES-

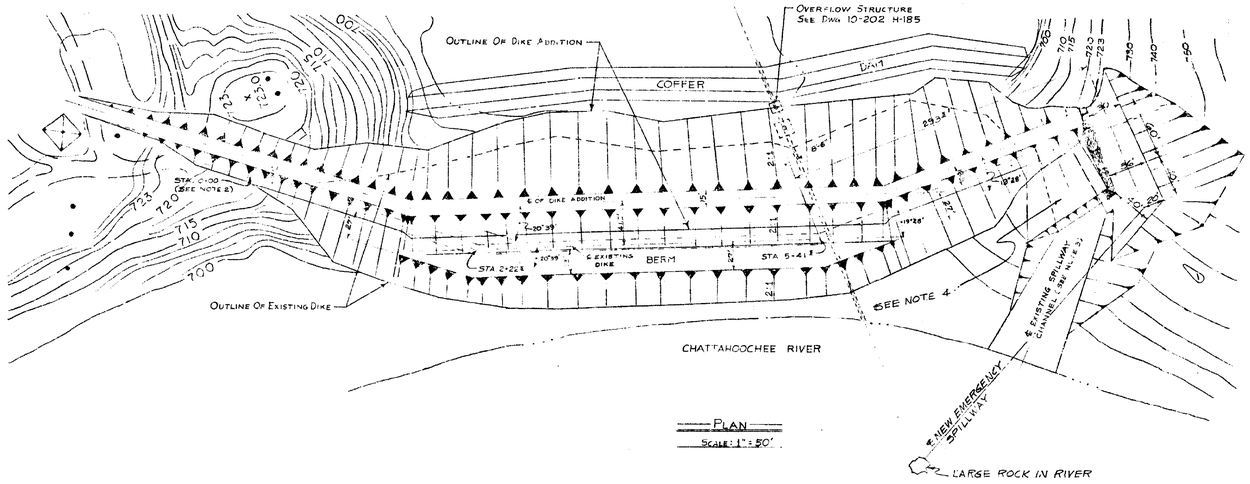
1. EXCAVATION ALONG PROPERTY LINES SHALL NOT EXCEED A 2:1 SLOPE.
2. BORROW EXCAVATION IN THE AREA OF SPILLWAY CUT SHALL NOT EXTEND BELOW ELEVATION 730.
3. FOR LOCATION OF ℄ OF TRANSMISSION TOWERS IN RELATION TO THE PLANT BUILDING, SEE DRAWINGS 10-202 D-705, H-1015 & H-1480.

GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT

PLANT YATES
NEW ASH POND - DIKE ADDITION
GENERAL LOCATION MAP

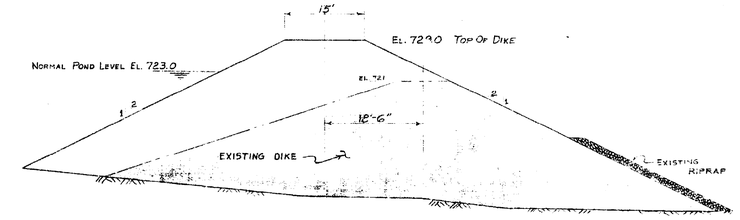
NO	DATE	BY	REVISIONS	APPROVALS	DSGN	DR	CHK
						HD	H.T.

SCALE: 1" = 100'
DATE: 4-4-
DRAWING NUMBER — LOCATION: 10-202 — SHEET NO.: H-825



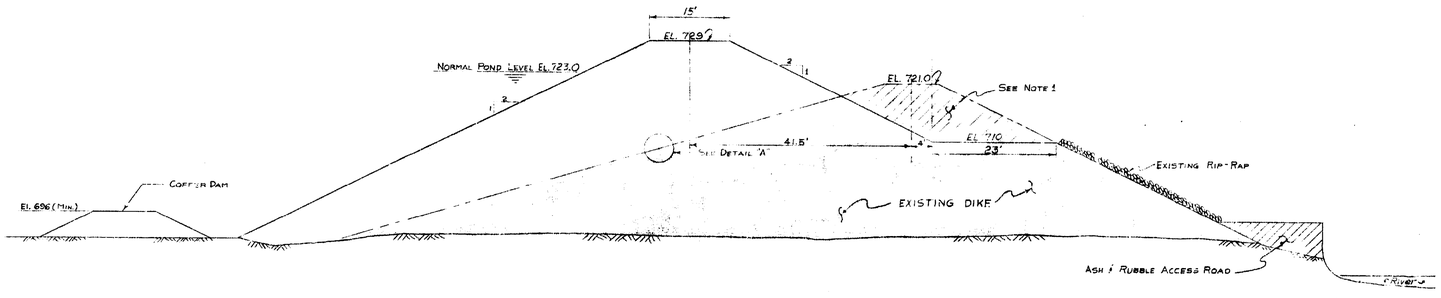
PLAN

SCALE: 1" = 50'



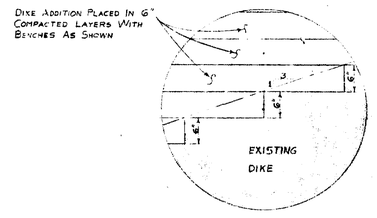
TYPICAL SECTION THROUGH DIKE WITHOUT BERM

SCALE: 1" = 10'-0"



TYPICAL SECTION THROUGH DIKE WITH BERM

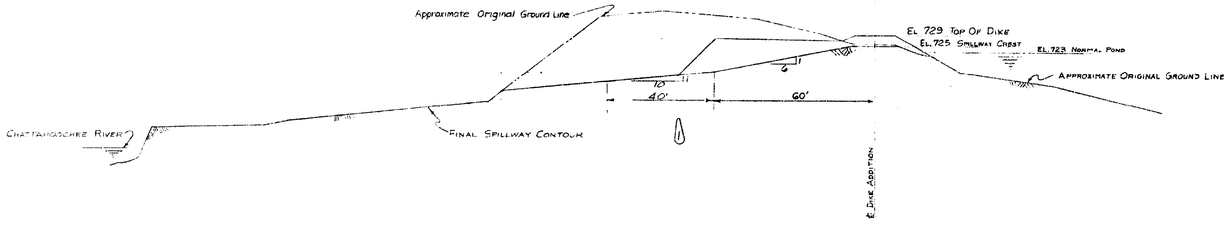
SCALE: 1" = 10'-0"



DETAIL "A"

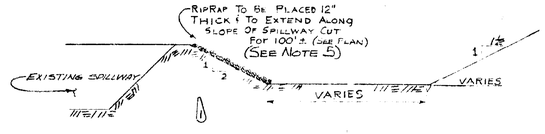
TYPICAL FOR UPSTREAM FACE OF EXISTING DIKE

SCALE: 1" = 1'



SECTION THROUGH NEW EMERGENCY SPILLWAY ALONG CENTERLINE

SCALE: 1" = 20'-0"



TYPICAL SECTION THROUGH NEW EMERGENCY SPILLWAY

N.T.S.

NOTES:

1) THIS PORTION OF EXISTING DIKE TO BE EXCAVATED IN CONSTRUCTION OF BERM
2) FOR LOCATION OF STA 0+00 SEE DWG. 10-202 H-825
3) EXISTING SPILLWAY TO BE ABANDONED.
4) AREA SHOWN TO BE FILLED WITH SPOIL AND/OR STRIPPED MATERIAL.
5) SPILLWAY RIPRAP TO BE A MIN. OF 4 FEET ABOVE SPILLWAY BOTTOM AND EXTEND APPROX. 10 FEET AROUND TURN.

REFFRENCE DWGS.

10-202 A-22	ASH POND RISER TEE
10-202 H-185	OVERFLOW STRUCTURE MODIFICATION
10-202 H-825	GENERAL LOCATION MAP

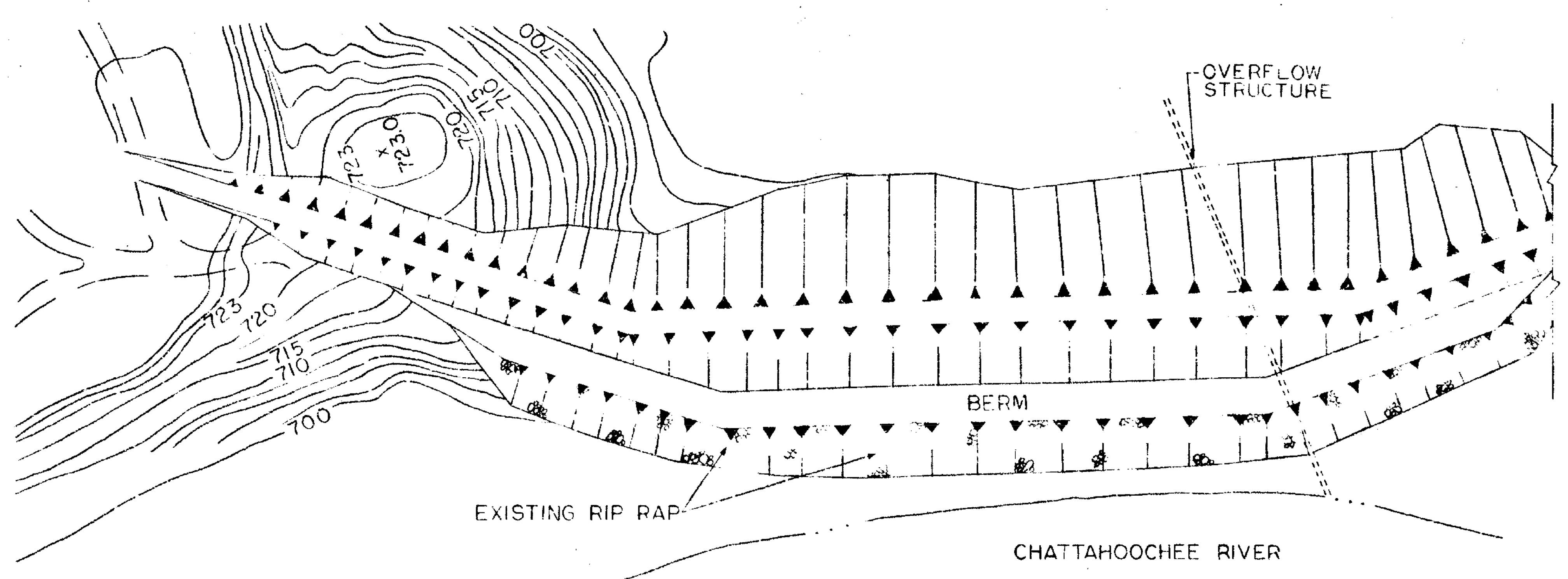
GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT

PLANT MILES
NEW ASH POND - DIKE ADDITION
PLAN & SECTIONS OF DIKE

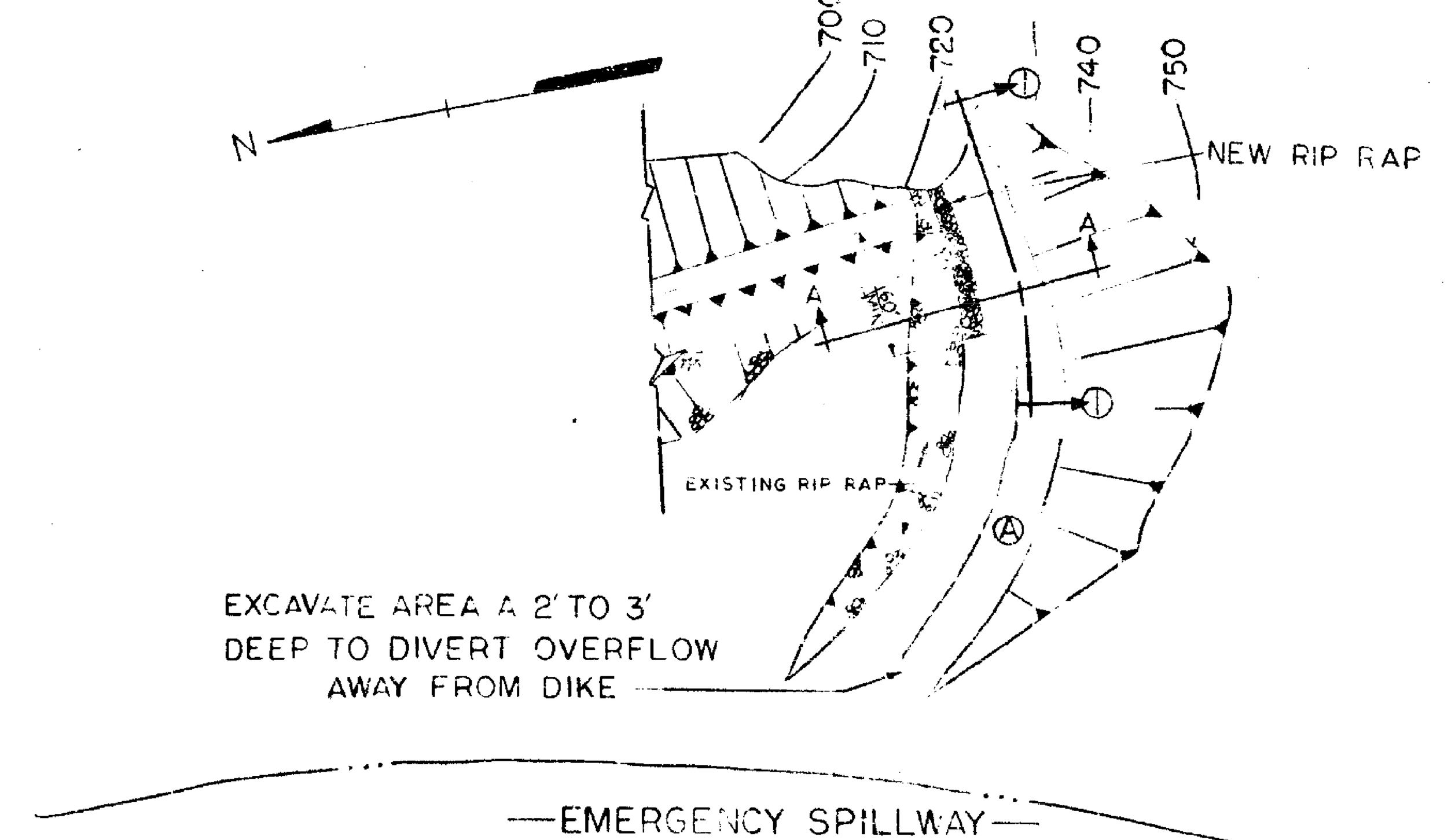
NO.	DATE	BY	REVISIONS	APPROVALS

DSGN | DR. | CHK.
SCALE | DATE
DRAWING NUMBER
LOCATION | SHEET NO.
J 20C | H-185

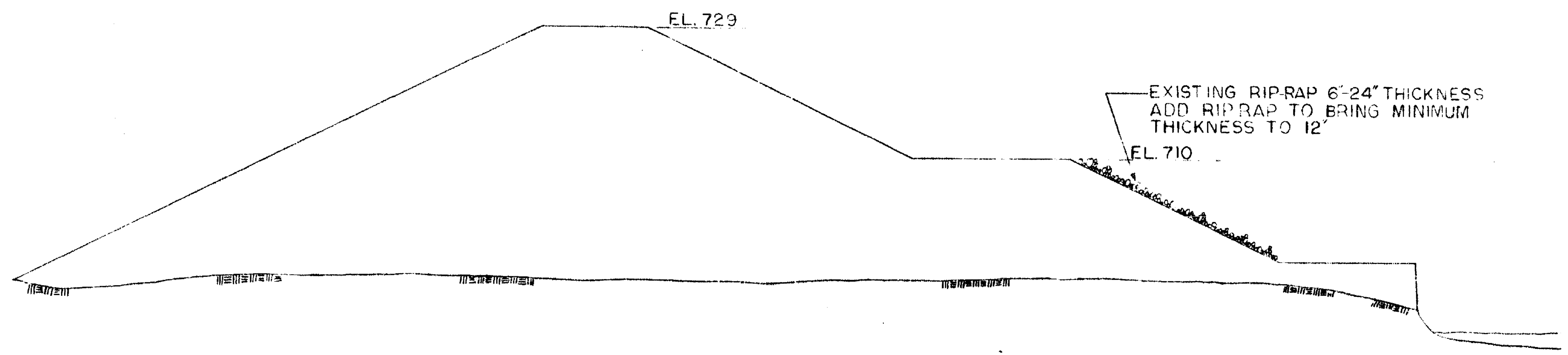
REPRINT AND ENGINEERING SUPPLY CO.



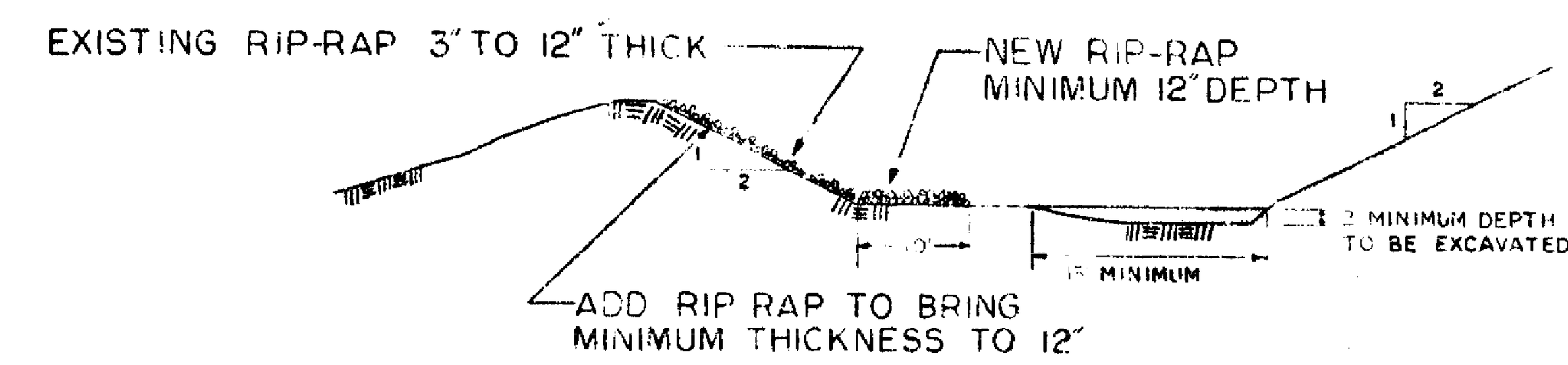
—PLAN—
SCALE: 1"=50'



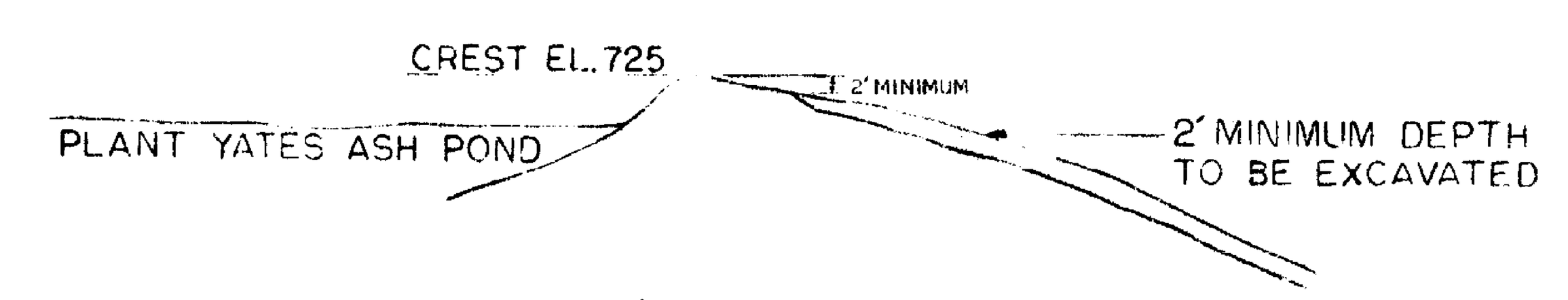
—EMERGENCY SPILLWAY—
SCALE: 1"=50'



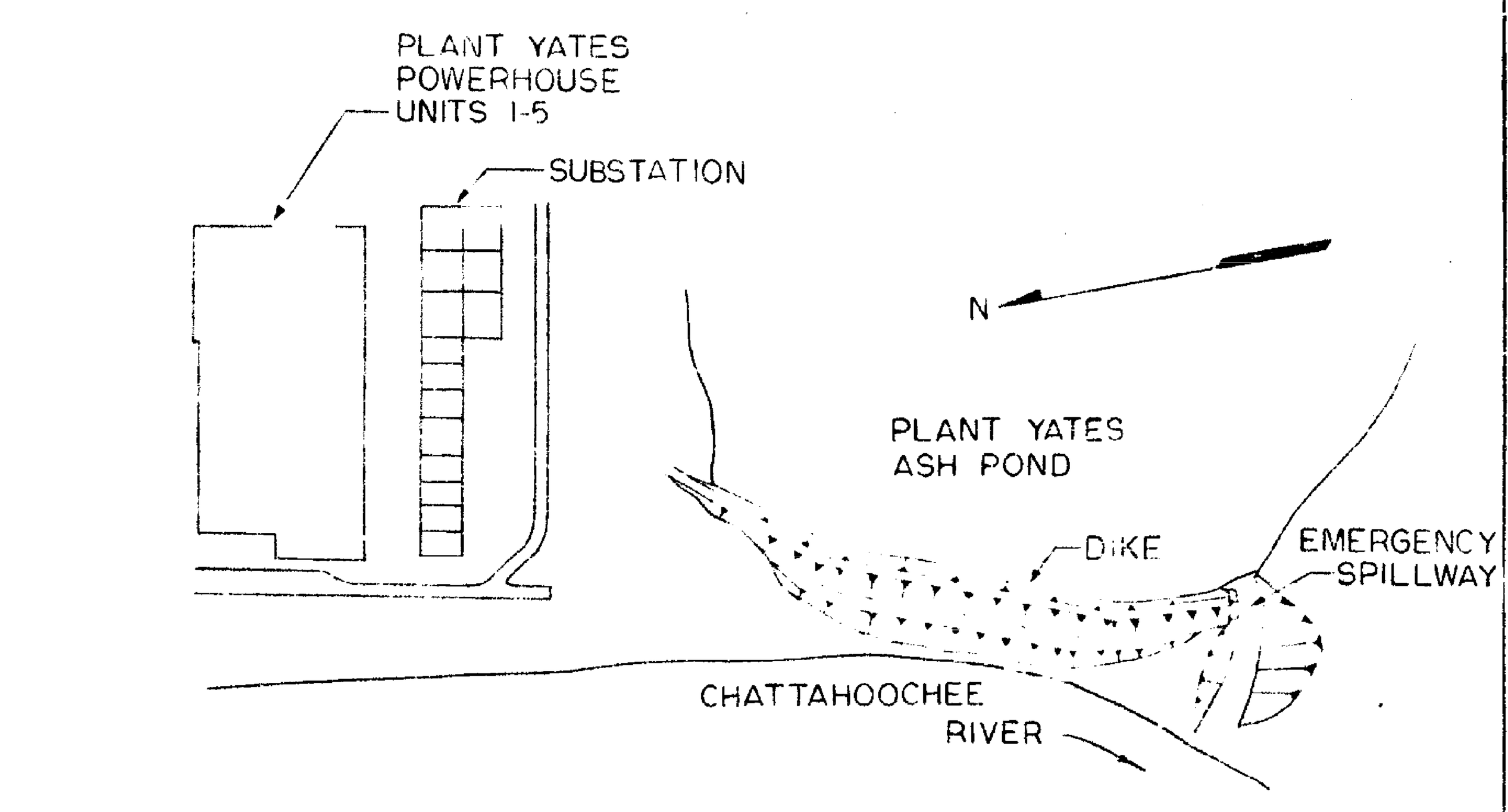
—TYPICAL SECTION THROUGH DIKE WITH BERM—
SCALE: 1"=10'



— SECTION "A-A" —
N.T.S.



—SECTION ①-① —
N.T.S.



— LOCATION PLAN —
SCALE: 1"=200'

SPECIFICATIONS FOR RIP RAP

Material

All stone shall be a fresh durable crystalline type, free of shaly, flaky, or porous particles. The stone for the dike and overflow spillway rip rap repair should not exceed 12" in any diameter. The stone shown as "new rip rap" on the Plan should also not exceed 12" in any diameter. The remainder of the stone materials shall have a reasonably uniform grading down to the finest sizes. No less than 5% or more than 10% spalls will be allowed.

Construction

A. Foundation Preparation: The area shown as "new rip rap" on the Plan shall be dressed to the natural ground surface with all depressions filled and compacted. This rip rap shall be dumped in the area indicated by the Plan beginning 10' on the ash pond side of the centerline of the dike to a point where the spillway leaves the dike. Other areas to receive dumped stone are now partially covered with rip rap and indicated on the Plan. All areas previously protected with less than 12" depth of rip rap require dumped stone to a minimum 12" depth for both the dike and the overflow spillway.

B. Placement: The dumped stone shall be dumped on the slopes so as to produce a compact, well graded mass with a minimum percentage of voids in order to provide a satisfactory slope protection. The stone shall be dumped to its full course thickness of 12" minimum, measured perpendicular to the slope, in one operation and in such a manner that the earth slopes will be disturbed as little as possible. The larger pieces shall be well distributed and the finished layer of stone shall contain no segregated pockets of small pieces or groups of large pieces which would cause large open voids in the rock mass. Placement of the stone in layers parallel to the existing slope will not be permitted, nor will placing by chutes, or dumping on top and allowing to roll down the slopes, or similar methods that could cause segregation of the various sizes of rock be allowed. The desired distribution of the various sizes through the stone mass shall be obtained by control of initial and secondary shooting at the quarry, handling, or placement which will produce the results specified. Rearrangement of the large individual pieces by mechanical equipment, or the smaller pieces by hand will be required to the extent necessary to obtain a reasonably well graded distribution of sizes as specified above. To prevent erosion of the finished earth, slopes shall be maintained until the dumped stone protection is placed thereon.

NOTES

1. Material at Area "A" should be removed by dozer or other convenient method.

2. Spillway plan, cross-section, and longitudinal section show approximate dimensions only.

BILL OF MATERIALS

Quantity	Description
240 c.y.	Dumped rip rap
250 c.y.	Excavation

REFERENCE DRAWING

11-202-H183 New Ash Pond-Dike Addition, Plan & Sections of Dike

GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT

PLANT YATES
ASH POND DIKE-EMERGENCY SPILLWAY
RIP RAP ADDITIONS

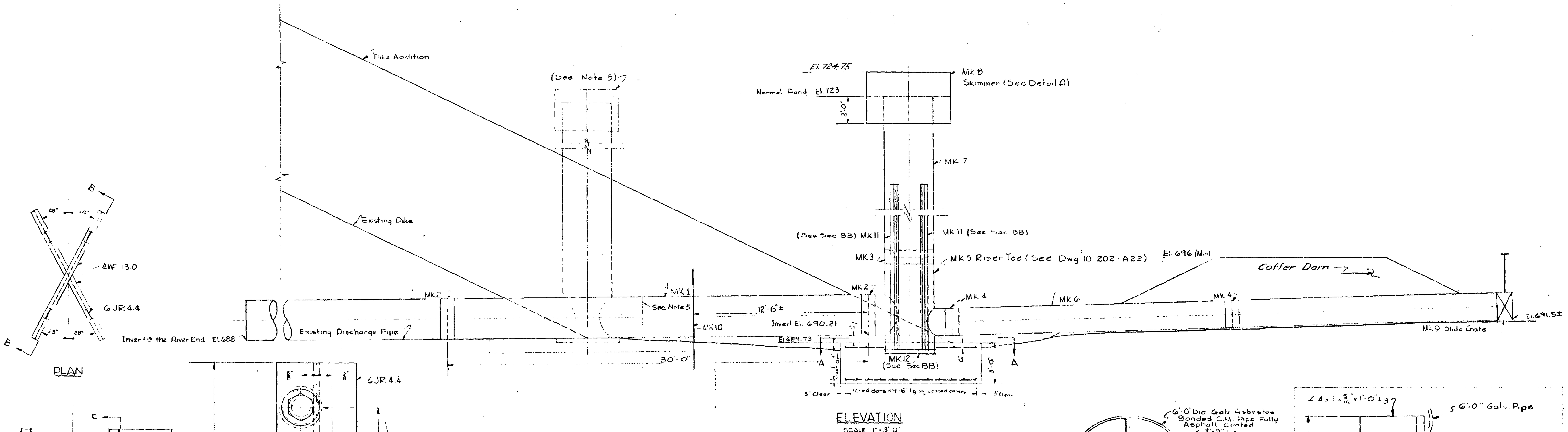
DSGN.	DR	CH'K
AWM		AWM

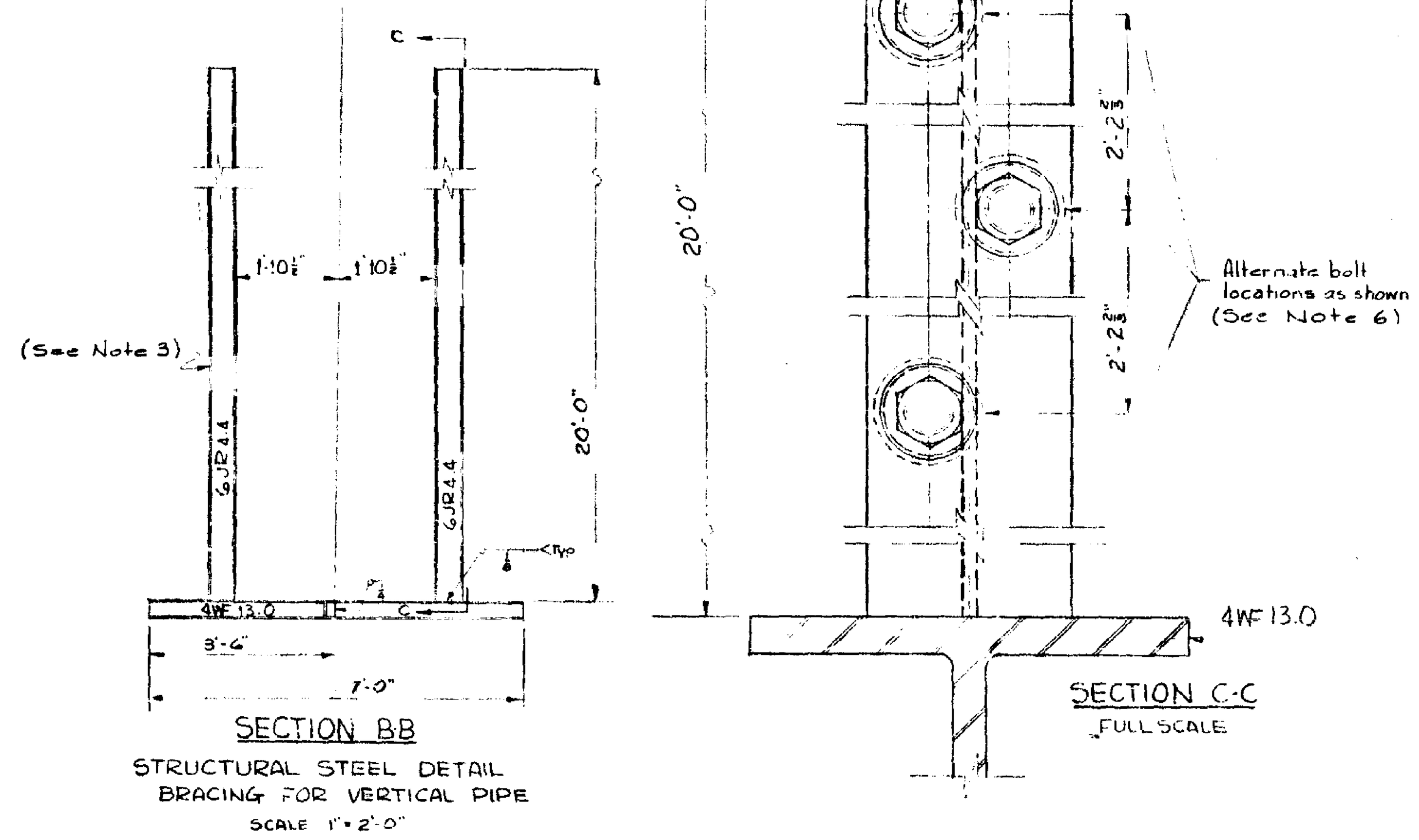
SCALE	DATE

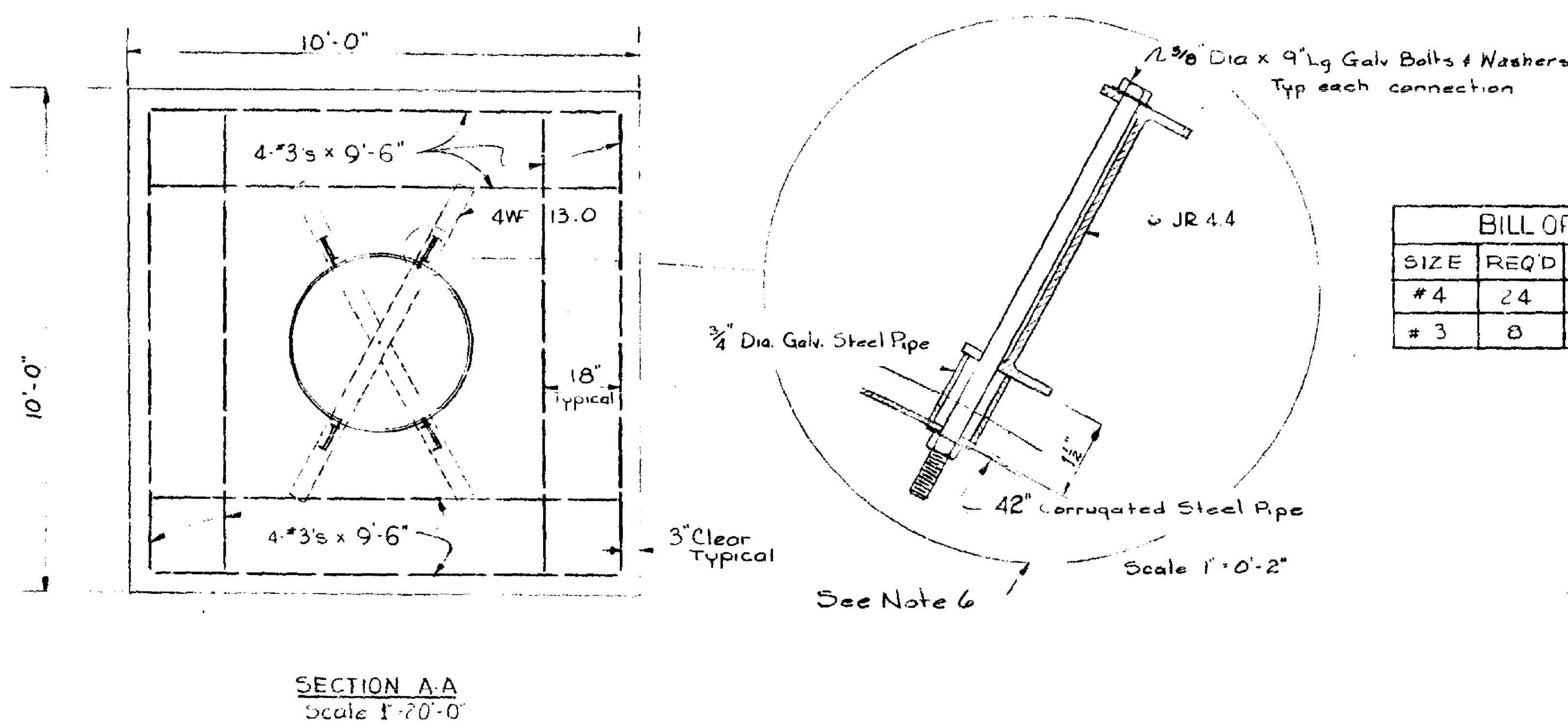
DRAWING NUMBER

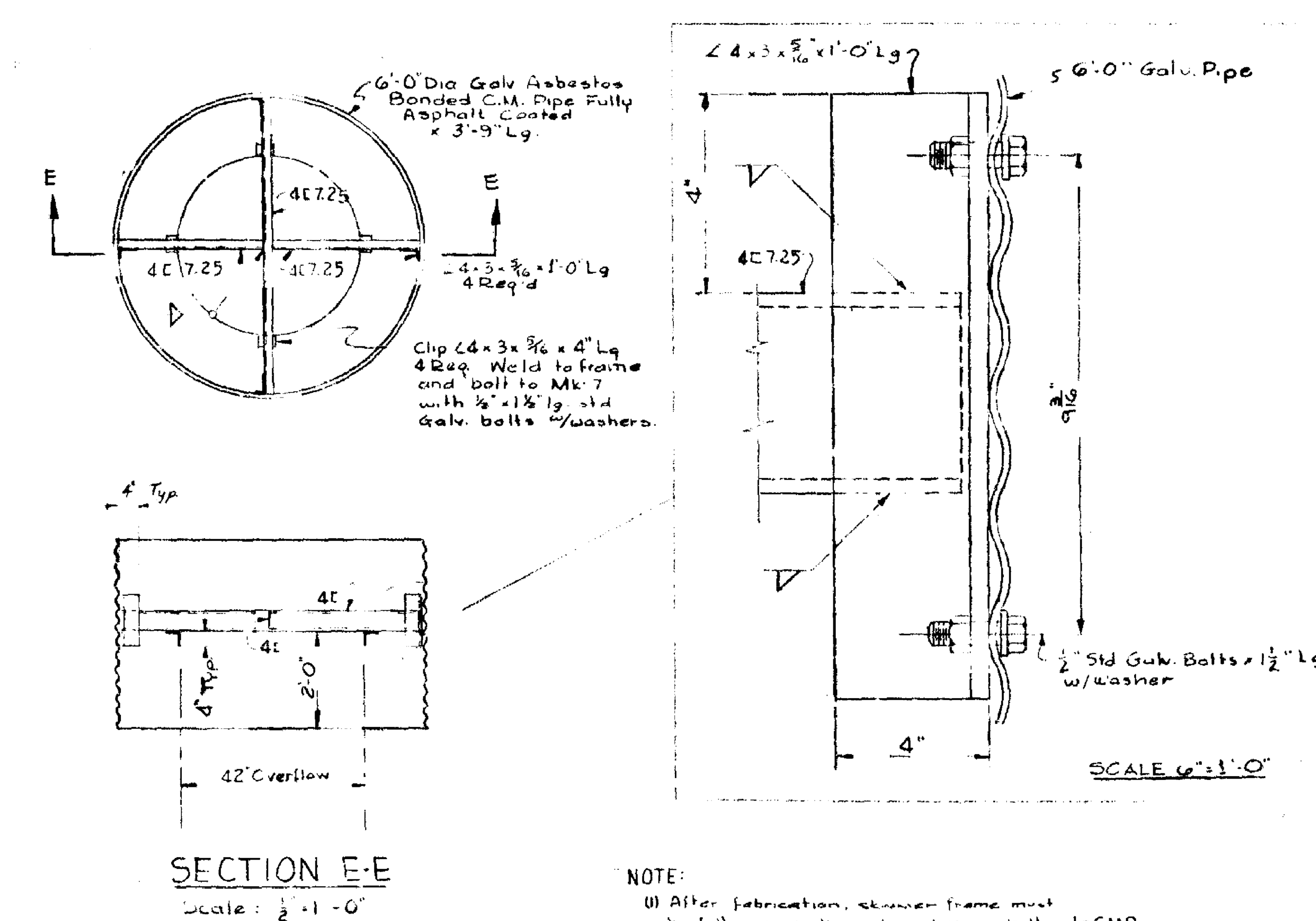
LOCATION	SHEET NO.
1C 202	H823

NO.	DATE	BY	REVISIONS	APPROVALS









NOTE:
(1) After fabrication, skimmer frame must be fully asphalt coated before bolting to CMP
(2) Fully asphalt coat all bolts after frame is attached to MK 7

DETAIL A - MK 8

BILL OF MATERIAL

MK.	TOTAL REQUIRED	DESCRIPTION	REMARKS
1	30	Ft., 36" 12 ga. asbestos bonded, asphalt coated corrugated steel pipe	For discharge pipe. (See Note 7)
2	2	Ea., 2' long, rod & lug type connecting bands for 36" CMP.	"
3	1	Ea., 2' long, rod & lug type connecting band for 42" CMP (with 2 2/3" x 1/2" corr.)	For overflow structure
4	3	Ea., 2' long, rod & lug type connecting bands for 24" CMP	For creek diversion One extra connecting band incl.
5	1	Ea. CMP "TEE", 42" Main barrel, 24" branch and 36" branch	See Dwg. no. 10-202 A22
6	50	Ft., 24", 12 ga. asbestos bonded, asphalt coated corrugated steel pipe	For Creek diversion
7	28	Ft., 42", 12 ga. asbestos bonded, asphalt coated, corrugated steel pipe.	For overflow structure
8	1	Ea., skimmer wier assembled	For overflow skimmer
9	1	Ea., slide gate, Armco model 101-C (or equal) for 24" corrugated steel pipe, height of frame above center of gate to be 6 ft.	For creek diversion support angles may be required for frame.
10	1	Ea. 84"×84" Anti-seepage diaphragms for 36" CMP	For discharge pipe (See Note 7)
11	4	Ea., 20' long, 6JR 4.4, structural steel	For overflow bracing
12	2	Ea., 7' long, 4WF 13.0, structural steel	"
—	5	Gal., Asbestos fiber roofing cement	Touch up for asphalt coated CMP
—	50	Ea. 3/8" Dia × 9" Lg Galv bolts with nuts & washers	For overflow bracing

BILL OF REINFORCING

SIZE	REQ'D	UNIT LENGTH	TOTAL LENGTH	WEIGHT
#4	24	9'-6"	228'	152.30#
#3	8	9'-6"	75'-0"	28.58#

NOTES:
(1) Install rod & lug type connecting bands carefully to insure a watertight fit.
(2) Where damage to the bituminous coating exposes the metal, repair by patching before the structure is backfilled. A coating for this purpose is provided in the Bill of Materials.
(3) Vertical pipe bracing steel must be fully asphalt coated
(4) All bolts, nuts, washers and pipe sections for connecting bracing steel to MK 7 must be fully asphalt coated.
(5) Existing overflow structure (shown in phantom lines) including concrete plug which encases 36" CMP stubout is to be removed leaving only concrete pad in place.
(6) Locate bolts through center of grooves of CMP.
(7) Compaction of backfill for the discharge pipe and the anti-seepage diaphragm must meet the same compaction standards as required for the embankment material. (See Specifications)

REFERENCE DWGS:
10-202 A-22 Ash pond Riser Tee
H-183 Plan & Sections of Dike
H-825 General Location Map

GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT

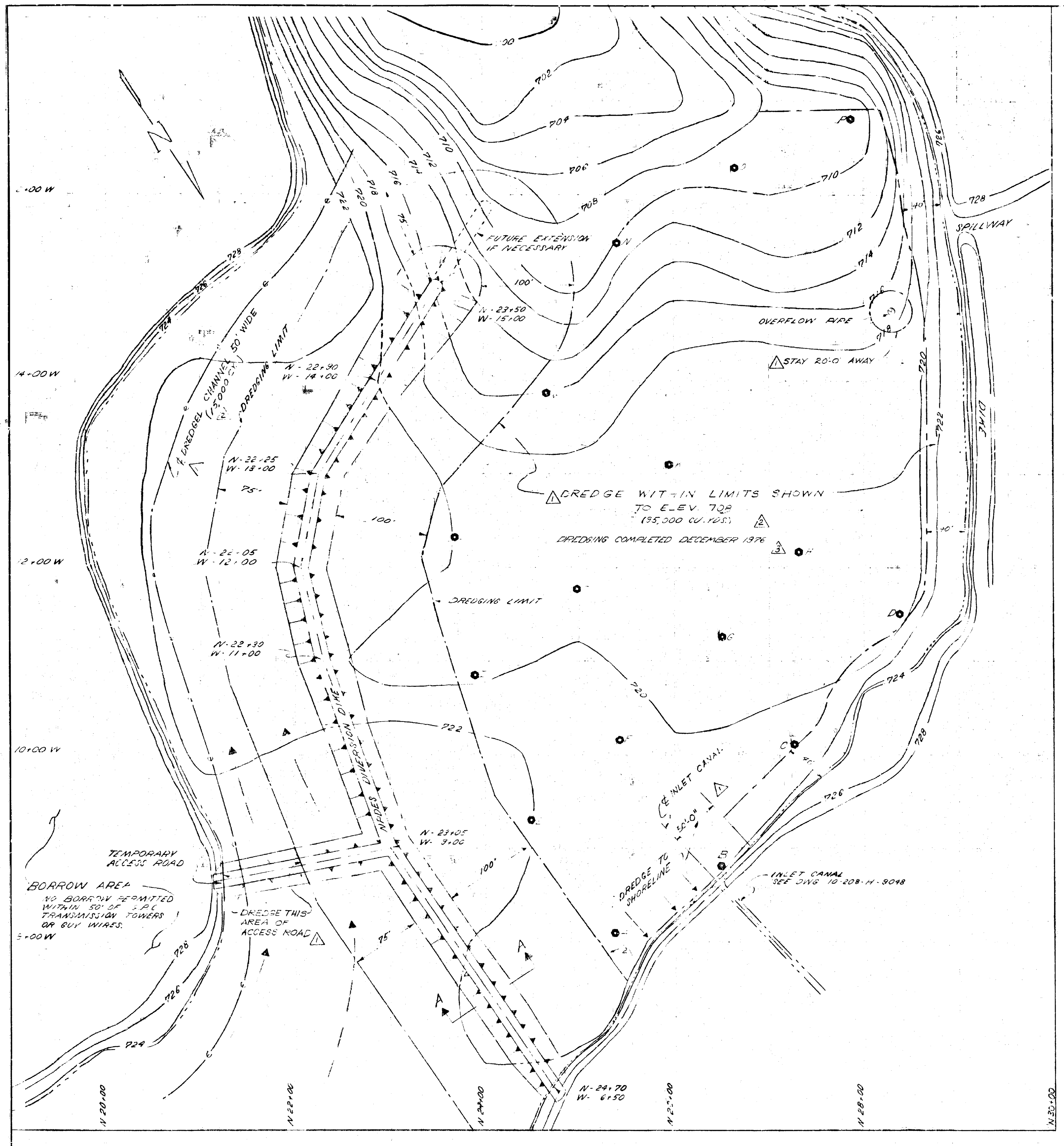
PLANT YATES
NEW ASH POND DIKE ADDITION
OVERFLOW STRUCTURE MODIFICATION

DSGN.	DR.	CH'K
JOP	RJW	[illegible]

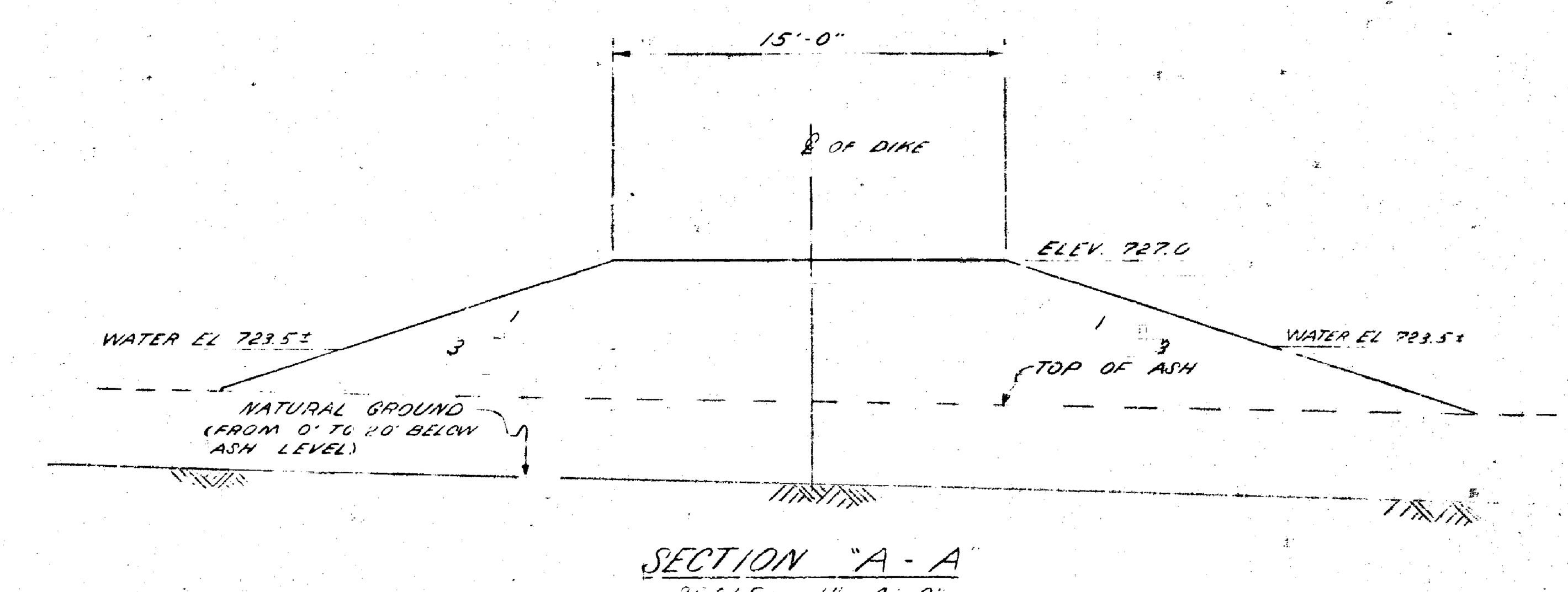
SCALE	DATE
As Shown	4/15/69

DRAWING NUMBER

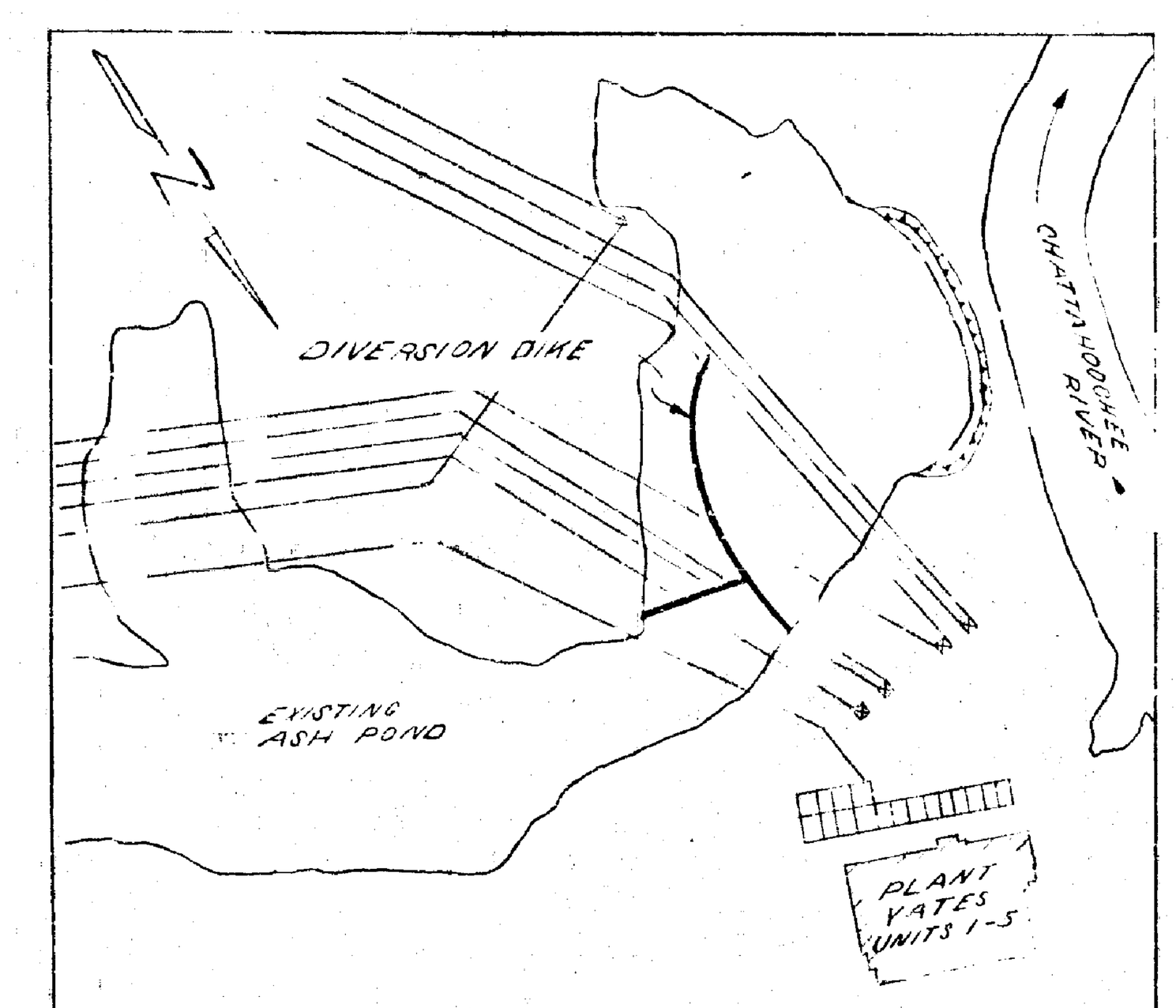
LOCATION	SHEET NO.
10-202	H-185



PLAN
SCALE: 1" = 50'-0"



SECTION "A-A"
SCALE: 1" = 4'-0"



LOCATION MAP
SCALE: 1" = 400'-0"

NOTES

1. THE TEMPORARY ACCESS DIKE MUST BE REMOVED UPON COMPLETION OF DIKE
2. COORDINATES FROM BASELINE ESTABLISHED FROM ASH ELEVATION SURVEYS MADE JANUARY AND AUGUST 1976.
3. THE TEMPORARY ACCESS DIKE IS SHOW 15' WIDE AT TOP. A WIDER ACCESS ROAD IS PERMITTED IF HEAVY EQUIPMENT CAN BE UTILIZED ON THE DIKE.
4. DURING CONSTRUCTION, THE NPDES DIKE CAN BE BUILT UNDER AND/OR HIGHER THAN FINAL SECTION IF NECESSARY TO FACILITATE WORK.
5. GRASSING IS REQUIRED UPON COMPLETION OF EARTHWORK.
6. POINTS ON DIKE SHOWN WITH COORDINATES WERE MARKED IN FIELD AUGUST 10, 1976 BY PATTERSON AND DEWAR PERSONNEL
7. ASH CONTOURS SHOWN.

△1 NOTES FOR DREDGING

1. NO DREDGING, EXCEPT AS SHOWN, WITHIN 40' OF THE SHORELINE OF THE YATES ASH POND. △2
2. NO DREDGING WITHIN 20' OF THE OVERFLOW PIPE.
3. DREDGING MUST HALT IF FLOW AROUND OVERFLOW PIPE BECOMES DISTURBED BY DREDGING OPERATIONS.
4. THE DREDGED CHANNEL MUST BE 50' WIDE, DREDGED TO ELEV. 717 AND CONTINUED TO ASH SLUICE PIPE AREA.
5. NO DREDGE DISCHARGE LINES PERMITTED ON NPDES DIVERSION DIKE.
6. ELEVATION OF ASH WILL BE CONFIRMED BEFORE DREDGE BEGINS CHANNEL BACK TO ASH SLUICE PIPES.

△3

LOCATION	ASH ELEVATIONS
●	12-15-76
A	721.2
B	720.8
C	716.4
D	719.2
E	710.4
F	708.3
G	708.4
H	707.8
I	710.1
J	708.7
K	708.8
L	709.3
M	709.6
N	711.5
O	DREDGED AFTER
P	12-15-76

NO.	DATE	BY	REVISIONS
3	4-77	MHT	ADD CHART & DREDGE COMP. DATE
2	8-27-76	MHT	CHANG'D DREDGE ELEV. LIMITS & QUANTITY
1		MHT	

GEORGIA POWER CO., ATLANTA, GA.
GENERAL ENGINEERING DEPARTMENT

NPDES
DIVERSION DIKE

APPROVALS

DSGN.	DR.	CH'K
AWM	KBP	AWM

SCALE: AS SHOWN | DATE: 8/6/76

DRAWING NUMBER — LOCATION: 10-208 | SHEET NO.: H-3074

INQUIRY NO. GA - 3110

ASH POND DIKE ADDITION

FOR

PLANT YATES

OF

GEORGIA POWER COMPANY

DETAIL SPECIFICATIONS

Ash Pond 2

The Instructions to Bidders, the General Provisions, these Detail Specifications and the Contractor's Proposal, together with the drawings applicable to this work shall all become a part of any contract entered into for the performance of the work as specified herein.

A. Scope

These Specifications are intended to cover the construction of an addition to the existing ash pond dike on the south side of the plant at Plant Yates. This work includes all plant, labor, equipment and tools required to satisfactorily complete the embankment addition for the ash pond dike and to construct the overflow structure modification. All materials, except as noted, will be furnished by the Contractor.

Major items of work to be covered are:

a. Clearing, grubbing, and stripping for embankment addition and designated borrow areas.

b. Excavation.

c. Embankment placement and compaction of materials, including dewatering and "mucking" out.

d. Cofferdam placement and drainage of the lower end of pond.

e. Construction of overflow structure modification including removal of a portion of the existing structure.

f. Seeding of embankment slopes, spillway slopes and floor, and borrow area.

g. Furnishing, hauling and placing of new riprap and moving of old upstream riprap to downstream face.

B. Approximate Quantities

The Purchaser does not guarantee the estimated quantities given

below. The quantities are provided as information only to indicate the approximate amount of work involved.

Acres to be cleared and grubbed	10
Cubic yards embankment	34,000
Cubic yards excavation (stripping)	10,000
Cubic yards excavation (earth spoil)	2,000
Cubic yards to be "mucked out"	2,000
Cubic yards rock excavation	None expected
Square yards embankment and spillway seeding	10,000
Square yards borrow area seeding	36,000
Cubic yards of new riprap	50
cubic yards of riprap to be moved	150

Overflow structure consisting of concrete, reinforcing steel, 42" diameter metal pipe, stand pipe bracing steel, corrugated metal riser tee, and other items shown on drawing 10-202-H185.

30 feet of 36" diameter fully asbestos bonded, asphalt coated, corrugated metal pipe with antiseepage diaphragm to be installed and 50 feet of 24" diameter fully asbestos bonded, asphalt coated, corrugated metal pipe.

C. Drawings

The following drawings describe the work to be performed:

10-202-H825	General Location Map
10-202-H183	Plan and Sections of Dike
10-202-H185	Overflow Structure Modifications
10-202-A22	Ash Pond Riser Tee

D. Clearing, Grubbing and Stripping

All borrow areas and embankment addition foundation areas will be cleared and grubbed and stripped of all organic material, fly ash (if encountered), material unsuitable for compaction and all weak or pervious soil to a depth to be determined by the Engineer in the field.

The cleared and grubbed area shall be harrowed and raked with a tractor mounted root rake to collect all small material previously overlooked. The tractor shall be of adequate size to achieve a minimum of four inches penetration of the rake teeth and such teeth shall not have an opening between teeth greater than twelve inches.

No explosives shall be used in the clearing and grubbing operation unless approved by the Engineer.

The Contractor shall have salvage rights to any timber remaining on the site providing that any such salvage operations do not hold up the progress of the work. All timber and other vegetation must either be removed from the site or burned. Burning shall be done at such a time and in such a manner as to prevent fire from spreading to adjoining areas. The disposal of material cleared from the work area by depositing on adjacent

property will not be considered as satisfactory disposal. Any material that can not be destroyed by burning shall be hauled away and deposited at locations designated by the Engineer.

Suitable stripped soil may be utilized in construction of the cofferdam. All remaining stripped and spoil material shall be stockpiled on the site in an area designated by the Engineer.

E. Excavation

1. Classification of Materials

All excavated material shall be classified and paid for as stripping, earth, muck, or hard rock as follows:

a. "Stripping Excavation" shall include removal of all organic material, fly ash (if encountered), and material unsuitable for compaction from excavation and embankment areas.

b. "Earth Excavation" shall include all earth, sand, gravel, and other material of every description not clearly included under "stripping", "muck", or "rock" which can be loosened and removed by scrapers, draglines, or similar earthmoving equipment.

c. "Muck" shall include all materials which, due to its nature, location, or necessity to hold neat lines must be removed from the dike foundation, sinks, and crevices by hand, clam shell, or other special means.

d. "Earth Spoil"is defined as excavation which cannot be defined as stripping, "mucking out", or rock and which must be removed to spoil areas. (Also see paragraph E-3g).

e. "Rock Excavation" shall include only rock which cannot be removed without blasting.

The engineer will determine the classification of excavated material as the work progresses and will keep accurate records of quantities of each material encountered in excavation. The records will be maintained in such form that the Contractor can ascertain, at any time, the quantities and classification of the materials which have been excavated.

It should be noted for the Bidder's information that very little, if any, material classified as "rock" can be expected to be encountered on this job.

2. Subsurface Conditions

Logs and records of subsurface investigations performed by the Purchaser's consultants are available for inspection at the Georgia Power Company's General Office, 270 Peachtree St., N.E., Atlanta, Georgia. This information is for estimating purposes only and is not a guarantee of conditions at each location and elevation shown.

3. Excavation Details

a. This item shall include excavation, removal, disposal or placement and compaction of subsurface materials as required by the plans and the Engineer to construct the ash pond dike addition.

b. The Contractor shall excavate to stakes set by the Purchaser, and shall be instructed by the Engineer as to the limits of excavation, slopes, disposal of material and all other features of the excavation. All excavation shall be carried to suitable elevations in accordance with the intent of the design, and all excavation and fill will be approved by the Purchaser's Engineer before final acceptance. No extra payment will be allowed for excavation below elevations or for fill above elevations shown on drawings unless the Engineer considers a change in elevation necessary. If changes in elevations are considered necessary, no increase in unit prices will be allowed.

c. All earthwork, including ramps and access roads, done for the convenience of the Contractor shall be done at the Contractor's expense. Such work will be restored to approximately its original elevation at the Contractor's expense if the Purchaser so directs.

d. The Contractor shall protect and maintain his earthwork and slopes by directing surface water away through the use of berms and ditches and drains above excavated areas and by not weakening slopes with excessive heavy vehicular traffic. He shall at his own expense, repair any damage that might be caused by his failure or negligence in protecting and maintaining his work.

e. The Contractor shall install, at his expense, any drainage piping required because of the Contractor's mode of operation including his ramps, and access roads.

f. The Contractor shall be responsible for, and include in his unit prices, dewatering, where required to maintain temporary excavations or "mucking out" operations prior to their completion and refilling.

g. Borrow excavation will not be a separate pay item. Material required to complete the embankment will be taken from locations shown on the drawings or otherwise designated by the Engineer and shall be paid for as embankment. Material excavated in constructing a berm on the downstream slope of the existing dike shall be used as directed by the Engineer. Material from the berm excavation used in the embankment will be paid for as embankment; material from the berm excavation used in the cofferdam will be paid for as earth spoil.

h. Although it is not contemplated that any rock excavation will be required, unknown subsurface conditions or a change in the plans may necessitate it. If explosives must be used, all blasting operations shall be conducted in strict accordance with existing ordinances and regulations relative to the storage and use of explosives. Blasting shall be done only by experienced men, and extreme care and precautions shall be used to prevent injury or damage to persons, property, or structures. The Contractor shall so regulate the use and placing of explosives as not to unduly disturb or loosen materials outside the lines of the excavation, and the Purchaser will not pay for any material moved or excavated outside these lines unless such excavation is necessary on account of falls or slips not occasioned by the negligence of the Contractor or improper use of explosives. All rock excavation shall be paid for at the unit price shown in the proposal.

A whistle or siren shall be provided by the Contractor, and shall be sounded immediately before blasting. It shall be the Contractor's responsibility to see that all persons and vehicles are cleared from the area where they might be injured or damaged by blastings.

Immediately after blasting, the side slopes of the excavation shall be scaled down, and care shall be taken to remove any loose rock that may have been thrown by the explosion. The side slope shall be checked for any slips that may have taken place and any dislodged material shall be removed.

All rock shall be disposed of on site as directed by the Engineer.

F. Embankment and Fill

1. The Contractor shall prepare the subgrade for embankments. Where required, this includes "mucking out" unsuitable materials and replacement with good material. In all cases, the surface must be plowed, scarified, and finely broken up to a depth of at least six (6) inches. On steep slopes, steps will be cut to prevent sliding. All depressions will be filled and compacted to the level of the surrounding ground. Each lift is to be well mixed either by plowing or harrowing before compaction.

2. Construction and maintenance of a cofferdam for area dewatering will be required to facilitate preparing the subgrade. The design of the cofferdam and adequacy of protection afforded by it shall be the contractor's responsibility; however, the cofferdam must be constructed to a minimum top elevation of 696. An adequate supply of suitable materials from stripping and earth spoil excavation will be available for use in cofferdam construction. The Engineer will determine the location of the downstream toe of the cofferdam.

3. The embankments and fills shall be formed by placing the fill materials in uniform layers not over six (6) inches thick, loose measurement, for one (1) foot beyond the full width of the embankment on each side. Each layer shall be kept level with the necessary grading equipment and shall be compacted with a sheepsfoot roller having six (6) to eight (8) square inches of foot area and a foot pressure of 600 to 800 pounds per square inch. Upon completion of compaction the slopes shall be dressed to the final grade.

   The material is to be compacted only when the moisture content is within the optimum range (water content 19% to 21% by weight). The density of each layer of fill material shall not be less than one hundred percent (100%) of the relative maximum density as determined by the AASHO method T99-49 (Standard Proctor). The Purchaser will run the necessary tests to insure compliance with this portion of the Specifications. When the moisture content is too low, compaction will be permitted if the Contractor sprinkles the layers sufficiently to bring the moisture content within the optimum range. Sprinkling shall be done after deposition, but before compaction. If the moisture content is too high, the Contractor will be permitted to stockpile and aereate the fill material to promote drying to bring it back within the optimum moisture range. This drying must be done prior to placement. The unit price for embankment shall include the cost of compaction of fills and embankments as well as the cost of bringing the material

within the optimum moisture range if required.

4. The joint between the existing fill and the new fill shall be stripped of unsuitable materials as directed by the Engineer before any new fill materials are placed. Bonding between the new and old fill shall be accomplished by means of a six inch by eighteen inch (6"x18") bench cut into the existing fill prior to placement of each lift. Details of this procedure are shown on drawing 10-202-H183. The suitability of the material excavated from these benches for use in the new fill shall be determined by the Engineer.

5. If the construction of embankments or fills is interrupted, the Contractor shall be required to shape and smooth the last layer of fill material placed on the embankment to provide a surface that will shed as much water as possible during the interruption. When the work is resumed, the Contractor shall be required to level, scarify and recompact the last layer of fill material before placing additional layers. The cost of the above work shall be included in the unit price for embankment.

6. The slopes of completed embankments or fills shall be dressed by pulling explosion mats or logs across the surface with equipment operating on top of the embankment or fill. The cost of this work shall be included in the unit price for embankment.

7. After placement and prior to compaction, the soil in each lift shall be inspected for roots and stones six (6) inches or larger in diameter. Any such materials found shall be removed from the embankment prior to compaction.

G. Overflow Structure

In the absence of a slide gate or other drainage device, drainage of the lower end of the pond will be accomplished by puncturing the existing overflow structure. The method of puncturing the overflow structure will be selected by the Contractor, and must be submitted in writing to the Purchaser for approval.

The overflow structure modification will be built as shown on drawing 10-202-H185 and in accordance with specifications set forth on that drawing.

The 36" discharge pipe with antiseepage diaphragm must be placed on a well prepared bed in accordance with Section F-1. Details of this operation are shown on drawing 10-202-H185. It is imperative that compaction standards be maintained adjacent to the 36" discharge pipe. (See Section F-3).

The 24" discharge pipe will be placed as shown on drawing 10-202-H185.

The Contractor will be responsible for placing the 24" pipe through the cofferdam in such a manner as to support any equipment to be used.

H. Slope Protection

1. Upon completion of the embankment, the upstream slope and top will be seeded. The downstream slope will be seeded to the top of riprap.

2. For the embankment, spillway slopes, and spillway floor, hydroseeding methods will be used in accordance with Section 700, Vol. 1, 1966 Edition Standard Specifications, State Highway Department of Georgia. The Contractor will be responsible for maintaining these areas until final acceptance by the Purchaser.

3. The borrow area shall be prepared by harrowing or scarifying the soil, fertilized with 4-12-12 at the rate of 1½ thousand (1500) pounds per acre, and seeded with hulled Bermuda grass at the rate of forty-five (45) pounds per acre uniformly applied. (If planted after September 1, Ky. 31 Fescue grass will be used.)

I. Determination of Quantities

1. The volume of all excavation will be measured in its original location by the Engineer using the method of average end areas.

2. The embankment volume will be measured in its final location by the Engineer using the method of average end areas.

3. The new riprap volume will be measured in its final location by the Engineers.

4. The riprap to be moved from the upstream face to the downstream face will be measured by the Engineer in its original location.

5. The seeded areas and the cleared and grubbed areas, will be measured by the Engineer upon completion.

J. Basis of Payment

1. The unit price to be paid for clearing and grubbing includes all cost of labor, material and tools and equipment required to complete this work as outlined in these Specifications including removal and disposal of material.

2. The unit price to be paid for excavation shall include all costs of labor, material and tools and equipment required for stripping, earth spoil, "mucking" out and rock excavation. Earth spoil is defined as excavation which cannot be defined as stripping, "mucking out", or rock and which must be removed to spoil areas. (Also see paragraph E-3g).

   The unit price for excavation shall include removal of unsuitable material to spoil areas and the dressing of spoil areas to present a neat appearance.

3. The unit price for "mucking out" shall include all unwatering excavation, whether by hand or machine and disposal of excavated materials. Excavation, haul, placement and compaction (whether by hand or machine) of replacement fill will be paid for as embankment.

4. The payment for the cofferdam will include all labor, materials, tools, equipment and supplies necessary for constructing and maintaining the cofferdam, No extra payment will be made for excavation and disposal of material required for cofferdam fill; however, materials to be removed and paid for under other sections may be used for this purpose if suitable.

5. The unit price for embankment shall include all costs of labor, materials, tools, and equipment required for borrow excavating, loading, transporting, dumping, unloading, finishing, surface preparation, conditioning, and compaction in embankments, (Also see paragraph E-3-g).

   Embankment shall consist of all compacted fill volume above the final foundation grade as established by stripping or mucking.

6. The unit prices for seeding shall include all labor, tools, equipment, and supplies necessary to accomplish the work.

7. The unit prices for riprap shall include all labor, tools, equipment, and supplies necessary to accomplish the work.

8. The price for drainage of the lower end of the pond and the price for dewatering shall each include all labor, tools, equipment, and supplies necessary to accomplish the work.

9. The cost of any work described or referred to in the Specifications is to be included in the unit prices for other associated work in the event it is not a separate item in the Proposal Form.

10. The Contractor's attention is specifically invited to Paragraph 44 through 48 in the "General Provisions" which pertain to extra work. Any claims for additional compensation for extra work not established in accordance with the aforementioned paragraphs of the "General Provisions" shall be void.

11. For extra or special work where the Purchaser rents equipment from the Contractor, rental charges shall be based on the charges listed in the following publication:

    Associated Equipment Distributors
    Nationally Averaged Rental Rates
    of Construction Equipment
    19th Edition, 1968

12. The price for building the overflow structure modification shall include all corrugated metal pipe, fittings, connections, concrete, concrete reinforcing steel, other supplies, labor, tools, and equipment necessary to complete the structure as shown on drawing 10-202-H185, including removal of a portion of the existing structure to a location on the plant site as specified by the Engineer and compaction of the fill around the discharge pipe.

G. Payment

1. The Purchaser will prepare a monthly estimate of the quantities and classifications of the work performed by the Contractor during the month to be used as a basis for partial payments. Any variance claimed by the Contractor shall be immediately brought to the attention of the Purchaser for consideration. All quantities and classification of work as determined by the Purchaser shall be considered final and shall be considered to include all work performed during the proceeding month unless the Contractor delivers a written notice, fully describing the alleged errors and omissions to the Purchaser within thirty (30) calender days after the date of any of the Purchaser's disputed estimates. It is the intent of this paragraph to obtain in writing all claims by the Contractor, which may be at variance with the Purchaser's estimate promptly after the work was alleged to have been performed so that full investigation of the facts can be made. Any claims made by the Contractor which are not in accordance with this paragraph will not be allowed.

2. In order to enable the Contractor to carry on the work advantageously, the Purchaser will arrange to make payments to the Contractor as follows:

As soon as possible after the first day of each calendar month, and not later than the 12th day of the month, the Purchaser will make an approximate estimate in writing of the work done and the materials used from the beginning of the work and the value thereof consistent with the Contract prices. Whereupon the Purchaser will pay to the Contractor a sum equal to ninety percent (90%) of such estimate, less any previous payments that may have been made, and the payment will be made to the Contractor on or before the twentieth (20th) day of the month. The remaining ten percent (10%) will be paid after the Contractor has complied with all the terms of the Specifications and Contract Agreement, and the Purchaser has finally accepted the work, but not later than sixty (60) days after the Contractor has completely fulfilled all the requirements of the Specifications and Contract Agreement covering the work.

3. It shall be understood and agreed that the completion of all payments for the work done and materials used, and the Purchaser's final acceptance, shall not relieve the Contractor or the Contractor's surety fron their obligation and responsibilities under the terms of the agreement to fully complete the work in accordance with these Specifications, and to make good any latent defects without additional cost to the Purchaser.