HISTORY OF CONSTRUCTION FOR EXISTING CCR SURFACE IMPOUNDMENT PLANT GREENE COUNTY 40 CFR 257.73(c)(1)(i)-(xii)

(i) Site Name and Ownership Information:

Site Name: Plant Greene County

Site Location: Forkland, Alabama
Site Address: County Road 18

Forkland, Alabama 36740

Owner: Alabama Power Company
Owner Address: 600 North 18th Street

Birmingham, AL 35203

CCR Impoundment Name: Plant Greene County

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:

32°35'33"N, 87°47'18"W See Location Map in the Appendix

- (iii) Purpose of CCR Impoundment: The Plant Greene County is an 11 unit electric generating facility, including 9 gas-fired combustion turbines and 2 coal-fired steam units that have recently undergone a conversion to gas. The Plant Greene County Ash Pond was designed to receive and store coal combustion residuals produced during the coal-fired electric generating process at Plant Greene County and to serve as a low-volume wastewater treatment pond.
- (iv) Watershed Description: Plant Greene County is located within both the Coleman Branch HUC-12 watershed which has a total area of 27,713 acres and the South Needham Creek HUC-12 watershed which has a total area of 34,813 acres. The Ash Pond unit is located entirely within the Coleman Branch watershed. Both the Coleman Branch and South Needham Creek watersheds are located within the Lower Black Warrior HUC-8 watershed which has a drainage area of 929,948 acres. No run-on from the surrounding watershed enters the Ash Pond.

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

The impoundment is comprised of a continuous embankment comprised of clays, sandy clays, and clayey sands. The dike is continuous so there are no abutments. Subsurface geologic deposits are sedimentary alluvial, coastal plain and low terrace deposits consisting of fine to course sands and silty sands with clay lenses and gravel deposits on scattered locations, all underlain by chalk formations. Plant Greene County is located within the Gulf Coastal Plain Physiographic Province and is underlain by the Holocene Alluvium, the Cretaceous aged Demopolis Chalk, and localized zones of the Cretaceous Ripley Formation. Major soil types present at Plant Greene County include sandy and silty clays, with some clay and silt.

(vi) Summary of Site Preparation and Construction Activities: The Ash Pond was originally constructed between 1960 and 1965. The pond is formed by a continuous dike referenced as the east, south, north, and west dikes. The crest elevations of the dikes are as follows: the east dike ranges from 102.6-ft to 113.6-ft, the south dike ranges from 95.5-ft to 103-ft, the west dike ranges from 95.5-ft to 103.2-ft, and the north dike ranges from 103.3-ft to 113.6-ft. The maximum height of the embankment is 25 feet. The current dike elevations were reached on the east and west by raising the top elevations by as much as 3 feet between 1994 and 2005. These modifications included raising approximately 1500 feet of the east dike, raising approximately 3200 feet of the west dike, and extending and modifying the diversion dike to direct flow westerly to allow for more travel distance to support ash deposition. In 2009 the east dike was widened to the inside to address concerns with the adjoining barge canal slope. Finally in 2010, the west dike was widened.

The crest width ranges between 30-ft and 50-ft along all 4 dikes. The inside slopes of the dikes range from 2.5H:1V to 3H:1V. The outside slopes range from 2.5H:1V to 3H:1V on the south, west, and north dikes. The outboard slope of the east dike is abutted by the slope of the barge canal. After the widening of the east dike in 2009, the crest width from the crest of the barge canal to the inboard crest of the embankment was approximately 50 feet, resulting in an embankment that is more than twice as wide as it is high. The slopes of the barge canal, which have been reinforced with riprap, are approximately 1.1H:1V to 1.9H:1V; however, this is not representative of the east dike outboard slope. In essence, the outboard slope of the east dike is below ground.

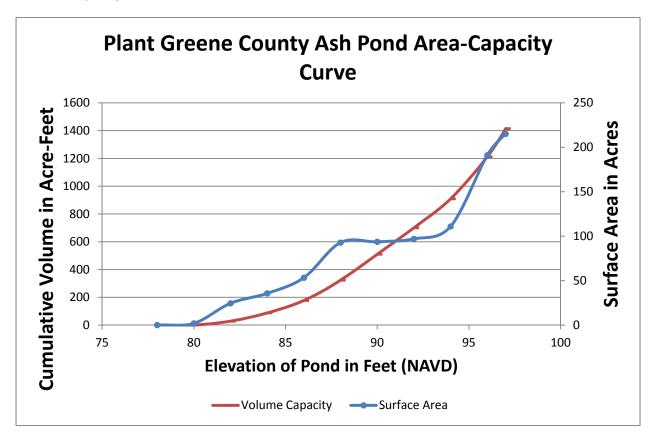
(vii) Engineering Diagram:

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

- USGS Topo Map
- 1964 Design Drawing
- 1996 Modifications: Plan Sheet 1
- 1996 Modifications: Plan Sheet 2
- 1996 Modifications: Sections and Details
- 2001 Topo
- 2016 Aerial, LiDAR, and Bathymetric Survey

(viii) Description of Instrumentation: There is currently no instrumentation associated with the CCR surface impoundment.

(ix) Area-capacity curves:



(x) Spillway/Diversion design features and capacity calculations: The outlet structure for the Ash Pond is a concrete riser 60 in diameter which outlets to a 30 in fiberglass-lined concrete discharge pipe. The discharge pipe outfalls into a rip rap lined ditch that discharges into the Black Warrior River. The Ash Pond has a capacity of 829 acre-ft above the normal pool operating elevation (EL 87.5 ft). The total volume of water that accumulates during a 1000-year/24-hour event is 480 acre-ft. Based on available survey data, there would be a maximum water surface elevation of 92.3 feet and 350 acre-ft of storage available during a 1000-year/24 hour rainfall event, leaving approximately 3.2 feet of freeboard. At the design storm elevation of 92.3 feet, the riser/discharge pipe is capable of carrying approximately 80 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 least weekly by trained plant personnel. 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 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.

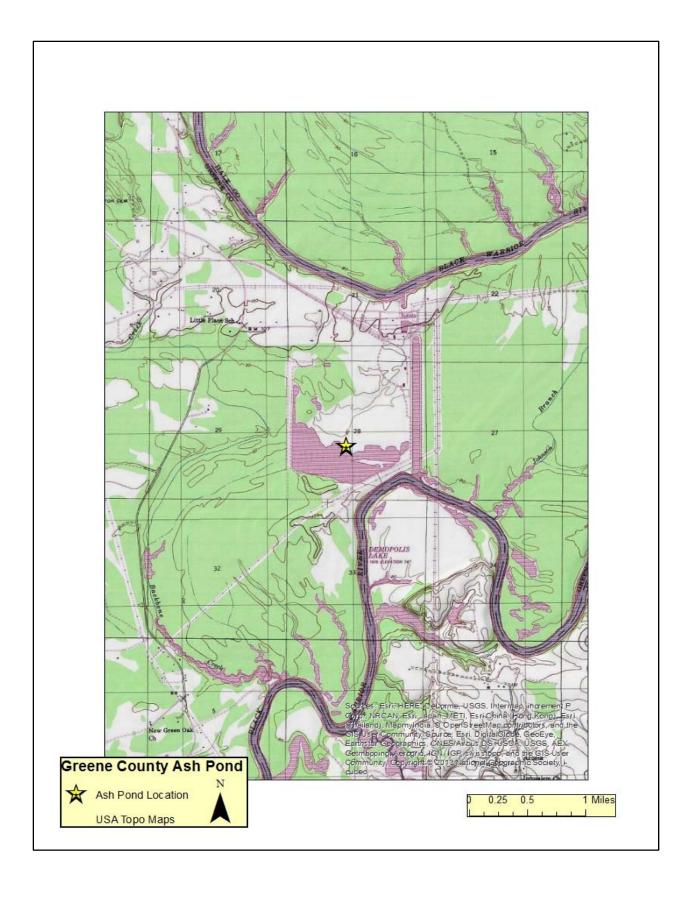
Construction specifications:

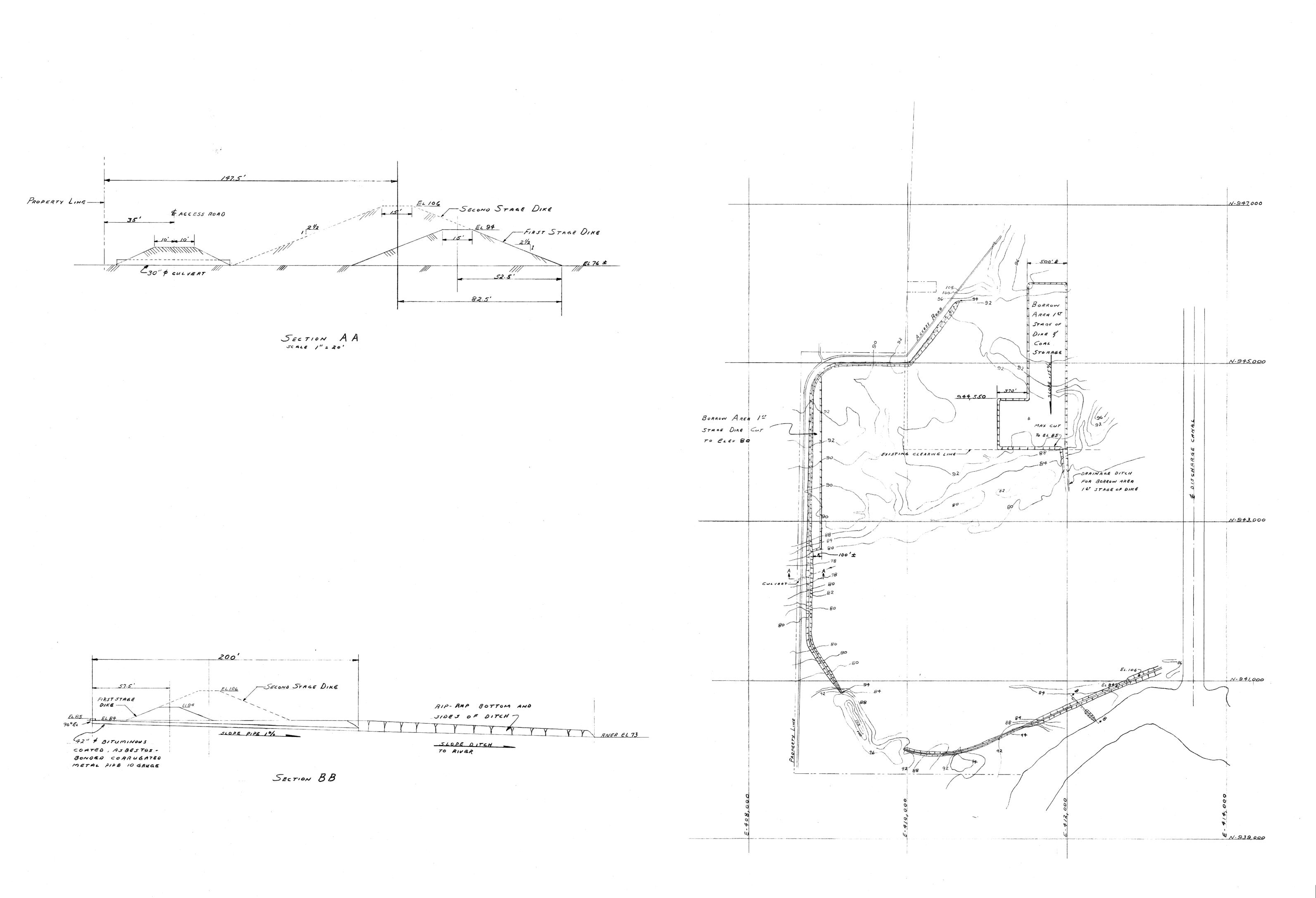
The following specifications relevant to the construction of the Plant Greene County Ash Pond can be found in the Appendix:

- 2012 South Levee Improvement Specifications
- See notes on 1996 Modifications, Plan Sheet 1 in the Appendix

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

Appendix





ALABAMA POWER COMPANY

JOB GREENE COUNTY STEAM PLANT UNIT No.1

DETAIL ASH DISPOSAL POND DIKE

DRAWN HAWKINS CHECKED TRACED SCALE / = 500 B/M

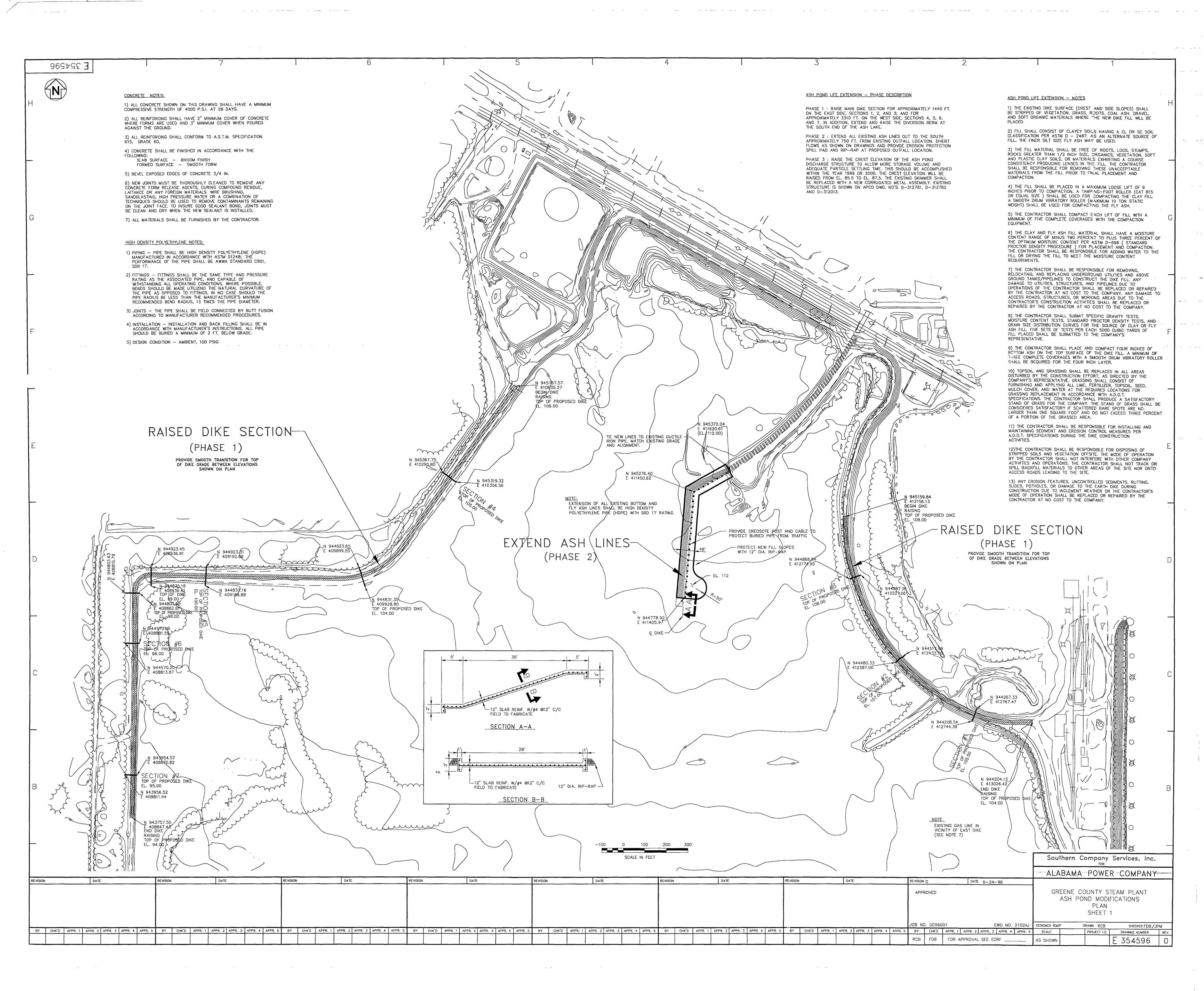
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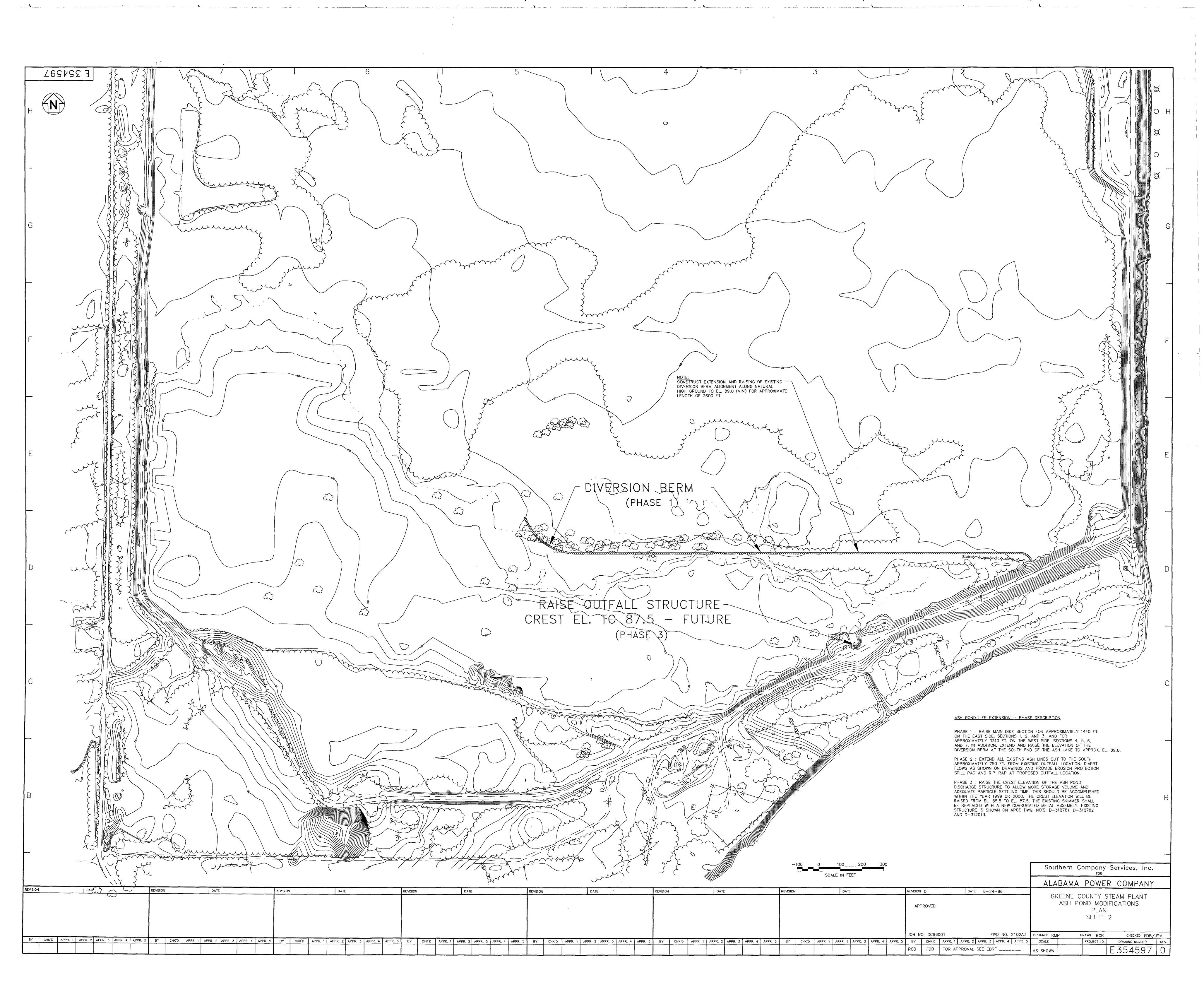
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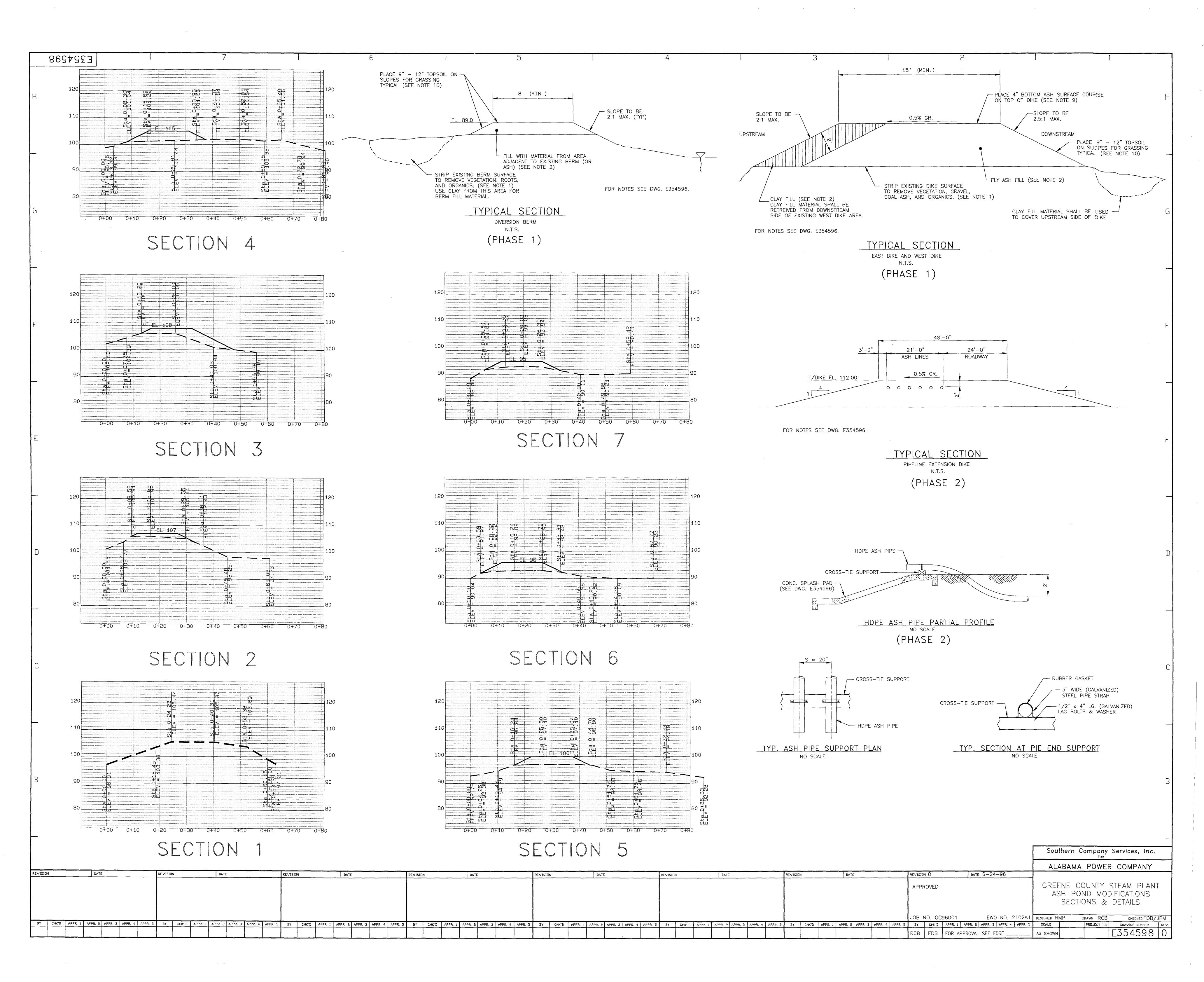
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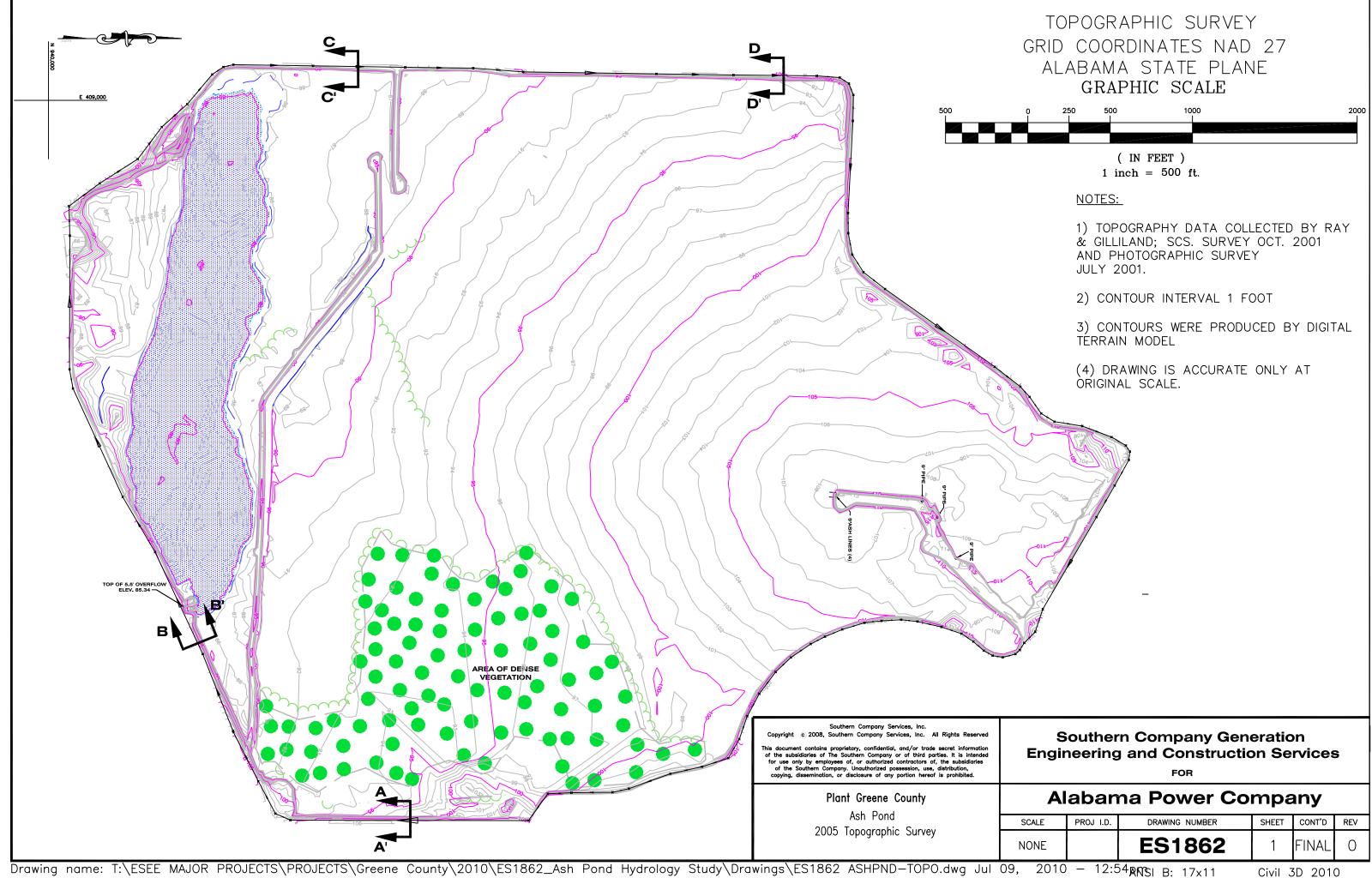
LOCATIONS CHANGED

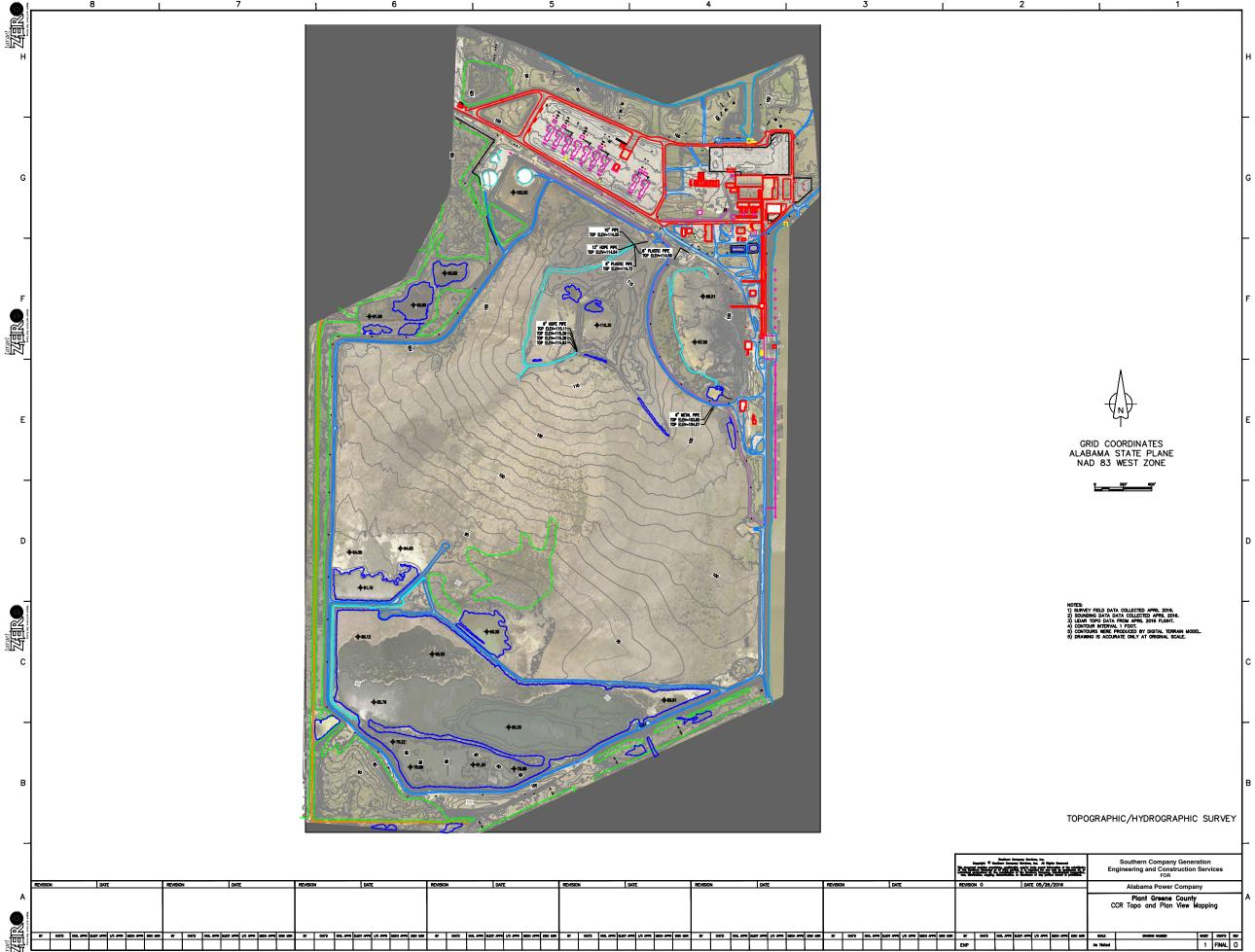
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Specification for

Greene County Steam Plant

Ash Impoundment Area-South Levee Improvement Project (2012)

The Ash Impoundment Area (Ash Lake) located on the grounds of the Greene County Steam Plant will have minor improvements made to a section of the levee. Along the southern perimeter of the levee frequent maintenance activity is exerted to mitigate damage caused by burrowing animals. Improvements will be implemented along the interior face of the southern impoundment perimeter levee to prevent or minimize the burrowing activity. The improvements will be implemented in two areas along the levee, one of approximately 465 feet in length and one of approximately 600 feet in length.

The improvements will include the placement of limestone rock along the lower toe of the interior face of the areas and placing a clay cap over the limestone rock, contoured to provide access for maintenance activities. Minor excavation of the some of the existing deposited material along the toe of the levee will be required to provide a consistent grade and supporting base for the limestone rock, with the materials excavated to remain in the impoundment area. However, the parent material comprising the toe of the levee or any portion of the levee shall not be disturbed. Any burrows discovered or located during the process will require restoring the integrity of the levee as directed by APC project coordinators or directors. The grade of limestone rock for the project will be ALDOT No. 1 for the area along the toe of the levee to obtain a protective layer of rock and minimize voids between stones.

The Ash Impoundment Structure is an active entity and will continue to operate during the construction activities. Outfall from the impoundment area into the Black Warrior River will be ongoing during the activities. The outfall from the impoundment is required to meet strict turbidity levels prior to entering the environment. The outfall or discharge water quality shall take priority over and above any activity being performed in, on, or around the impoundment. Measures to prevent elevating turbidity levels within the impoundment will be required during the project, including cessation of all activity should the turbidity within the water table increase or appear to increase. Activities will not resume until the turbidity level within the settlement area and the turbidity of the outfall reaches acceptable levels to Alabama Power Company Representatives. Measures such as installing curtains to prevent increases in the turbidity of the settlement area may be necessary to contain migration of silts disturbed by construction activities.

1. Materials

- a.) Limestone rock for the project shall be common crushed limestone.
- b.) Limestone rock placed along the toe of the levee shall be ALDOT No. 1 Grade.
- c.) Clay material shall be acquired from areas previously approved by Alabama Power Company for use on the GCSP Ash Impoundment Levee.
- d.) Any ash removed from roadbeds shall be returned to the ash storage areas located within the boundary of the Ash Impoundment Levee.

e.) Materials purchased by the contractor for the project shall be discussed with the Job Site Representative and mutually agreed upon, and written consent captured, prior to purchasing or acquiring the material.

2. Equipment

- a.) In most instances equipment for the project shall be provided by Alabama Power Company.
- b.) Contractor shall provide minor maintenance for the equipment, such as greasing pivot points, checking oil levels, cleaning cabs and cleaning debris from tracks.
- c.) Alabama Power Company shall provide maintenance such as oil changes, filter changes, repairs, and resolution of breakdowns for equipment provided by Alabama Power Company.
- d.) Equipment shall be parked in locations such as to contain oil leaks or fluid leakage within the perimeter of the Ash Impoundment Area when not active.
- e.) Any equipment secured by the contractor shall be mutually agreed upon, and authorization provided in writing by Alabama Power Co. site Representative prior to securing said equipment.

3. Documentation

- a.) Time reports shall be completed daily and presented to the APC site representative.
- b.) Copies of Job Safety Briefings shall be forwarded to the APC site representative daily.
- c.) Any chemicals secured during the course of the project shall have an MSDS prior to transporting the product on the GCSP site or accompanying the product during transport.
- d.) Tickets (or copies) for truck deliveries shall be presented to the APC site representative daily.
- e.) Receipts (or copies) for any materials secured by the contractor shall be presented to the APC representative daily.

4. Schedules

- a.) Project schedule shall be based on a 40 hour week.
- b.) Any changes to the schedule must be approved by the APC site representative.
- c.) Weather delays may be made up by working normally scheduled off days, by mutual agreement of the contractor and the APC site representative.