March 29, 2006

Michael T. Beckham, Plant Manager
KFP 1A-KST

KINGSTON FOSSIL PLANT - ANNUAL ASH POND DIKE STABILITY INSPECTION

Attached is the latest dike stability inspection for your plant. The report was prepared by Michael S. Hughes of Civil Engineering. Mike performed the dike stability inspection on October 19, 2005. The report includes recommendations for repairs and corrective actions. I concur with those recommendations.

If you have questions of comments, please call Mike Hughes at (423) 751-2783.

Dennis Lundy, Manager
Engineering Design Services
LP 2G-C

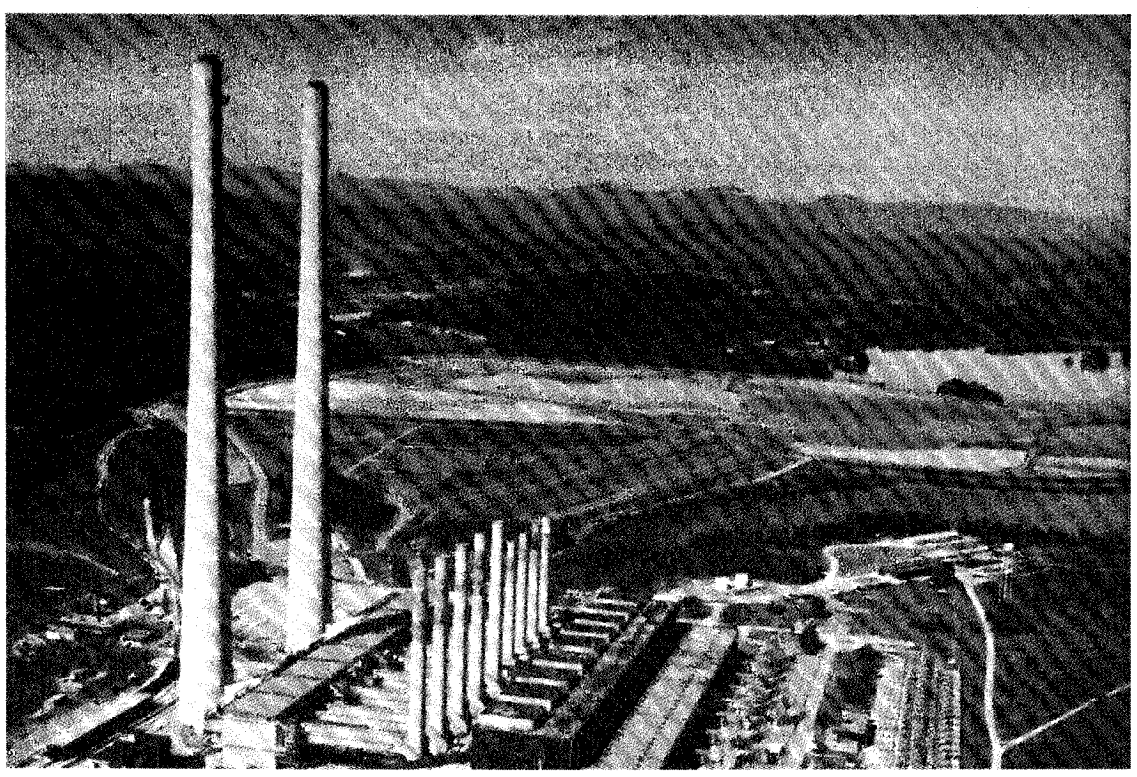
JLG: REP: JGA
Attachment

cc (w/attachment):
Linda F. Campbell, KFP 1A-KST
James H. Catlett, KFP 1A-KST
Marvin Cones, Dam Safety Files, LP 1H-C
Randy Johnson, LP 2L-C
B. Clark Morris, LP 5E-C
Mike Davis, LP 5E-C
Garry MacDonald, LP 5E-C
EDMS, EDMSVC

TENNESSEE VALLEY AUTHORITY

KINGSTON FOSSIL PLANT

ANNUAL ASH POND DIKE STABILITY INSPECTION



Prepared by: Michael S. Hughes, P.E.
Date: March 29, 2006

General

The waste disposal areas at Kingston Fossil Plant were inspected for dike structural stability on October 19, 2005. The inspection was performed by Mike Hughes of TVA Engineering Design Services, Civil Engineering.

The previous annual inspection was performed on October 27, 2004.

The results of the annual stability inspection are listed below according to location within the ash disposal area.

Active Ash Disposal Area

Plant operations continue to manage this area the same as during the last inspection except as noted. Bottom ash is sluiced into a channel southwest of the disposal area where it settles out and is removed by drag line, approximately once a week, to be used for dike construction (see Picture1). Fly ash is sluiced into a channel northwest of the bottom ash channel. Both channels flow northeast into the active ash pond where the fly ash settles out and accumulates.

Prior to November 2003 the fly ash was periodically dredged into one of three raised dredge cells located in the western portion of the disposal area. The dikes of these cells were raised using fly ash and bottom ash to provide more capacity for dredged fly ash as needed. In November 2003 dredging operations ceased because of a leak in the toe of the dike slope for Dredge Cells 2/3. At that time, ash was removed from the pond with track hoes and hauled to the interim dredge cell where it was unloaded and used to construct the next lift for the Phase I dredge cell. The interim Phase I dredge cell has been brought progressively up with dikes and dredging through 2004 and 2005. Material was brought from Dredge Cell 3 by scraper to the tops of the dikes (see Pictures 2 and 3). Currently, dredged ash flows into the cell at the north end of the cell (see Picture 4), and water flows out at the southern end through a spillway to the active ash pond (see Picture 5).

The sluice water flows from the active ash pond into the stilling pool through the five (5) new spillways constructed in 2005 (see Picture 8). The old plant constructed spillways (Kennedy weir and spillway, see Picture 9) were taken out of operation in 2005 as part a project to replace the Kennedy weir and allow more accurate accounting of free water volume. From the stilling pool, the water discharges into the plant intake channel via six standard spillways. Construction of new discharge diffusers was completed in November 2003. At the time of the inspection, five of the six discharge diffusers were operating (Photos 10 and 11).

All exterior dike slopes around this area appeared to be in sound condition with excellent vegetative cover (see Picture 12). The dikes were in need of mowing. Small trees had grown to a height of 3 to 5 feet in some places. These trees should be pulled up and the area reseeded. Presently the dikes are mowed only once a year.

The divider dike between the active pond and the stilling pool had some areas of erosion and gullies, but appeared stable otherwise. The divider dike on the ash pond side needs mowing and some small trees pulled up (see Pictures 13 and 14). These areas of the dikes at the new spillway construction should have rip-rap placed to minimize erosion from potential wave action.

All dike roads were in good condition with a good ash or crushed stone surface.

The ash team blitz inspection during the week of January 19th, 2004 revealed several areas of seepage along the toe of Dike C and below the toe of the dike along the intake channel. These seepage areas were not in evidence during this inspection.

Dredge Cells

The top-of-dikes elevation is 811 feet. In order to repair the previously reported leakage, the Dredge Cell Restoration Project was undertaken. In late 2004, design was started on the Dredge Cell Restoration Project. Construction started during the summer of 2005 and was accomplished in the manner cited below. This Project involved placing underdrains at the lower two bench levels to relieve pressure caused by the phreatic water surface in the slopes and installing rip-rap ditches and a pump station to send the water to the ash pond (see Pictures 6 and 7).

A 6 feet deep trench drain was installed in the 795 elevation bench, and 5 feet deep trench drains were installed in the 781 and 775 benches. A buttress toe drain was installed and a rip-rap channel was installed at the toe drain. Each trench drain was installed in a one-and-a-half feet wide trench. Filter fabric was placed in the trench, followed by a 6-inch perforated pipe surrounded by an open graded limestone. The filter fabric was then folded back in the trench creating a drainage envelope. The remainder of the trench was backfilled with ash material removed for the excavation.

The existing one foot intermediatesoil cover was removed from the dikes between elevations 775 and 760 and stockpiled for reuse as random fill vegetative layer for cover. A non-woven geo-composite drainage layer was placed on the exposed ash and then recovered with one foot of soil.

The rip-rap channel along Swan Pond Road and the toe of the dike has a high point approximately 400 feet north of the intersection with the plant access road. North of the high point, the runoff and leachate drain into a new sump pond (see again Pictures 6 and 7). South of the high point, runoff and leachate runs south and east to the ash pond. The sump pond leachate is pumped to the ash pond. The pumps were relocated from the ditch along Swan Pond Road to the new location in the pond. The pumps are electric powered with high water level alarm indicators at the control panel. The pond is sized to contain a 25 year storm event, and emergency overflow is to Swan Pond Embayment.

This Project was completed in October 2005 and has been Returned To Operation (RTO).

As of this writing, all banks have been covered and seeded and the dredge cell has been returned to operation. Dredged ash has been diverted away from the interim Phase I dredge cell and directed to Dredge Cell 3 or Dredge Cell 2.

Plant operations continue to do a commendable job of mowing the dredge cell slopes. A few small trees are growing on the slopes. They should be pulled or kept mowed to prevent further growth.

Chemical Treatment Ponds

The chemical treatment ponds are located southwest of the active ash pond. Both ponds were excavated and have no exterior slopes. The internal dike slopes are covered with riprap. These slopes were in good condition. Sediment in the ponds was tested in FY 2004 and found to be

non-hazardous.

Coal Yard Drainage Basin

The coal yard drainage basin is located at the southwest corner of the coal pile. This basin was excavated below grade; therefore, there are no exterior dikes. The interior slopes appeared to be in satisfactory condition. Normal discharge from this basin is pumped into the fly ash discharge ditch and flows to the active ash disposal area. At the time of inspection, water in the pond was at a low level, about 6" below the first pump start switch and the platform was grounded (see Picture 15). The basin was sounded at 5 places and the depths are indicated on the attachment API 2006-2. This indicates the sediment in the bottom is taking more than 50 percent of the basin's storage capacity. This represents a 1.67 feet increase in sediment depth since the last inspection. The basin was dredged just over three years ago, but it is recommended that dredging the basin occur annually. The bottom of the pond should be no higher than elevation 745 at the pump platform. Elevation 745 allows 2 feet of clearance below the pump intakes to prevent the pumps from pumping solids; the elevations indicate the pumps have been pumping solids for some time. In addition, the "V-shaped" pond extensions added during the summer of 2001 to increase the pond storage volume contained coal yard sediment (see Picture16). TVA drawing 10W225-2 (attached as API 2006-2) shows the pond and its intended bottom contours.

We understand that others are taking a more precise survey of the Coal Yard Drainage Basin to more accurately assess the situation. these spot elevations indicate a need for dredging.

Engineered Redwater Wetland

The engineered wetland along the southwest dike receives seepage that collects in the anoxic limestone drain below the bottom ash trench. The wetland appeared to be functioning, at least partially, though the discharged is still pumped to the ash pond (see Picture 17).

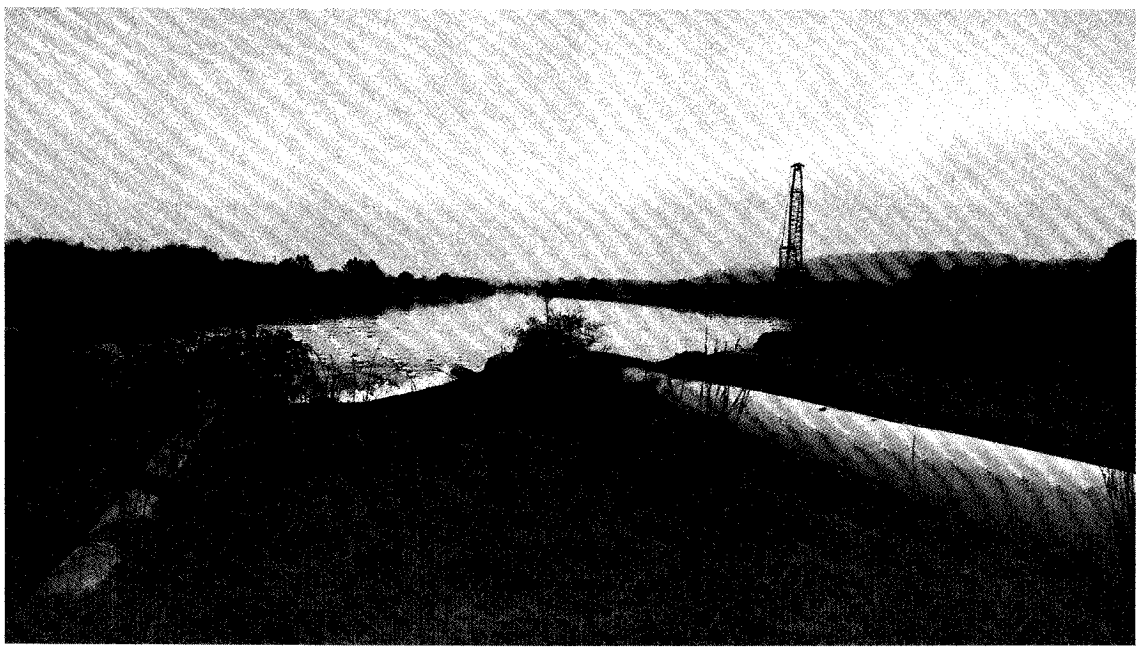
Actions on Recommendations of Last Inspection

- Sparsely vegetated areas on the dike slopes have been reseeded and appear to be in good condition.
- The ruts in the roads have been repaired and all roads are in good shape with good surfaces of compacted ash or limestone.
- Trees have not been removed from Dike C as per the FY 2005 inspection report.

Recommendations

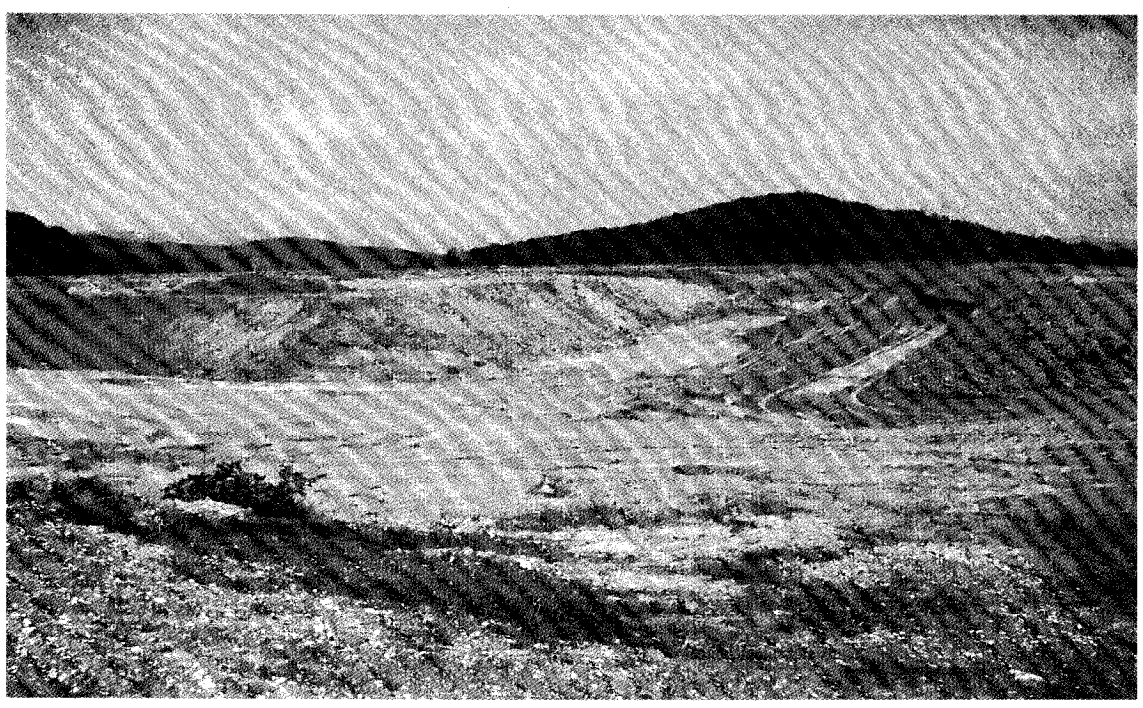
- The divider dike between the ash pond and the stilling pool shows signs of erosion on the ash pond side. These slopes should be rip-rapped to stabilize.
- Trees on the divider dike on the ash pond side and the stilling pool side should be mowed or pulled up and the area repaired and reseeded.
- Dredge cell drainage ditches should be kept free of cattails. Any existing cattails should be cut.

- Remove trees from the slope of the stilling pool dike. At this point, the trees are small enough to be mowed. Mowing at least twice a year is recommended to control the size of the trees. Preventing the trees from getting larger than 1" in diameter at the ground is preferred. Any trees larger than 3" in diameter at the base must be pulled from the dikes, roots and all. Repair and reseed the area the tree was removed from.
- Remove trees from Dike C as reported in the FY 2005 report.
- Plant personnel should continue monitoring the limestone drain area and all exterior dike slopes for seepages, soft wet spots, animal burrowing, sloughing, etc., and notify Lynn Petty of FPG Engineering Design Services., 423-751-6704 of any changes.
- Dredge the Coal Yard Drainage Basin to restore its design contours and protect the pumps from further damage. There is an estimated 2,800 cubic yards of sediment in the original pond and an extra 3,400 cubic yards in the "V" section that needs to be removed as soon as reasonable. See the attached copy of 10W225-2.

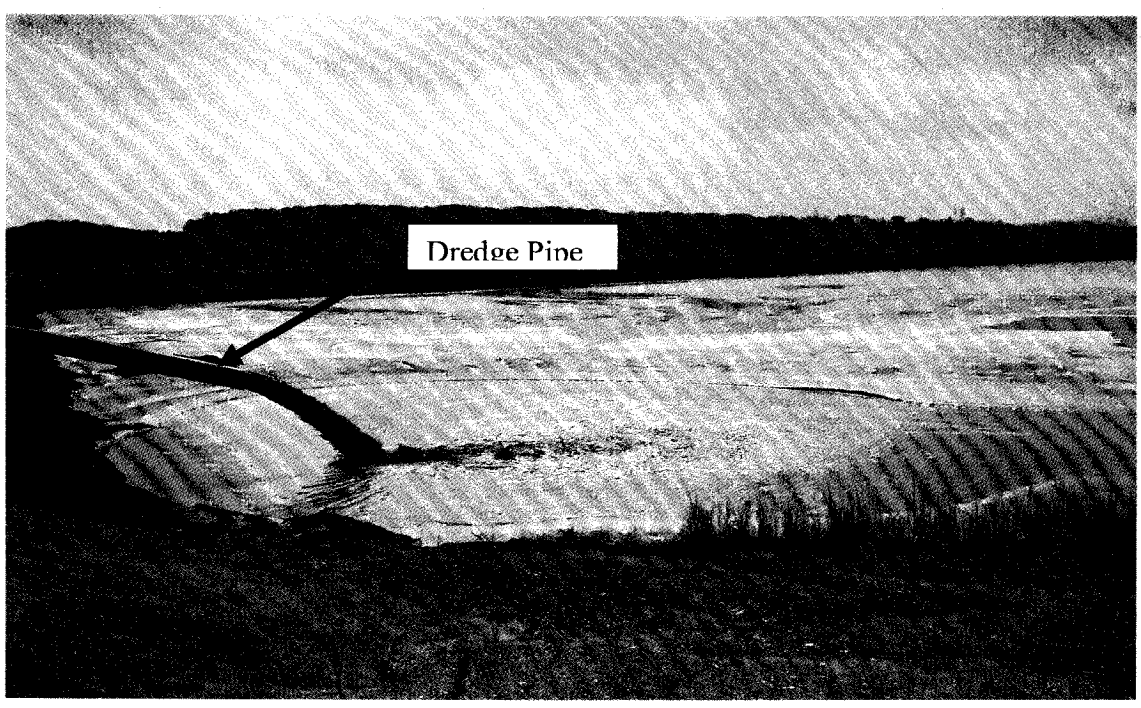


Picture 1: Sluice Channel and Drag Line

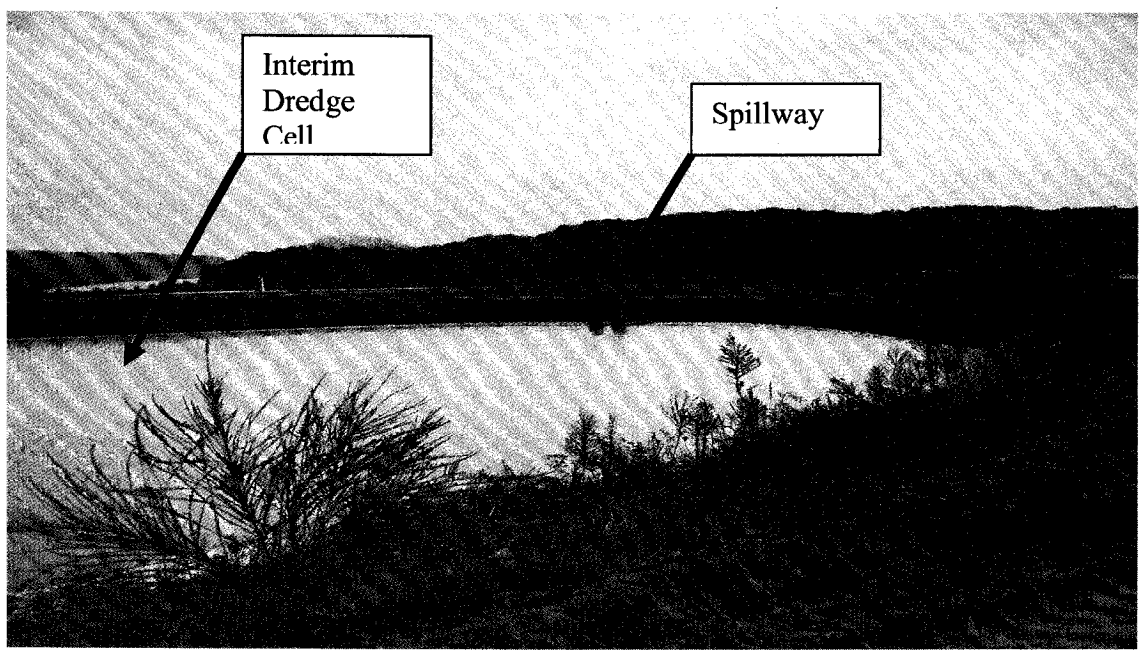
Picture 2: Material removed from Dredge Cell #3



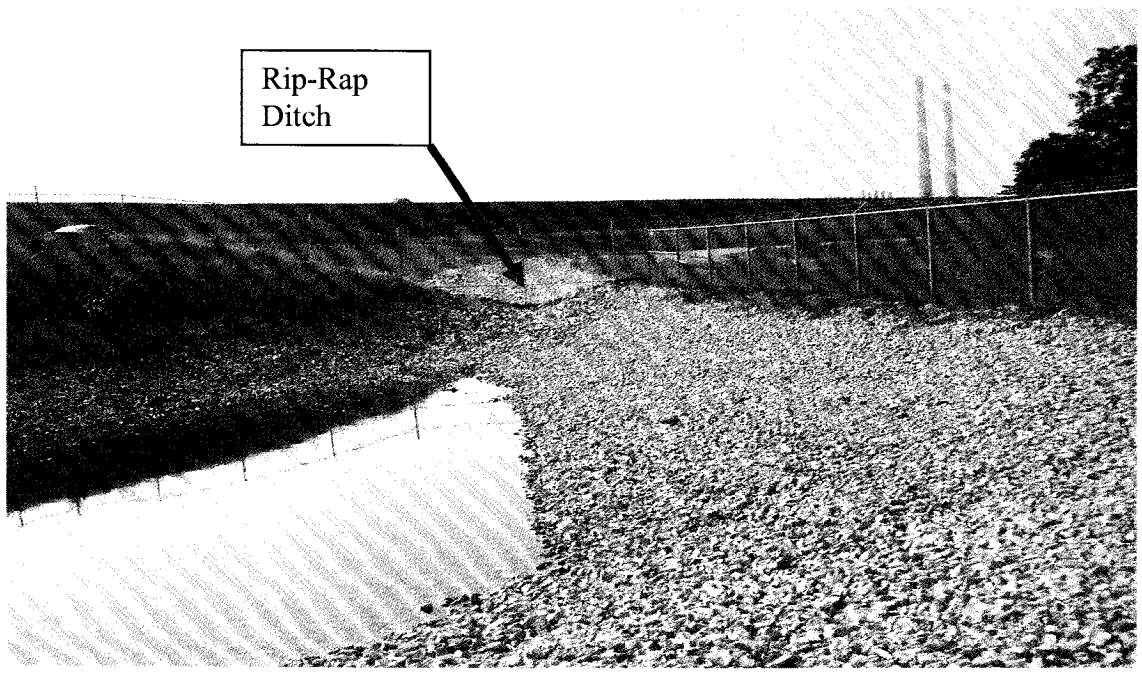
Picture 3: Material removed from Dredge Cell #3



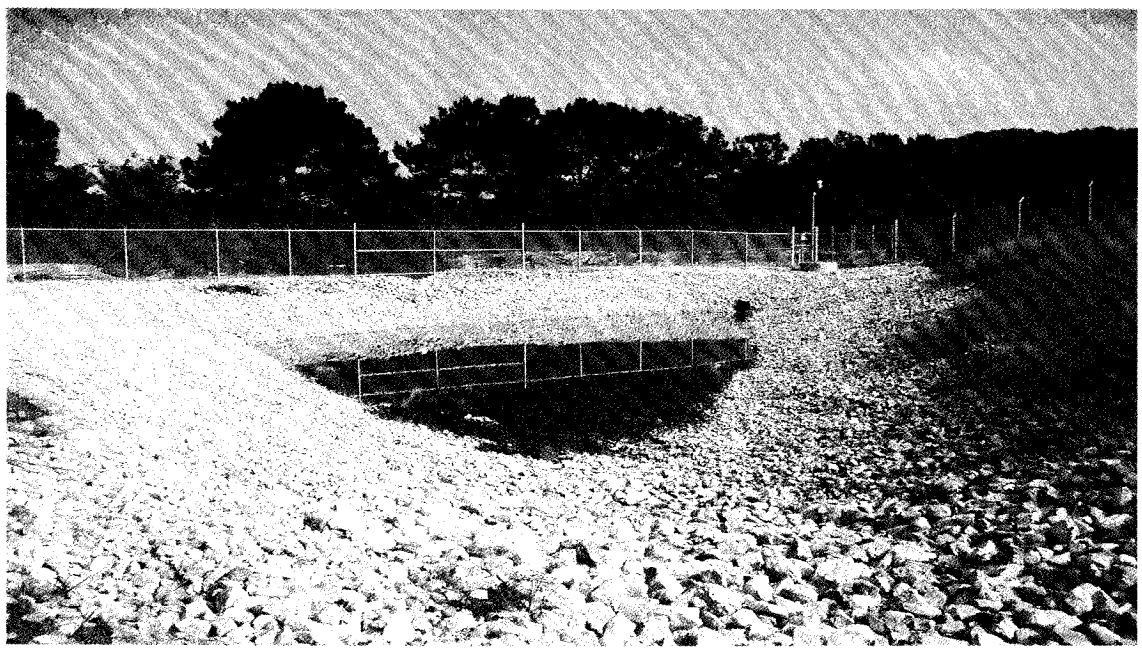
Picture 4: Dredge Line to interim dredge cell



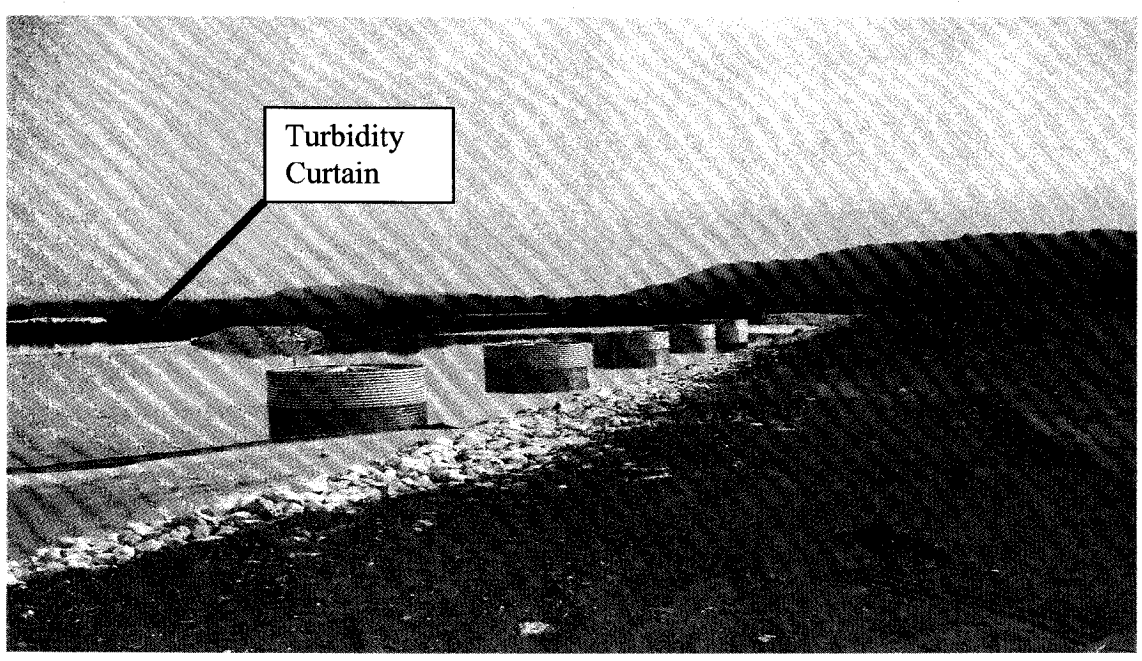
Picture 5: Spillway from interim dredge cell



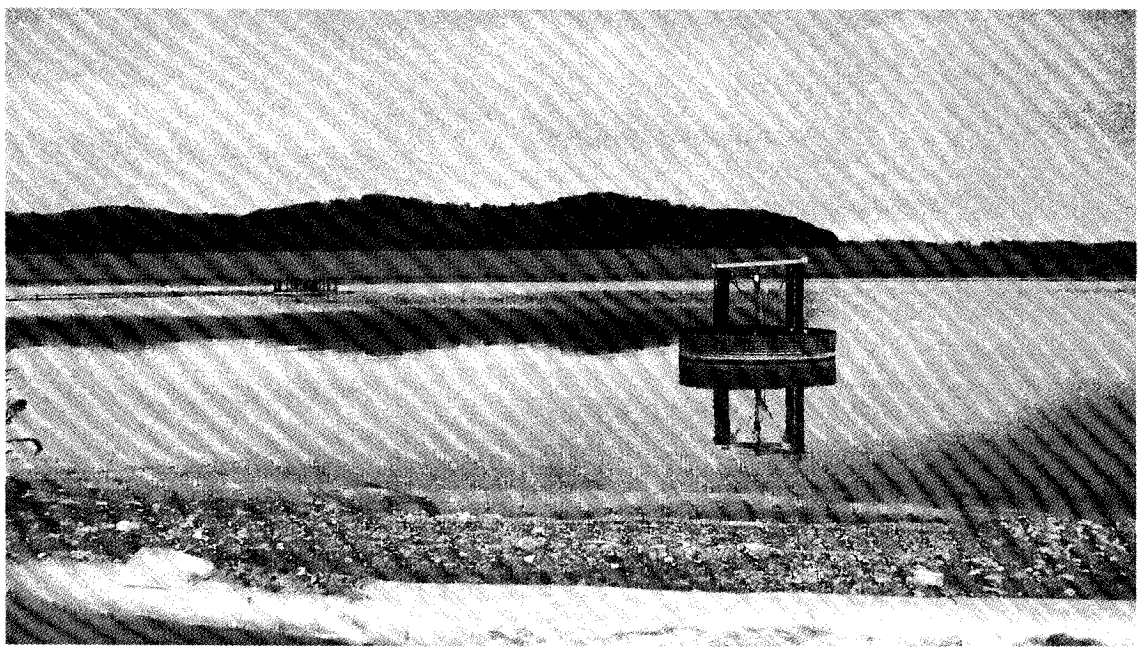
Picture 6: Rip-rap ditch along Swan Pond Road, sump pond in foreground



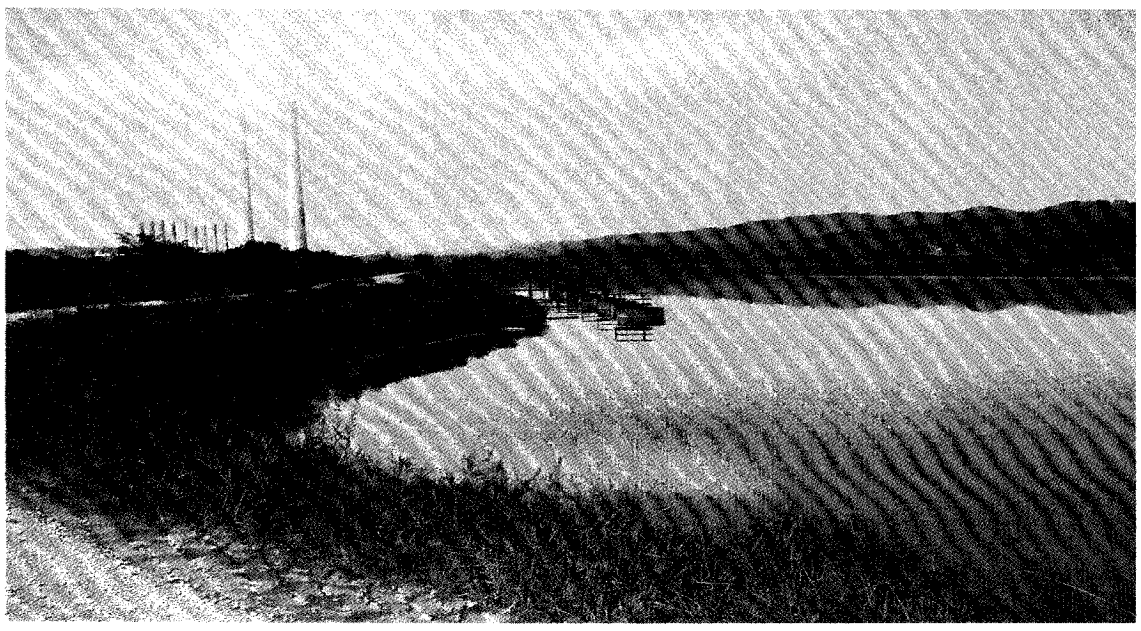
Picture 7: New pump station and detention pond



Picture 8: New spillways, note turbidity curtain at opening to the left

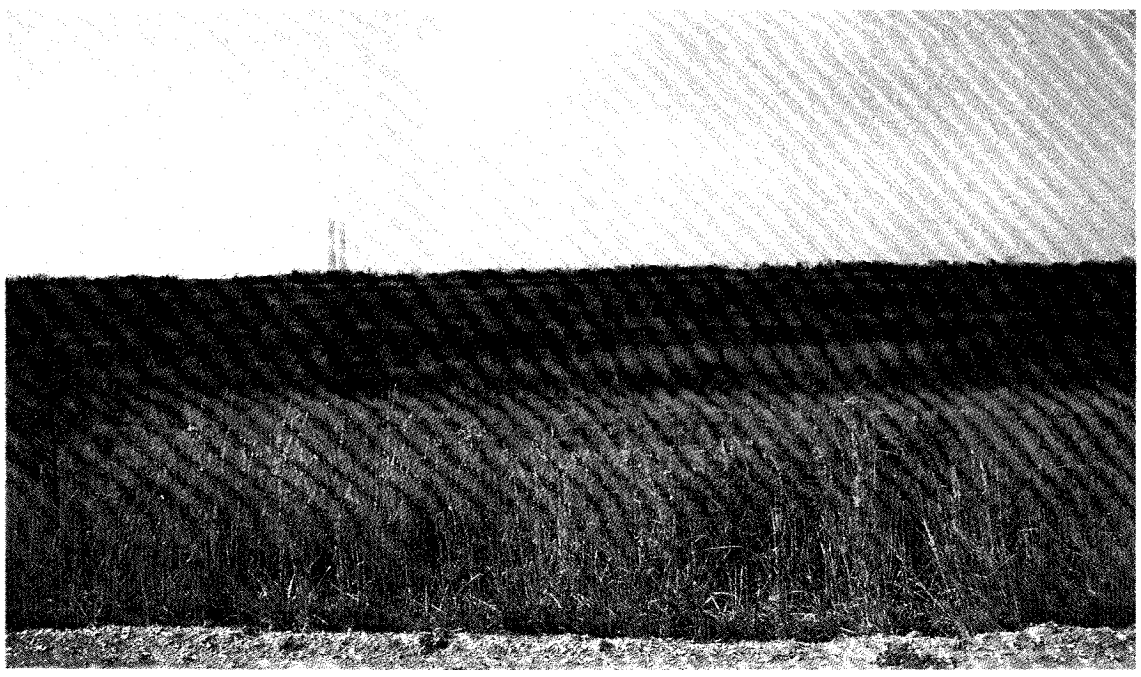


Picture 9: Old Kennedy Weir in background, old spillway in foreground
(Both now removed, out of Service)

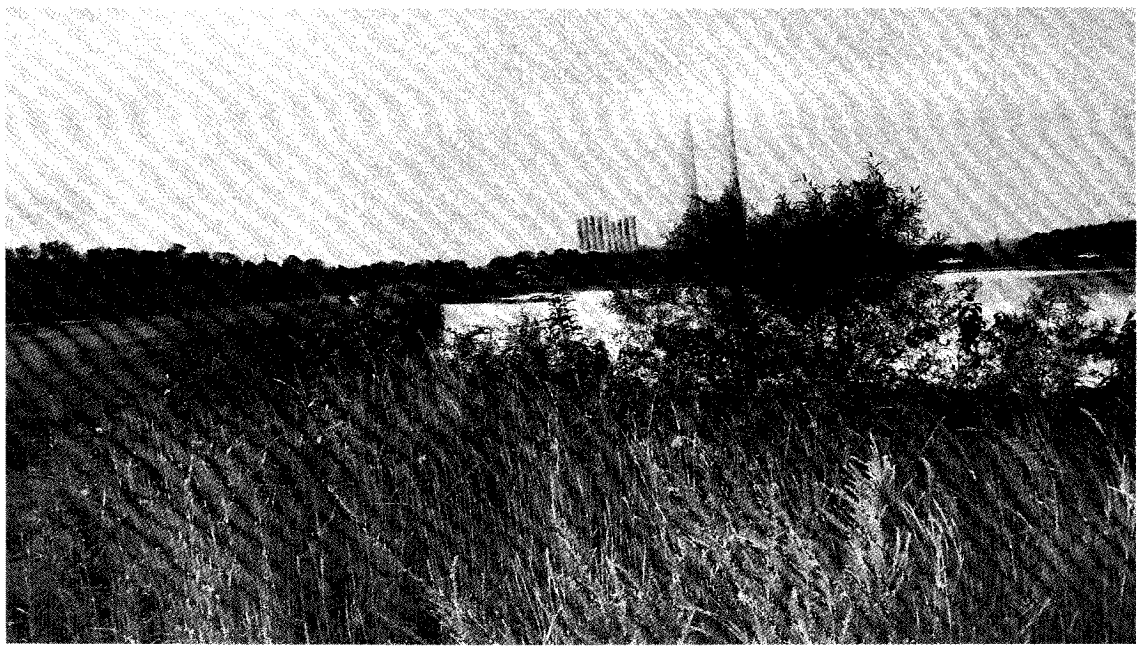


Picture 10: Spillways from stilling pond

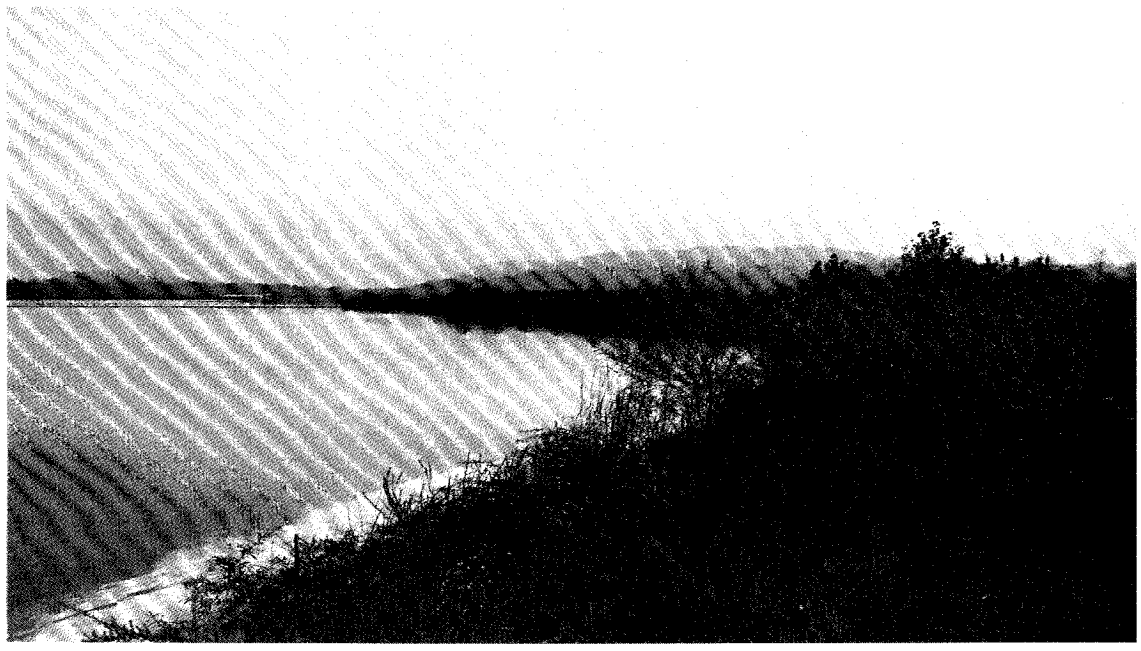
Picture 11: Discharge lines from stilling pond



Picture 12: Typical vegetated banks outside dredge cells

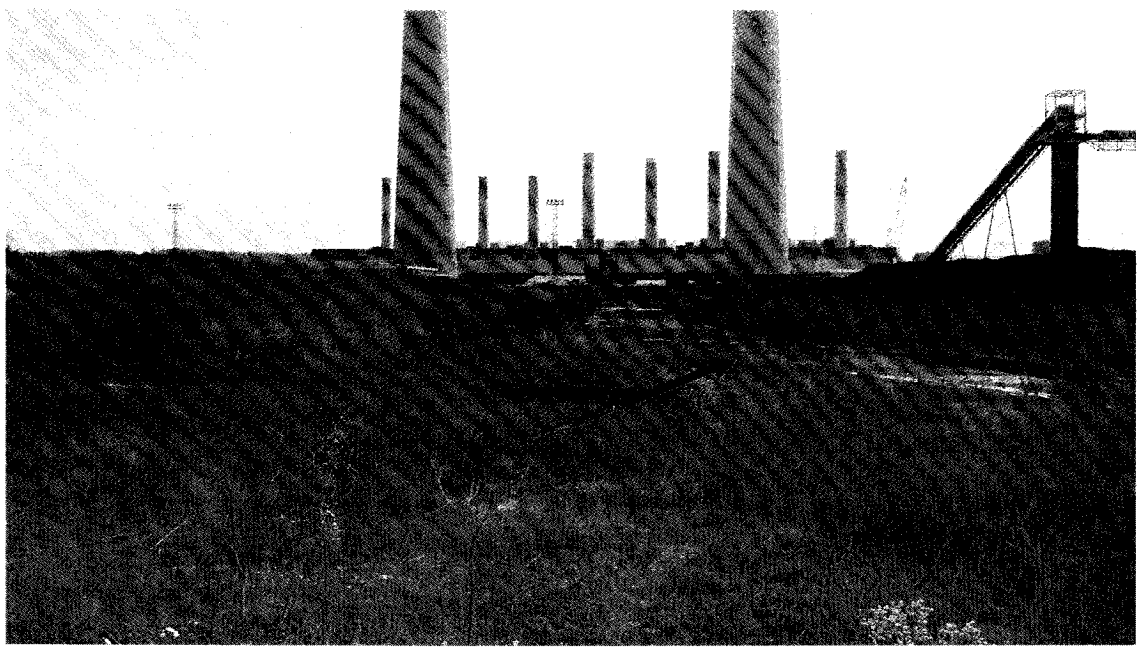


Picture 13: Vegetation in divider dike (ash pond side), note small trees in dike

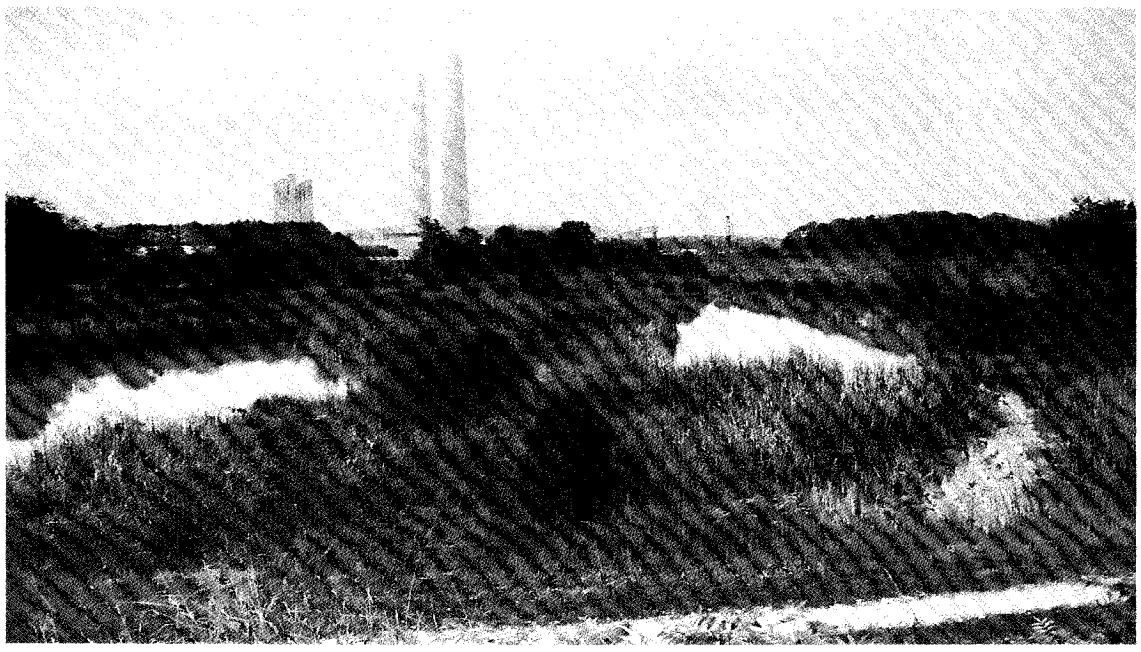


Picture 14: More vegetation in divider dike (looking east)

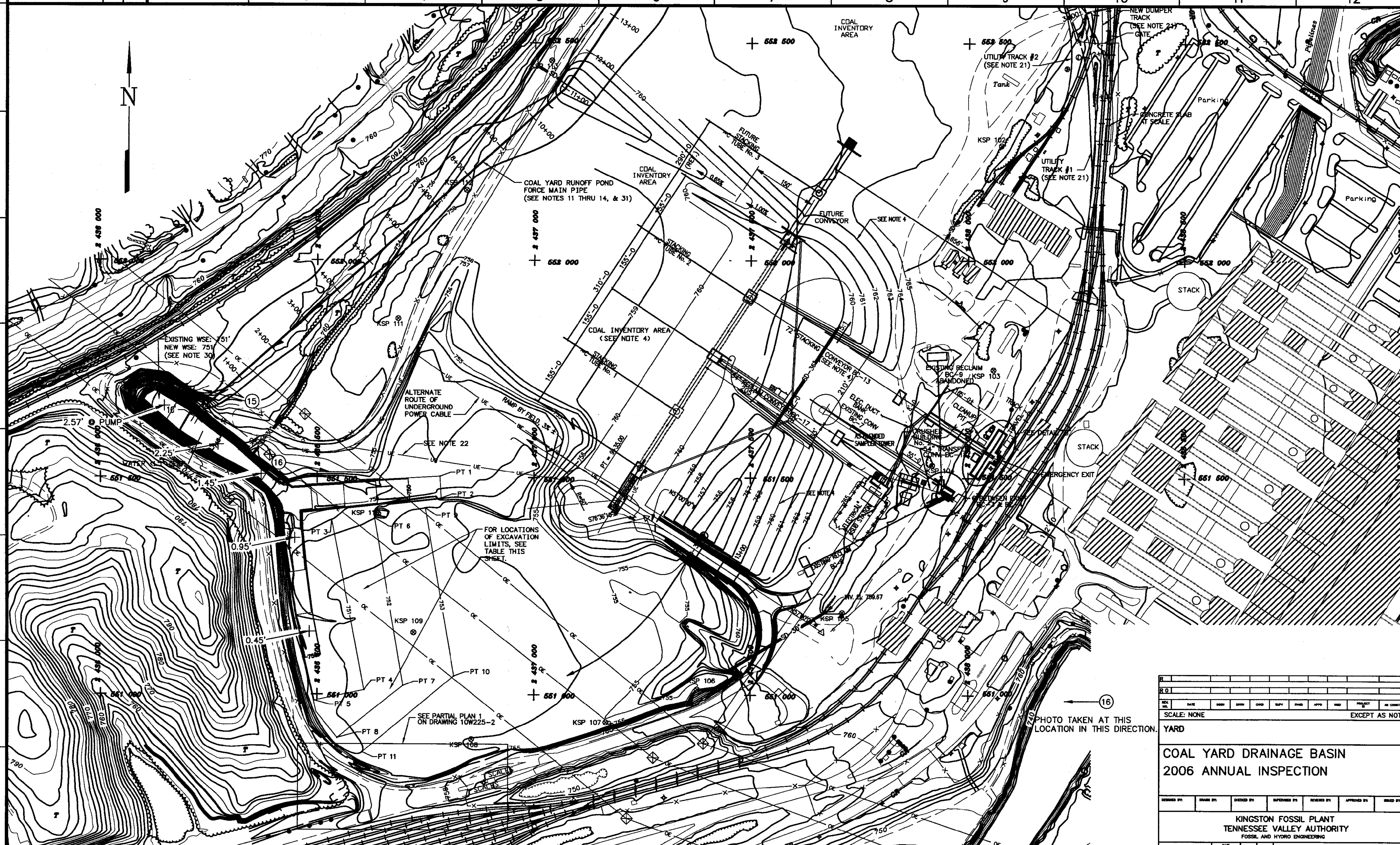
Picture 15: Floating Pump platform at coal yard drainage basin (grounded)



Picture 16: Coal yard runoff channel, note the sediment



Picture 17: Engineered Redwater Wetland



SCALE: NONE EXCEPT AS NOTED

YARD

COAL YARD DRAINAGE BASIN
2006 ANNUAL INSPECTION

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

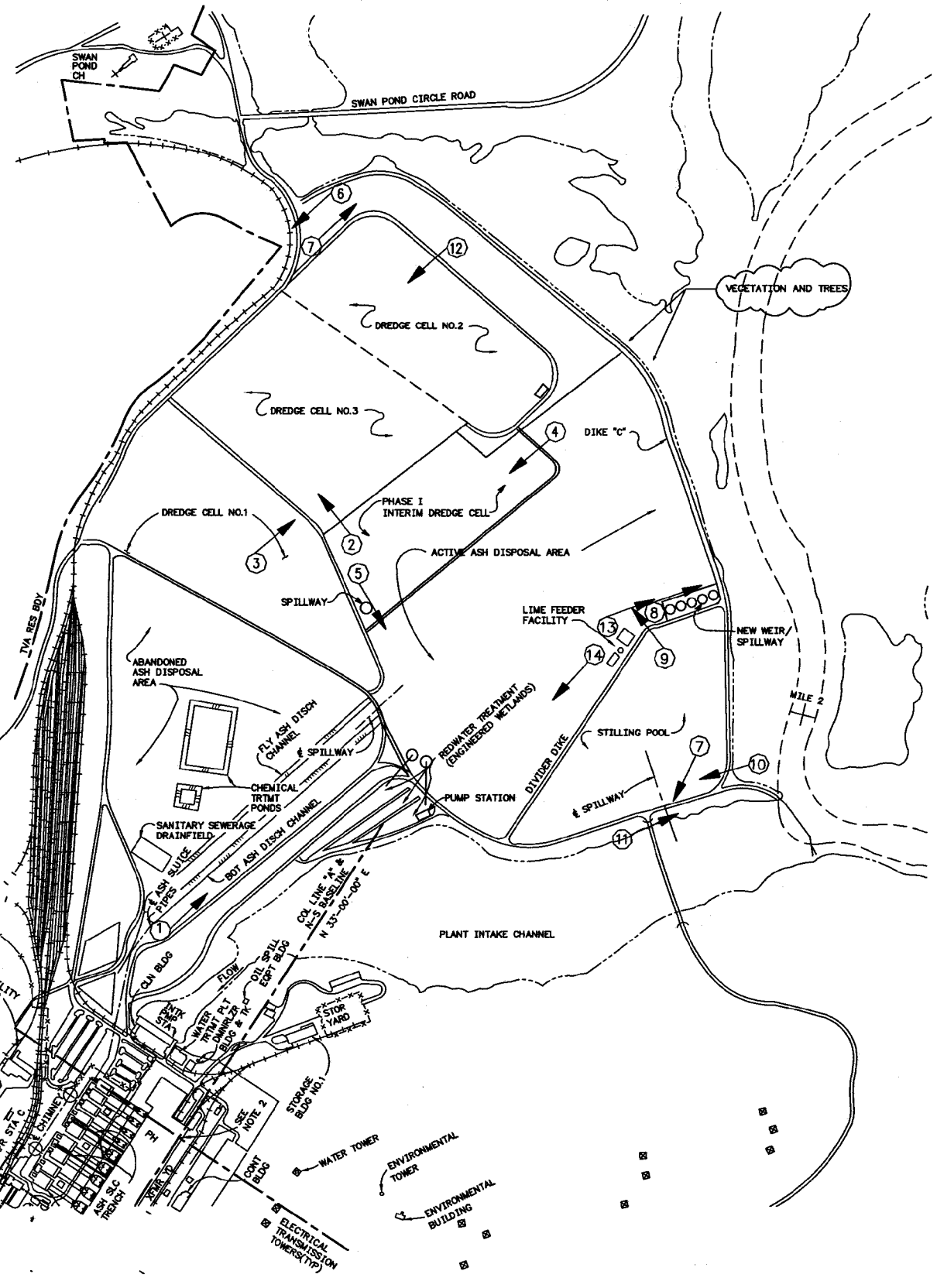
AUTOCAD R00 | 36 | C | API 2006-2 | R 0

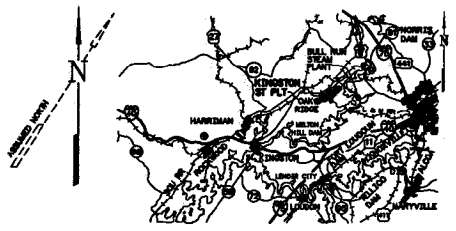
PLOT FACTOR:1
W-SIZE

C.A.D. DRAWING
DO NOT ALTER MANUALLY

TASK COMPLETED BY: REV NO.

36 C API 2006-2





LOCALITY MAP

NOTES:

1. TOPOGRAPHY TRACED FROM KELSH PLOTTED FROM APRIL 1974 AERIAL PHOTOGRAPHS AND FROM USGS 7.5 MINUTE QUADRANGLE CHARLESTON, TN 123-NE AND LOUDON CITY, TN 136-SE) ENLARGED. CONTOUR INTERVAL SHOWN IS 10 FEET.
2. THE TENNESSEE STATE COORDINATES AT THE INTERSECTION OF SHE N-S AND E-W BASELINES ARE NORTH 805,854.16 AND EAST 2,436,236.03.
3. FOR PROPOSED AND TEMPORARY FEATURES SEE DWG 10E300-01.

PHOTO TAKEN AT THIS LOCATION IN THIS DIRECTION.

TOPOGRAPHY TRACED BY M.P. TERMON 1/30/1998

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R		JLG	TMJ	JGA	HLP	REP		JGA	
ELECTRONICALLY RESTORED DRAWING									
REV NO.	DATE	DRBN	DRBN	CHKD	SUPV	RVWD	APPD	ISSD	PROJECT #	AS CONST

SCALE: NONE — EXCEPT AS NOTED

YARD

ASH DISPOSAL AREA
2006 ANNUAL INSPECTION

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:

KINGSTON FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14	DATE 04/28/81	36	C	API 2006	R

TASK COMPLETED BY: | REV NO.

PLOT FACTOR: 4800 W-TVA

C.A.D. DRAWING DO NOT ALTER MANUALLY

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