Stivers)

E. F. Thomas, Director of Power Production, 716 EB-C (2)

Roy H. Dunham, Director of Engineering Design, 505 UB-K

October 1, 1974

KINGSTON STEAM PLANT - ANNUAL ASH DISPOSAL AREA INSPECTION

Attached is a report from J. P. Hillier Stivers to Frank D. Stansberry dated September 27, 1974, of the field inspection at Kingston Steam Plant.

Original Signed By
F. P. Lacy

Roy H. Dunham

JPHS:REH
Attachment
CC (Attachment):
R. G. Domer, 104 UB-K
W. W. Engle, 401 UB-K (3)
B. S. Montgomery, 401 AB-K
Power Manager's File, 630 PKB-C

Frank D. Stansberry, Head Civil Engineer (Site Development, Highway, Railroad, and Bridge Design), 101 FB-K

J. P. Hillier Stivers, Civil Engineer (Site Development, Highway, and Railroad Design), 100 FB-K

September 27, 1974

KINGSTON STEAM PLANT - ANNUAL ASH DISPOSAL AREA INSPECTION

On September 17, 1974, Don R. Galloway and I inspected the ash disposal area at Kingston Steam Plant and discussed our findings with Monette L. Butler, Plant Superintendent, and L. B. Kennedy, Assistant Superintendent, Kingston Steam Plant. DPP at Chattanooga was not represented due to conflicting schedules. The inspection was scheduled for September 12, 1974. Meigs Brewer of DPP at Chattanooga met us at Kingston Steam Plant for the scheduled inspection, but due to weather conditions the inspection could not be made at that time. It was decided that DED could make the inspection at a later date without a representative of DPP at Chattanooga being present.

The area was last inspected on September 6, 1973.

On the attached print of drawing 10W400, the different ash disposal areas and dikes are designated.

Change in Dikes Since Last Inspection

All dikes, with the exception of the west dike of the initial area and the south end of dike C, were built with earth and widened with ash. The west dike of the initial area and the south end of dike C were built and widened with ash.

The area of erosion on the outside toe of dike C has been repaired with rockfill; and the slope above the rockfill that was disturbed during the repair operations has been smoothed, and an excellent cover of vegetation established (pictures 1 and 2).

The outside 15± feet of the top of dike C has been raised approximately 1.5 feet with material that was excavated from the foundation area of the new stacks. The material was hauled to the dike in trucks, end dumped, spread with dozers and patrol graders, and equipment compacted. The raising of the outside 15± feet of the top of dike C was done to insure adequate freeboard when the water level inside the disposal area was raised. This material is used for freeboard purposes only and will be only the top of a berm when the dike is raised for additional storage capacity. The raising was agreed to in telephone conservations between DED and the plant.

All dikes are in good condition with no visible signs of instability.

KINGSTON STEAM PLANT - ANNUAL ASH DISPOSAL AREA INSPECTION

Change in Pond Operation Since Last Inspection

There has been no basic change in the method of operation. All ash is sluiced into the initial area. Part of it is picked up with a dragline, allowed to drain, and then dry hauled to the ash disposal area adjacent to and north of the north dike where it is deposited in stages. As each stage reaches the elevation of the top of the north dike, it is covered with earth and seeded.

The ash water, carrying some light ash that was not picked up by the dragline, flows through two plant-constructed spillways and skimmers into the ash disposal area where the rest of the ash settles out. The water then goes into Watts Bar Lake through two standard spillways with standard skimmers. The only changes in operation are (1) the dry-hauled ash is still being used to fill the initial area to make a construction plant area for construction of the new stacks and (2) the spillways of the ash disposal area have been raised with a 2-foot section of pipe to allow more detention time in the pond.

The initial area was constructed when the plant was built, as was the road dike, with dike C being added later to complete the ash disposal area.

Condition of Spillways, Skimmers, and Outlets

The spillways, skimmers, and outlets of the initial area could not be inspected due to their location in the area with no access.

Visual inspection of the skimmers and spillways of the ash disposal area showed them to be in good condition with no evidence of loss of ash into Watts Bar Lake. A 2-foot section of pipe has been added to the spillways raising the water level and allowing more detention time in the pond with the ash settling faster.

The outlets of the ash disposal area spillway pipes were submerged by Watts Bar Lake and could not be inspected.

Action on Recommendation of Last Inspection

1. The toe of the outside slope of dike C where the erosion had taken place has been rebuilt with rockfill as recommended. This should eliminate any further erosion in this area. The dike slope above the rockfill which was disturbed during repair of the toe has been graded smooth, covered with earth where needed, and seeded. An excellent cover of vegetation has been established on the slope including that part of the dike originally built with ash.

2. The trash has been removed from the outside slopes of all dikes.

Frank D. Stansberry
September 27, 1974

KINGSTON STEAM PLANT - ANNUAL ASH DISPOSAL AREA INSPECTION

Recommendations

We have no recommendations for corrective work as a result of this inspection.

J. P. Hillier Stivers

JPHS:BLH
Attachments

Concur: Original Signed By
F. D. Stansberry
Frank D. Stansberry

Original Signed By
W. W. Engle
W. W. Engle

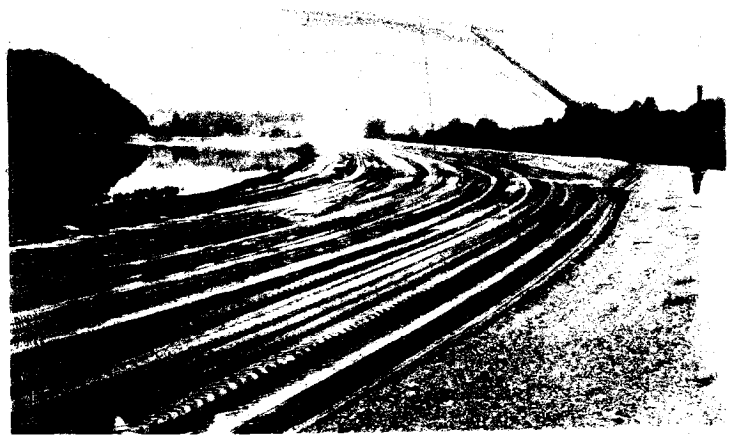
9/27/74--FDS:BLH
CC: W. W. Engle, 401 UB-K (Attachments)

9/30/74--WWE:NCH
CC (Attachments):
R. G. Domer, 104 UB-K
Roy H. Dunham, 505 UB-K
B. S. Montgomery, 401 AB-K

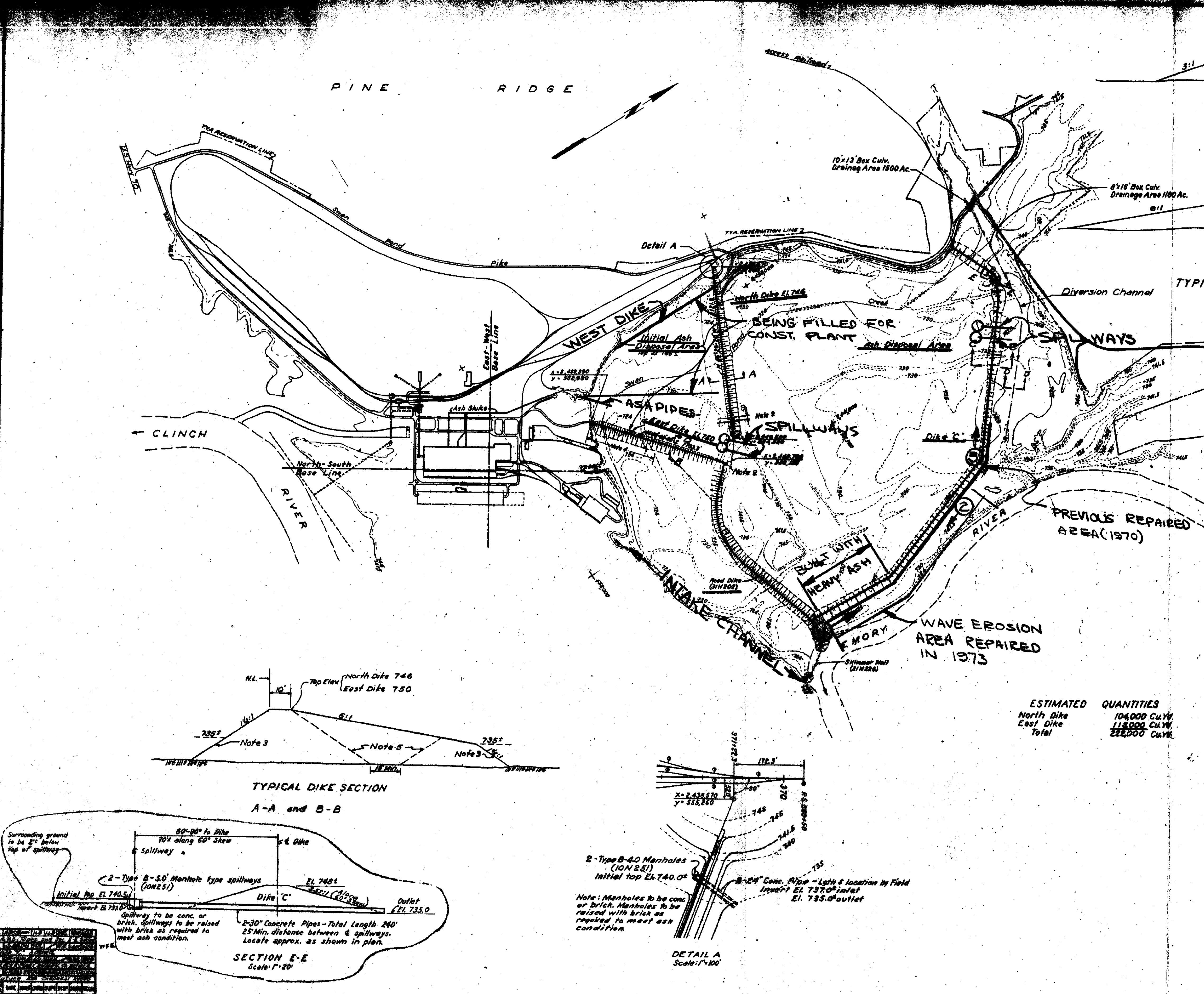
KINGSTON STEAM PLANT
1974

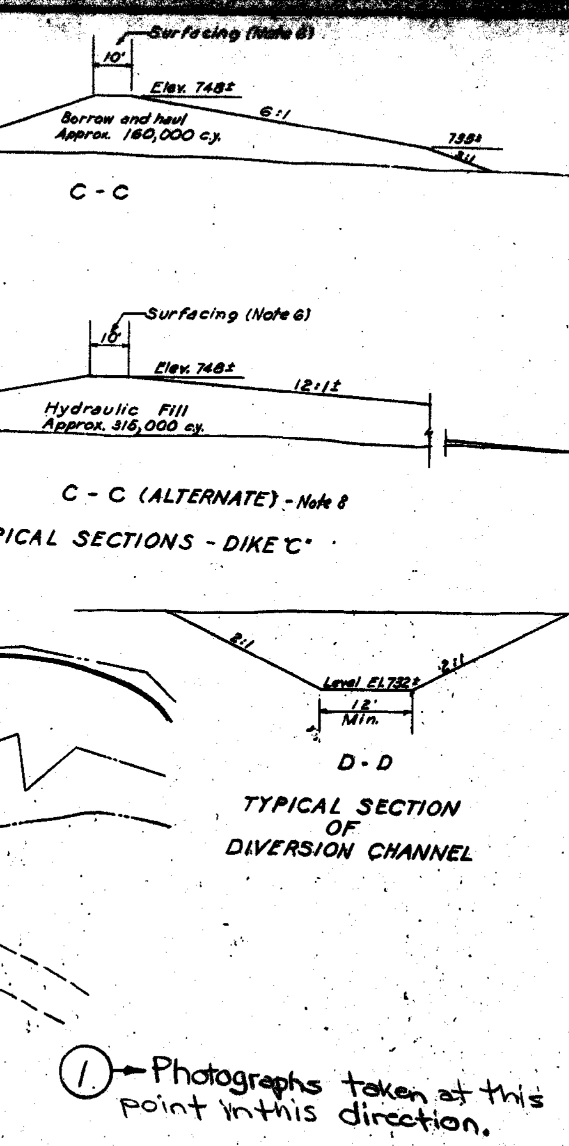
(1.) DIKE "C" SHOWING SOUTH END OF EROSION AREA REPAIRED WITH RIPRAP. (ARROW) NOTE THE GOOD VEGETATION.

(2.) DIKE "C" SHOWING NORTH END OF EROSION AREA REPAIRED WITH RIPRAP. AGAIN NOTE GOOD VEGETATION ON SLOPE.



(3.) DIKE "C" SHOWING OUTSIDE 15'± RAISED TO INSURE ADAQUATE FREEBOARD. (ARROW) AND INSIDE WIDENED WITH ASH.


PINE RIDGE
TVA RESERVATION LINE
U.S. Hwy 70
Swan Pond Pike
Access Railroad
10'x13' Box Culv. Drainage Area 1500 Ac.
8'x16' Box Culv. Drainage Area 1100 Ac.
TVA RESERVATION LINE 2
Detail A
North Dike EL 746
WEST DIKE
Initial Ash Disposal Area
BEING FILLED FOR CONST. PLANT
Ash Disposal Area
Diversion Channel
SPILLWAYS
ASH PIPES
East Dike EL 750
Dike "C"
CLINCH
RIVER
North-South Base Line
East-West Base Line
Ash Sluice
BUILT WITH HEAVY ASH
INTAKE CHANNEL
EMORY
RIVER
PREVIOUS REPAIRED AREA (1970)
WAVE EROSION AREA REPAIRED IN 1973
ESTIMATED QUANTITIES
North Dike 104,000 Cu.Yd.
East Dike 118,000 Cu.Yd.
Total 222,000 Cu.Yd.
Top Elev. North Dike 746 East Dike 750
Note 3
Note 5
TYPICAL DIKE SECTION
A-A and B-B
2 - Type B-5.0' Manhole type spillways (10N251)
Dike 'C'
Outlet El. 735.0
2-30" Concrete Pipes - Total Length 240'
25' Min. distance between ℄ spillways.
Locate approx. as shown in plan.
Spillway to be conc. or brick. Spillways to be raised with brick as required to meet ash condition.
SECTION E-E
Scale: 1"=20'
2 - Type B-4.0 Manholes (10N251)
Initial top El. 740.0
Note: Manholes to be conc. or brick. Manholes to be raised with brick as required to meet ash condition.
B-24" Conc. Pipe - Lgth & location by Field
Invert El. 737.0 inlet
El. 735.0 outlet
DETAIL A
Scale: 1"=100'



(1) → Photographs taken at this point in this direction.

NOTES:-

1- The dikes are to be constructed of unclassified excavation.
2- The island between the east ends of the dikes, is to be raised and widened, if necessary to provide minimum width of 10 feet and minimum elevation of 750.
3- The embankment slopes below elevation 735± are to be the angle of repose of the submerged fill material.
4- Special care is to be taken to select firm shale material to be placed below the water level, at the location indicated, so that slope will not extend into the area of the intake channel.
5- Insofar as it is feasible and practical, the core of the east dike, as indicated, should be constructed of earth and fine material to provide a relatively impervious dam.
6- Top of Dike "C" to be surfaced with slag and ashes, 6" compacted thickness.
7- Quantities shown for Dike C are net fill for section shown and do not include shrinkage etc.
8- Section C-C is the minimum section to be used. The slopes shown for the hydraulic fill section are assumed and may be steeper if material can be placed on steeper slopes.
9- Remove existing dike for minimum width of 50 ft. and to elevation 742 or lower after Dike "C" has been completed to at least elevation 745.

Scale: 1"=500' except as noted

GENERAL

ASH DISPOSAL AREA

KINGSTON STEAM PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF DESIGN

SUBMITTED	RECOMMENDED	APPROVED
[signature]	[signature]	[signature]