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

(i) Site Name and Ownership Information:

Site Name: E.C. Gaston Steam Plant

Site Location: Wilsonville, Alabama
Site Address: 31972 Highway 25
Wilsonville, Alabama 35186

Owner: Alabama Power Company
Owner Address: 600 North 18th Street
Birmingham, AL 35203

CCR Impoundment Name: Plant Gaston Ash Pond
NID ID: N/A

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) CCR Unit Location Map:

33°14'02"N, 86°28'22"W
See Location Map in the Appendix

(iii) Purpose of CCR Impoundment: The E.C. Gaston Steam Plant is a 5 unit electric generating facility; Units 1-4 were originally coal-fired units but are were recently converted to gas–fired units with the ability to be coal-fired, while Unit 5 remains a coal-fired only. The Plant Gaston Ash Pond is designed to receive and store coal combustion residuals produced during the electric generating process at Plant Gaston, along with low-volume wastes and stormwater sump flows from the plant.

(iv) Watershed Description: Plant Gaston is located within both the Lower Yellowleaf Creek HUC-12 watershed which has a total area of 29,120 acres and the Hay Spring Branch HUC-12 watershed which has a total area of 27,197 acres. The ash pond unit is located entirely within the Hay Spring Branch watershed. Both the Lower Yellowleaf Creek and Hay Spring Branch watersheds are located within within the Lower Coosa HUC-8 watershed which has a drainage area of 1,255,891 acres. Only a relatively nominal portion of flow from the surrounding watershed flows into the pond.

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

The foundation soils beneath the impoundment are comprised of residuum of dolomite, limestone and shale, typically classified as highly plastic clays and silty clays. Bedded chert and chert boulders are encountered in some areas. Based on borings conducted prior to construction of the impoundment, the elevation of the top of the underlying bedrock ranges from 380 feet to 410 feet (approx.). The geologic properties of the site are characterized by carbonate rocks of the Knox Group of the Cambrian and Ordovician age. When weathered, the carbonate rocks can yield cherty residual clay or incipient karst type topography. Visible karst topography has not been noted within the ash pond.

(vi) Summary of Site Preparation and Construction Activities: The Ash Pond was originally constructed in the early 1950's. The basin was formed by excavating predetermined zones to elevations ranging from 389 ft to 418 ft, with much of the center zone having no excavation. Maximum elevations in the center zone were approximately 420 ft.

Material for the embankment construction was excavated from within the ash pond area adjacent to the embankments. The dike fill material consists mainly of clay. The depth of the fill extends up to depths of approximately 50 feet at its deepest. The South Dike was constructed at an elevation of 445 ft, but has been raised as high as 449 ft in some areas. It has a maximum height of approximately 50 feet. The West Dike was constructed at an elevation of 445 ft with a maximum height of 30 ft. The North Dike was constructed at elevations up to 445 ft, with later raises bringing it to a maximum elevation of 447 ft. It has a maximum height of 25 ft. The exterior slopes are 2.5:1 on the east dike and 2:1 on the west and north dikes. The interior slopes are 2.5:1 on the east dike and 1.5:1 on the west and north dikes. Efforts to widen the dikes have included adding fill to the slopes to maintain their original geometry.

In the late 1980's, the impoundment was reconfigured to the arrangement that is currently used (see Appendix). Ash is sluiced into one of two settling ponds located at the eastern edge of the pond. When one cell fills, the sluice is diverted to the alternate cell while the filled cell is dredged. The dredged ash is conditioned and dry stacked further west in the pond. The sluice water, after leaving the settling pond, is diverted to a canal that runs along the perimeter of the pond boundary to another low energy area at the western pond edge where further settling of fines takes place. From there, the water enters another canal which leads to the discharge structure located at the Coosa River.

Additional construction undertaken since the initial efforts in the 1950's include widening of the dike, especially along the eastern edge of the pond. The widening to its current geometry was achieved by adding a layer of clay to the downstream face of the dike, and by adding fill material to the sluiced ash on the upstream side. This resulted in a dike raise of up to four feet in some areas. The area between the northeastern dike slope and the dike built to comprise the western edge of the coal pile was also filled over the years. The fill is comprised of miscellaneous soils including clays, gravelly clays and silts, and isolated boulders.

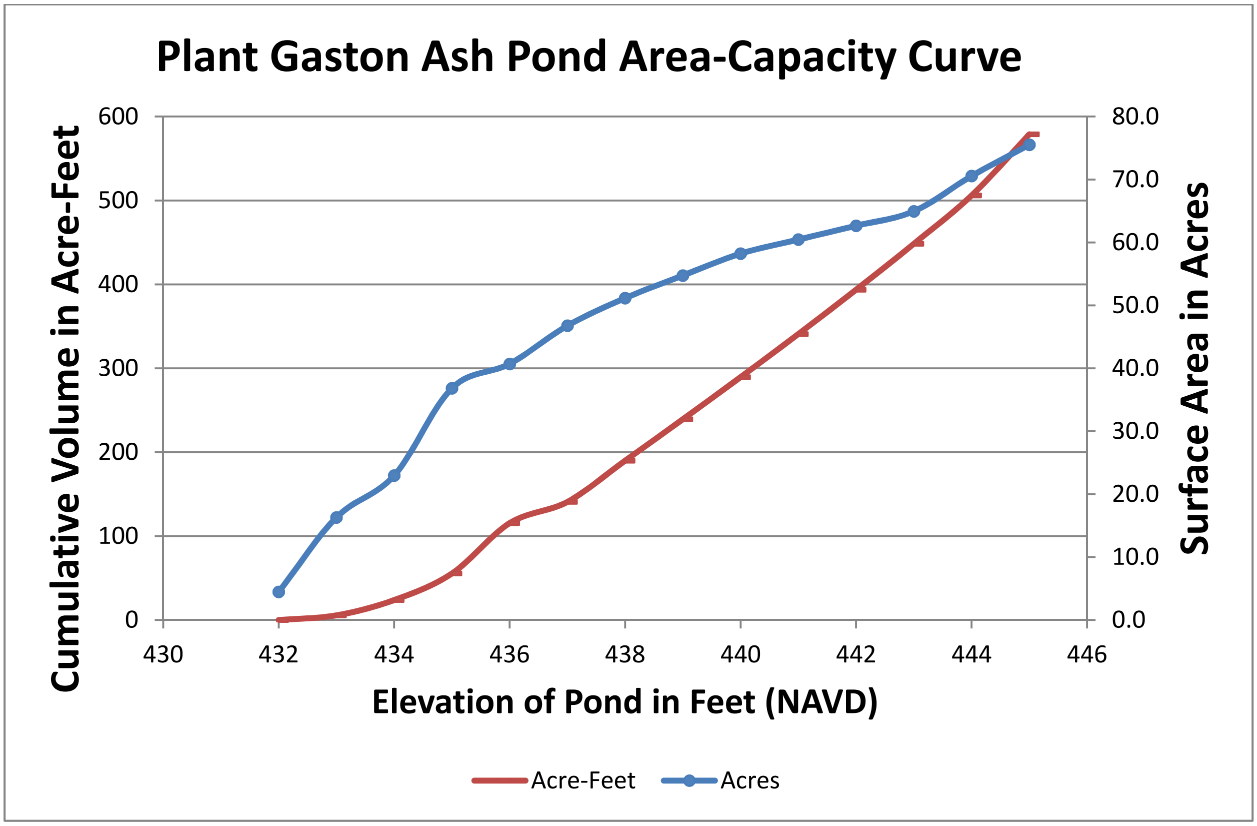
(vii) Engineering Diagram:

The following drawings reflecting the construction of the Plant Gaston Ash Pond can be found in the Appendix:

- Typical Section – South Dike
- Typical Section – North and West Dikes
- Typical Section – Adjacent to Coal Pile
- 2000 Ash Stacking Plan
- 2013 Ash Pond Topo

(viii) Description of Instrumentation: The Plant Gaston Ash Pond has no instrumentation.

(ix) Area-capacity curves:



(x) Spillway/Diversion design features and capacity calculations: Sluiced flows enter the ash pond, along with plant stormwater runoff and low-volume wastes, and rain water that falls directly on the pond. There is also a limited amount of run-on from adjoining watershed areas that enters the pond near the southwest corner. Rainfall runoff collects in a stormwater settling pond at the northwest corner of the impoundment, while the sluiced flows enter into one of two ash containment areas. These ponds are utilized alternately while dredging operations are performed on the cell not in use. Water then is routed from the stormwater pond and the ash containment areas through a series of canals until it reaches a decant area at the southwestern end of the ash pond. Water is then released into another long canal until it reaches the main outlet structure. The outlet structure consists of an approximately 8 foot riser with an invert elevation of approximately 409 ft. The riser connects to the 36-in spillway pipe that discharges from the ash pond.

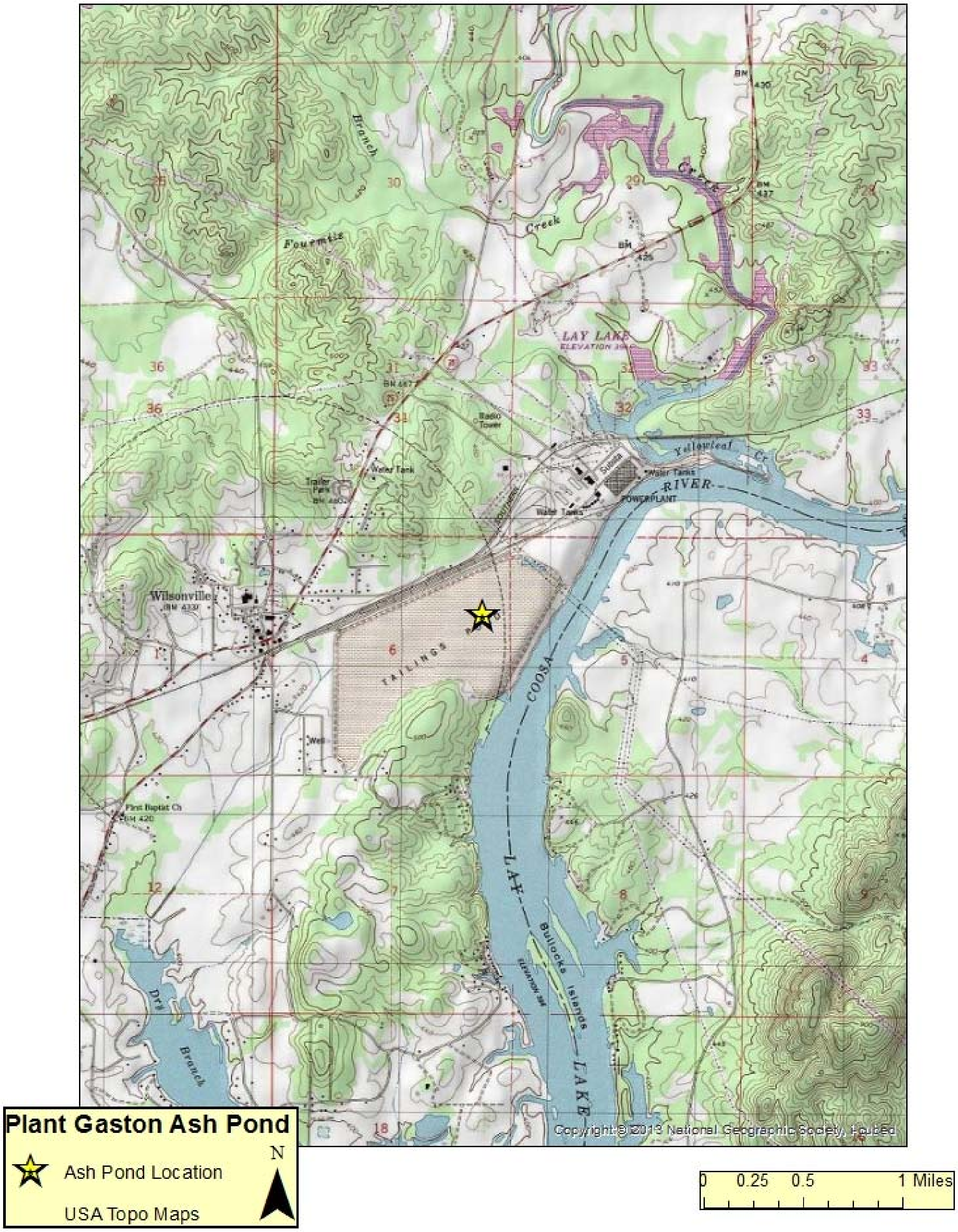
The ash pond has present water capacity of about 22,036,000 cubic feet above the normal operating level, based on the 2013 topographical survey. The design storm for the Plant Gaston Ash Pond is the PMP. The rainwater volume during a PMP/24-hour design rainfall event is 1,384 acre-ft. The excess water capacity remaining after a 100-year/24-hour event is 104 acre-ft. The normal pool at the outlet is approximately Elev. 432 ft. After a PMP/24-hour event, water will overtop the embankment elevation of 444 ft. At the overtopping elevation of EL 444 ft, the spillway is capable of discharging 173 cfs.

(xi) Provisions for surveillance, maintenance and repair: Inspections of dams and dikes are critical components and are conducted on a regular basis—at least annually by professional dam safety engineers and at a minimum interval of every seven days by qualified persons at the plant. In addition, inspections are performed after unusual events such as storms. The inspections provide assurance that structures are sound and that action is taken, as needed, based on the findings. Safety inspections include numerous checklist items. Specific items vary from site to site but may include observations of such things as pond levels, weather conditions, rainfall since the prior inspection, conditions of slopes and drains, erosion, animal damage, ant hills, alignment of retaining structures and more. Dam safety engineers 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: Design cross-sections are presented in the Appendix.

(xii) Known record of structural instability: There are no known instances of structural instability at the CCR unit.

Appendix


Plant Gaston Ash Pond
Ash Pond Location
USA Topo Maps
N
0 0.25 0.5 1 Miles
Wilsonville
TAILINGS
POWERPLANT
Water Tanks
Water Tank
Radio Tower
Trailer Park
First Baptist Ch
Well
LAY LAKE
COOSA
RIVER
Yellowleaf Cr
Fourmile
Creek
Branch
Bullocks Islands
Dry Branch
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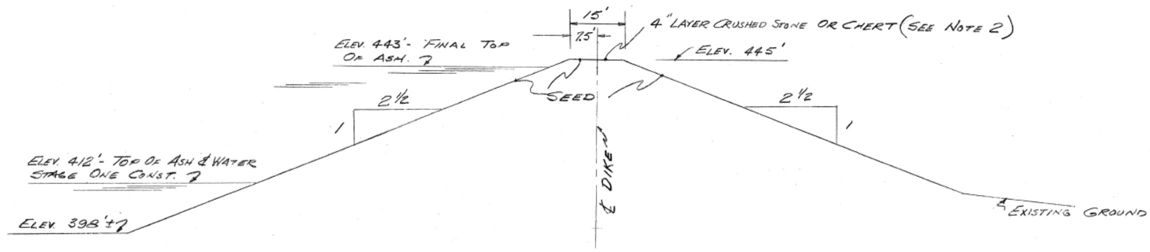
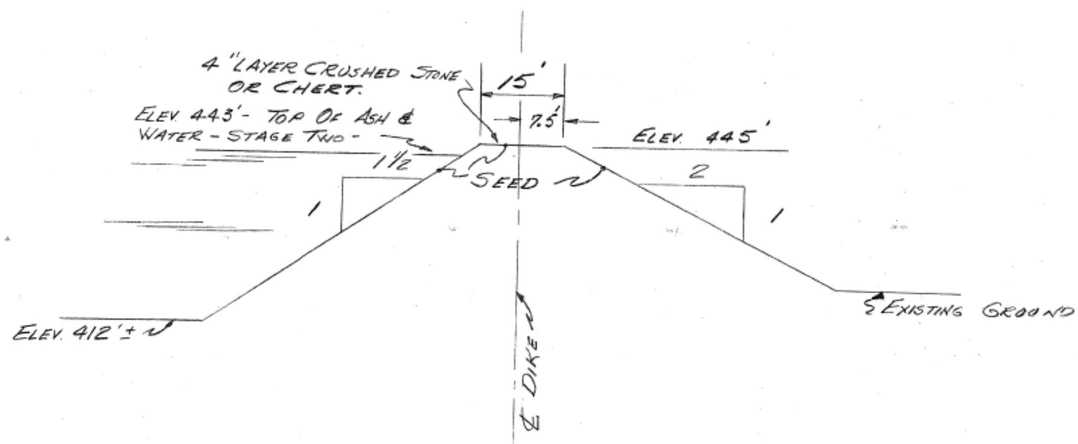
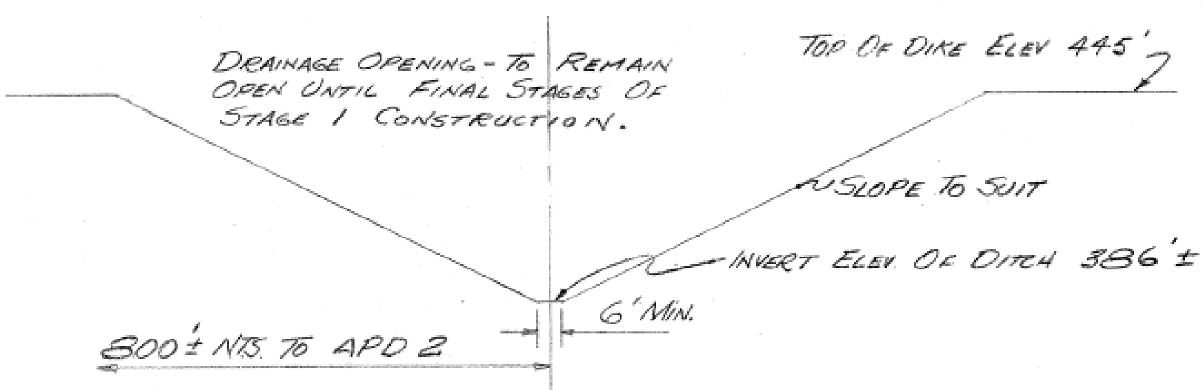


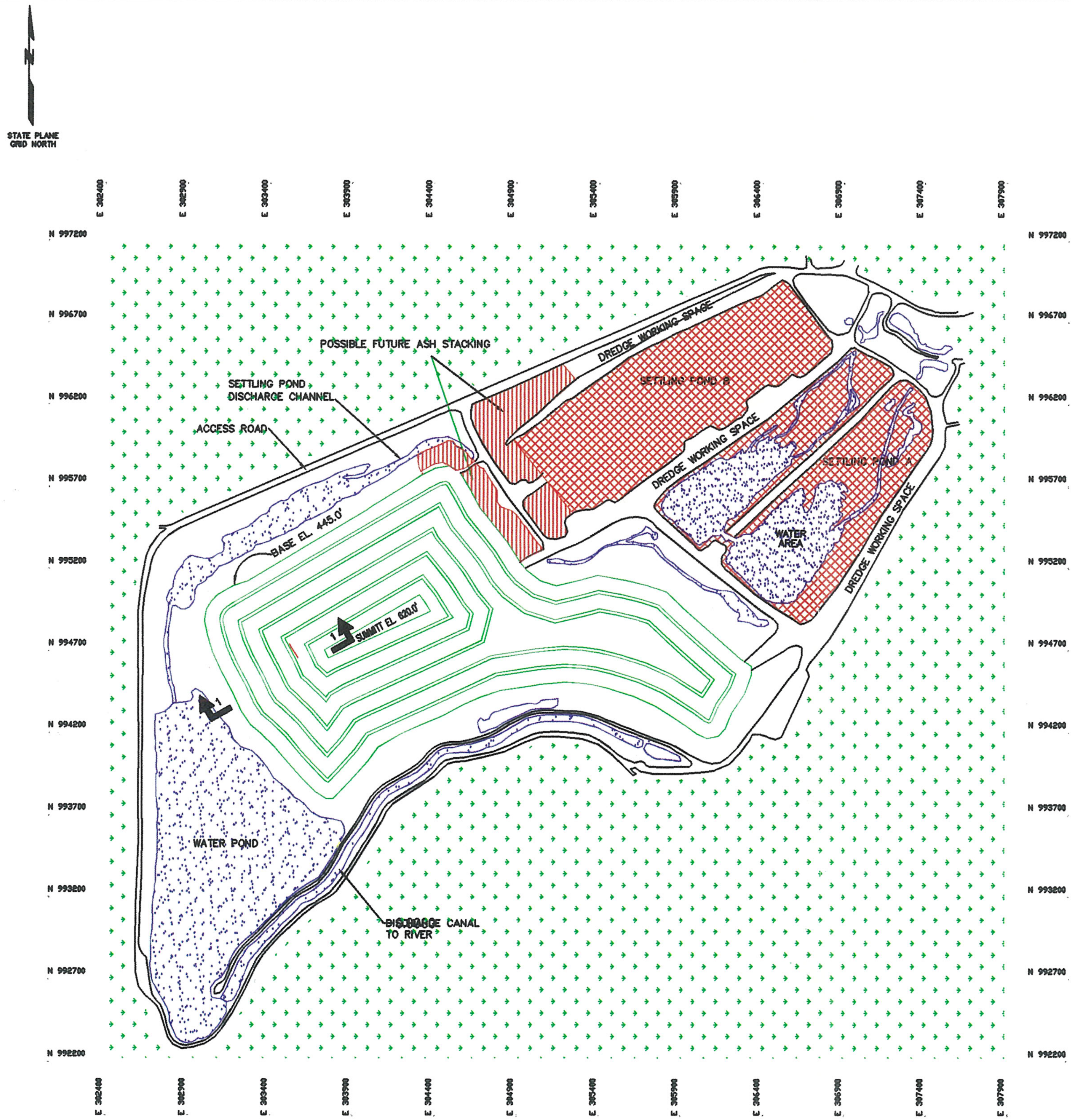
Typical Section – South Dike

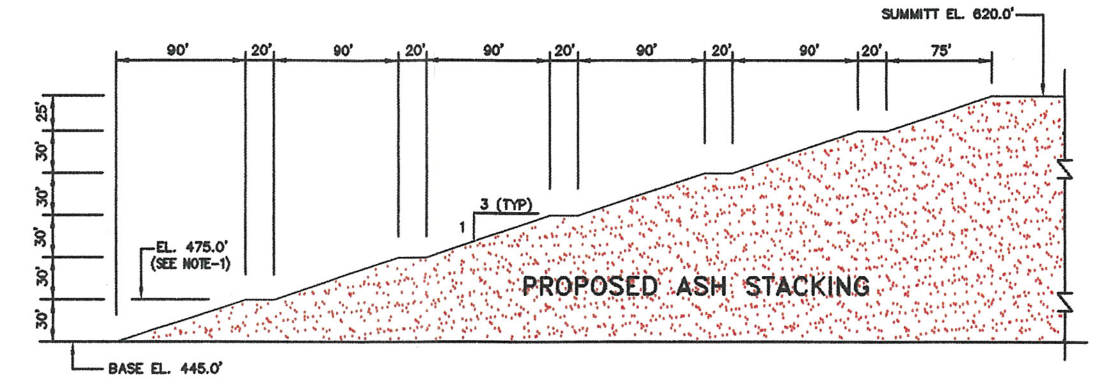


Typical Section – North and West Dikes



Typical Section – Adjacent to Coal Pile





PROPOSED ASH STACKING
SECTION 1-1

STACKING PROGRESSION ELEVATION	SURFACE AREA SQUARE FEET
475	2,523,356 END 2,370,391 BEG
505	1,683,135 END 1,546,324 BEG
535	908,995 END 835,633 BEG
565	526,808 END 469,720 BEG
595	236,512 END 195,068 BEG
620	59,099 END

NOTE:

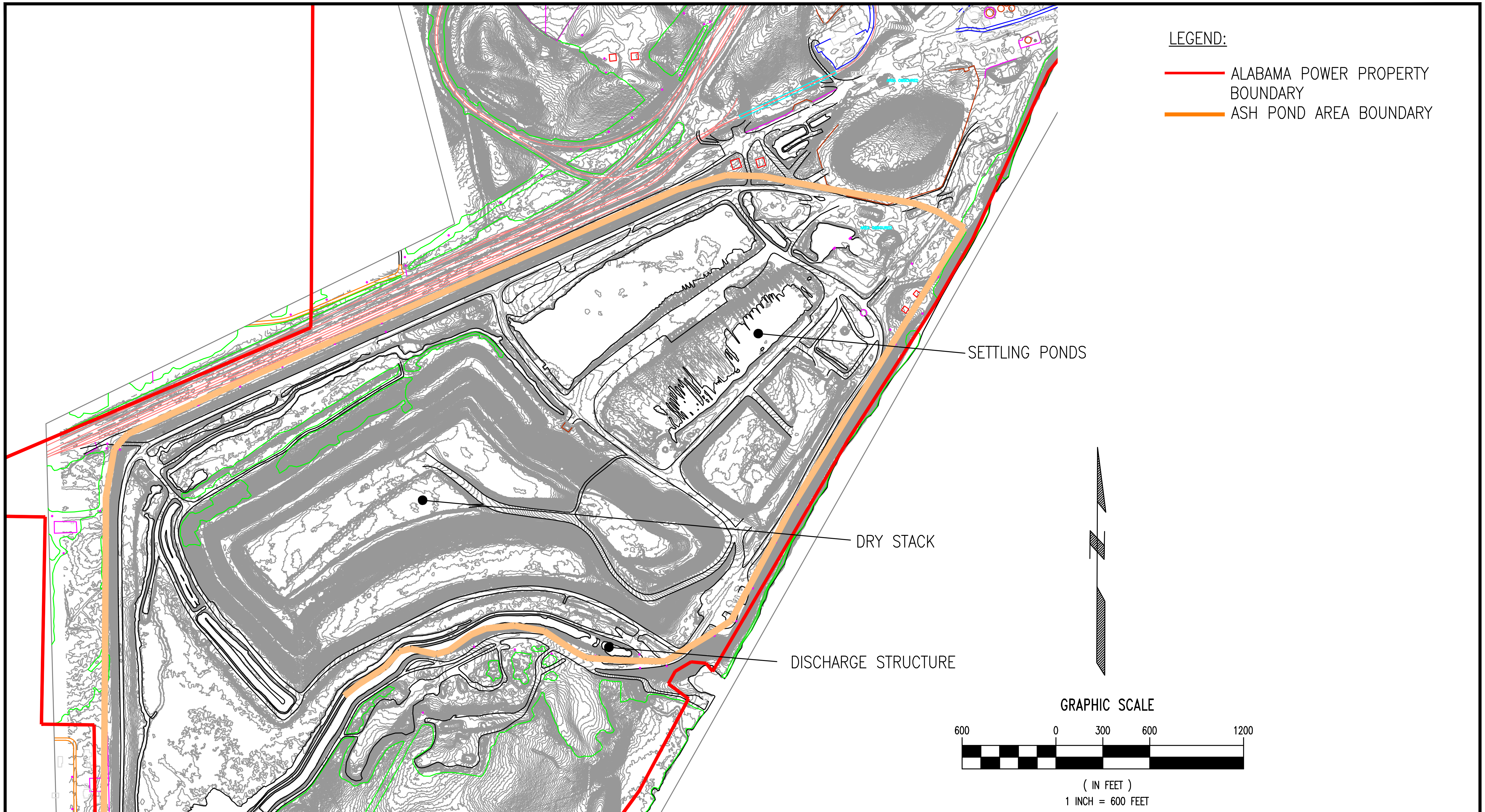
1) VOLUME ESTIMATES PERFORMED USING TOPO MAPS FOR NOV, 1998 , USE AVERAGE BASE ELEVATION OF 475 MSL

CAD D-GS-SK2.DWG
ACAD CMF-R14

Southern Company Services, Inc.
for
ALABAMA POWER COMPANY
E. C. GASTON STEAM PLANT
ASH STORAGE POND STUDIES - 1999
ASH STACKING PLAN-CONCEPT FOR STACKING LEVELS

REV A DATE: 12/4/00

DRAWN CMF CHECKED DESIGNED FDB
APPROVED DATE
APPROVED DATE
SCALE 1=300
SHEET 1 OF 1 SHEETS
D-GS-SK2 REV A



Southern Company Services
Engineering and Construction Services
FOR

PLANT GASTON
GENERAL LOCATION MAP
ASH POND

Alabama Power Company

SCALE	DRAWING NUMBER	SHEET	CONT'D	REV
NONE	**ES3040**	1	FINAL	0

ANSI B: 17x11 Acad2008