AMENDED CLOSURE PLAN FOR ASH POND

Plant Gorgas
Alabama Power Company
Parrish, Alabama

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Contents

ATTACHMENTS

1.0 INTRODUCTION

This Amended Closure Plan has been prepared to support the permit application previously submitted to the Alabama Department of Environmental Management (ADEM) for the CCR Surface Impoundment known as the Plant Gorgas Ash Pond, located near Parrish, Walker County, Alabama. The permit application was submitted in accordance with ADEM Admin. Code r. 335-13-15-.09(1)(c). This Amended Closure Plan, along with other documents, is intended to supplement the previous submittal in response to the ADEM letter dated May 24, 2019 which provided response comments to the original application.

2.0 GENERAL

The Plant Gorgas Ash Pond was designed to receive and store coal combustion residuals produced during the electric generating process at Plant Gorgas, as well as serve as a low-volume waste treatment pond. CCR products were sluiced from the plant to the Ash Pond. The pond covers approximately 420 acres, and currently stores about 25,000,000 cubic yards of CCR.

The Ash Pond is formed by a cross-valley dam which was originally constructed as a rockfill structure across Rattlesnake Creek in 1953 using local borrow and quarried materials. The crest elevation of the original dam was 320 feet. In the mid-1970's, the dam was raised to an elevation of 375 feet. During this construction, a relatively impervious blanket was constructed on the upstream face of the original dam. In addition to the blanket, additional rockfill was added on both the upstream and downstream sides of the dam, as well as the inclusion of a relatively impervious core and filter zone near the interior of the dike raise.

In 2007, the dam was raised to an elevation of 395 feet. During this project, a 10-foot wide roller-compacted concrete upstream facing block designed with a slope of 0.75H:1V; a 30-foot thick clay core section; a 10-foot thick fine and coarse filter section; and additional downstream rockfill were used to accommodate the raising of the dam. The original weir flow intake structure was removed and a new overflow structure of comparable design was constructed near the east abutment. Also, an auxiliary spillway was added at an elevation of 385 feet. During the 2007 augmentation, a diversion dike was added within the ash pond for water management purposes. It is near the midpoint of the surface impoundment and extends from the east side of the pond to a point very close to the west bank.

The Plant Gorgas Ash Pond will be closed by leaving CCR in place, with consolidation of ash to reduce the closure footprint to approximately 274 acres. The Ash Pond will be dewatered sufficiently to begin removal of the free liquids and to an extent to provide a stable base for the construction of an ash containment structure for the consolidated footprint, removal of ash outside the consolidated footprint and, construction of the final cover system. CCR will be dredged or excavated from the area outside the consolidated footprint, transported, and placed in the consolidated footprint to create a subgrade for the final cover system. Excavation will include removing all visible ash and over excavating into the subgrade soils. Additional details about the dewatering and construction methods to be used can be found within this Amended Closure Plan.

The final cover will be constructed to control, minimize or eliminate, to the maximum extent feasible, post closure infiltration of liquids into the waste and potential releases of CCR from the unit. This will be prevented by providing sufficient grades and slopes to: 1) preclude the probability of future impoundment of water, slurry, or sediment; 2) ensure slope and cover system stability; 3) minimize the

need for further maintenance; and 4) be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

3.0 NOTIFICATION – INTENT TO CLOSE

Notification of intent to close the Plant Gorgas Ash Pond was placed in the plant's Operating Record on April 15, 2019. The notice of intent was subsequently submitted directly to ADEM. The surface impoundment is closing under the requirements of § 257.101(a)(1) and r. 335-13-15-.07(2)(a)1. Closure of the surface impoundment will be conducted under § 257.102(d) and r. 335-13-15-.07(3)(d), *closure performance standard when leaving CCR in place*. As described below, the surface impoundment will be closed in a manner that will control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated runoff to the ground or surface waters or to the atmosphere. Closure will also preclude the probability of future impoundment of water, sediment or slurry. Measures will be taken during design and construction of the closure system that provide for major slope stability to prevent the sloughing or movement of the final cover system. Closure will also minimize the need for further maintenance of the CCR unit.

Major closure activities will commence following receipt of a CCR permit from ADEM pursuant to r. 335-13-15-.09.

4.0 WRITTEN CLOSURE PLAN– § 257.102(B)(1)(I),(III) AND R. 335-13-15-.07(3)(B)1.(I),(III)

4.1 Overview

A written closure plan to comply with § 257.102(b) was posted to the Plant Gorgas Operating Record on October 17, 2016. A revised written closure plan incorporating reference to applicable ADEM Administrative Codes was submitted as a part of the original CCR Permit application.

As required by § 257.102(b)(3)(ii) and r. 335-13-15-.07(3)(b)3.(ii), the written closure plan must be amended whenever (i) there is a change in the operation of the CCR unit that would substantially affect the written closure plan or (ii) before or after closure activities have commenced when unanticipated events necessitate a revision of the written closure plan. The time frames for amendment to the written closure plan is in accordance with those specified in § 257.102(b)(3)(iii) and r. 335-13-15-.07(3)(b)3.(iii).

The Gorgas Ash Pond is being consolidated and closed in place in accordance with § 257.102(d) and r. 335-13-15-.07(3)(d).

The ash pond contains approximately 25 MCY of CCR materials with a current pond footprint of 420 acres (taken at the existing dam elevation of 395 ft-MSL). The selected closure option consolidates ash into a smaller footprint in the upland reaches of the site to the south and consolidated behind a new dam for permanent stability and containment, into the reaches of fingers F1 to F7, F12 and Middle areas M3 and M4 (see the current 30 percent design drawings for key features and naming conventions).

Final management of stormwater is provided by a newly designed capping and stormwater control system culminating in two new spillways at the eastern and western abutments of the final containment

area. The existing dam will be substantially removed down to Elevation 295 ft-MSL to provide for a stormwater management attenuation pond in front of the engineered ash closure area.

The closure consists of dredging and/or excavation of CCR from the northern portions of the ash pond (Fingers F8 to F11 and M1 and M2) for consolidation within the southern upland portions of the unit. During closure, the ash pond will be progressively dewatered as required to facilitate closure. CCR will be graded within a reduced footprint of the existing impoundment unit to create a stable subgrade for the final engineered cover system.

4.2 Closure Steps

As indicated in Section 4.1, the engineered closure configuration for the Gorgas Ash Pond consolidates CCR into a reduced footprint (a post closure CCR waste limit of 274 acres) in the southern upland reaches of the site. Closure of the Plant Gorgas Ash Pond will occur in a series of phases / steps to achieve the closure design configurations, including:

- site preparation,
- dewatering of CCR,
- excavation of CCR from the closure by removal areas,
- placement and stabilization of CCR within the consolidation area
- final grading of the consolidation area for capping,
- construction of a final cover and stormwater management system

The closure design is currently in progress and as such may be subject to changes as the design continues to develop. The closure sequence progresses from initial dredge and ash thickening plant commissioning, through removal of low-lying ash and construction of the new containment dam and closure cover system.

Initial stages of construction and dewatering will include lowering of the pond levels through pumping and treatment at the onsite water treatment facility to optimize dredge performance. Once the desired initial free water depth is achieved in the pond, further dewatering will occur incrementally in response to storm events in order to maintain the free water at a relatively constant depth that will lower as ash removal from the designated areas progresses.

A full series of construction phasing schematics outlining the currently anticipated construction sequence for the closure are presented in Appendix A. The 30 percent design level figures are presented in Appendix B to provide additional details regarding the existing and proposed post-closure configurations. A more detailed description of the closure sequence follows in Section 4.3.

4.2.1 Site Preparation

Preparatory efforts for the closure of the ash pond consist of the preparation and submittal of required permits, survey of the Plant Gorgas Ash Pond and adjacent properties, review of mineral rights on those properties, and site infrastructure assessments and upgrades necessary to facilitate closure. The Ash Pond ceased to receive CCR materials and other waste streams from the Plant's electric generation processes on April 15, 2019 and began initial closure activities.

4.2.1.1 Contractor Mobilization and Early Site Works

As required the Contractors will mobilize equipment, personnel, trailers, etc. to complete the construction of their work packages and ultimately to achieve closure of the ash pond. All required plans and permits will be prepared and approved, prior to initiation of the major portions of closure construction.

Select contractors will be mobilized to begin with site preparation works prior to the main closure construction activities. The early site preparation works include upgrades to general site infrastructure and establishment of the closure water treatment and ash dewatering facilities. Site access will be restricted and monitored via security at access gates and site video surveillance.

Site infrastructure will largely be developed as part of the early site preparatory works. Temporary site infrastructure (such as access roads, security gates, temporary offices and shelters, etc.) will be developed through the construction period as needed.

Some aspects of the closure construction will require activities in areas of existing groundwater monitoring wells. To avoid conflicts between closure construction and groundwater monitoring activities, a few isolated groundwater wells will be abandoned and relocated as part of the early site preparatory works.

4.2.1.2 Vegetation Management

No significant vegetation exists above the pre-closure pond water levels within the limits of the ash pond as the majority of the ash pond limits exist under a water cover. The extent of vegetation below CCR in closure by removal areas is uncertain prior to exposure of such areas during closure, and the needs for clearing and vegetation management in such areas will be progressively assessed during closure. Vegetative materials encountered within the ash pond limits as closure progresses will at a minimum be washed of any contacting CCR materials prior to further processing and handling onsite via approved means such as mulching, controlled burning, etc.

Vegetative management will also be required in a number of areas outside and surrounding the pond limits (non CCR areas) to support closure. Vegetation management in these non CCR areas will generally include timber and topsoil harvesting where applicable and mulching and/or burning of vegetative matter onsite for use in erosion control efforts, on-site compositing for topsoil generation / enhancement, or other approved means.

4.2.1.3 Clearing / Grading

The Plant Gorgas Ash Pond generally has a water cover over the majority of the pond in the pre-closure condition and as such, no significant clearing and grading within the pond limits is required ahead of primary construction.

Clearing and grading will be required in a number of areas outside the pond limits to support closure, such as in the following general areas:

- Contractor’s camp(s),
- Laydown areas,
- Stockpile areas,
- Borrow areas,

- Water treatment facility area,
- Ash thickening plant area,
- Temporary access road routes, and
- Perimeter buffer corridors

4.2.1.4 Construction of the Water Treatment and Ash Thickening Plants

The Plant Gorgas Ash Pond is a large and complex ash pond with a large contributing watershed (1300 acres) draining into the pond. As such, conventional dewatering followed by excavation and ash handling via trucking is not an optimum closure strategy. A closure strategy that incorporates a large water treatment facility and initially uses hydraulic handling of CCR for closure via dredging, mechanical dewatering in an ash thickening plant, and thickened ash deposition was chosen to optimize a number of closure factors, such as:

- Improved worker safety
- Improved schedule
- Reduced dusting
- Reduced personnel working on ash areas

During closure, CCR contact water will be treated in a newly constructed 12,000 gpm nominal capacity water treatment facility allowing for adequate water management capabilities to maintain safety, schedule, and compliance during closure. Additionally, the majority of CCR removal from the northern pond areas will be completed by hydraulic dredging of CCR to an ash thickening facility for thickening / dewatering and subsequent deposition. The ash thickening facility will remove water from the ash in high rate thickeners and dewatering screens before being pumped for final placement within the closure areas in the southern portions of the pond.

4.2.2 Removal of free water and in situ dewatering

Initial stages of construction and dewatering will include initial lowering of the pond levels through pumping and treatment at the onsite water treatment facility to optimize dredge performance. Once the desired free water depth is achieved in the pond, further dewatering will occur incrementally in response to storm events in order to maintain the free water at a relatively constant depth that will lower as ash removal from the designated areas progresses.

Free and interstitial water in contact with CCR will be pumped to the water treatment facility for treatment to established regulatory limits prior to discharging off site through the existing NPDES discharge point.

4.2.3 Excavation of CCR from the closure by removal areas

The ash pond closure consists of removal of CCR from the northern portions of the Ash Pond for consolidation within the southern upland portions of the unit. CCR material from the closure by removal areas will be moved / handled by either hydraulic dredging or mechanical excavation.

Following bulk removal of CCR from the dredging and excavation areas, final removal actions such as fine excavation, pond wall washing or scaling, etc. will be used to removal all visible CCR materials

from these areas. Once the CCR removal process has reached the estimated bottom of CCR elevations for a given area, the surface will be visually inspected and the CCR removal verification procedures (described in more detail later in this Amended Closure Plan) completed.

4.2.4 Placement and stabilization of the CCR within the consolidation area

The closure design includes a combination of ash and soil slopes, embankments, and earthen buttresses to achieve stable closure. Final slopes comprised of compacted ash will be a maximum of 4H:1V, and the northern limit of the consolidated footprint will be supported by a newly constructed containment structure.

The final placement and stabilization of ash will be achieved by two primary methods, namely:

- Deposition of Ash from the Thickening Plant: Hydraulically dredged ash will be delivered to and mechanically thickened and dewatered by the ash thickening plant. Thickened ash will be delivered to the final deposition areas by two positive displacement (PD) pumps via a series of pipelines and spigots. Although the thickened deposition is a controlled process, the final cap profile will not be fully achieved by deposition from spigots alone. In certain areas, mechanically constructed berms will be required to support and control the footprint and shape the deposition to achieve final grades.
- Placement of Trucked Ash: Some portion of the CCR removal will not be practically achieved via direct dredging and will therefore have to be mechanically excavated and conveyed to the storage areas using haul trucks. Ash will be dewatered using a combination of in-situ and ex-situ dewatering techniques prior to final placement, grading and compaction in the closure area.

All final closure slopes and conditions will be designed to meet the stability requirements for each loading case outlined in § 257.73(e) and r. 335-13-15-.04(4)(e).

4.2.5 New Containment Structures

The Plant Gorgas Ash Pond was originally formed by construction of a series of incremental raises to the original cross-valley dam which was originally constructed as a rockfill structure across Rattlesnake Creek in 1953 using local borrow and quarried materials. The closure design configuration removes CCR from the northern portions of the site adjacent to the existing containment dam and as such necessitates the design and construction of a new containment structure.

The closure design is based on the containment of CCR with the construction of a new containment structure at the northern end of the capped area. This containment structure will provide long term stability to the ash stack and will be constructed of a combination of engineered earth and rock fills. The structure will be designed to meet the stability requirements for each loading case outlined in § 257.73(e) and r. 335-13-15-.04(4)(e).

The closure incorporates a leachate control and collection system consisting of a sump and conveyance system at the downgradient limit of the closure. Leachate waters within the closed CCR unit that find their way to the downgradient northern end of the closure will be captured in the constructed leachate collection system above the low lying backfill and upstream toe of the containment dam and conveyed to a treatment system via a sump and lift station.

4.2.6 Final Grading of Consolidation Area for Capping

In accordance with § 257.102(d) and r. 335-13-15-.07(3)(d), the final cover will be constructed to control, minimize or eliminate, to the maximum extent feasible, post closure infiltration of liquids into the waste and potential releases of CCR from the unit. This will be achieved by providing sufficient grades and slopes to: 1) preclude the probability of future impoundment of water, slurry, or sediment; 2) ensure slope and cover system stability; 3) minimize the need for further maintenance; and 4) be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

4.2.7 Installation of the Cover and Stormwater Management Systems

Once the final grades have been achieved, a cover system will be installed to limit the infiltration of surface run-off into the closed CCR unit, and stormwater will be managed in a series of channels and spillways. Managing water is a critical aspect of this closure due to the size of the watershed, the magnitude of annual rainfall, and the significant volumes and flow rates of water involved. Due to the general topography of the site, diverting stormwater from the adjacent drainage areas away from the cap is not feasible and these flows will have to be managed through the construction areas during closure and on the cap in post closure.

4.2.8 Restoration of CCR Removal Areas

The restoration areas will be graded to be free draining to the proposed attenuation pond to be located at the northern limits of the site. Typical natural channel restoration techniques, such as stream meander and rock vanes, will be employed to establish drainage and waterways through the restoration areas and to reduce erosion potential.

To control the surface run-off leaving the site, a portion of the existing dam will be retained to create a new attenuation pond in the closure-by-removal area. The existing rockfill dam will be lowered to elevation 295 ft-MSL (to be confirmed / adjusted as design progresses). Where possible, material from the dam will be reused. The demolition will be performed with both fill requirements and dam safety considerations in mind so that the required storm events can be managed during construction without unregulated discharges.

4.2.9 Demobilization / Monitoring

Demobilization of the equipment from site will be phased as key activities are completed i.e. it is expected the dredging and ash thickening plant activities will be completed first followed by the water treatment and general civil closure activities. Prior to completion of closure and final demobilization, all above grade temporary infrastructure will be demolished and removed from site and the post closure monitoring systems will be fully installed and functional.

4.3 Procedures During Closure

4.3.1 Dewatering

This conceptual dewatering plan was developed to provide a summary of the removal of free water, interstitial water, contact water, and surface water as defined below.

- Free water – water contained in the CCR unit above the surface of CCR material
- Interstitial water – water within the pore space of CCR material

- Contact water – surface or ground water that comes in contact with CCR material
- Surface water – non-contact surface water at the site that requires management

In addition to dewatering, Alabama Power developed and implemented a plan for water treatment at the site during closure consisting of a range of treatment technologies, compliance sampling (constituents, frequency, and locations) for compliance with the site's National Pollutant Discharge Elimination System (NPDES) permit to provide treatment and management of discharge of free, interstitial, and contact water from the units.

The free water in the northern portion of the pond will be decanted by pumping to a water treatment facility prior to discharge off-site. The management of the free water levels in the pond are important for site water management controls including coordination with the proposed dredging and other construction processes. Interstitial water levels will be monitored in critical areas to allow for safe excavation and working on ash as needed to facilitate construction activities.

The main pond free water management pumps will deliver water to the water treatment plant for treatment and discharge up to a treatment rate of 12,000 gpm. The pumping system will be equipped with a floating intake, including a sediment curtain around the intake.

Removal of contact water will be completed within the limits of the Ash Pond using both in-situ (in place prior to excavation / handling) and ex-situ (after initial handling / excavation) techniques. Dewatering of ash during closure activities includes removing water using a variety of methods, including but not limited to passive, gravity-based methods (e.g. trench drains, rim ditching, wick points) and/or active dewatering methods (e.g. use of the ash thickening plant, and in-situ pumps or well points) as needed to allow for CCR removal and transportation. Ex-situ dewatering techniques consist of but are not limited to the following: gravity dewatering (settling basins and/or lateral trenching), racking and windrowing, mechanical thickening, and absorbent desiccation.

The Dewatering Plan provides the generic framework for these activities during relocation and consolidation of CCRs during the Plant Gorgas Ash Pond closure project. Variations in site conditions, construction means and methods, weather conditions, and other factors impact the dewatering sequencing and/or approach to the project. During the closure project, specific means and methods will be reviewed and approved by the construction management and oversight team.

4.3.1.1 Safe Dewatering Rates and Stability

During closure construction, the integrity of the existing dam, and all significant temporary and permanent slopes and stacks will be evaluated to ensure stability.

Pond levels adjacent to the existing dam will be managed such that pond level lowering does not occur at a rate faster than a maximum of 2 feet per week in accordance with Southern Company's dam safety protocols. Dewatering at this rate will be supported by daily inspections and visual assessment as to the integrity of the slopes of the dam. Free and interstitial water levels adjacent to and within other critical slopes and stacks will be monitored as required by the site instrumentation and monitoring plan to allow evaluation of stability and adjustment of controls and conditions as necessary to maintain stability.

4.3.2 Liquid Management

4.3.2.1 Contact Water

During closure construction, run-on stormwater and run-off contact water (e.g. stormwater that has come into contact with CCR) will be controlled with best management practices such as channels, diversion berms, and pumps and managed in accordance with the applicable NPDES Construction Storm Water, Industrial Storm Water and Industrial Wastewater Discharge permit(s).

Due to the general topography of the site, diverting stormwater from the contributing drainage areas away from the unit during and post closure is not feasible and hence these flows will have to be managed throughout construction. The existing dam will be retained in part until after all CCR is placed within the final cover limits. This will allow for stormwater generated from the contributing drainage areas and the pond surface to be contained. Contact water will in general be allowed to drain to the northern end of the pond from where it will be abstracted and treated at the on-site water treatment facility.

Interstitial water generated from the ash dewatering process will be pumped by either well or surface pumps to the northern end of the pond for storage prior to abstraction and treatment.

If construction activities result in the ponding of water, these areas will be equipped with surface pumps and the contact water will be transferred to the northern end of the pond for treatment and discharge at the NPDES discharge point.

4.3.2.2 Non-Contact Water

Non-contact water is expected to be generated in areas with final or temporary covers installed, and/or in areas with stormwater diversion and/or management systems installed upgradient of the CCR areas. These areas will be isolated and will have some temporary storage capacity (typically by constructing temporary containment berms). Non-contact storage areas will be equipped with pumps to convey the non-contact water directly to the NPDES discharge points once areas have been confirmed to be free of CCR and CCR contact water.

4.3.3 Dredging and CCR Removal Activities

The existing ash pond footprint includes low-lying areas in the northern reaches of the pond, and higher elevation areas in the southern portions of the site. As part of the overall closure strategy it was decided that CCR removal would occur in the low-lying areas closest to the river with final storage of CCR in the further upland southern portions of the site to provide for the creation of an increased buffer between CCR materials and the Mulberry Fork of the Black Warrior River.

The CCR closure strategy includes the removal of all CCR from the low-lying site areas below elevation 270 ft-MSL, even the zones that extend back beyond the extents of the permanent closure footprint, such as the natural low-lying topographic area between zones M1 and M2 (see Figures 2 and 3). This “over-excavation” of the low-lying areas within the permanent closure footprint is followed by backfilling with non-CCR fill materials to create a buffer between the permanent CCR storage and estimated post-closure groundwater levels in these areas. CCR will then be placed over the non-CCR. This sequence therefore requires CCR to be temporarily stored in the southern sections of the pond while the non-CCR fill is being placed.

Two primary methods of ash handling are proposed, namely hydraulic dredging and mechanical excavation as described in Section 4.2.

4.3.3.1.1 Dredging and Surge Pond Operations

Hydraulic dredging will be the main method for CCR removal during closure. The dredge will sluice CCR to a surge pond to be constructed within the limits of finger F7 adjacent to the ash thickening plant. The surge pond will be equipped with a pumping system which will deliver CCR material to the thickening plant feed tanks. During dredging the water levels in the main northern portions of the pond will be managed and incrementally lowered via feed to the water treatment facility.

The dredge feed to the surge pond will include a trash rack / rock screen for removal of oversized material. The maximum feed particle size to the paste plant is set at 0.5 inches or less. Oversized material will be screened by the dredge and surge operations with any retained oversized material being assessed for onsite or offsite permanent disposal / storage. Organic screened material will be disposed by being burnt on-site by the civil contractor and inorganic material will be disposed of within the closure limits.

4.3.3.1.2 Ash Thickening "Paste" Plant

Dredged CCR material will be conveyed to the ash thickening plant via the surge pond for dewatering and thickening. The ash thickening plant is designed to handle the known range of ash particle size distribution (PSD) feeds within the Plant Gorgas Ash Pond which can be roughly grouped into two process streams (namely bottom ash / coarse and fly ash / fine) that will produce a thickened ash. The split between the coarse and fine material handling streams within the plant will be a function of the PSD of the ash entering the plant.

The plant will be equipped with the following key equipment:

- Cyclones – The cyclones will split the CCR slurry into the coarse and fine streams,
- Screens – The coarse stream from the cyclones will be conveyed under gravity to the mechanical screens for dewatering,
- Thickeners – The fine stream from the cyclones will be dewatered / thickened in the thickeners. Flocculant will be added to the feed into thickeners to assist with the thickening process,
- Positive Displacement Pumps – The dewatered and thickened streams from the screening and thickeners will combine in a holding tank before being pumped to the final deposition area via a pair of positive displacement pumps.

The CCR material will be dewatered / thickened in the thickening plant to a solids content suitable for deposition, with further drying, densification, and consolidation occurring following placement through a combination of natural drying, desiccation, and consolidation processes and further active dewatering as required.

4.3.3.1.3 Mechanical Excavation

It is known that some percentage of material will not be economically or practically handled via direct dredging. This material will have to be either hydraulically transferred to the dredge or mechanically excavated and transported to the storage areas using haul trucks. The actual amount of this material will likely not be known until well into construction.

Excavation will be undertaken using conventional excavators, loading directly into off-road articulated dump trucks (ADTs). These operations will generally consist of the lowest elevation ash within each

given area and ash removal from restricted areas around remnant trees and other materials that could restrict or impact dredging.

Once the required water level in the ash has been reached, the ash will be excavated and placed in windrows for further drying if needed. Once sufficiently dried, the ash will be loaded into ADTs and transported to the final placement area (within the capped area). Temporary access roads and ramps will have to be constructed to allow for access into the closure-by-removal area. This section of the works will also include CCR removal verification and the six inches of over excavation.

4.3.3.2 Depth of CCR to be removed

On average the depth of the CCR in the closure by removal areas is 35 feet.

4.3.4 CCR removal verification protocol

"CCR removal" refers to the process of verifying and documenting that the CCR has been removed from the applicable dredging and excavation areas of the ash pond. The pond is known to contain a mixture of fly ash and bottom ash collectively referred to as CCR.

The procedure for closure by removal of CCR within identified limits will involve the following steps for each area identified as a Closure by CCR removal area:

1) Identification and demarcation of the area (or portion of the area) subject to removal verification. It is noted that the verification and documentation of removal procedures may be completed in phases.
2) Removal of accumulated CCR such that no CCR remains visible.
3) Visual inspection and documentation of the area by qualified person.
    a. For areas where the accumulated CCR and natural ground are difficult to distinguish, a hand lens or other visual aid may be used by the qualified person to aid the visual inspection.
    b. For areas where a clear color contrast between accumulated CCR and natural ground exists, colorimetric methods (such as the Munsell Color Chart) can be considered to supplement visual identifications.
4) If required, repeat steps 1 through 3 until CQA Engineer is satisfied that no CCR remains visible.
5) Complete "Pre 6-Inch Over-Dig Survey" and photographic documentation of applicable removal area(s).
    a. The Pre and Post 6-inch Over-Dig surveys will be performed either by:
        i. A grid of discrete survey points with a maximum 100-ft spacing (each way). Horizontal control shall be within 0.1 ft, and vertical control shall be within 0.02 ft, or
        i. For large areas, a photogrammetric or Lidar survey capable of generating a continuous surface of the surveyed area. For near continuous surveys Horizontal

and Vertical controls for Pre and Post Over Dig surveys can be reduced to 0.2 and 0.04 ft, respectively.

6) Over-excavation of a minimum of 6 inches at every applicable point (see Note below) in the designated removal area(s).

    a. For areas where rock, existing concrete designated to remain, or other similar hard surfaces are present in the excavation area (including the over-excavation zone) the surface will be cleaned to a visually-clean condition through hydraulic or mechanical means such as pressure washing. The soils surrounding the hard areas will be removed to the 6-inch over-excavation criterion.

7) Complete Post 6-Inch Over-Dig Survey and photographic documentation using the same survey points, procedures, and prescribed minimum tolerances as for the Pre 6-Inch Over-Dig Survey. Complete verification of the prescribed minimum 6” removal across the removal area by survey and visual comparison of the removal area(s).

8) Hand augers borings to 12” depth will be performed at a minimum frequency of every acre and the collected hand auger samples visually assessed to check for the presence of CCR materials below the visible surface. Where site conditions lack safe accessibility for hand augering, a Geo Probe or other means of safely obtaining depth samples at a minimum of one per acre will be performed.

The details of the CCR Removal verification procedures are further outlined and incorporated into the project Quality Assurance Plan and technical specifications for closure.

4.3.5 CCR Placement

The CCR closure configuration consists of a series of stacks and fill areas in the southern upland reaches of the site. The footprint of the CCR consolidation area is comprised of a nominal 274 acre (2D measure) area that achieves the engineering objectives of the closure to permanently and safely store the CCR materials in a stable footprint located back away from and above the level of the Mulberry Fork of the Black Warrior River.

The closure design includes a combination of ash and soil slopes, embankments, and earthen buttresses to achieve stable closure. Final slopes comprised of compacted ash will be a maximum of 4H:1V, and the northern limit will be supported by a newly constructed containment dam.

The final placement and stabilization of ash will be achieved by two primary methods, namely:

- Deposition of ash from the thickening plant: Hydraulically dredged ash will be delivered to and mechanically thickened and dewatered by the ash thickening plant. Thickened ash will be delivered to the final deposition areas by two PD pumps via a series of pipelines and spigots. Once thickened ash is placed, no further mechanical conditioning or compaction of the ash will generally be required, noting that natural evaporation and drying processes and consolidation from placement of overlying materials will work to passively condition the ash after placement. Although the thickened deposition is a controlled process, the final cap profile will not be fully achieved by deposition from spigots alone. In certain areas, mechanically constructed berms will be required to support and control the footprint and shape the deposition to achieve final grades.
- Placement of trucked ash: Some portion of the CCR removal will not be practically achieved via direct dredging and will therefore have to be mechanically excavated and conveyed to the storage

areas using haul trucks. Ash will be dewatered using a combination of in-situ and ex-situ dewatering techniques prior to final placement, grading and compaction in the closure area.

All final closure slopes and conditions will be designed to meet the stability requirements for each loading case outlined in section §257.73(e) of the CCR Rule.

4.3.6 Fugitive Dust Control Plan (ADEM 335-13-15-.02(11); 40 CFR 257.53)

The fugitive dust control plan identifies and describes the CCR fugitive dust control measures that will be implemented during closure to minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from ash ponds, roads, and material handling activities. 40 CFR 257.53 and ADEM Admin. r.ule 335-13-15.02(11) defines “fugitive dust” as “solid airborne particulate matter that contains or is derived from CCR, emitted from any source other that a stack or chimney”.

Fugitive dust originating from the ash pond or ash pond closure activities will be controlled using water suppression or polymer tackifiers. Pasted ash reduces origination of fugitive dust to some degree; however, dust management will still be an extensive and important operation.

The fugitive dust control measures identified and described in the plan will be adopted and implemented based upon an evaluation of site-specific conditions and are determined to be applicable and appropriate for the Plant Gorgas Ash Pond closure. Evaluation will include assessing the effectiveness of the fugitive dust control measures for the facility, taking into consideration various factors such as site conditions, weather conditions, and operative conditions.

CCR that is transported via truck to stockpiling prior to loading in trucks for hauling will be conditioned to appropriate moisture content to reduce the potential for fugitive dust.

Water suppression or polymer tackifiers will be used as needed to control fugitive dust on the facility roads used to transport CCR and other CCR management areas. Speed limits will be utilized to reduce the potential for fugitive dust. Trucks used to transport CCR will be filled to just under full capacity to reduce the potential for material spillage.

Southern Company and construction personnel will assess the effectiveness of the control measures by performing visual observations of the ash pond and surrounding areas and implementing appropriate corrective actions for fugitive dust, as necessary.

Any complaint received from a citizen regarding a CCR fugitive dust event at the facility will be documented and investigated. Appropriate steps will be taken, including any corrective action, if needed.

4.3.7 Surface Water Management During Closure

Managing water is a critical aspect of this closure due to the size of the watershed, the magnitude of annual rainfall, and the significant volumes and flow rates of water involved. Due to the general topography of the site, diverting stormwater from the contributing drainage areas away from the cap is not feasible and hence will have to be managed through the construction areas during closure and on the cap in post closure.

Surface water management during closure will be achieved by the management and operation of temporary berms, linings, and pumps to covey contact water to the northern portion of the site where a water management pond will be decanted by pumping to the water treatment facility prior to discharge

off-site. At times, surface water will be blocked from gravity draining to the Northern end of the pond due to berms or temporary ash stacks. The temporarily impounded water will be pumped to the Northern end of the pond for treatment and discharge at NPDES the discharge location.

Once the final grades have been achieved, a cover system will be installed to limit the infiltration of surface run-off into the closed CCR unit, and stormwater will be managed in a series of channels and spillways.

4.3.8 Equipment Decontamination

All equipment (vehicles, pumps, pipelines, etc.) departing the site that have been in contact with CCR will be decontaminated via washing to remove all CCR materials. The overspray and all contact water from decontamination operations will be stored on site and treated prior to discharge.

4.3.9 Site Security

All access points to the site will be gated and gates will be locked with controlled access by approved personnel only. The site access and proposed security locations are shown on Early Works General Arrangement Drawing (EW-02) included as Appendix C. The main access point into the site is from the east off of Bankhead Road through Gate G1 and will be equipped with a manned security point. All site visitors including construction personnel will be required to check in at the security point and will be badged before being allowed to enter the site. No unauthorized personnel will be allowed to enter the site.

The site will be equipped with security cameras at key locations that will provide further around the clock surveillance.

4.3.10 Groundwater Monitoring

A groundwater monitoring plan was submitted with the original Plant Gorgas Ash Pond permit application. Please refer to Appendix 10 of the original permit application.

4.3.11 Operational inspections

Inspections will be conducted by a Qualified Person at intervals not exceeding 7 days to look for appearances of structural weakness and for proper operation of all outlet structures maintained for use during closure. Furthermore, an annual inspection will continue to be conducted by a qualified Professional Engineer throughout the closure process.

4.4 Closure Design Features

The current pond extents are defined by the existing dam crest at elevation 395 ft-msl. The footprint of the pond at this elevation is considered the extent of CCR material, and the closure design maintains all consolidated CCR material within this lateral footprint. The existing ash pond footprint includes low-lying areas in the northern reaches of the pond, and higher elevation areas in the southern portions of the site. As part of the overall closure strategy it was decided that CCR removal would occur in the low lying areas closest to the river with final storage of CCR in the further upland southern portions of the site to provide for the creation of an increased buffer between CCR materials and the Mulberry Fork of the Black Warrior River.

The Plant Gorgas Ash Pond closure design consolidates ash behind a new confinement buttress into fingers F1 to F7, F12 and Middle areas M3 and M4 (see the 30 percent Design drawings included as

Appendix B for key closure features), with closure by removal of ash within Fingers F8 to F11 and Middle Areas M1 and M2.

The CCR closure strategy includes the removal of all CCR from the low lying site areas below elevation 270 ft-MSL, even the zones that extend back beyond the extents of the permanent closure footprint, such as the natural low-lying topographic area between zones M1 and M2. This “over-excavation” of the low-lying areas within the permanent closure footprint is followed by the backfilling with clean non-CCR fill materials to create a buffer between the permanent CCR storage and estimated post-closure groundwater levels in these areas. CCR will then be placed over the non-CCR. This sequence therefore requires CCR to be temporarily stored in the Southern sections of the pond while the non-CCR fill is being place.

In the final closure configuration CCR will be consolidated behind a new engineered containment structure with an incorporated leachate collection system to provide permanent stability and containment. Post closure management of stormwater is provided by a newly designed stormwater control system culminating in two new spillways at the eastern and western abutments of the final containment area. The existing rockfill dam will be partially removed down to Elevation 295 ft-MSL to provide lower elevation but continued containment and separation with the Mulberry Fork of the Black Warrior River to form a new attenuation pond to the North of the closed unit as part of the site restoration efforts once ash from the closure-by-removal areas are removed.

To achieve the grades and capacity necessary to achieve final closure, CCR material will be stacked above the 395 ft-msl elevation within a portion of the pre-closure lateral footprint of the CCR Unit. To facilitate this stacking, in some areas clean fill will need to be built up to buttress the CCR material in a stack. As the top liner will need to be anchored into undisturbed, native soil in order to inhibit runoff infiltration, clean fill areas will also be included under lining when appropriate.

Final closure design is based on routing surface runoff into a central channel through a series of increasingly larger channels as would occur in a natural dendritic system. Off-cap, there will be little stormwater infrastructure apart from groin channels facilitating the transition from off-cap to on-cap flow. On-cap, a network of channels will move stormwater down decks and stacks to one of two spillways where it will flow down into the restoration area.

Water will flow across the cap decks through channels lined with grass or riprap directly to primary channels or downslope channels lined with Agru HydroTurf descending stacks or steeper grades. Stacks will collect water through a series of grass lined tack-on berms aligned at a 30-foot vertical spacing. A variance is being requested to allow for berms or terraces on a 30-ft spacing rather than 20-ft as required by r. 335-13-15-07(3).The tack-on berms will transmit the water to downslope channels descending steep sections directly or along stack access roads. Run-off will pass through the primary channel networks along road corridors. Depending on the anticipated conditions, these channels will be lined with either riprap or articulated concrete block (ACB). Water will drain off-cap down to the restoration area and attenuation pond through one of two concrete spillway structures with stilling basins.

Any Potential run-off impacts to the Mulberry Fork will be mitigated by an attenuation pond in the restoration area to which the spillways discharge. The attenuation pond will be impounded by a lowered section of the existing dam designed to contain the 100-year flood event at current discharge levels.

Cap stacks are designed as maximum 25 percent slopes (4H:1V) in accordance with the maximum closure slopes set forth in State Code 335-13-15-.07(3). Stormwater control tack-on berms are set along the stack slopes with a maximum vertical spacing of 30 feet. Top deck slopes within the CCR areas are generally set at between 3 and 5 percent as specified in ADEM Admin. Code r. 335-13-15-.07(3). A variance is being requested to allow slopes flatter than 5 percent. Within stormwater channels, minimum slopes of 1.5 percent were selected.

4.5 Final cover system

The final cover system for the Plant Gorgas Ash Pond closure is designed in accordance with r. 335-13-15-.07(3)(d)3. and § 257.102(d)(3)(i) to minimize maintenance after closure of the CCR unit. The final cover system is designed to prevent the future impoundment of water and includes measures to prevent infiltration, sloughing, minimize erosion from wind and water, settling, and subsidence.

The largest area requiring a final cover is approximately 274 acres. The engineered final cover system consists of the following minimum components, listed from top to bottom.

- An infiltration layer of a minimum of 18 inches thick earthen material
- An erosion prevention layer providing a minimum of 6 inches of earthen fill and vegetation
- A minimum 40 mil polyethylene (LLDPE or HDPE) geomembrane liner

The final cover system consists of two options for the final cover system of the unit. Each cover system option proposed consists of an 18-inch minimum layer of prepared and compacted subgrade material and incorporates a geosynthetic final cap. The Plant Gorgas Ash Pond includes an alternative final cover design, in accordance with r. 335-13-15-.07(3)(d)3.(ii) and § 257.102(d)(3)(ii). These areas are also designed to prevent the future impoundment of water and include measures to prevent infiltration, sloughing, minimize erosion from wind and water, settling, and subsidence.

The alternative final cover system consists of the following minimum components, listed from top to bottom.

- Specified final cover infill as outlined in the final closure plan design;
  - 1/2” minimum sand infill
  - 1/2" minimum sand infill with ArmorFill® application
  - 3/4” minimum HydroBinder® infill
  - Rock or articulated concrete block overlying a geosynthetic separation and protection layer
- Engineered Synthetic Turf (HydroTurf®)
- A minimum 40 mil polyethylene (LLDPE or HDPE) geomembrane liner

The final cover system, consisting of the above described engineered cover system alternatives with run-on and run-off controls, is currently being developed and designed to meet the closure standards of § 257.102(d)(3)(i) and r. 335-13-15-.07(3)(d)3.(i). Engineering calculations for the final cover design will be submitted as part of the Engineering Report for the final closure permit submittal.

5.0 MAXIMUM INVENTORY OF CCR– § 257.102(B)(1)(IV) AND R. 335-13-15-.07(3)(B)1.(IV)

The current estimate (as of July 2019) of the maximum inventory of CCR ever on-site at the Gorgas Ash Pond over the active life of the CCR unit is nominally 25 Million Cubic Yards (MCY). This maximum inventory estimate is updated from the initial closure plan estimate based on the addition of CCR within the unit from additional generation activities and a significant number of additional drilling and geophysical investigations completed allowing for a better estimate of the bottom of unit conditions.

Maximum unit inventory volume figures are derived from available information.

6.0 LARGEST AREA REQUIRING FINAL COVER– § 257.102(B)(1)(V) AND R. 335-13-15-.07(3)(B)1.(V)

The Plant Gorgas Ash Pond is approximately 420 acres in pre-closure size. Based on the current 30% closure design the largest area requiring final cover in the consolidated post-closure condition is 274 acres (2D post-closure limits of CCR).

7.0 CERTIFICATION OF CLOSURE

In accordance with §257.102(h) and r. 335-13-15-.07(3)(h), within 30 days of completion of closure, a professional engineer registered in Alabama will prepare and APC will submit a Closure Construction Certification Report and a Removal Certification Report to ADEM documenting the completion of closure activities as indicated in § 257.102(f)(3) and r. 335-13-15-.07(3)(f)3. APC, as required by ADEM, will submit confirmation that a notation on the property deed has been recorded in accordance with § 257.102(i) and r. 335-13-15-.07(3)(i).

8.0 DIRECTIONAL INFORMATIONAL SIGNS

A designated construction entrance and access road has been designed and will be completed prior to initiating closure activities. Signs will be posted at the entrance gate notifying users of the ash pond of the closure activities and a telephone number for emergencies will be posted. Emergency evacuation routes will be maintained for the duration of closure activities.

9.0 VEGETATION PLAN

No significant vegetation exists above the pre-closure pond water levels within the limits of the ash pond as the majority of the ash pond limits exist under a water cover. The extent of vegetation below CCR in closure by removal areas is uncertain prior to exposure of such areas during closure, and the needs for clearing and vegetation management in such areas will be progressively assessed during closure. Vegetative materials encountered within the ash pond limits as closure progresses will at a minimum be washed of any contacting CCR materials prior to further processing and handling onsite via approved means such as mulching, controlled burning, etc.

Vegetative management will also be required in a number of areas outside and surrounding the pond limits (non CCR areas) to support closure. Vegetation management in these non CCR areas will generally include timber and topsoil harvesting where applicable and mulching and/or burning of vegetative matter onsite for use in erosion control efforts, on-site compositing for topsoil generation / enhancement, or other approved means.

10.0 SITE EQUIPMENT NEEDED

The Contractor selected to perform closure construction will be responsible for all equipment needed during the construction period. For post-closure care, Alabama Power will provide all necessary company owned, leased or contracted equipment needed to perform maintenance and any necessary repairs.

11.0 SEDIMENT REMOVAL

On a periodic basis during closure, accumulated sediment will be removed when necessary from drop inlets, drainage pipes, diversion ditches, and other drainage structures.

12.0 EROSION AND SEDIMENT CONTROL

Upon closure, all proposed ditches, diversion berms, culverts, riprap, and other drainage structures serving disturbed areas, but not already built, will be constructed and placed according to the Design Drawings.

13.0 COST OF CLOSURE

Through coordination with the engineering design team and the subcontractor selected to execute the closure activities, the estimated cost of closing Plant Gorgas's ash pond is approximately $750 million. The estimate is considered to be at screening level with a low to moderate level of project definition. Due to the complexity, quantities, and duration of the overall project, some variability in costs is expected. Additional expenses of post closure care, maintenance, and corrective action are currently estimated at $31 million. Fully detailed long-term maintenance and corrective action strategies have not yet been determined which will have the potential to influence current estimates.

Some of the most significant cost items include:

- Water management including contact and noncontact water;
- Cover system;
- Construction management and construction quality control (CQC);
- Offsite fill materials such as soil and clay fill, gravel and riprap;
- Dredging and pasting operations;
- Excavation, placement, compaction, and grading of CCR into the consolidated footprint;
- Construction quality assurance (CQA);
- Dust control management;
- Engineering support; and
- General contingency and inflation on construction items.

14.0 CLOSURE SCHEDULE

Closure activities for the Gorgas Ash Pond are outlined in the schedule presented in Table 1. The Ash Pond is currently undergoing closure in accordance with r. 335-13-15-.07(3)(d) and § 257.102(d), and no longer receives CCR. Final capping and closure in place of the Ash Pond is expected to be completed in 2028.

Table 1: Gorgas Ash Pond Closure Milestones Schedule (335-13-15-.07(3)(b)1.(vi))

Closure Activity	Completion Date
Notice of Intent to Close	October 2016
Placement of CCR From Outside the Unit Ceased	April 2019
Begin Dewatering Activities	2019
Begin CCR Consolidation and Stabilization	2020
Begin Final Closure Construction Activities	2026
End Final Cap Construction Activities	2028

15.0 RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS

As outlined in § 257.105 and r. 335-13-15-.08(1), each Owner or Operator of a CCR unit subject to the Department regulations must maintain files of certain information in an operating record at the facility. Each file is to be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study. Electronic storage of the records is acceptable. These records are to be made available to the Department upon request.

Certain notifications are to be made in accordance with the requirements of § 257.106 and r. 335-13-15-.08(2). In many instances, such notifications are to be placed in the facility's Operating Record. In certain instances, further notifications are to be made to the Department Directory within 30 days of placement of a notification into the Operating Records. Furthermore, a publicly accessible internet site must be established for posting of certain notifications and compliance information within 30 days of it being placed in the Operating Record.

Alabama Power and Plant Gorgas maintain an electronic Operating Record for the facility. In addition, a publicly accessible internet site has already been established for compliance with EPA's CCR Rule. Required notifications and compliance data, as outlined in § 257.105 through § 257.107 and r. 335-13-15-.08 and as applicable to the Plant Gorgas Ash Pond, will be maintained in the electronic Operating Record, and as required, made available on the publicly accessible internet site within 30 days of placement in the Operating Record. Furthermore, required notifications will be made to the Department Director within 30 days of placement in the Operating Record.

Certain plans and assessments are required to be updated at specified intervals and/or upon modification of certain components of the facility. If and when applicable, updates will be made to the respective plans and assessments, and notifications placed in the Operating Record, posted to the

publicly accessible internet site, and communicated in writing to the Department Director in accordance with the Department rules.

16.0 WRITTEN POST-CLOSURE PLAN

40 CFR § 257.104 and ADEM Administrative Code r. 335-13-15-.07(5) requires the owner or operator of an existing CCR surface impoundment that is closed in place to provide for post-closure care of the unit for a period of at least 30 years. Post-closure care includes maintenance of the facility, as well as groundwater monitoring in accordance with § 257.90 through § 257.98 and r. 335-13-15-.06(1) through r. 335-13-15-.06(9).

The Plant Gorgas Ash Pond is currently expected to be closed in place under the performance standards outlined in § 257.102(d) and r. 335-13-15-.07(3)(d). Following closure, maintenance will be provided on the final cover system for the required post-closure care period so that the integrity and effectiveness of the final cover system will be maintained. Maintenance activities will include, as needed, repairs to the final cover to correct any effects related to settlement, subsidence, erosion or other events, and will be performed to prevent run-on or run-off from eroding or otherwise damaging the final cover. Maintenance tasks could include, but not be limited to, repair of erosion features, replacement of eroded cover soils and re-establishment of vegetation, where applicable. Maintenance will be performed on a semi-annual schedule, or more frequently if needed.

The groundwater monitoring system will be maintained throughout the required post-closure care period. Groundwater monitoring will be performed on a semiannual basis during the required post-closure care period as well.

The following office(s) can be contacted about the facility during the post-closure care period.

Gorgas Steam Plant
Compliance and Support Manager
460 Gorgas Road, Parrish, AL 35580-5715
1-205-686-2103
G2CCRPostGOR@southernco.com

At the present time, there is no planned use of the facility after closure. If current plans change, they will be noted in an amendment to this post-closure care plan. Any future use of the property after closure will not disturb the integrity of the final cover, liner or any other component of the containment system. Furthermore, the functionality of the groundwater monitoring system will be maintained.

No later than 60 days following completion of the post-closure care period of 30 years, Alabama Power Company will prepare a notification verifying completion of the post-closure care.

Table 1: Gorgas Ash Pond Closure Milestones Schedule (335-13-15-.07(3)(b)1.(vi))

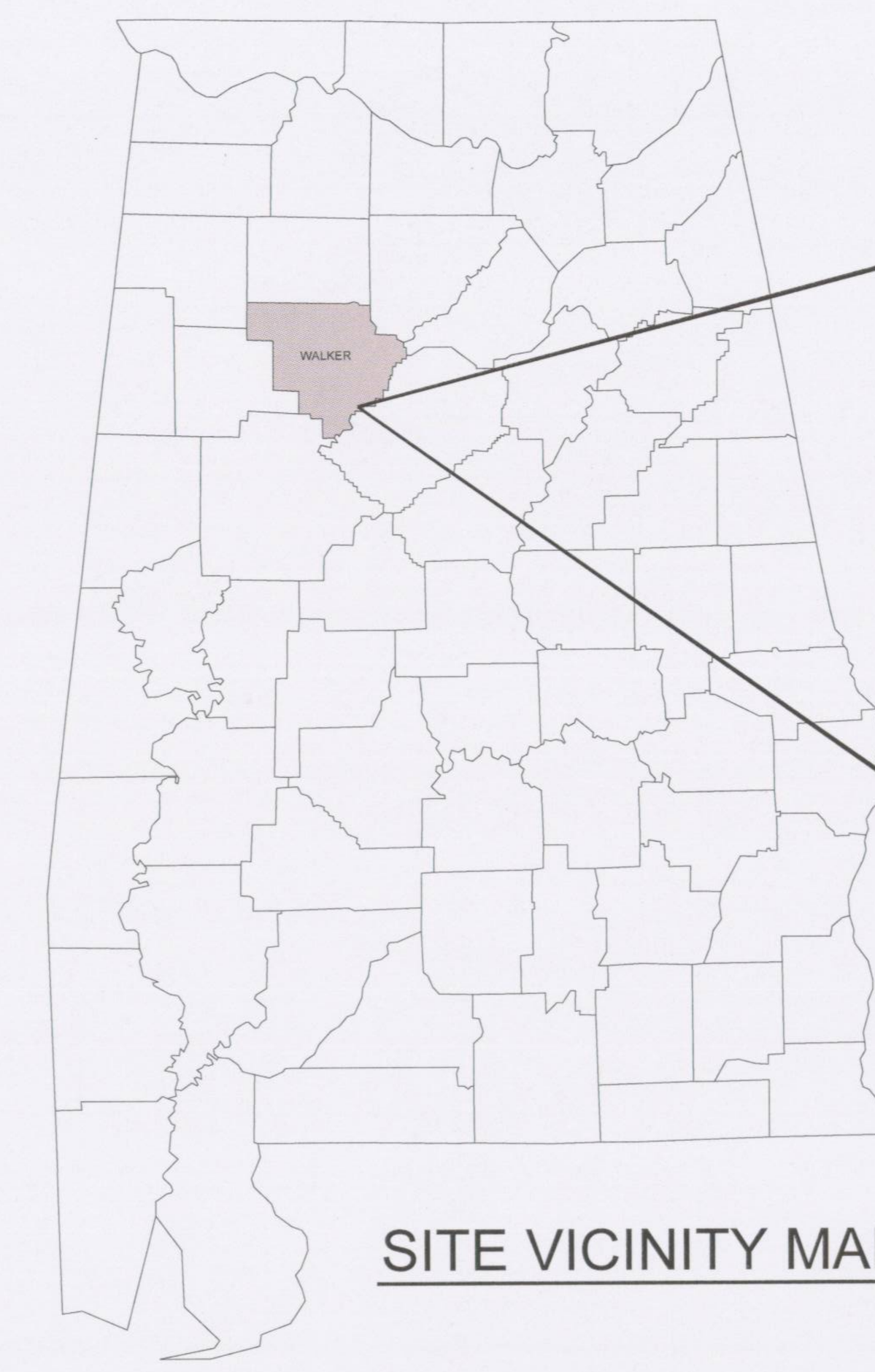
Closure Activity	Completion Date
Notice of Intent to Close	October 2016
Cease Receipt of Waste Streams/Initiate Construction Activities	April 2019
Initiate Free Water Dewatering Activities	June 2020
Paste Plant Commissioning	August 2020
Begin CCR Consolidation and Stabilization	August 2020
Begin Final Cover Cap Construction Activities	August 2022
Completion of Dredging	October 2023
End Final Cap Construction Activities	June 2028

SOUTHERN COMPANY / ALABAMA POWER
PLANT GORGAS
ASH POND CLOSURE DESIGN PLANS

WALKER COUNTY, ALABAMA
FEBRUARY 2019

LIST OF DRAWINGS

DRAWING	DRAWING TITLE
	GENERAL DRAWINGS
01	TITLE SHEET
02	EXISTING CONDITIONS PLAN - AERIAL
03	EXISTING CONDITIONS PLAN - TOPOGRAPHY
04	ESTIMATED BOTTOM OF ASH
	CLOSURE DRAWINGS
05	FINAL COVER GRADING PLAN
06	SURFACE WATER MANAGEMENT AND CHANNEL ARMORING PLAN
07	EXISTING CONDITIONS - TOPOGRAPHY WITH CROSS SECTIONS
08	ESTIMATED BOTTOM OF ASH WITH CROSS SECTIONS
09	FINAL COVER GRADING PLAN WITH CROSS SECTIONS
10	PROFILES AND SECTIONS - 1 OF 4
11	PROFILES AND SECTIONS - 2 OF 4
12	PROFILES AND SECTIONS - 3 OF 4
13	PROFILES AND SECTIONS - 4 OF 4
14	TYPICAL DETAILS - 1 OF 2
15	TYPICAL DETAILS - 2 OF 2
16	CLOSURE DAM SECTION
	PASTE PLANT DRAWINGS
P-01	PROPOSED DEPOSITION PIPELINE LAYOUT
P-02	PLOT PLAN
P-03	GENERAL ARRANGEMENT
P-04	FLOWSHEET PLANT FEED TANKS
P-05	FLOWSHEET CYCLONES AND THICKENERS
P-06	3D GENERAL ARRANGEMENT (ELECTRONIC ONLY)
	EROSION AND SEDIMENT CONTROL DRAWINGS
ES-01	CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN - TITLE SHEET
ES-02	CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN - PHASE A
ES-03 - ES-08	RESERVED FOR FUTURE CBMPP PHASES
ES-09	CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN - DETAILS 1 OF 2
ES-10	CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN - DETAILS 2 OF 2



SITE VICINITY MAP

REF: USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLES: GOODSPRINGS AND GILMORE, AL 2014

SITE LOCATION MAP

0 2000 4000
1" = 2000' FEET

CONTACT INFORMATION

ENGINEER
GREGORY HEBELER, P.E.
GOLDER ASSOCIATES INC.
5170 PEACHTREE RD.
BLDG 100, SUITE 300
ATLANTA, GA 30341
TELEPHONE: 770 / 496-1893

OWNER'S REPRESENTATIVE
JASON WILSON, P.E.
SOUTHERN COMPANY SERVICES
3535 COLONNADE PKWY
BIRMINGHAM, AL 35243
TELEPHONE: 205 / 992-5409

PREPARED BY

GOLDER

PREPARED FOR

Southern Company
Alabama Power

02/15/2019
30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR 30% DESIGN	GLH	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
TITLE SHEET

CONSULTANT: GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	GLH
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 01

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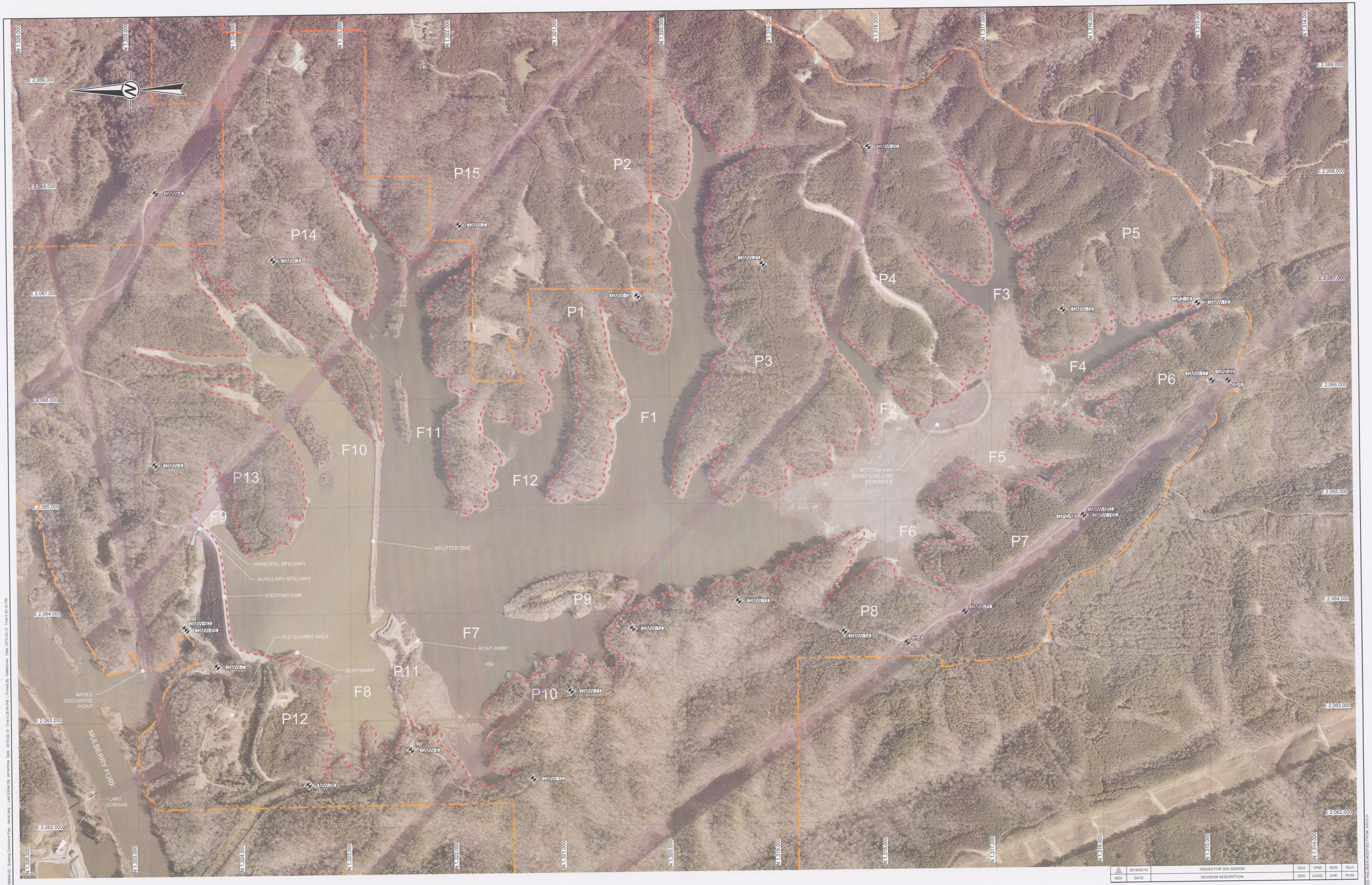

LEGEND

- APC OWNED PROPERTY BOUNDARIES
- ESTIMATED PRE-CLOSURE CCR LIMITS
- EXISTING TRANSMISSION CORRIDOR
- (GMW-01) MONITORING WELLS
- P1 PENINSULA
- F1 FINGER

NOTES

1. COORDINATES CORRESPOND TO ALABAMA WEST COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

REFERENCES

1. AERIAL PHOTOGRAPH PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR
CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR 30% DESIGN	GLH	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company
Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
EXISTING CONDITIONS - AERIAL

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	GLH
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 02

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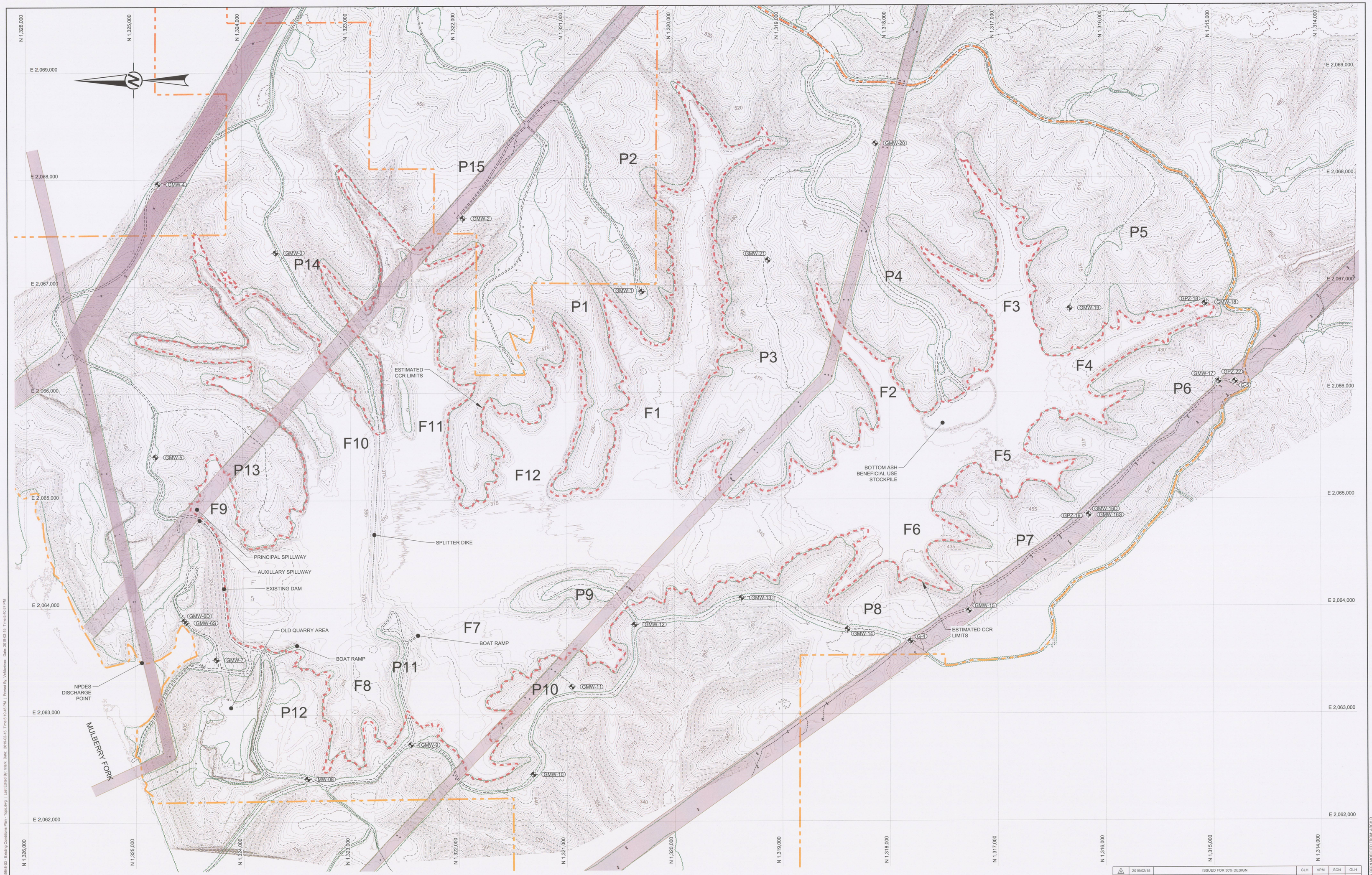

LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- ESTIMATED PRE-CLOSURE CCR LIMITS
- EXISTING TRANSMISSION CORRIDOR
- GMW-01 — MONITORING WELLS
- P1 — PENINSULA
- F1 — FINGER

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.
2. CONTOUR INTERVAL IS 5 FEET.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.
3. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

0 300 600
1" = 300 FEET

REV.	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	GLH	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
EXISTING CONDITIONS - TOPOGRAPHY

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	GLH
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	03

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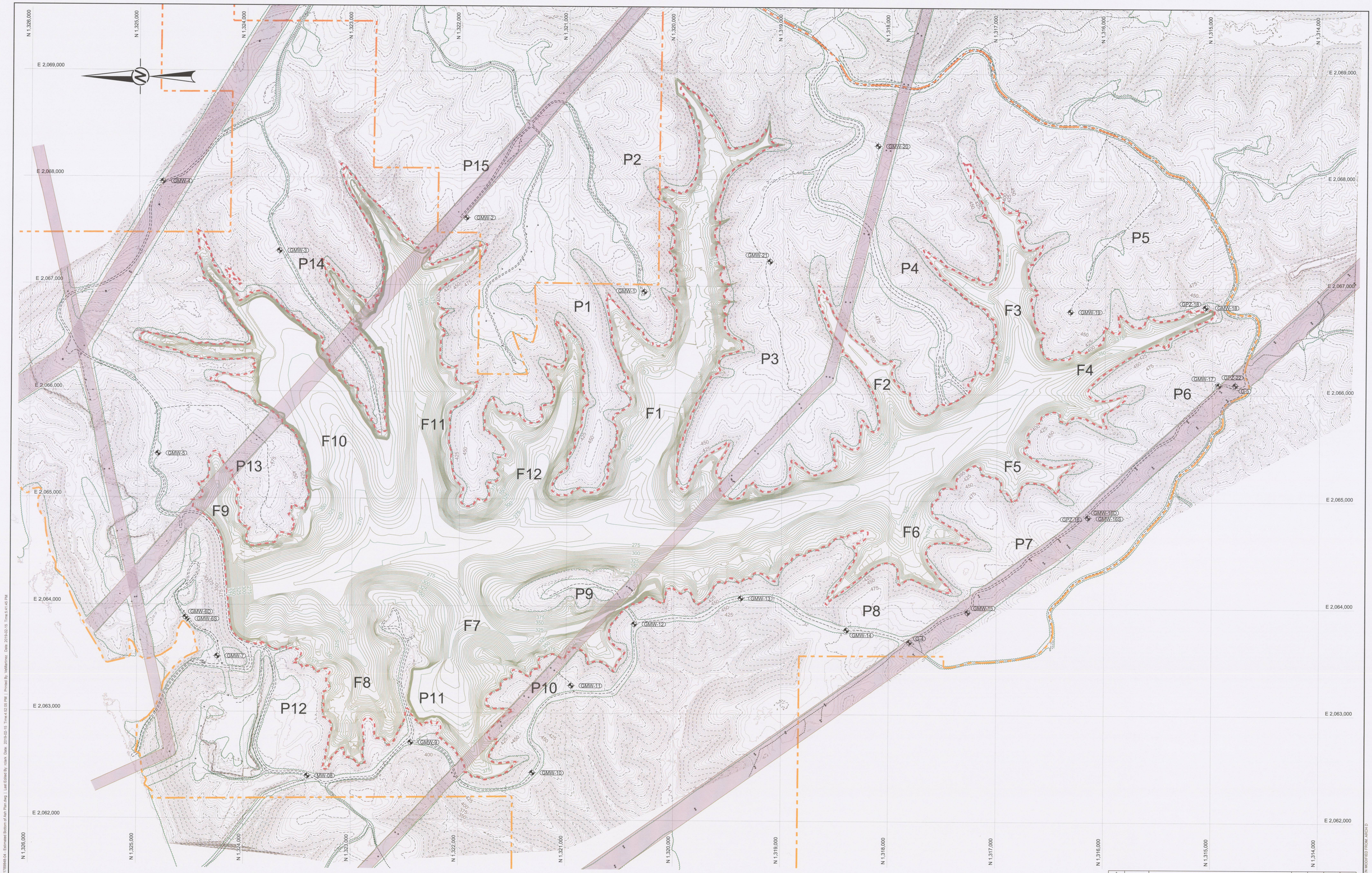

LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- 340 — ESTIMATED BOTTOM OF CCR CONTOURS (REFERENCE 2)
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- EXISTING TRANSMISSION CORRIDOR
- ESTIMATED PRE-CLOSURE CCR LIMITS
- GMW-01 — MONITORING WELLS
- P1 — PENINSULA
- F1 — FINGER

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO NORTH AMERICAN VERTICAL DATUM (NAVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BOTTOM OF CCR TOPOGRAPHY TAKEN FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.
3. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	CCP	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES
Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
ESTIMATED BOTTOM OF CCR PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	04

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D

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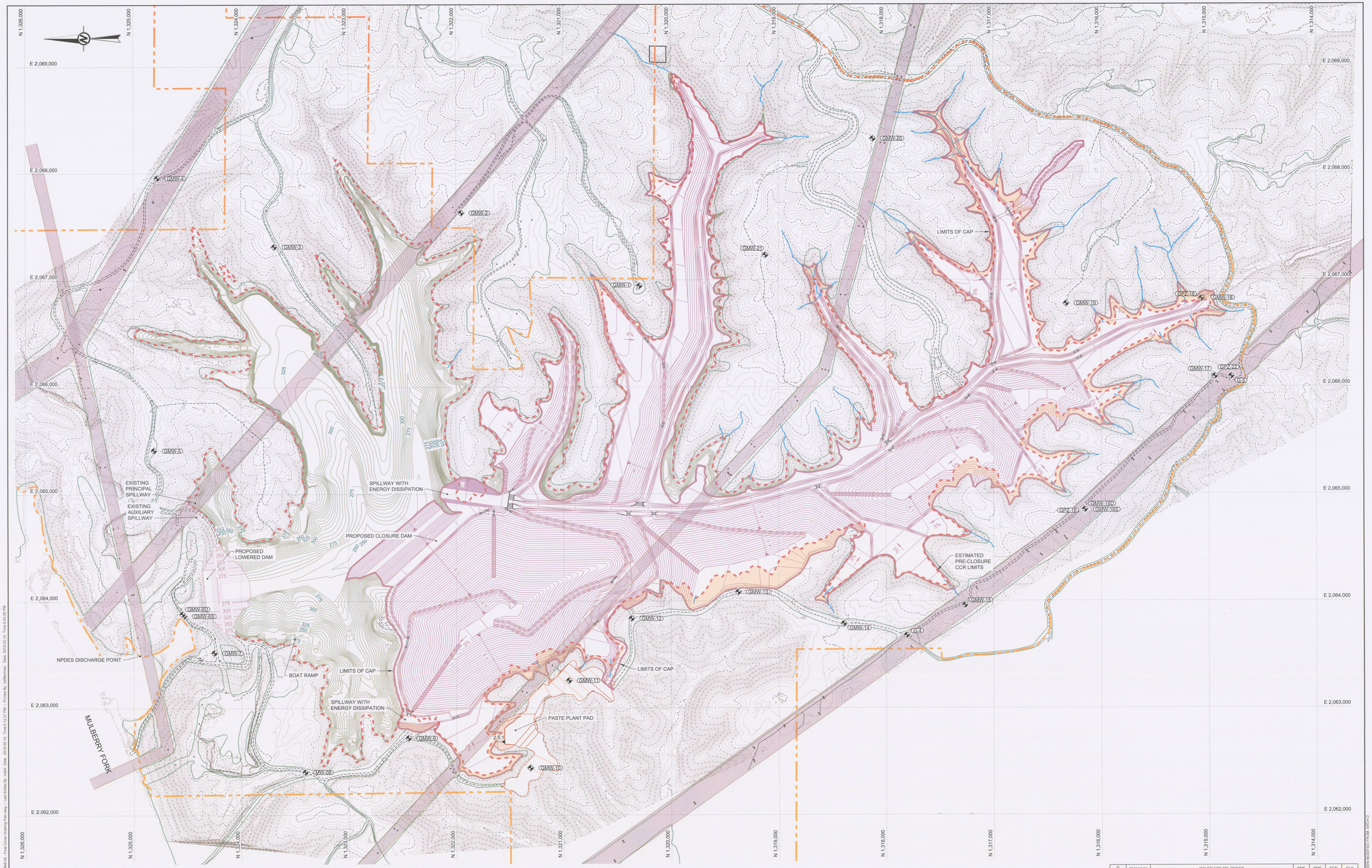


LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- 500 — PROPOSED CLOSURE GRADING CONTOURS
- 450 — PROPOSED PASTE PLANT GRADING CONTOURS
- 340 — CLOSURE BY REMOVAL CONTOURS
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- EXISTING TRANSMISSION CORRIDOR
- ESTIMATED PRE-CLOSURE CCR LIMITS
- 50' PERIMETER BUFFER ZONE
- LIMITS OF CLOSURE FOOTPRINT
- STREAMS PROVIDED BY CAHABA CONSULTING, LLC
- GMW-01 — MONITORING WELLS
- AREA OF NON-CCR FILL

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

2. CONTOUR INTERVAL IS 5 FEET.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.

2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.

3. BOTTOM OF CCR TOPOGRAPHY TAKEN FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPRINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.

4. PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES ARE NOT SHOWN FOR CLARITY.

5. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS NOT FOR CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/15/15	ISSUED FOR 30% DESIGN	RMS	RMS	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

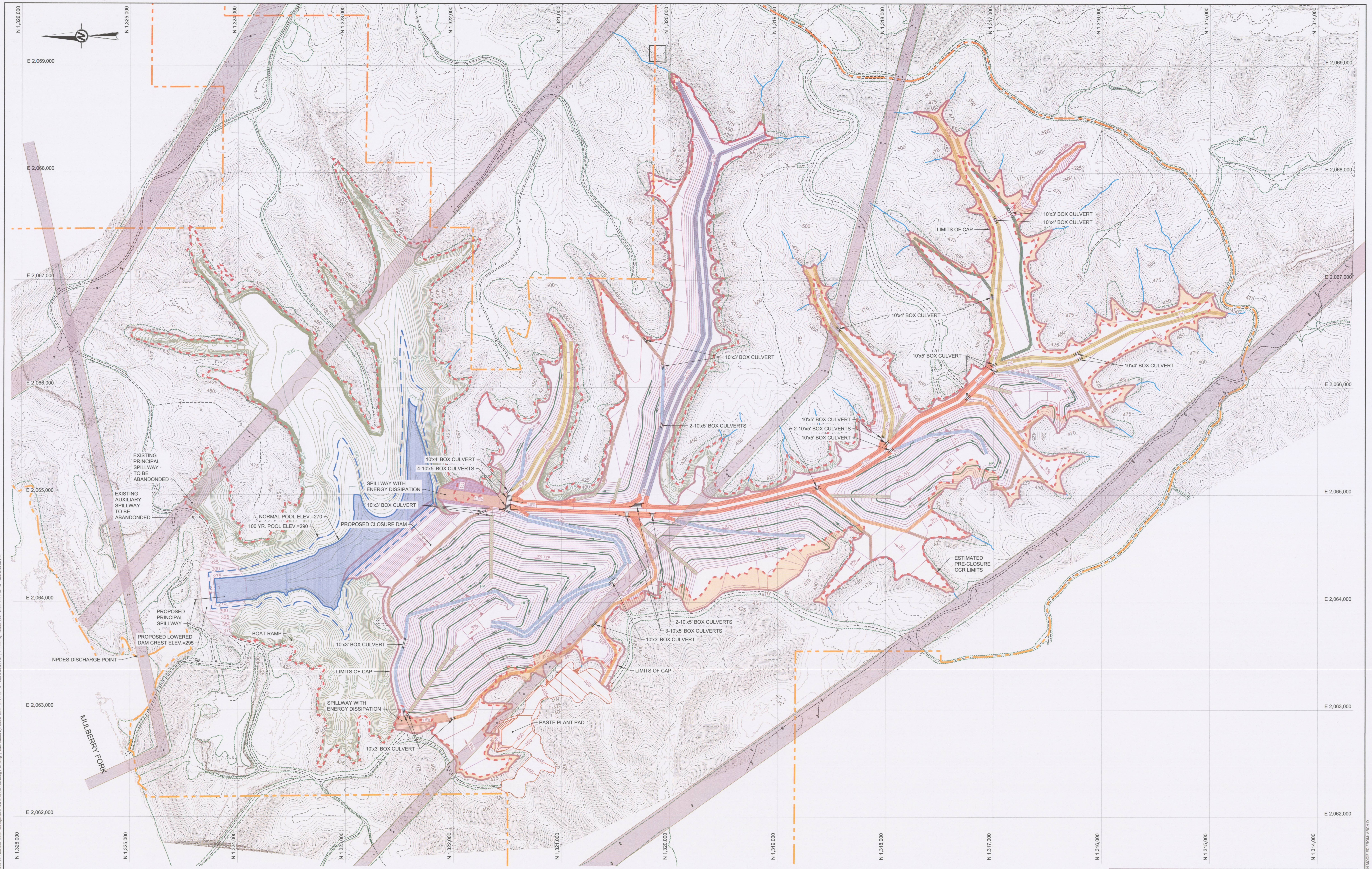
TITLE
PROPOSED CLOSURE GRADING PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	RMS
PREPARED	RMS
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	05

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ARCH D



LEGEND

340	EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
500	PROPOSED CLOSURE GRADING CONTOURS
450	PROPOSED PASTE PLANT GRADING CONTOURS
340	CLOSURE BY REMOVAL CONTOURS
	EXISTING ROADS
	EXISTING POWER POLES / TOWERS
	TREE LINE
	APC OWNED PROPERTY BOUNDARIES
	EXISTING TRANSMISSION CORRIDOR
	ESTIMATED PRE-CLOSURE CCR LIMITS
	50' PERIMETER BUFFER ZONE
	LIMITS OF CLOSURE FOOTPRINT
	STREAMS PROVIDED BY CAHABA CONSULTING, LLC
	AREA OF NON-CCR FILL
	SPILLWAY
	100' CORRIDOR, ACB
	100' CORRIDOR, RIP RAP
	90' CORRIDOR, RIP RAP
	ACCESS ROAD CHANNEL, RIP RAP
	ACCESS ROAD CHANNEL, HYDROTURF
	DOWNSLOPE CHANNEL, HYDROTURF
	DECK CHANNEL, RIP RAP
	DECK CHANNEL, GRASS
	NORMAL POOL ELEVATION = 270'
	DRAINAGE BERM @ 30' VERTICAL SPACING
	HIGH POINT & FLOW DIRECTION

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. COORDINATES CORRESPOND TO THE ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.
2. CONTOUR INTERVAL IS 5 FEET.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.
3. BOTTOM OF CCR TOPOGRAPHY TAKEN FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.
4. PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES FOR CLARITY.
5. EXISTING PROPERTY AND BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019
30% DESIGN DRAWINGS NOT FOR CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
△	2019/02/15	ISSUED FOR 30% DESIGN	RAC	RMS	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES
Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

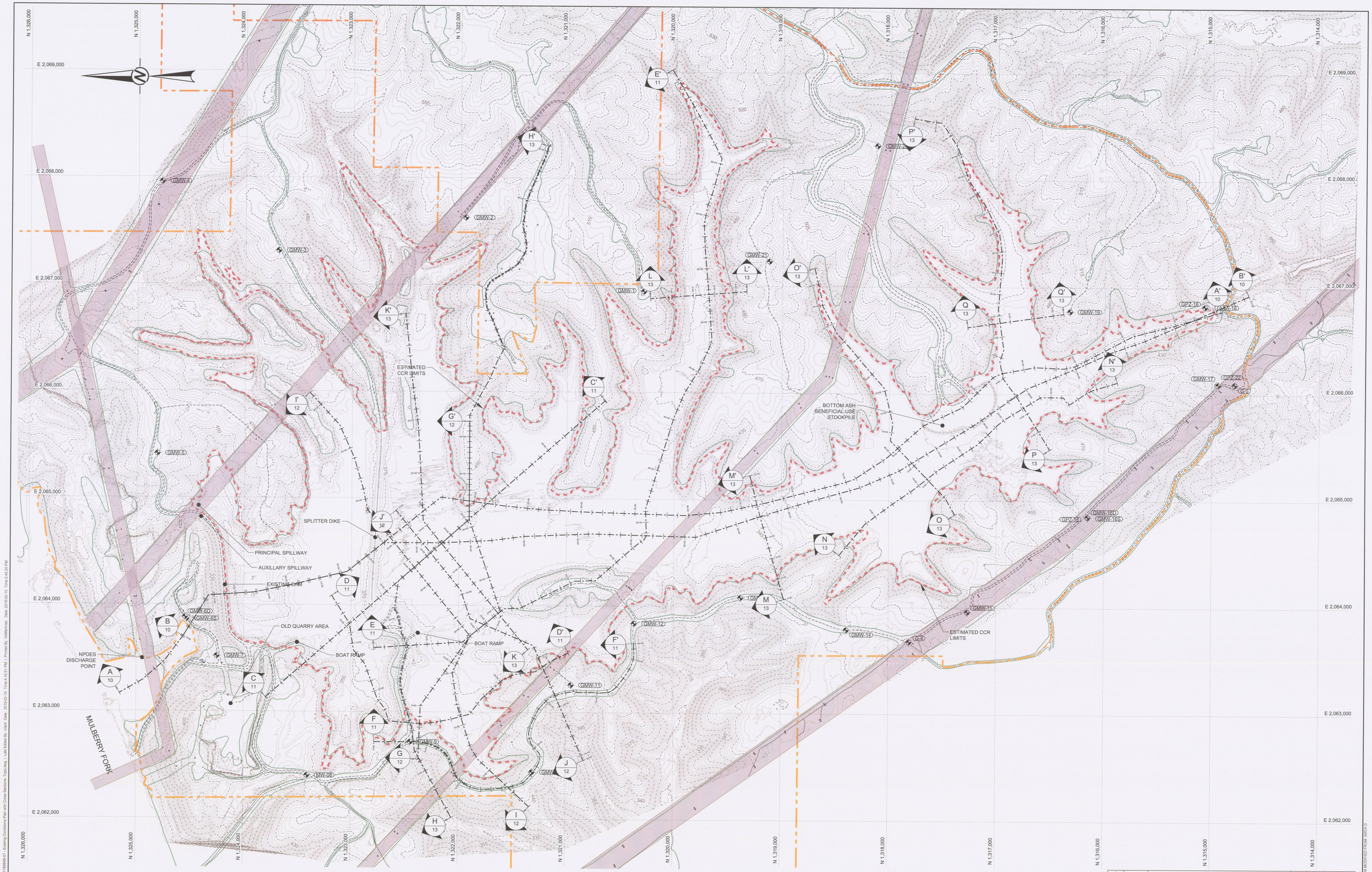
TITLE
SURFACE WATER MANAGEMENT AND CHANNEL ARMORING PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	RAC
PREPARED	RMS
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF GOR17010 | REV. A | DRAWING 06

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- ESTIMATED PRE-CLOSURE CCR LIMITS
- EXISTING TRANSMISSION CORRIDOR
- GMW-01 MONITORING WELLS

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.
2. CONTOUR INTERVAL IS 5 FEET.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.
3. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	AVR	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
EXISTING CONDITIONS - TOPOGRAPHY WITH CROSS SECTIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	AVR
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	07

LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- 340 — ESTIMATED BOTTOM OF CCR CONTOURS (REFERENCE 2)
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- ESTIMATED PRE-CLOSURE CCR LIMITS
- (GMW-01) MONITORING WELLS
- P1 PENINSULA
- F1 FINGER

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BOTTOM OF CCR TOPOGRAPHY TAKEN FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.
3. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR
CONSTRUCTION

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR 30% DESIGN	CCP	VPM	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

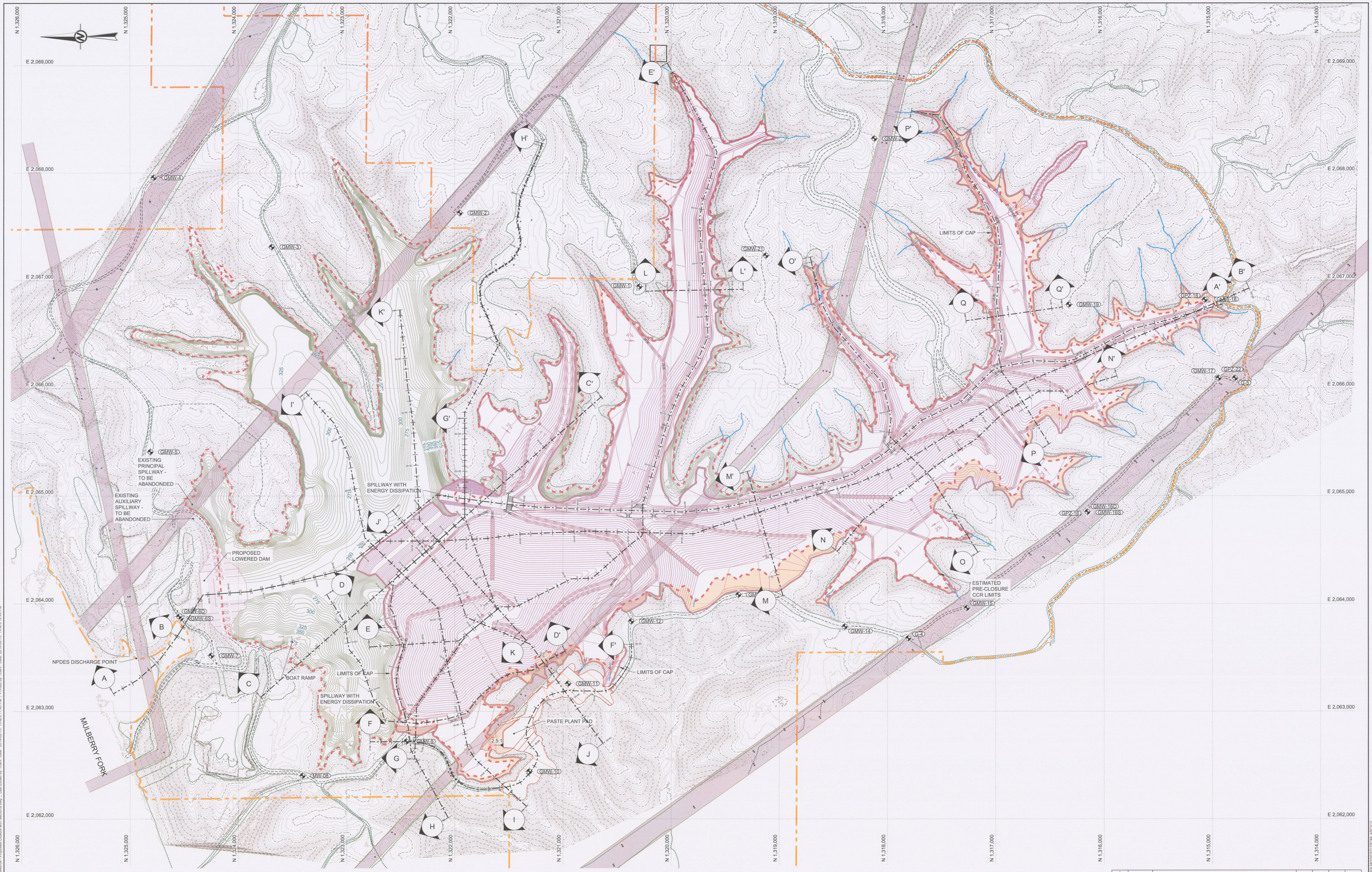
TITLE
ESTIMATED BOTTOM OF CCR PLAN WITH CROSS SECTIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 08

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



LEGEND

- EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE 1 & 2)
- PROPOSED CLOSURE COVER GRADING CONTOURS
- PROPOSED PASTE PLANT GRADING CONTOURS
- CLOSURE BY REMOVAL CONTOURS
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- EXISTING TRANSMISSION CORRIDOR
- ESTIMATED PRE-CLOSURE CCR LIMITS
- 50' PERIMETER BUFFER ZONE
- LIMITS OF CLOSURE FOOTPRINT
- STREAMS PROVIDED BY CAHABA CONSULTING, LLC
- MONITORING WELLS
- AREA OF NON-CCR FILL

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

2. CONTOUR INTERVAL IS 5 FEET.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.

2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.

3. BOTTOM OF CCR TOPOGRAPHY TAKEN FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.

4. PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES ARE NOT SHOWN FOR CLARITY.

5. EXISTING PROPERTY BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	RMS	RMS	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
PROPOSED CLOSURE GRADING PLAN WITH SECTIONS

02/15/2019

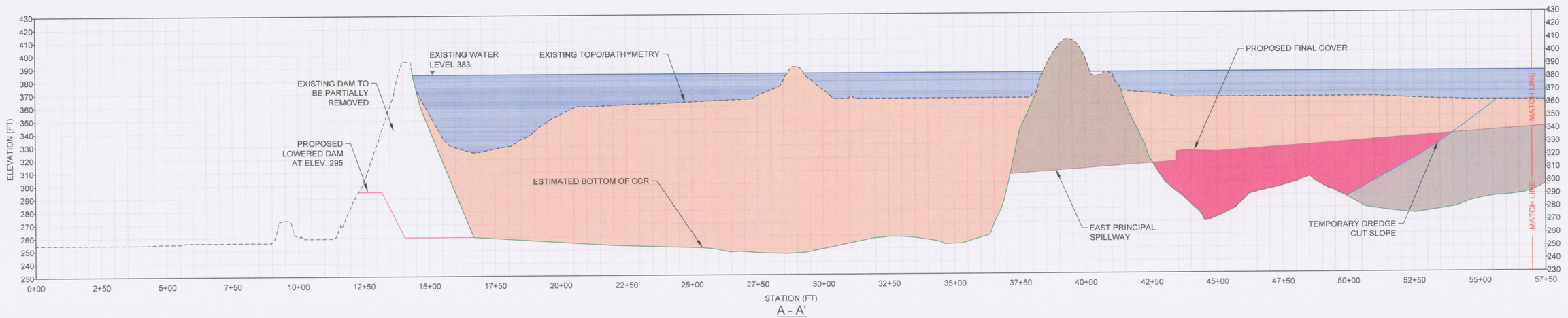
30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

0 300 600
1" = 300' FEET

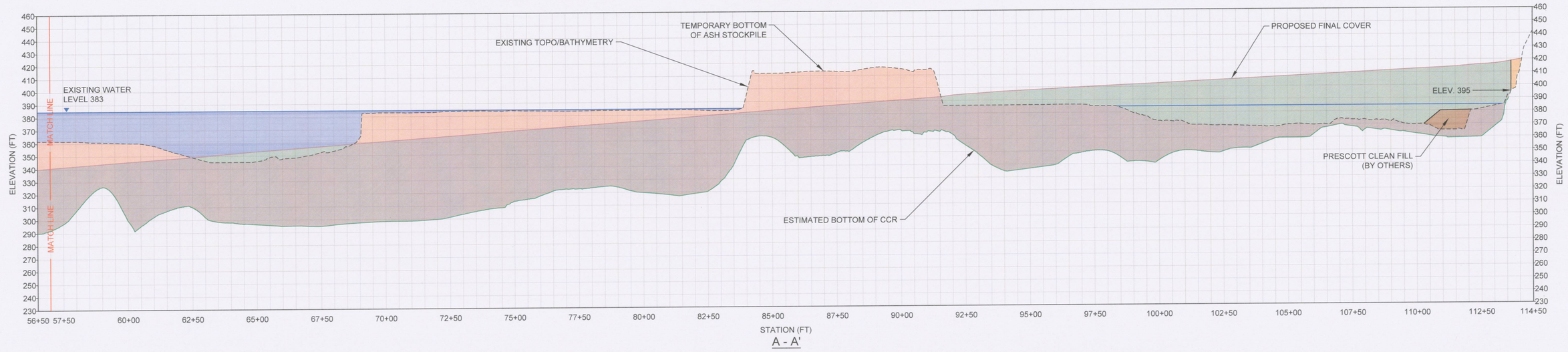
CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

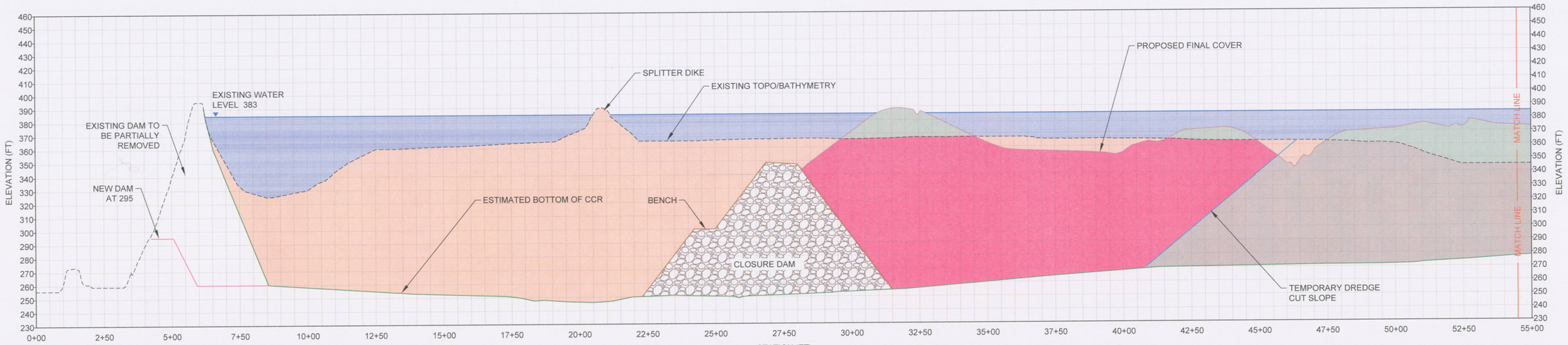
PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	09



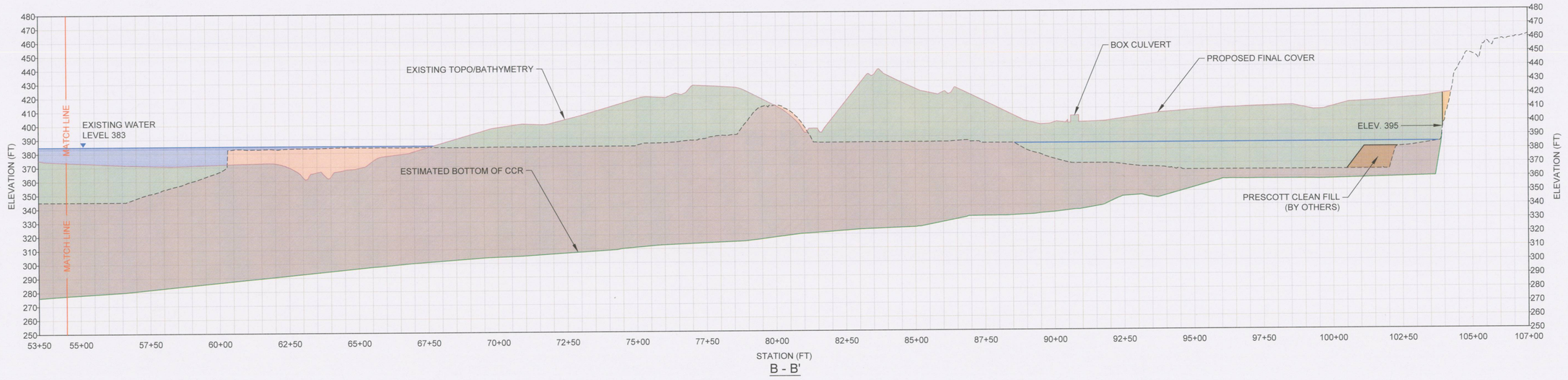
A - A'



A - A'

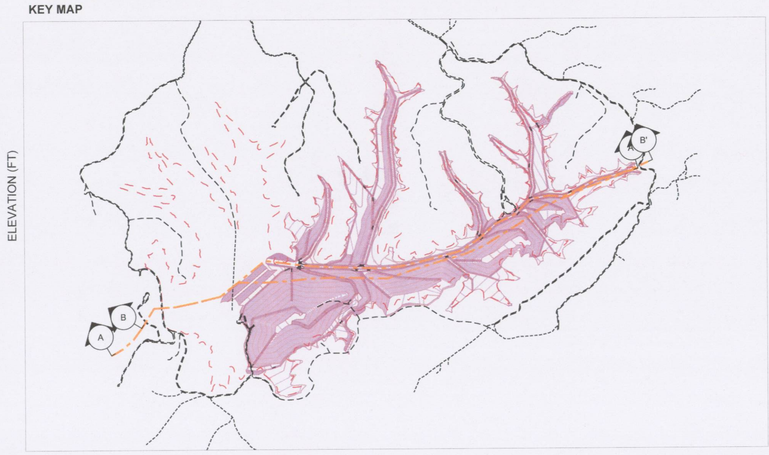


B - B'



B - B'

KEY MAP



LEGEND

- EXISTING WATER LINE
- PROPOSED FINAL COVER
- EXISTING TOPO / BATHYMETRY
- ESTIMATED BOTTOM OF CCR
- EXISTING CCR TO REMAIN
- PROPOSED CCR CUT
- PROPOSED CCR FILL
- PROPOSED NATURAL GROUND CUT
- PROPOSED NON CCR FILL
- ISLAND MATERIAL TO BE REMOVED
- DOUBLE HANDLED ASH (TO BE REMOVED AND THEN FILLED)
- PROPOSED ROCK FILL DAM

NOTES

1.ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

3.PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES ARE NOT SHOWN FOR CLARITY.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.

2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 2016.

3. BOTTOM OF CCR TOPOGRAPHY INTERPRETED FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.

02/15/2019

30% DESIGN DRAWINGS

NOT FOR CONSTRUCTION

0 200 400
1" = 200' FEET
HORIZONTAL SCALE

0 40 80
1" = 40' FEET
VERTICAL SCALE (5X EXAGGERATED)

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	RMS	AVR	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

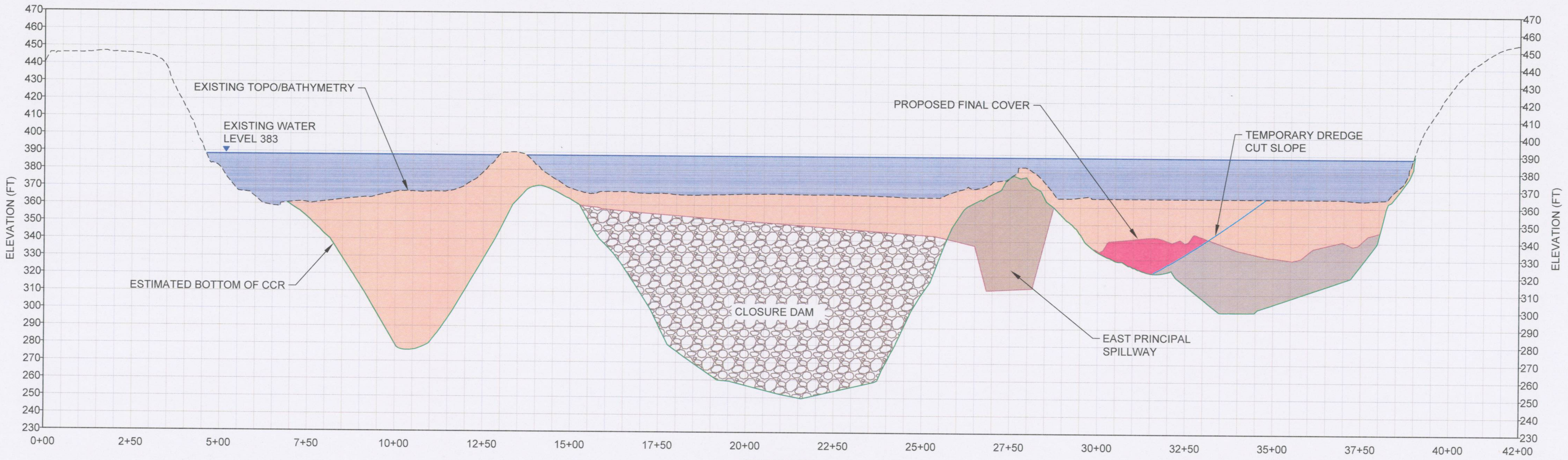
TITLE
CROSS SECTIONS (SHEET 1 OF 4)

CONSULTANT
GOLDER

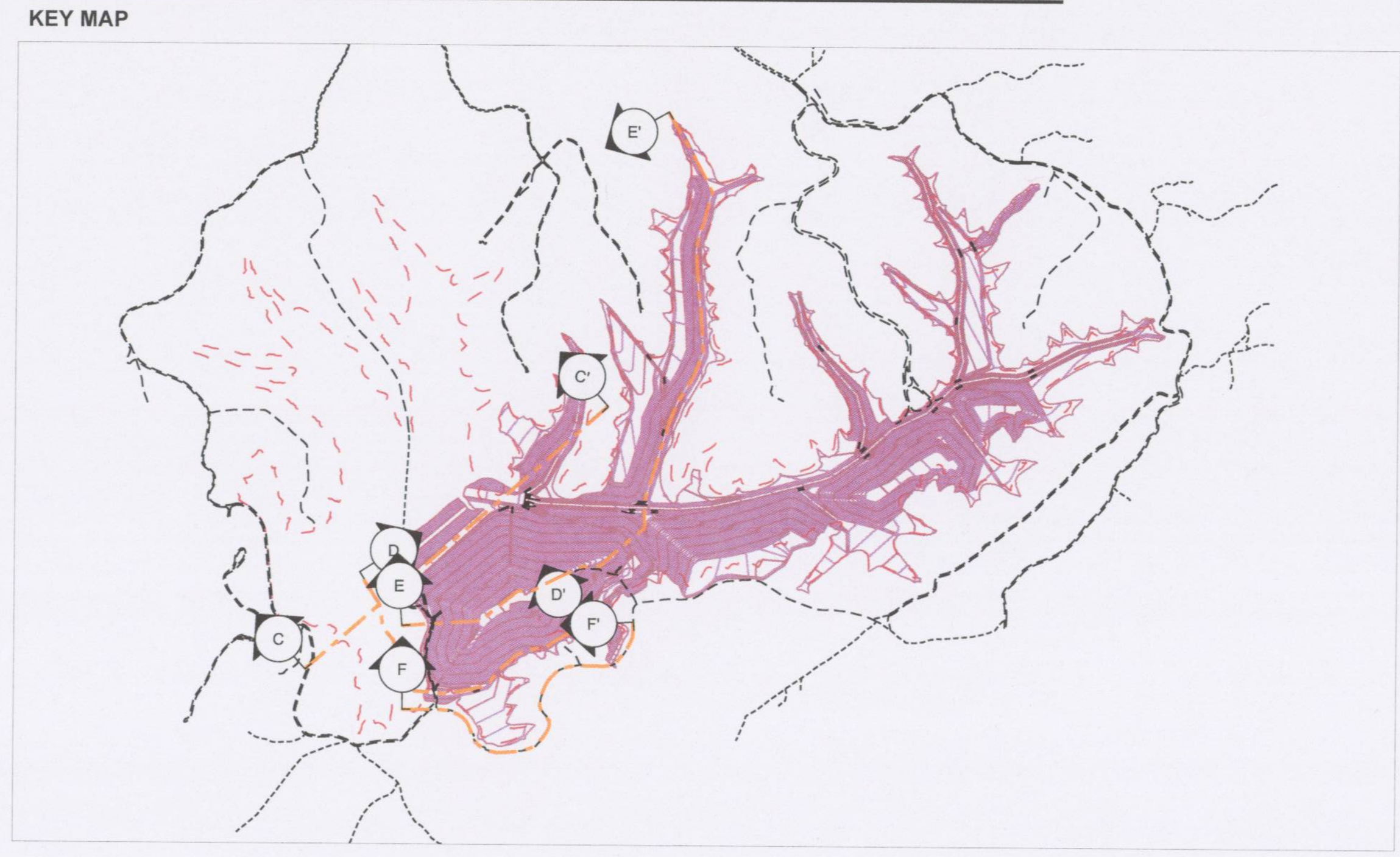
YYYY-MM-DD	2019/02/15
DESIGNED	RMS
PREPARED	AVR
CHECKED	SCN
REVIEWED / APPROVED	GLH

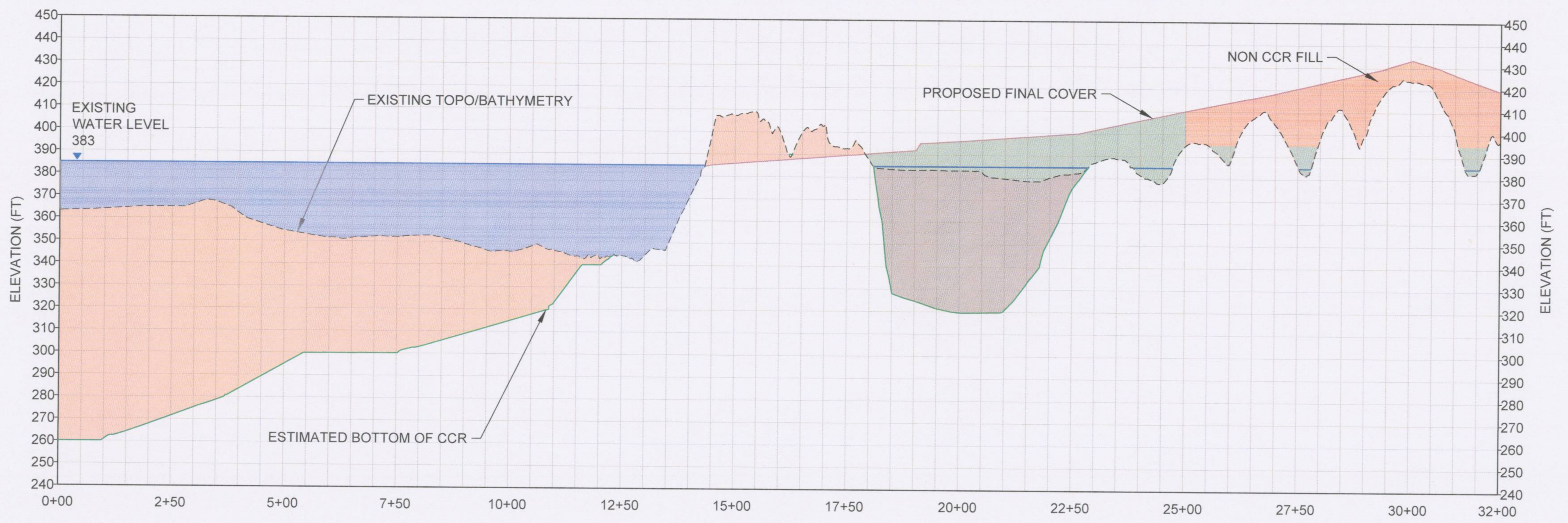
PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D

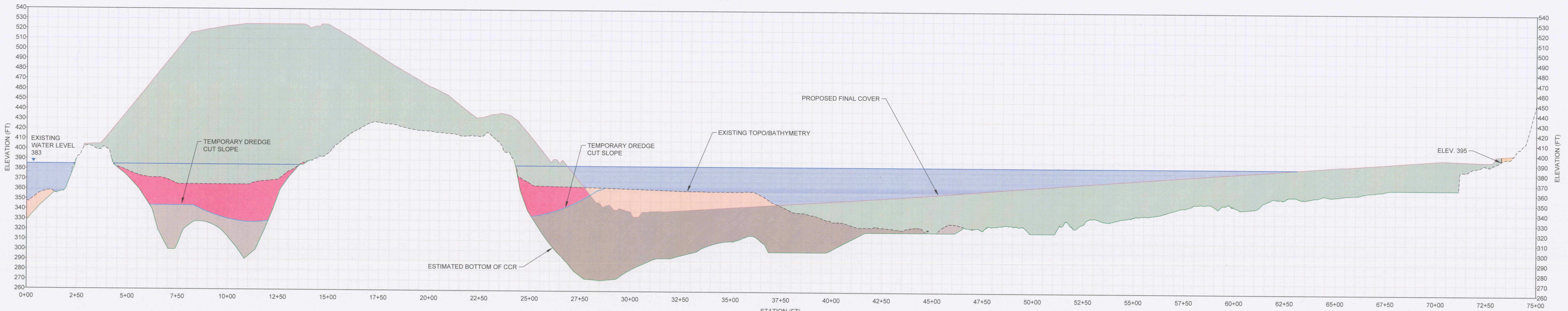


STATION (FT)
C - C'

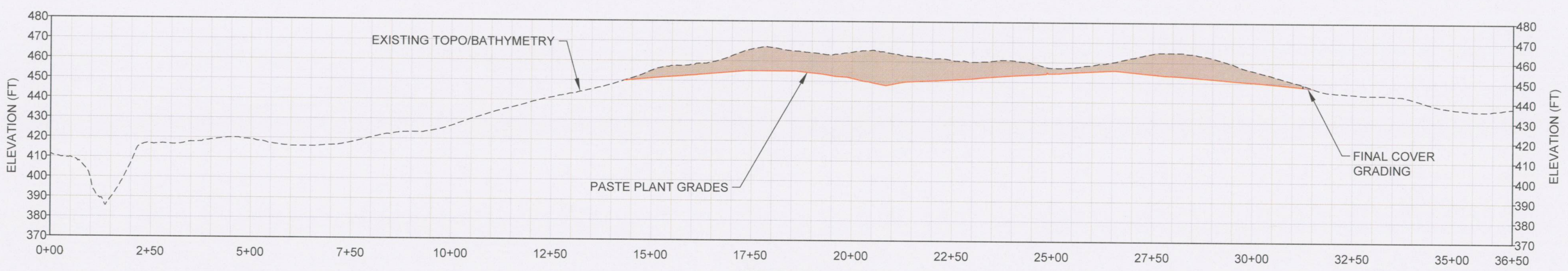




STATION (FT)
D - D'



STATION (FT)
E - E'



STATION (FT)
F - F'

LEGEND

- EXISTING WATER LINE
- PROPOSED FINAL COVER
- EXISTING TOPO / BATHYMETRY
- ESTIMATED BOTTOM OF CCR
- EXISTING CCR TO REMAIN
- PROPOSED CCR CUT
- PROPOSED CCR FILL
- PROPOSED NATURAL GROUND CUT
- PROPOSED NON CCR FILL
- ISLAND MATERIAL TO BE REMOVED
- DOUBLE HANDLED ASH (TO BE REMOVED AND THEN FILLED)
- PROPOSED ROCK FILL DAM

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. COORDINATES CORRESPOND TO THE ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

3. PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES ARE NOT SHOWN FOR CLARITY.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.

2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 2016.

3. BOTTOM OF CCR TOPOGRAPHY INTERPRETED FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.

02/15/2019

30% DESIGN DRAWINGS

NOT FOR CONSTRUCTION

0 200 400
1" = 200' FEET
HORIZONTAL SCALE

0 40 80
1" = 40' FEET
VERTICAL SCALE (5X EXAGGERATED)

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR 30% DESIGN	RMS	AVR	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company · Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

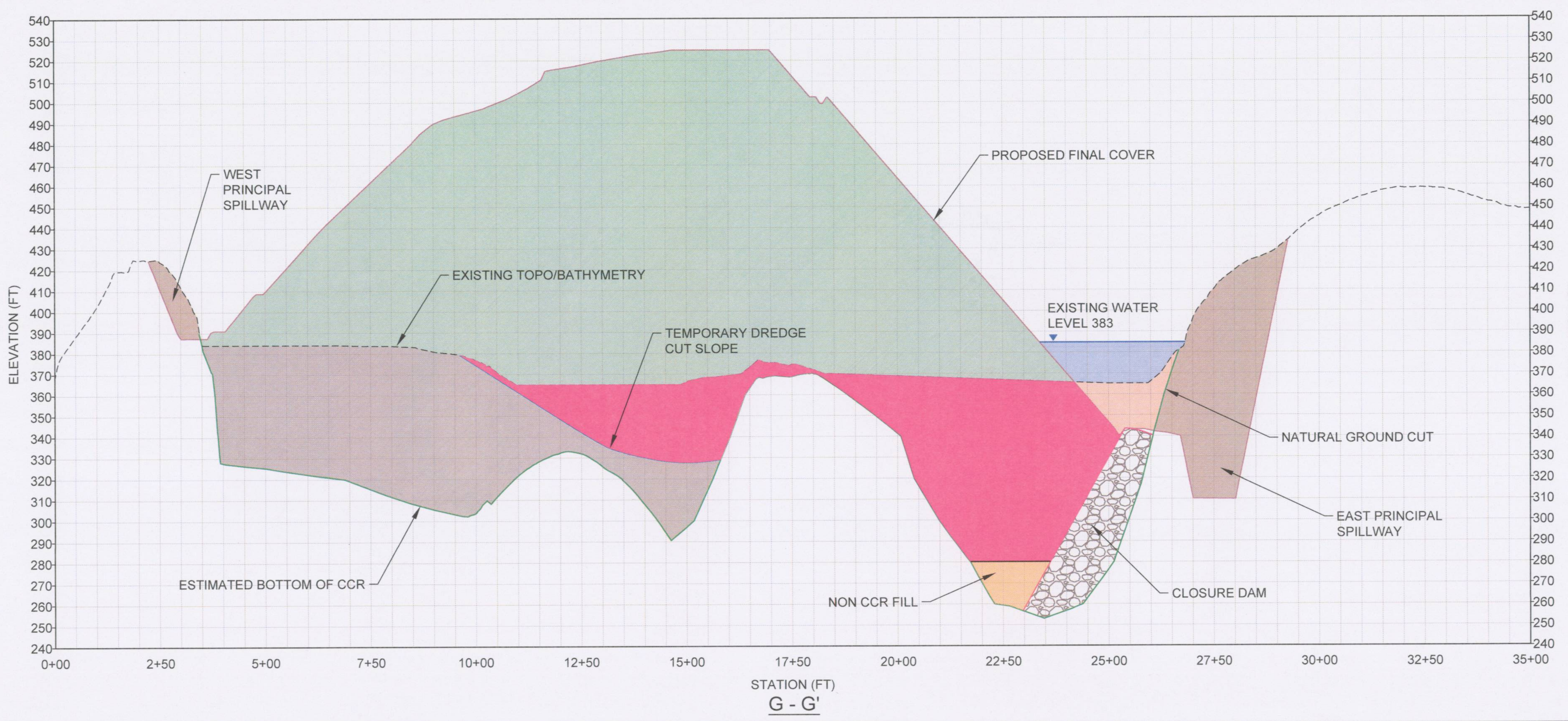
TITLE
CROSS SECTIONS (SHEET 2 OF 4)

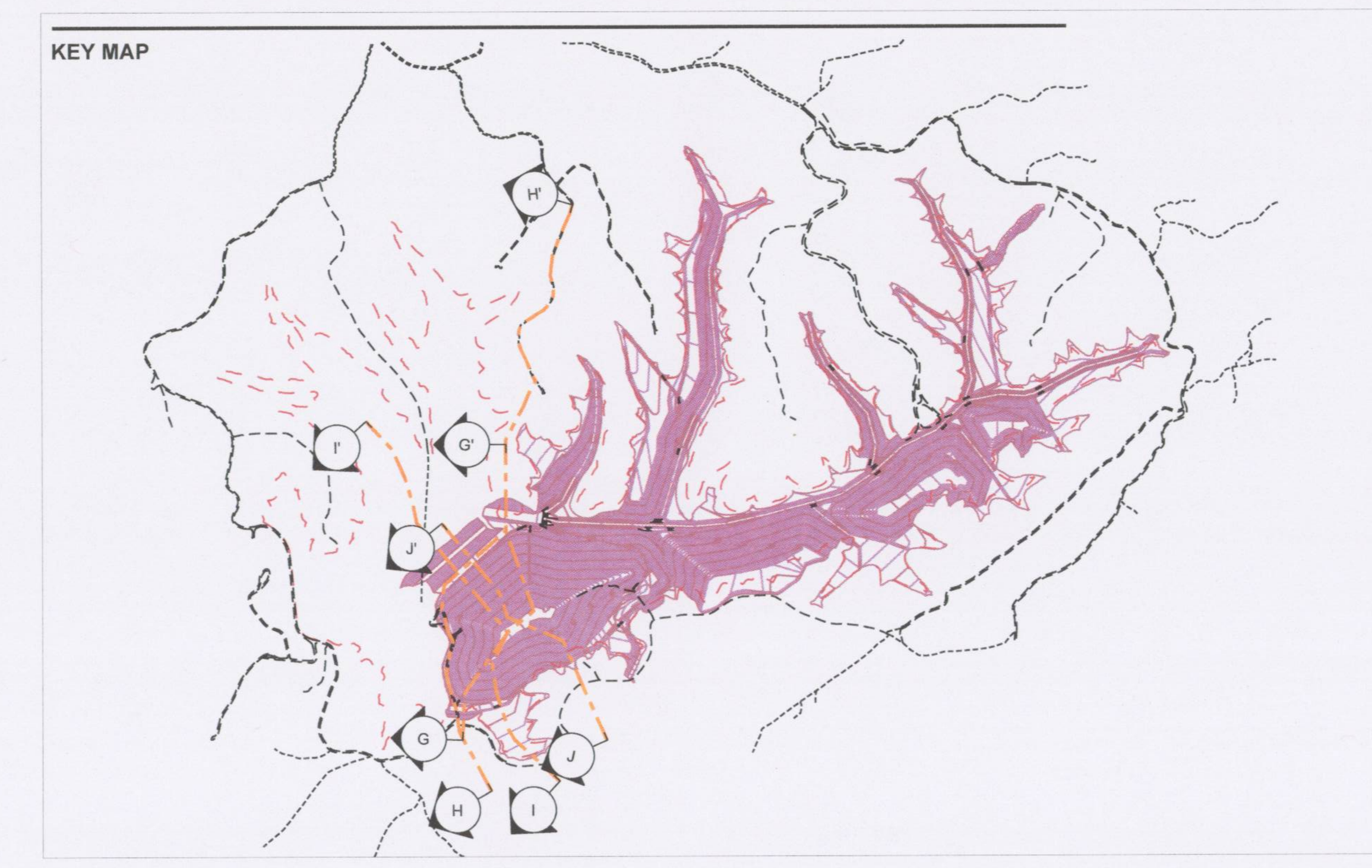
CONSULTANT

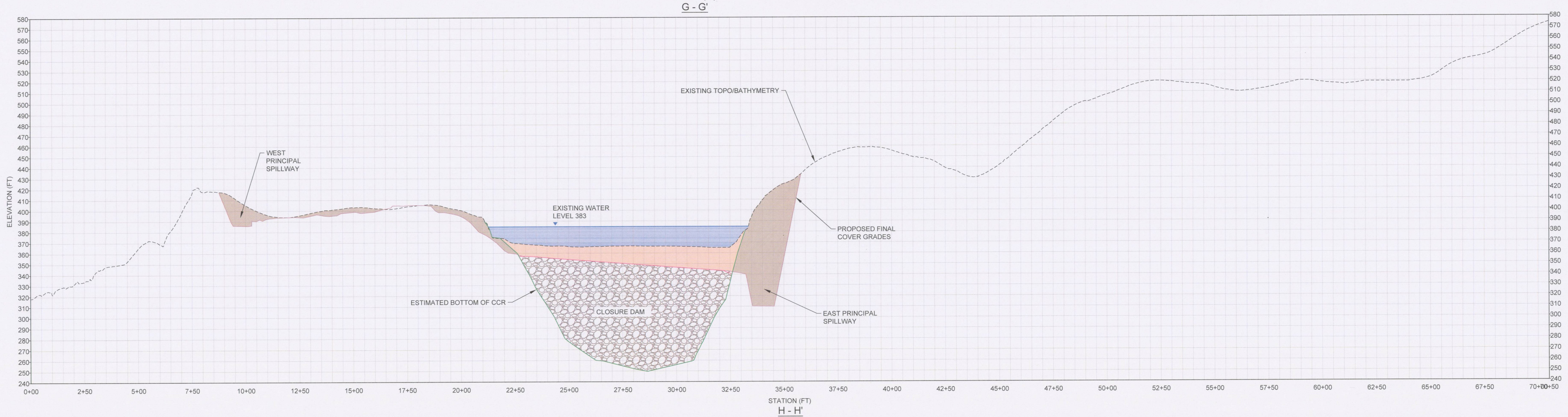
GOLDER

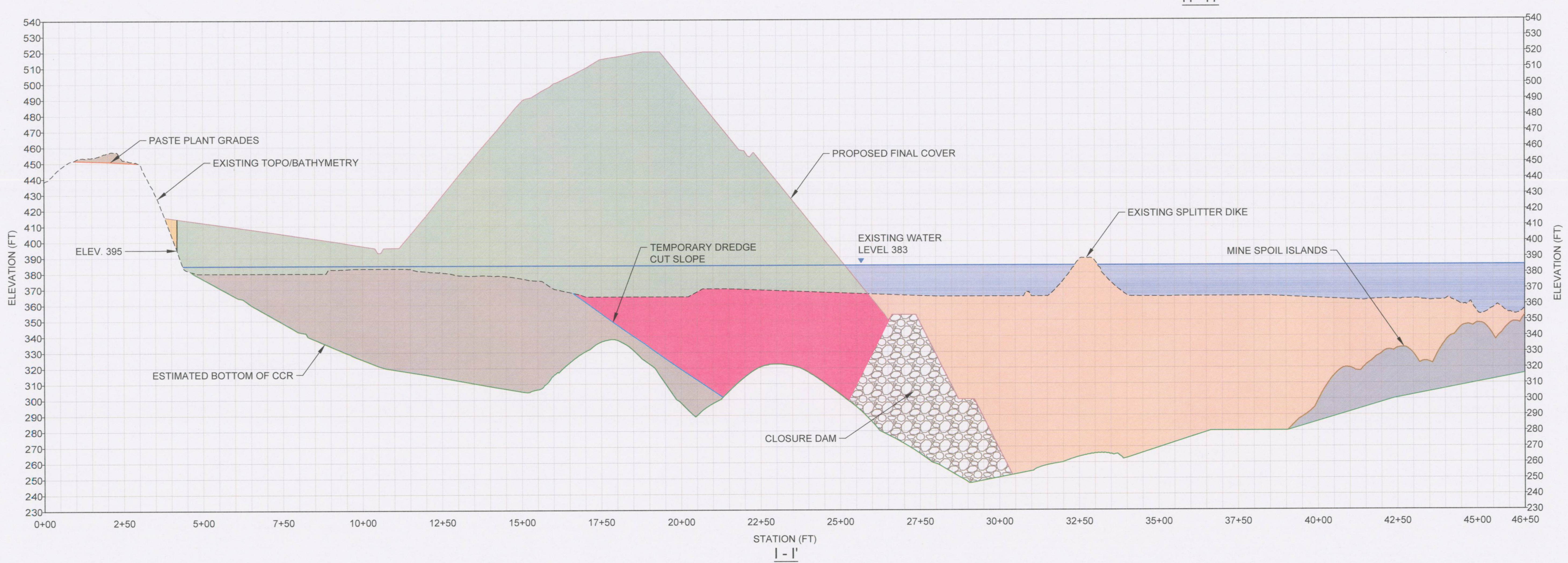
YYYY-MM-DD	2019/02/15
DESIGNED	RMS
PREPARED	AVR
CHECKED	SCN
REVIEWED / APPROVED	GLH

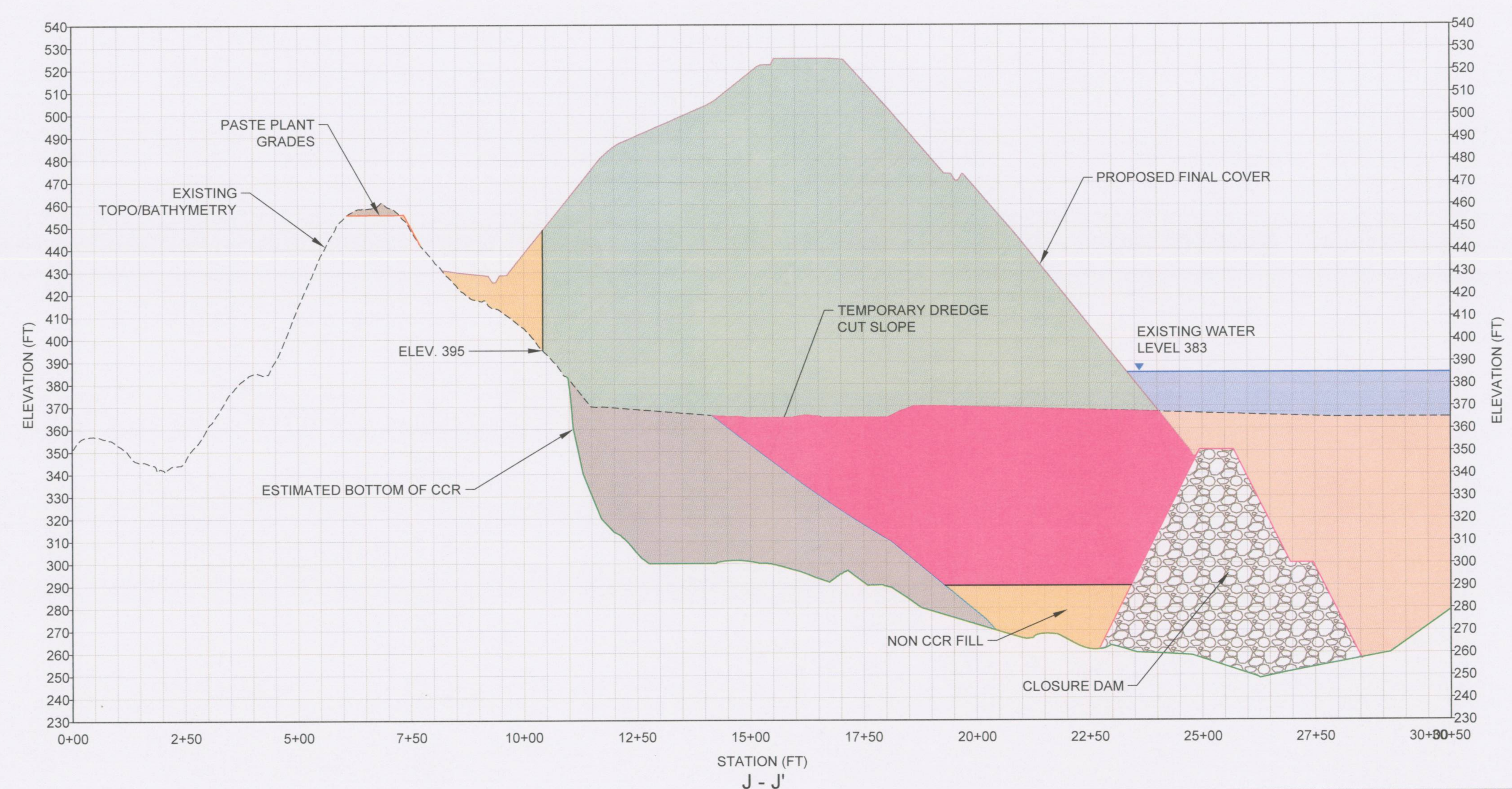
PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 11











LEGEND

- EXISTING WATER LINE
- PROPOSED FINAL COVER
- EXISTING TOPO / BATHYMETRY
- ESTIMATED BOTTOM OF CCR
- EXISTING CCR TO REMAIN
- PROPOSED CCR CUT
- PROPOSED CCR FILL
- PROPOSED NATURAL GROUND CUT
- PROPOSED NON CCR FILL
- ISLAND MATERIAL TO BE REMOVED
- DOUBLE HANDLED ASH (TO BE REMOVED AND THEN FILLED)
- PROPOSED ROCK FILL DAM

NOTES

1. ELEVATIONS ARE IN FEET WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. COORDINATES CORRESPOND TO THE ALABAMA WEST STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

2. CHANNELS AND OTHER DETAILED GRADING ARE SHOWN AS CORRIDORS AT THIS STAGE OF DESIGN.

3. PROPOSED CLOSURE COVER GRADING CONTOURS DO NOT SHOW INTERMEDIATE BENCHES, TERRACES, AND OTHER LOCALIZED SURFACE WATER CONTROL FEATURES ARE NOT SHOWN FOR CLARITY.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.

2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 2016.

3. BOTTOM OF CCR TOPOGRAPHY INTERPRETED FROM USGS, PORT BIRMINGHAM, 1938 AND GOODSPINGS, 1971 QUADRANGLES. TOPOGRAPHY WAS INTERPRETED BETWEEN 20 FOOT CONTOURS AND ADJUSTED BASED ON GEOTECHNICAL INVESTIGATION DATA BY GOLDER ASSOCIATES INC.

02/15/2019

30% DESIGN DRAWINGS
NOT FOR
CONSTRUCTION

0 200 400
1" = 200' FEET
HORIZONTAL SCALE

0 40 80
1" = 40' FEET
VERTICAL SCALE (5X EXAGERATED)

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR 30% DESIGN	RMS	AVR	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company Alabama Power

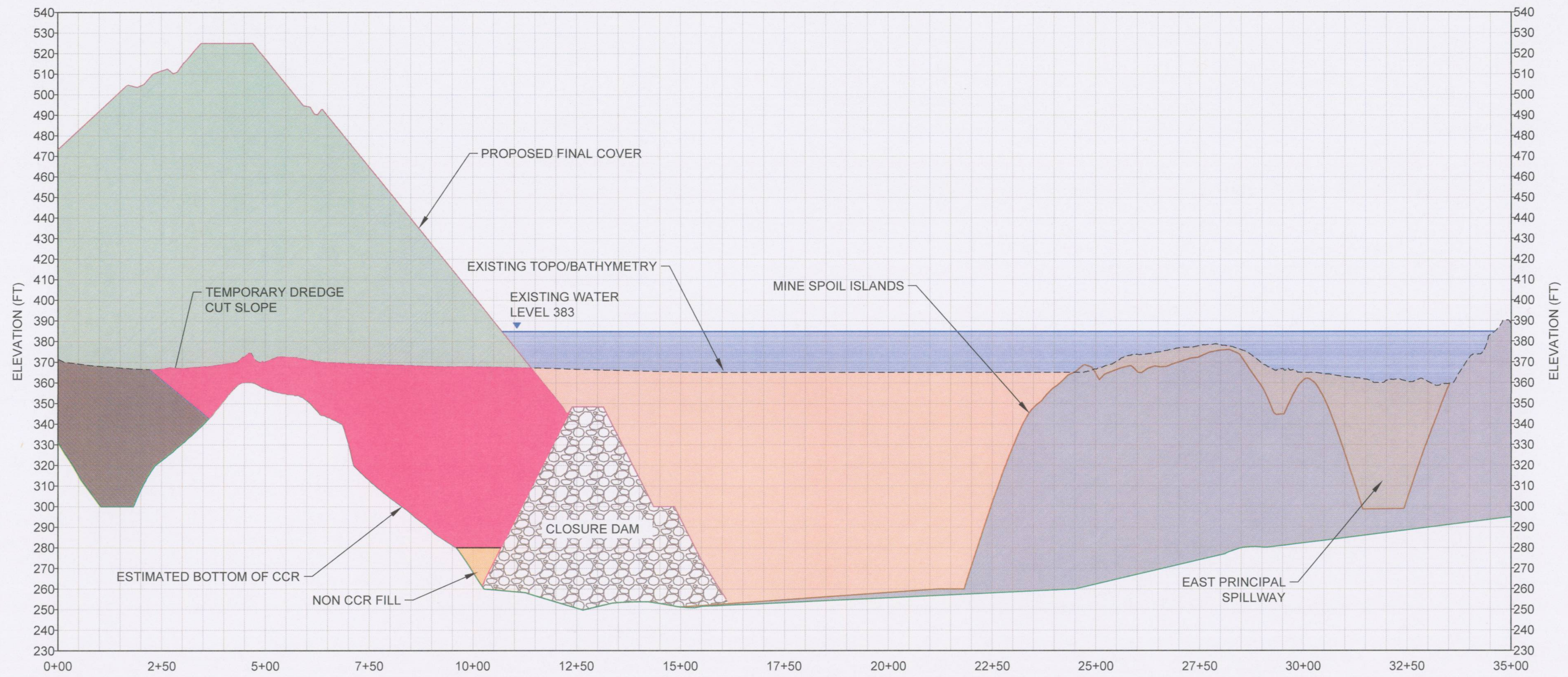
PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
CROSS SECTIONS (SHEET 3 OF 4)

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	RMS
PREPARED	AVR
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 12



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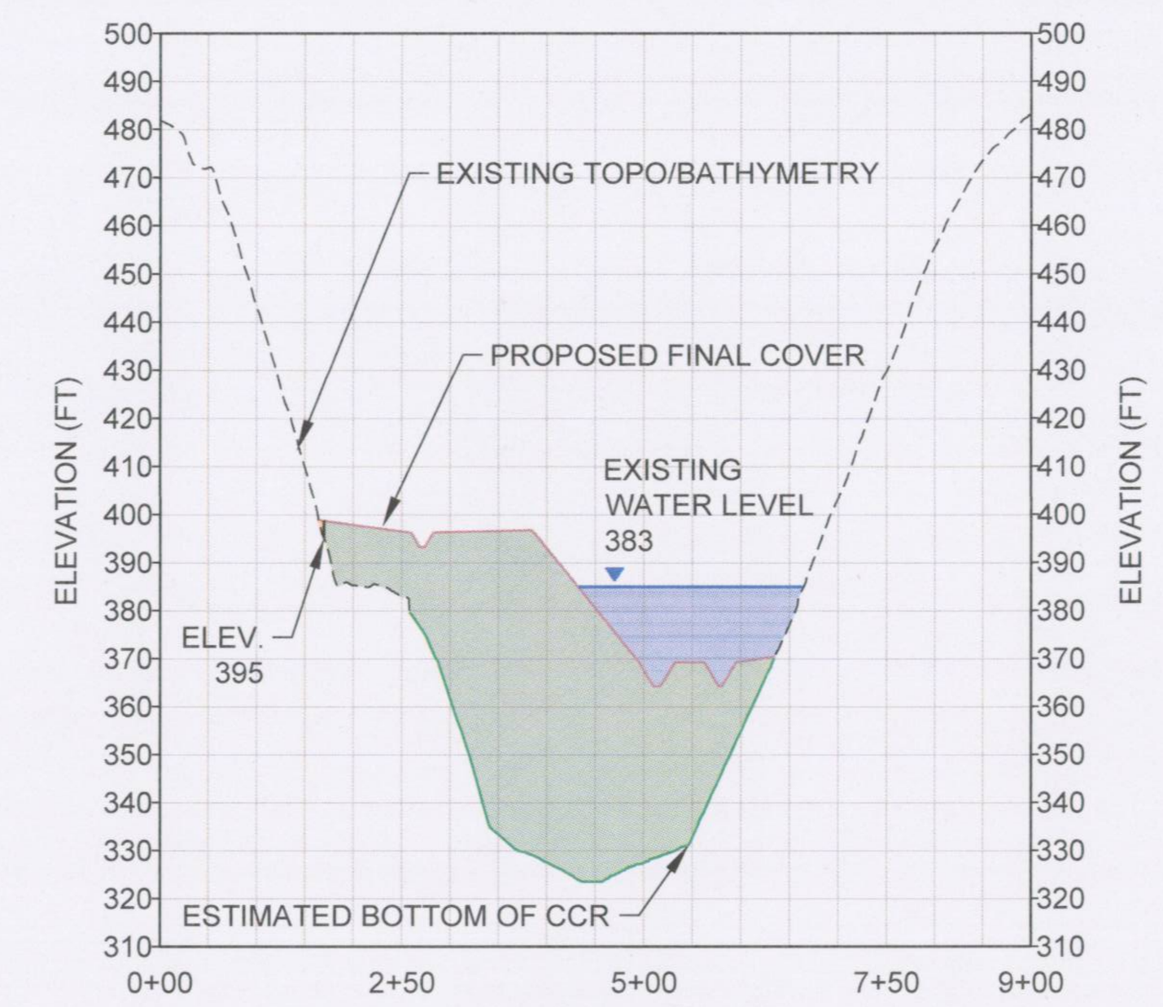
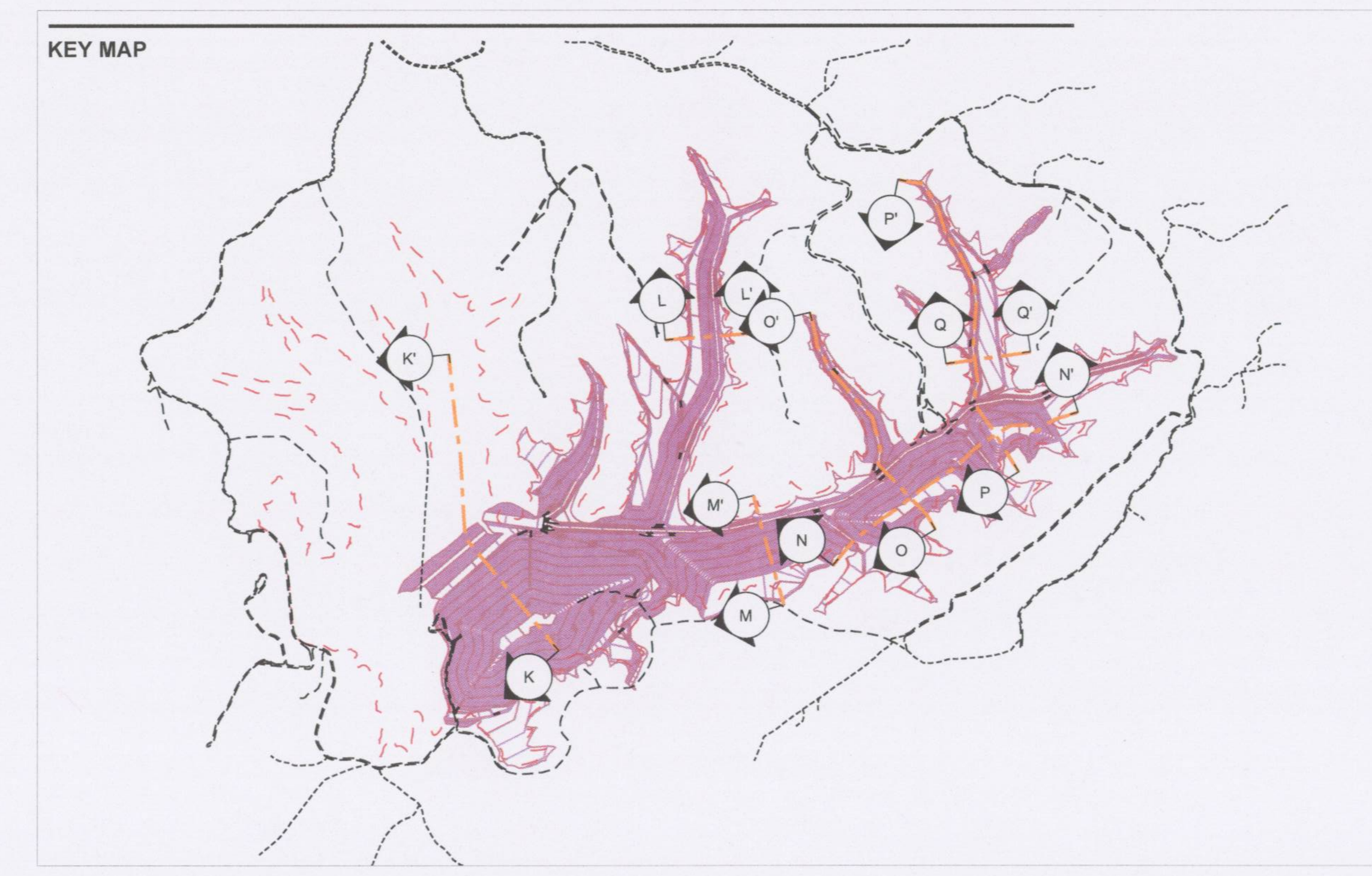
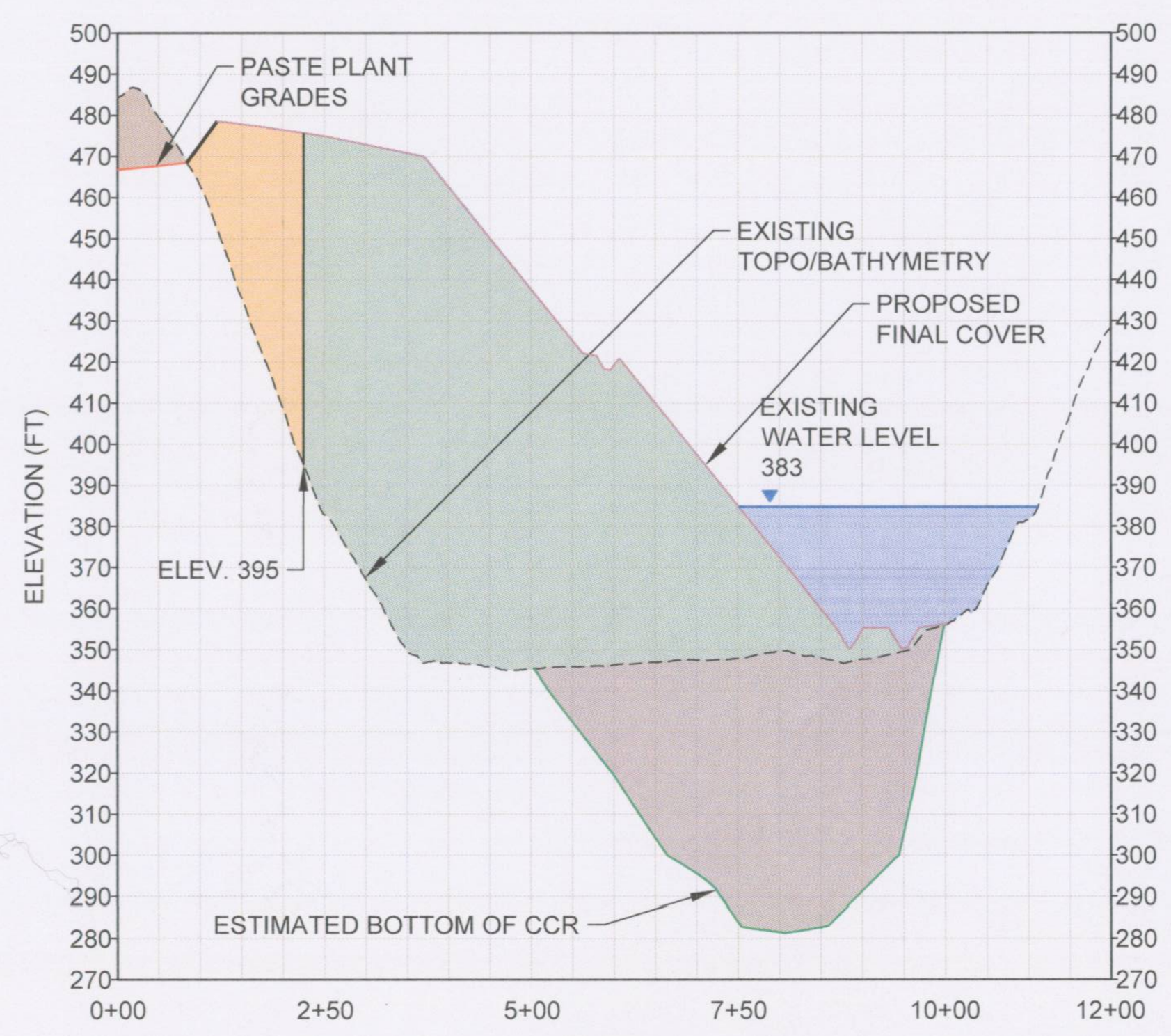


L - L'





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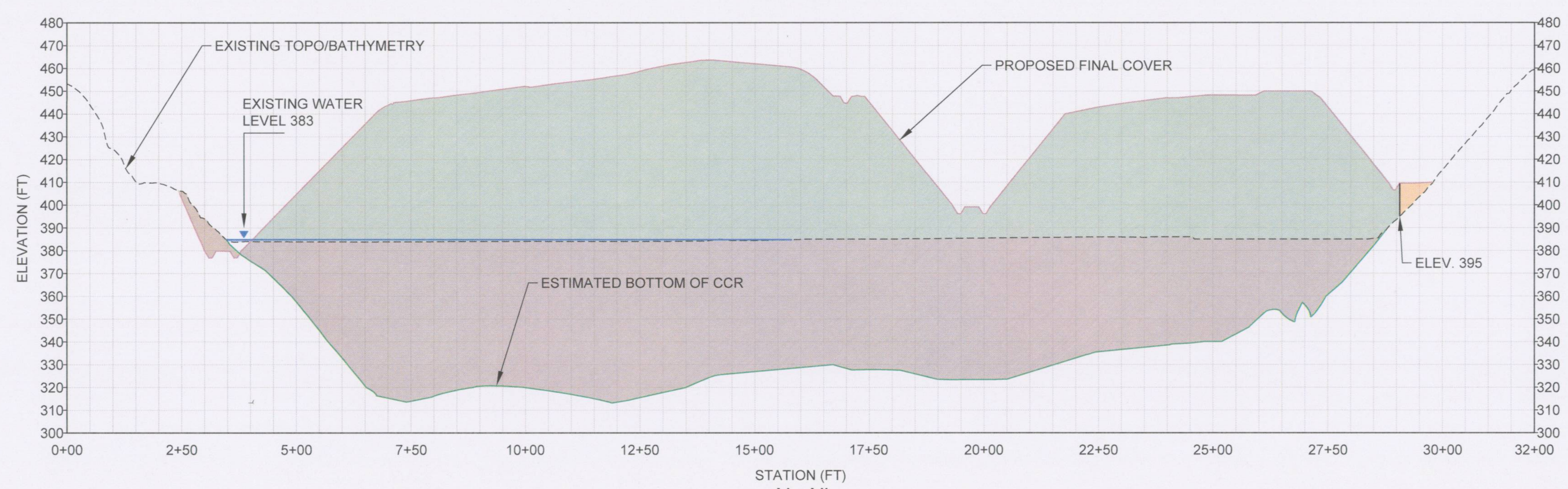
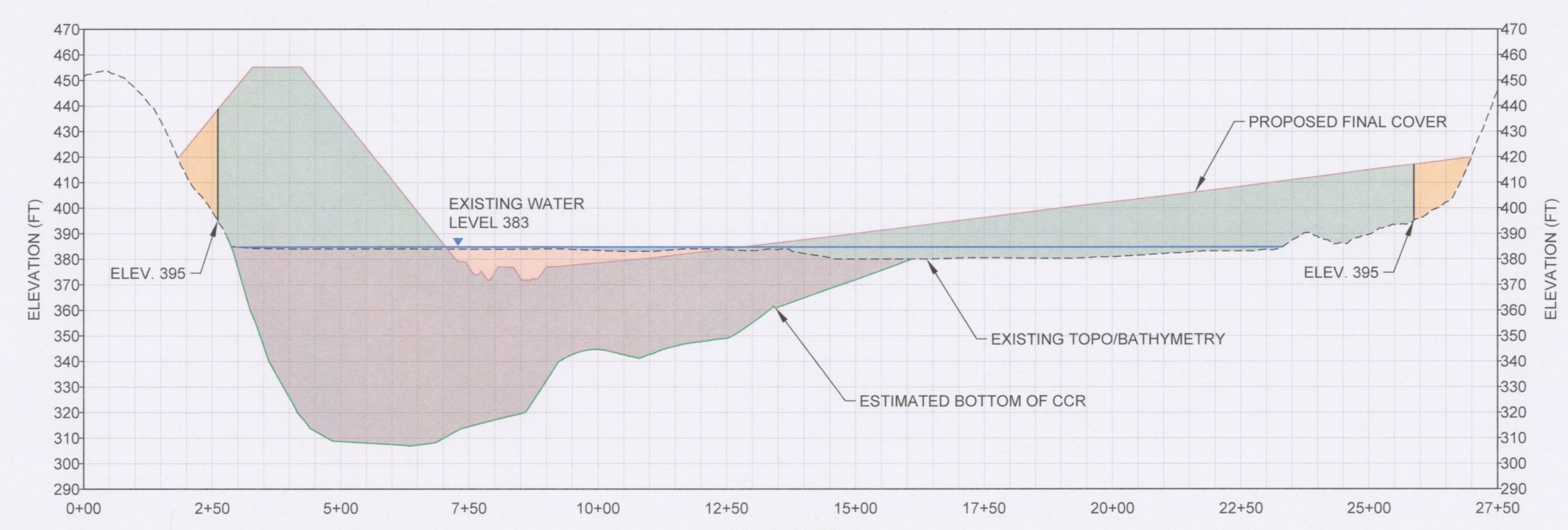
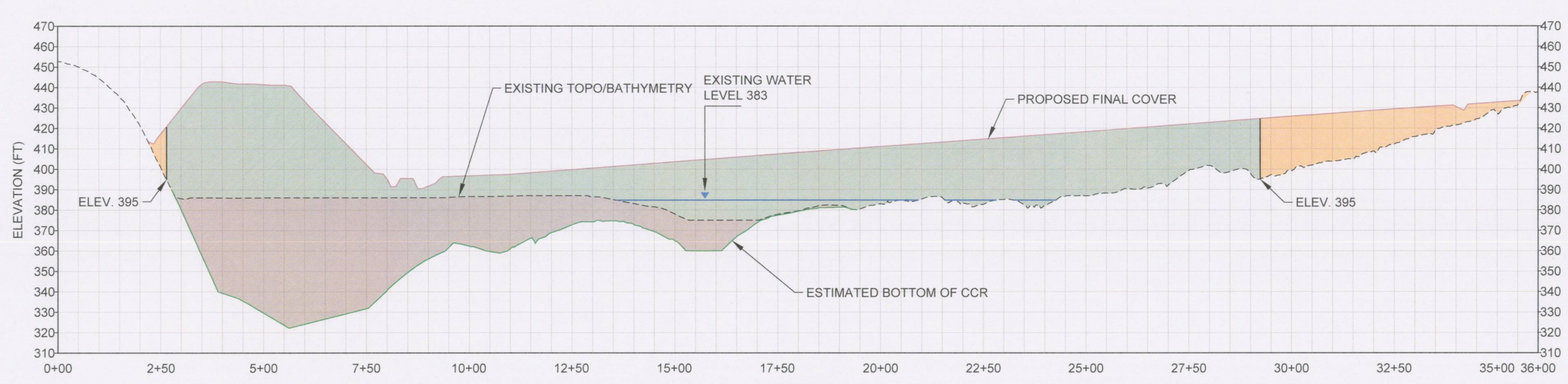


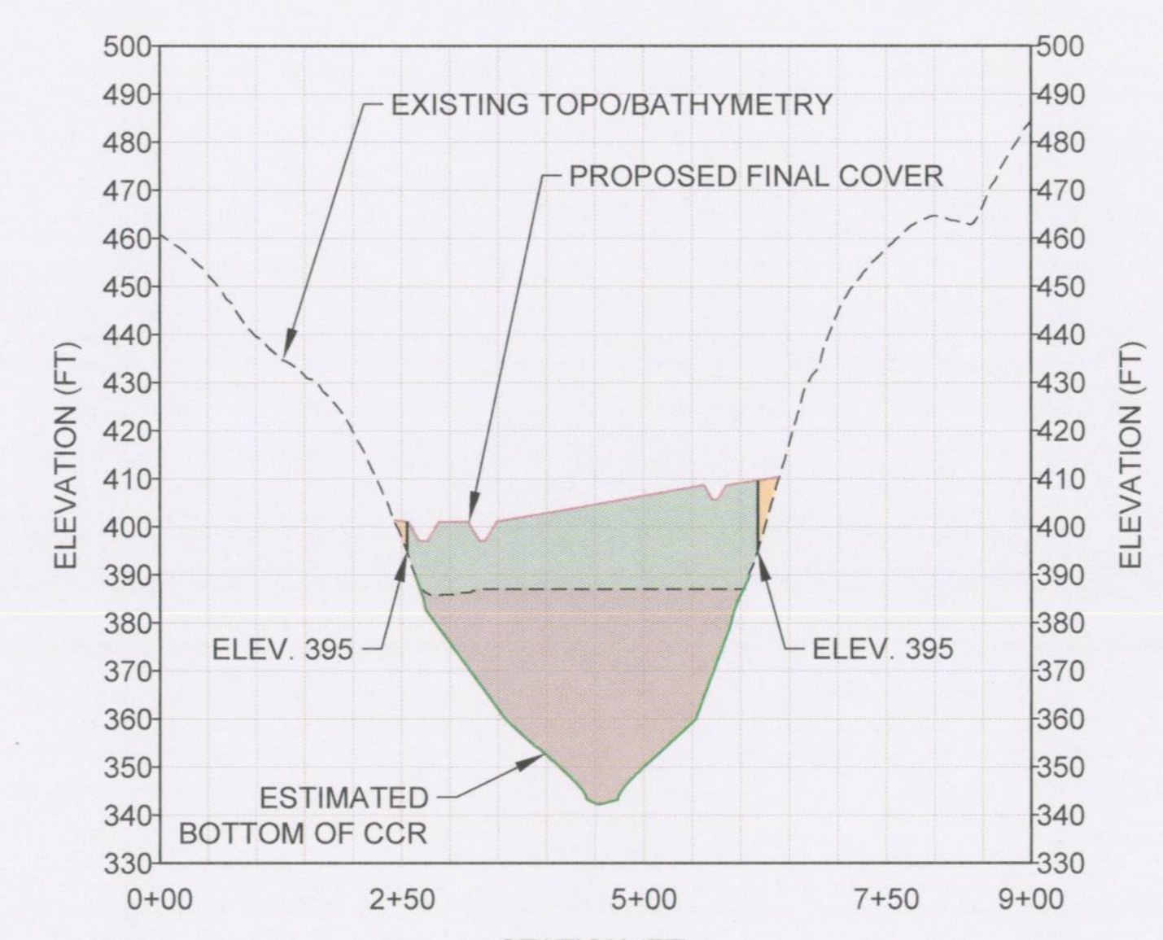
N - N'



O - O'



P - P'



Q - Q'

LEGEND

- EXISTING WATER LINE
- PROPOSED FINAL COVER
- EXISTING TOPO / BATHYMETRY
- ESTIMATED BOTTOM OF CCR
- EXISTING CCR TO REMAIN
- PROPOSED CCR CUT
- PROPOSED CCR FILL
- PROPOSED NATURAL GROUND CUT
- PROPOSED NON CCR FILL
- ISLAND MATERIAL TO BE REMOVED
- DOUBLE HANDLED ASH (TO BE REMOVED AND THEN FILLED)
- PROPOSED ROCK FILL DAM

NOTES

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02/15/2019

30% DESIGN DRAWINGS NOT FOR CONSTRUCTION

0 200 400
1" = 200' FEET
HORIZONTAL SCALE

0 40 80
1" = 40' FEET
VERTICAL SCALE (5X EXAGGERATED)

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	02/15/2019	ISSUED FOR 30% DESIGN	RMS	AVR	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

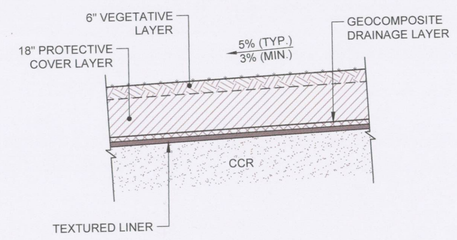
PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
CROSS SECTIONS (SHEET 4 OF 4)

CONSULTANT
GOLDER

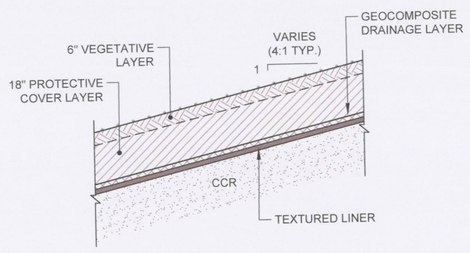
YYYY-MM-DD	2019/02/15
DESIGNED	RMS
PREPARED	AVR
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 13



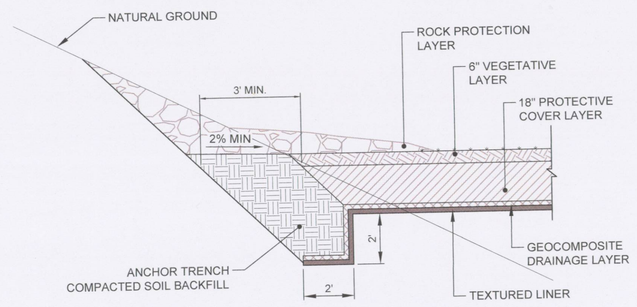
1/14 TYPICAL DECK FINAL COVER SYSTEM DETAIL

0 3 6 FEET
1" = 3'



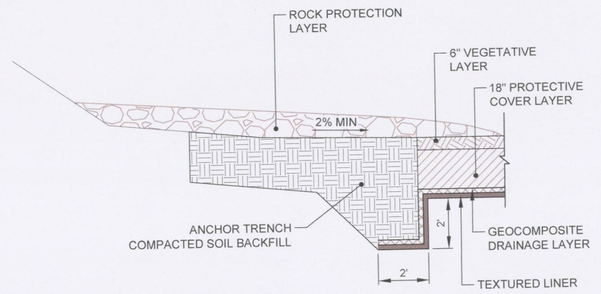
2/14 TYPICAL SIDE SLOPE FINAL COVER SYSTEM DETAIL

0 3 6 FEET
1" = 3'



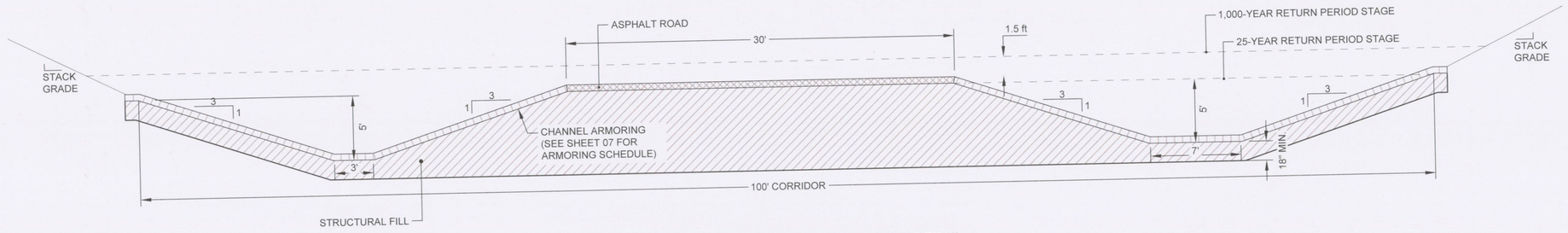
3/14 TYPICAL PERIMETER TERMINATION DETAIL

0 3 6 FEET
1" = 3'



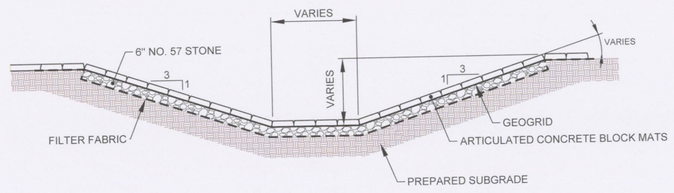
4/14 TYPICAL PERIMETER TERMINATION AT CONCENTRATED FLOW AREAS DETAIL

0 3 6 FEET
1" = 3'



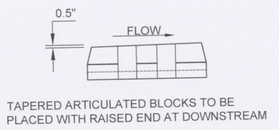
5/14 TYPICAL 100' WIDE / STORMWATER CORRIDOR DETAIL
(AS VIEWED LOOKING DOWNSTREAM)

0 5 10 FEET
1" = 5'



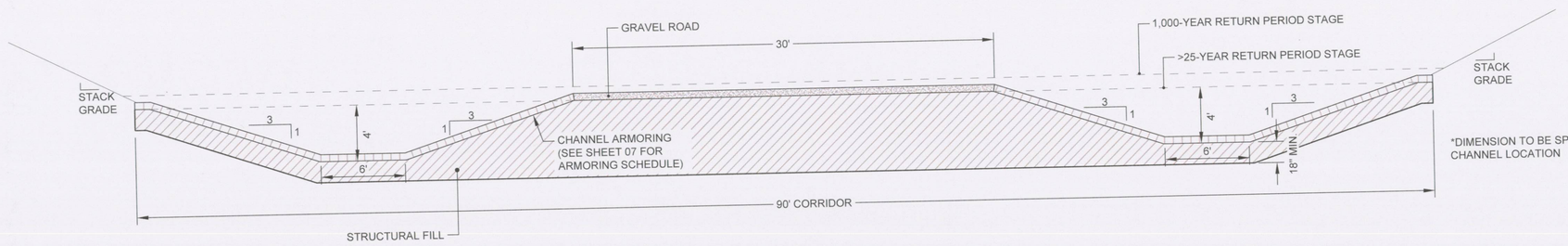
7/14 ARTICULATED CONCRETE BLOCK CHANNEL SECTION

NTS



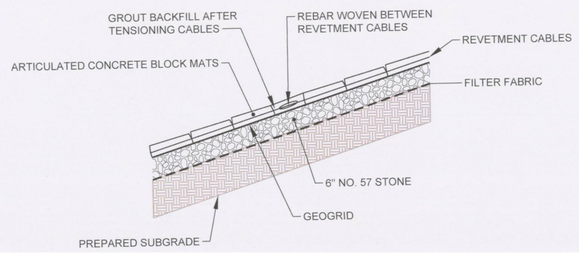
8/14 ARTICULATED CONCRETE BLOCK ORIENTATION

NTS



6/14 TYPICAL 90' WIDE / STORMWATER CORRIDOR DETAIL

0 5 10 FEET
1" = 5'



9/14 MAT JOINT DETAIL

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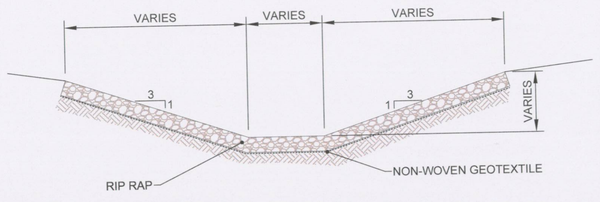
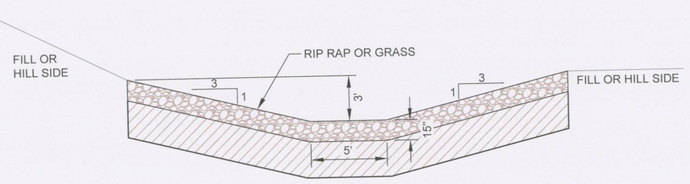


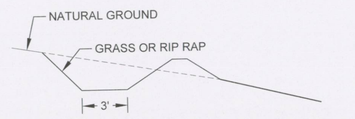
10/14 RIP RAP CHANNEL DETAIL

NTS



11/14 TYPICAL DECK CHANNEL DETAIL

0 5 10 FEET
1" = 5'



*LOCATION TO BE SPECIFIED FOR FLOW DIVERSION AROUND CLOSURE AREA AS NEEDED.

12/14 TYPICAL GROIN DIVERSION DETAIL

0 5 10 FEET
1" = 5'

02/15/2019

30% DESIGN DRAWINGS

NOT FOR CONSTRUCTION

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
2	2019/02/15	ISSUED FOR 30% DESIGN	RAC	RWC	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

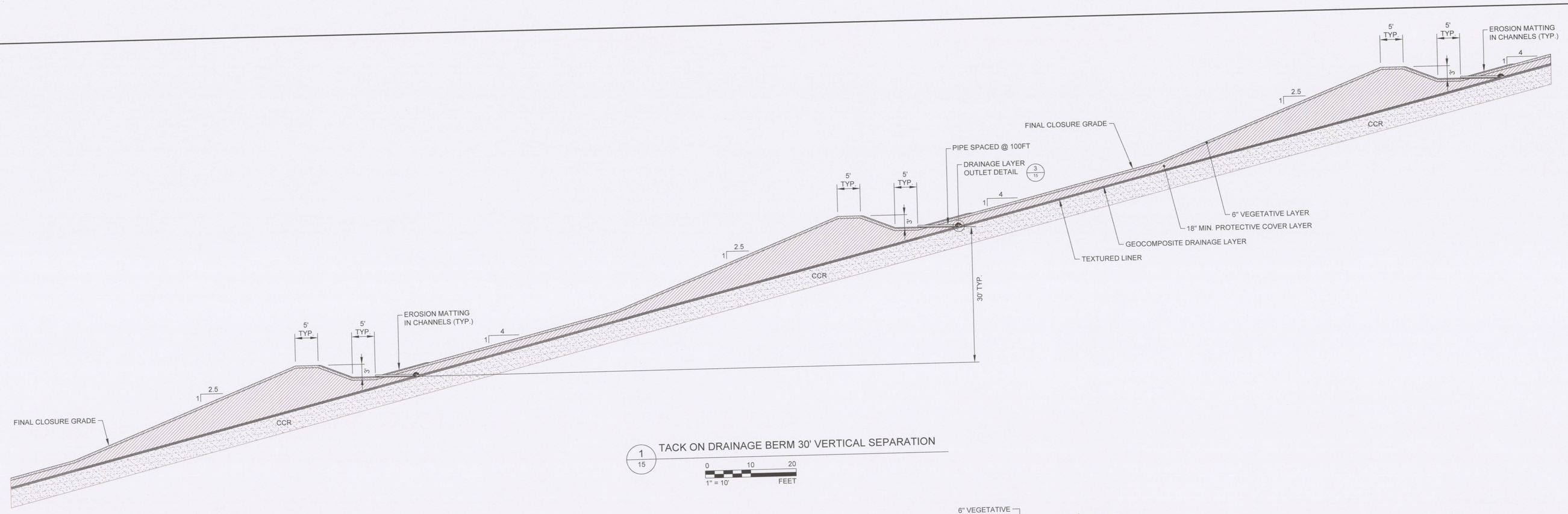
TITLE
TYPICAL DETAILS - 1 OF 2

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	RAC
PREPARED	RWC
CHECKED	SCN
REVIEWED / APPROVED	GLH

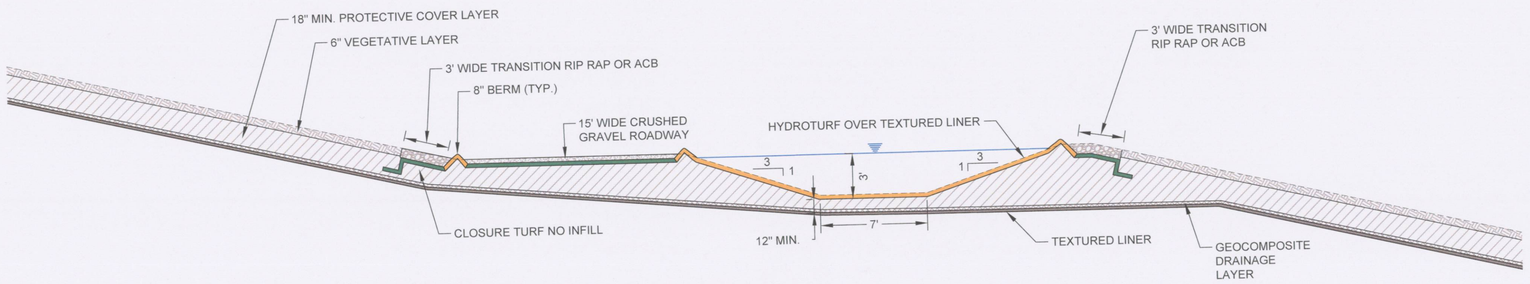
PROJECT NO.	SCS REF.	REV.	DRAWING
1789848	GOR17010	A	14

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



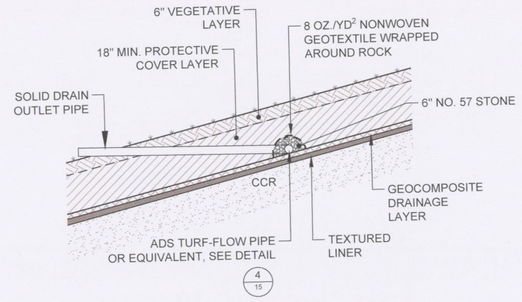
1 / 15 TACK ON DRAINAGE BERM 30' VERTICAL SEPARATION

0 10 20 — 1" = 10' FEET



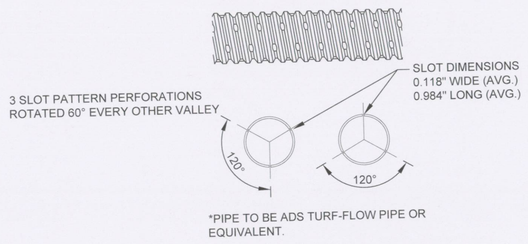
2 / 15 ACCESS ROAD CHANNEL WITH HYDROTURF

0 5 10 — 1" = 5' FEET



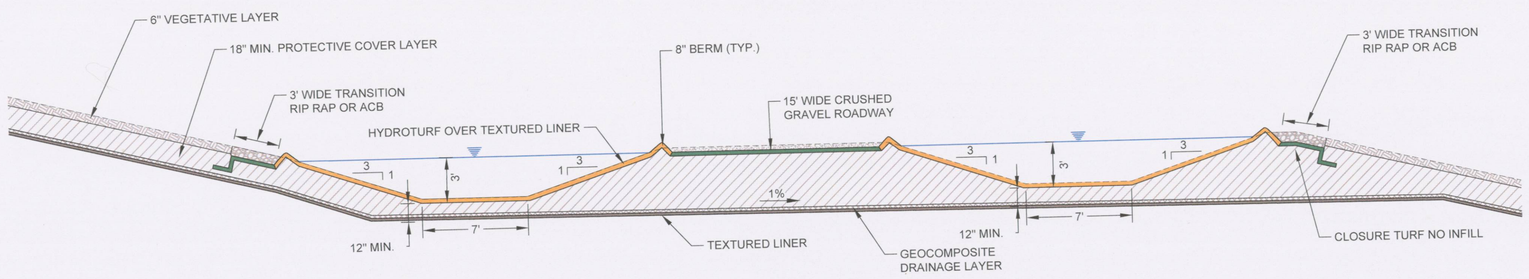
3 / 15 TYPICAL COVER DRAIN DETAIL

0 3 6 — 1" = 3' FEET



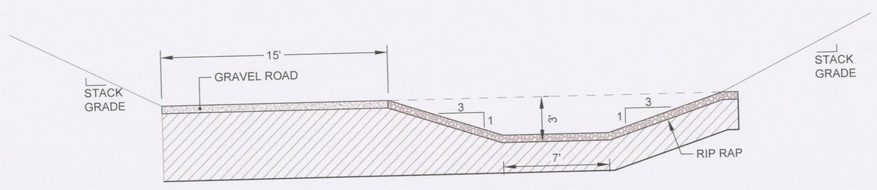
4 / 15 TYPICAL COVER DRAIN PIPE DETAIL

0 3 6 — 1" = 3' FEET



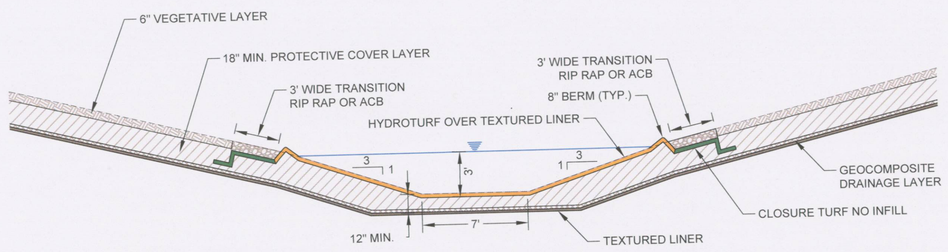
5 / 15 DOUBLE ACCESS ROAD CHANNEL WITH HYDROTURF

0 5 10 — 1" = 5' FEET



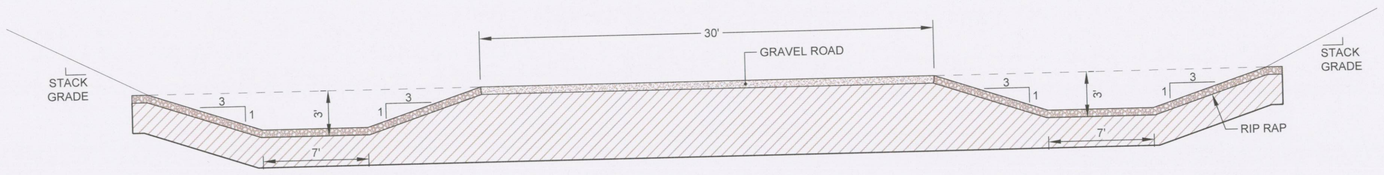
6 / 15 ACCESS ROAD WITH RIP RAP CHANNEL

0 5 10 — 1" = 5' FEET



7 / 15 DOWNSLOPE CHANNEL WITH HYDROTURF

0 5 10 — 1" = 5' FEET



8 / 15 ACCESS ROAD WITH DUAL RIP RAP CHANNEL

0 5 10 — 1" = 5' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
1	2019/02/15	ISSUED FOR 30% DESIGN	RAC	RWC	SCN	GLH

CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
TYPICAL DETAILS - 2 OF 2

02/15/2019
30% DESIGN DRAWINGS
NOT FOR CONSTRUCTION

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	RAC
PREPARED	RWC
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 15

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ARCH D

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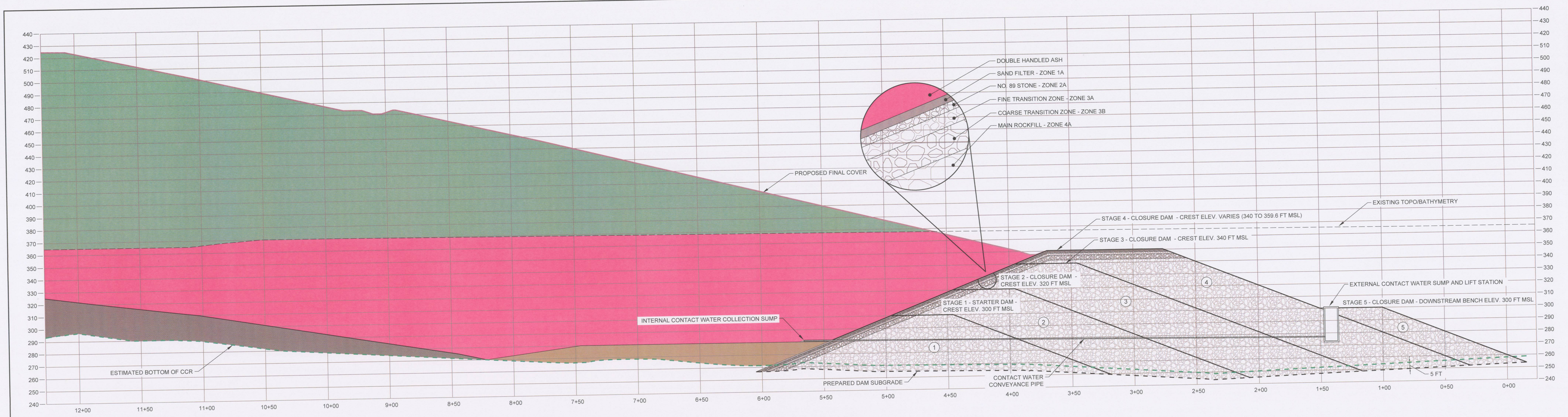
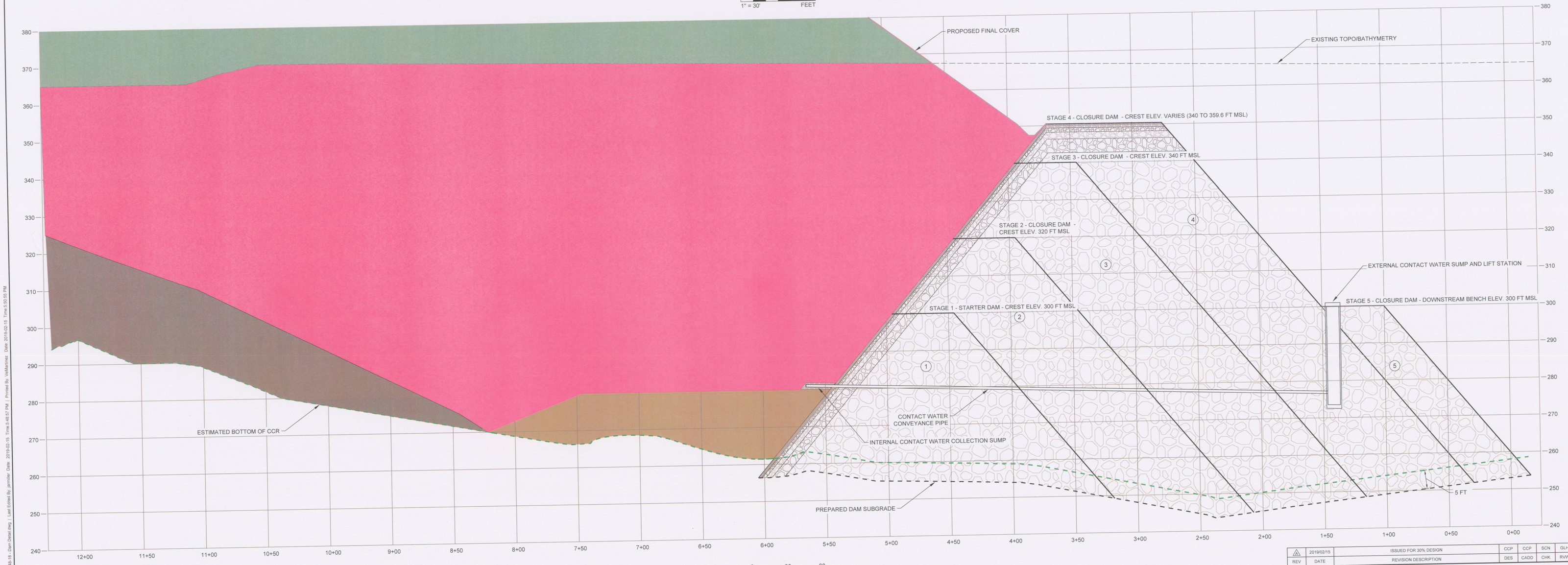


0 30 60
1" = 30' FEET



0 30 60
1" = 30' FEET

VERTICAL EXAGGERATION X3

LEGEND

- PROPOSED FINAL COVER
- EXISTING TOPO / BATHYMETRY
- ESTIMATED BOTTOM OF CCR
- EXISTING CCR TO REMAIN
- PROPOSED CCR FILL
- DOUBLE HANDLED ASH (TO BE REMOVED AND THEN FILLED)
- PROPOSED ROCK FILL DAM
- CLEAN FILL

NOTES

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SUMMARY CHART OF THE DAM ZONES

ZONES	FUNCTIONS	DESCRIPTION	MAXIMUM SIZE (in)	LIFT THICKNESS (FT)	COMPACTION EQUIPMENT	NUMBER OF PASSES
1A	SAND FILTER	WASHED NATURAL CLEAN SAND	3/8"	1	VIBRATING 10t	4
2B	NO. 89 STONE	PROCESSED CRUSHED STONE	3/8"	1	VIBRATING 10t	4
3A	FINE TRANSITION ZONE	PROCESSED COBBLES AND GRAVEL	9"	1.5	VIBRATING 15t	4
3B	COARSE TRANSITION ZONE	PROCESSED BOULDERS, COBBLES AND GRAVEL	18"	2	VIBRATING 15t	4
4A	MAIN ROCKFILL	GOOD QUALITY ROCKFILL	3 ft	3	VIBRATING 15t	6

02/15/2019

30% DESIGN DRAWINGS
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CLIENT
SOUTHERN COMPANY SERVICES

Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
CLOSURE DAM SECTION

CONSULTANT
GOLDER

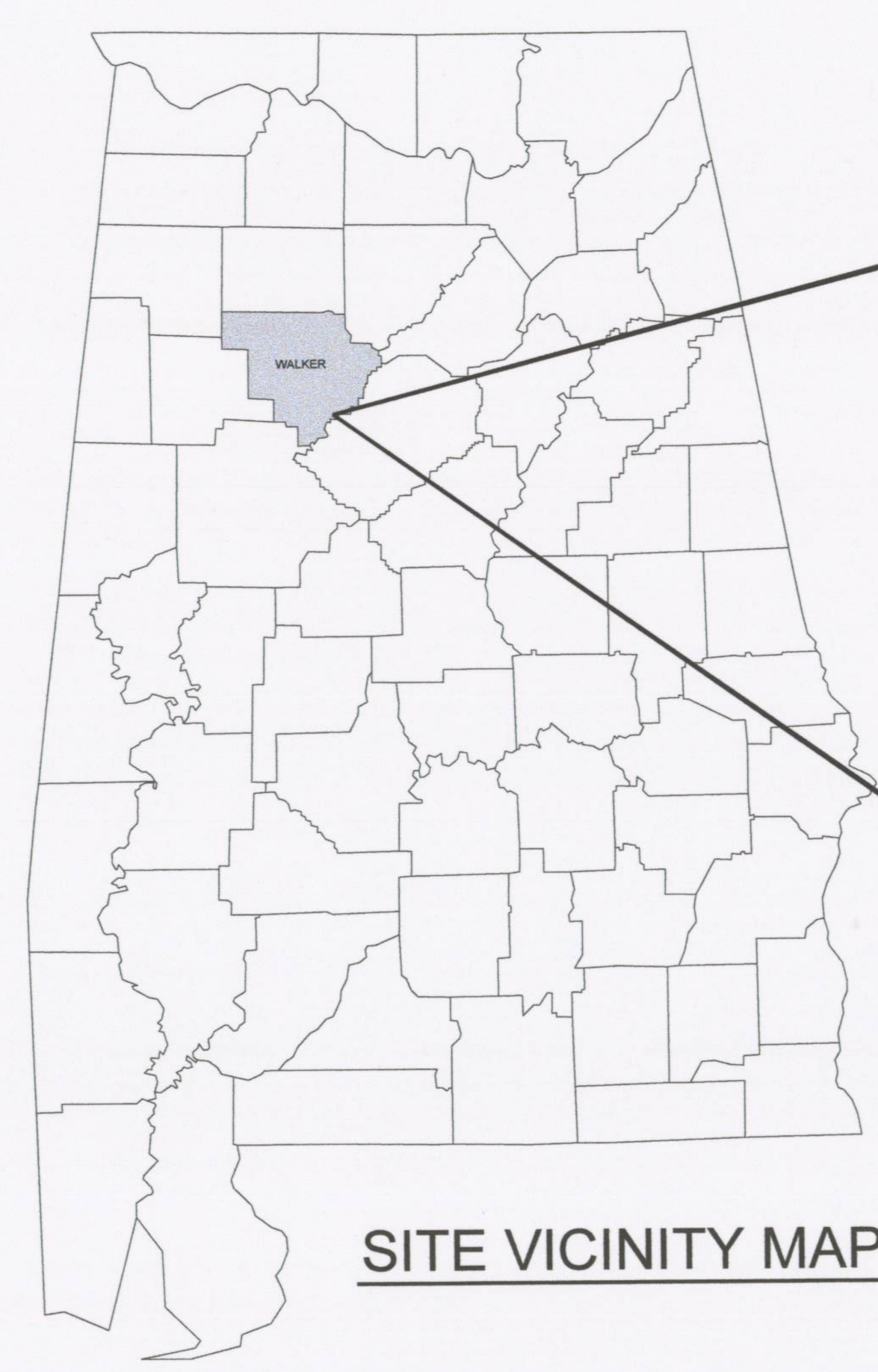
YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. A | DRAWING 16

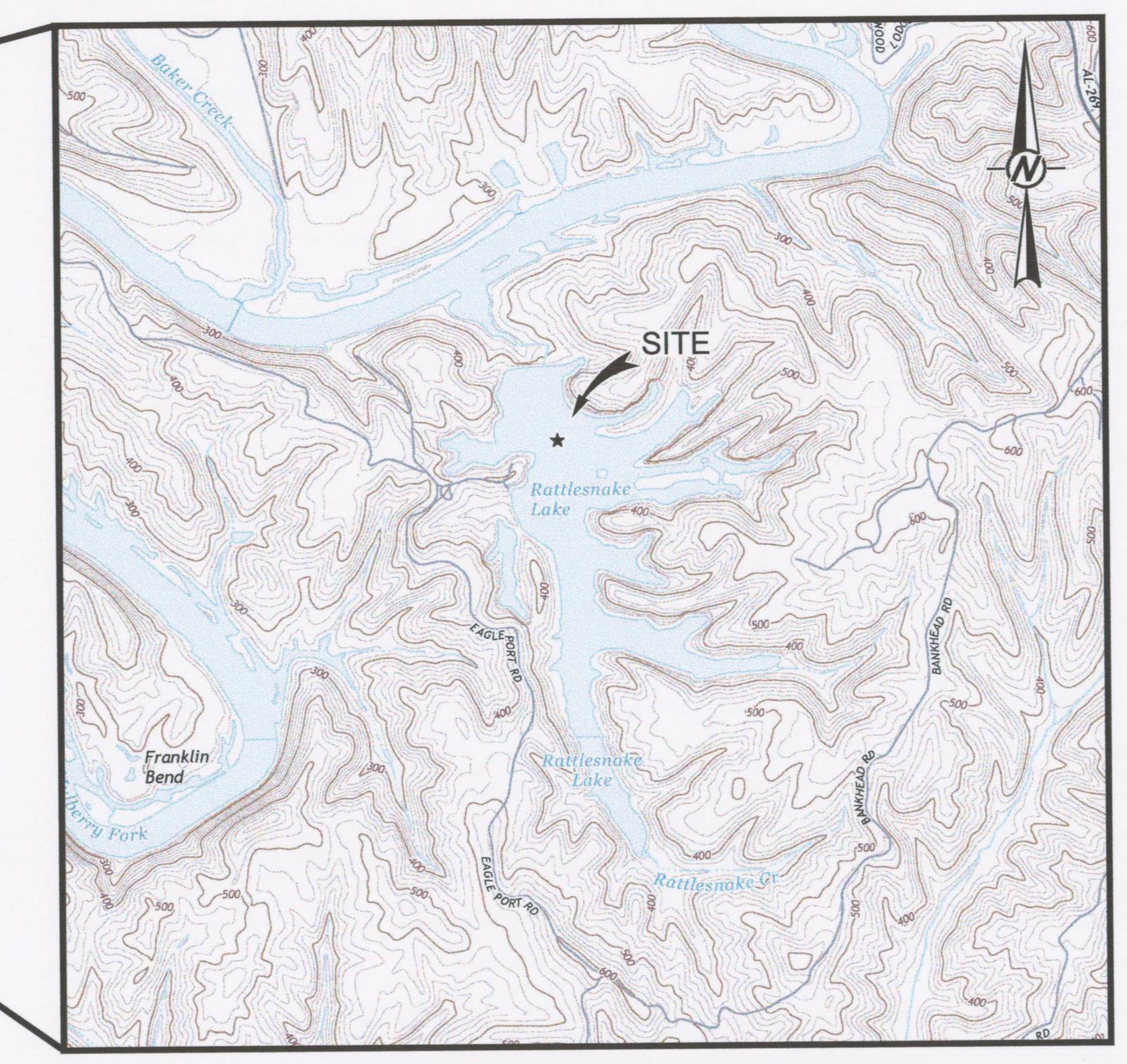
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ARCH D

SOUTHERN COMPANY / ALABAMA POWER
PLANT GORGAS
ASH POND CLOSURE DESIGN PLANS
WALKER COUNTY, ALABAMA
FEBRUARY 2019

LIST OF DRAWINGS



SITE VICINITY MAP



REF: USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLES:
GOODSPRINGS AND GILMORE, AL 2014

SITE LOCATION MAP

0 2000 4000
1" = 2000' FEET

CONTACT INFORMATION

ENGINEER
GREGORY HEBELER, P.E.
GOLDER ASSOCIATES INC.
5170 PEACHTREE RD.
BLDG 100, SUITE 300
ATLANTA, GA 30341
TELEPHONE: 770 / 496-1893

OWNER'S REPRESENTATIVE
JASON WILSON, P.E.
SOUTHERN COMPANY SERVICES
3535 COLONNADE PKWY
BIRMINGHAM, AL 35243
TELEPHONE: 205 / 992-6231

OWNER'S QCI
JESSICA SMOKE
ALABAMA POWER COMPANY
600 NORTH 18TH STREET
BIRMINGHAM, AL 35203
TELEPHONE: 205 / 257-4255

PREPARED BY

GOLDER

PREPARED FOR

Southern Company

Alabama Power

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
	2019/02/15	ISSUED FOR INITIAL PHASE OF CONSTRUCTION	SCN	RMS	GLH	GLH

CLIENT
SOUTHERN COMPANY SERVICES

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

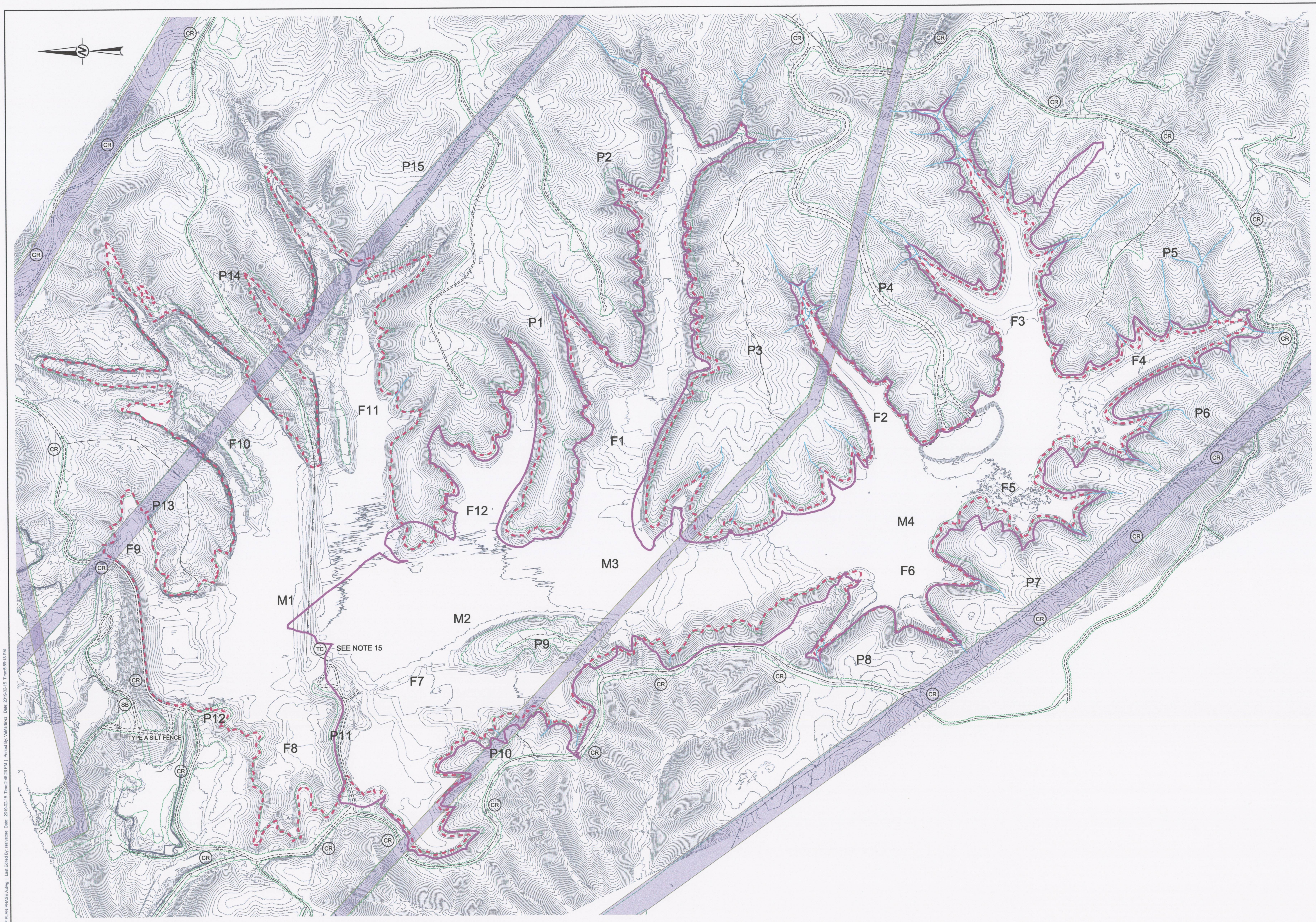
TITLE
CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN
TITLE SHEET

CONSULTANT: GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

GREGORY L. HEBELER
ALABAMA PROFESSIONAL ENGINEER
CERTIFICATE NUMBER 29143

PROJECT NO.	SCS REF	REV.	DRAWING
1789848	GOR17010	0	ES-01



LEGEND

- 340 — EXISTING TOPOGRAPHY / BATHYMETRY CONTOURS (REFERENCE NOTE 1 & 2)
- EXISTING ROADS
- EXISTING POWER POLES / TOWERS
- TREE LINE
- APC OWNED PROPERTY BOUNDARIES
- EXISTING TRANSMISSION CORRIDOR
- ESTIMATED PRE-CLOSURE CCR LIMITS
- LIMITS OF CLOSURE FOOTPRINT
- STREAMS PROVIDED BY CAHABA CONSULTING, LLC

EROSION & SEDIMENT CONTROL LEGEND

- CR — CONSTRUCTION ROAD
- TC — TURBIDITY CURTAIN
- SB — X — TYPE A SILT FENCE (SEE NOTES 9 & 13)
- SB — XX — DOUBLE TYPE A SILT FENCE (SEE NOTE 10)
- SB — COMPOSITE FILTER SOCK
- DI — DIVERSION BERM
- CEP — CONSTRUCTION EXIT PAD
- CD — CHECK DAM
- RD — ROCK FILTER DAM
- MU — MULCHING
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- TSG — TOPSOILING
- Du — DUST CONTROL
- Tr — ORANGE BARRIER
- Su — SURFACE ROUGHING
- OP — OUTLET PROTECTION
- Rt — RETROFITTING
- ECB — EROSION CONTROL BLANKET
- Fr — FILTER RING

NOTES

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS OBTAINED FROM SOUTHERN COMPANY SERVICES. GRADES WITHIN THE POND REPRESENT A BATHYMETRIC SURVEY DATED 5 MAY 2016. GRADES OUTSIDE THE POND REPRESENT LIDAR DATED FEBRUARY 2018. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1988. COORDINATES CORRESPOND TO ALABAMA WEST COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.

2. THE DASHED BLUE LINES REPRESENTS THE APPROXIMATE LIMIT OF OPEN WATER AS ESTIMATED BASED ON AN ASSUMED POND ELEVATION OF 382.8 FT MSL; IN THE VICINITY OF THE HATCHED AMPHIBIOUS AREA THE WATER LINE WAS ESTIMATED FROM AERIAL IMAGERY.

3. CONTRACTOR SHALL BE AWARE OF AND FOLLOW THE OWNER'S CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN FOR THE PROJECT.

4. CONTRACTOR SHALL FOLLOW THE ALABAMA HANDBOOK FOR ALL EROSION AND SEDIMENT CONTROLS UNLESS OTHERWISE APPROVED BY THE OWNER.

5. THE CONTRACTOR SHALL COMPLY WITH THE ALABAMA NATIONAL DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT, AND ALL OTHER APPLICABLE CODES, ORDINANCES, RULES, REGULATIONS, AND LAWS OF LOCAL, MUNICIPAL, STATE OR FEDERAL AUTHORITIES HAVING JURISDICTION.

6. EROSION AND SEDIMENTATION CONTROL SHOULD BE INSTALLED PRIOR TO ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITY BEYOND EXEMPTIONS FOR FORESTRY AND OTHER SUCH WORK.

7. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND PROMPTLY TAKE ALL ACTIONS NECESSARY TO ACHIEVE EFFECTIVE EROSION AND SEDIMENTATION CONTROL.

8. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE, OBSERVATION, AND INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROL FEATURES.

9. SILT FENCE SHALL BE INSTALLED ACCORDING TO THE STANDARDS FOR SEDIMENT BARRIER SILT FENCE AS DESCRIBED IN THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL, AND STORMWATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS (ALABAMA HANDBOOK).

10. WHEN SPECIFIED DOUBLE SILT FENCE SHALL CONSIST OF TWO ROWS OF TYPE A SILT FENCE, SPACED TWO (2) FEET APART.

11. SILT FENCE MAY BE SUBSTITUTED LOCALLY WITH COMPOSITE FILTER SOCK WHERE GROUND CONDITIONS PROHIBIT THE PROPER INSTALLATION OF SILT FENCE.

12. INTERNAL EROSION CONTROLS MAY INCLUDE EROSION CONTROL BLANKETS, TEMPORARY SEED AND MULCH, OR GEOSYNTHETIC EROSION CONTROLS AS APPROVED BY THE OWNER. INSTALLATION OF TEMPORARY INTERNAL EROSION CONTROLS SHALL BE ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS OR AS OTHERWISE APPROVED BY THE OWNER.

13. ANY DISTURBED NON-ASH SURFACES LEFT EXPOSED FOR GREATER THAN 13 DAYS SHALL BE SEEDED WITH TEMPORARY GRASS OR MULCHING.

14. TIMBER HARVESTING HAS PREVIOUSLY OCCURRED AND MAY OCCUR IN THE FUTURE WITHIN THE PROJECT LIMITS. WHILE SUCH ACTIVITIES ARE TYPICALLY EXEMPT FROM ALABAMA CBMPP REQUIREMENTS, THESE AREAS SHALL RECEIVE APPROPRIATE BMPS TO MANAGE OBSERVED EROSION OR SEDIMENTATION ISSUES.

15. TURBIDITY CURTAIN TO BE TOUGH GUY® FLOATING TURBIDITY BARRIER TYPE 2.DOT OR EQUIVALENT. INSTALLATION SHOULD ACCOMMODATE ALLOWANCE FOR BOAT PASSAGE.

REFERENCES

1. EXISTING TOPOGRAPHY PROVIDED BY SOUTHERN COMPANY SERVICES, FEBRUARY 2018.
2. BATHYMETRY DATA PROVIDED BY SOUTHERN COMPANY SERVICES, DATED MAY 5, 2016.
3. EXISTING PROPERTY AND BOUNDARIES PROVIDED BY SOUTHERN COMPANY SERVICES, JANUARY 2019.
4. CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN FOR GORGAS ASH POND CLOSURE PREPARED BY ALABAMA POWER, SEPTEMBER 2018.

0 300 600
1" = 300' FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
0	2019/02/15	ISSUED FOR INITIAL PHASE OF CONSTRUCTION	SCN	RMS	GLH	GLH

CLIENT
SOUTHERN COMPANY

Southern Company
Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN
PHASE A

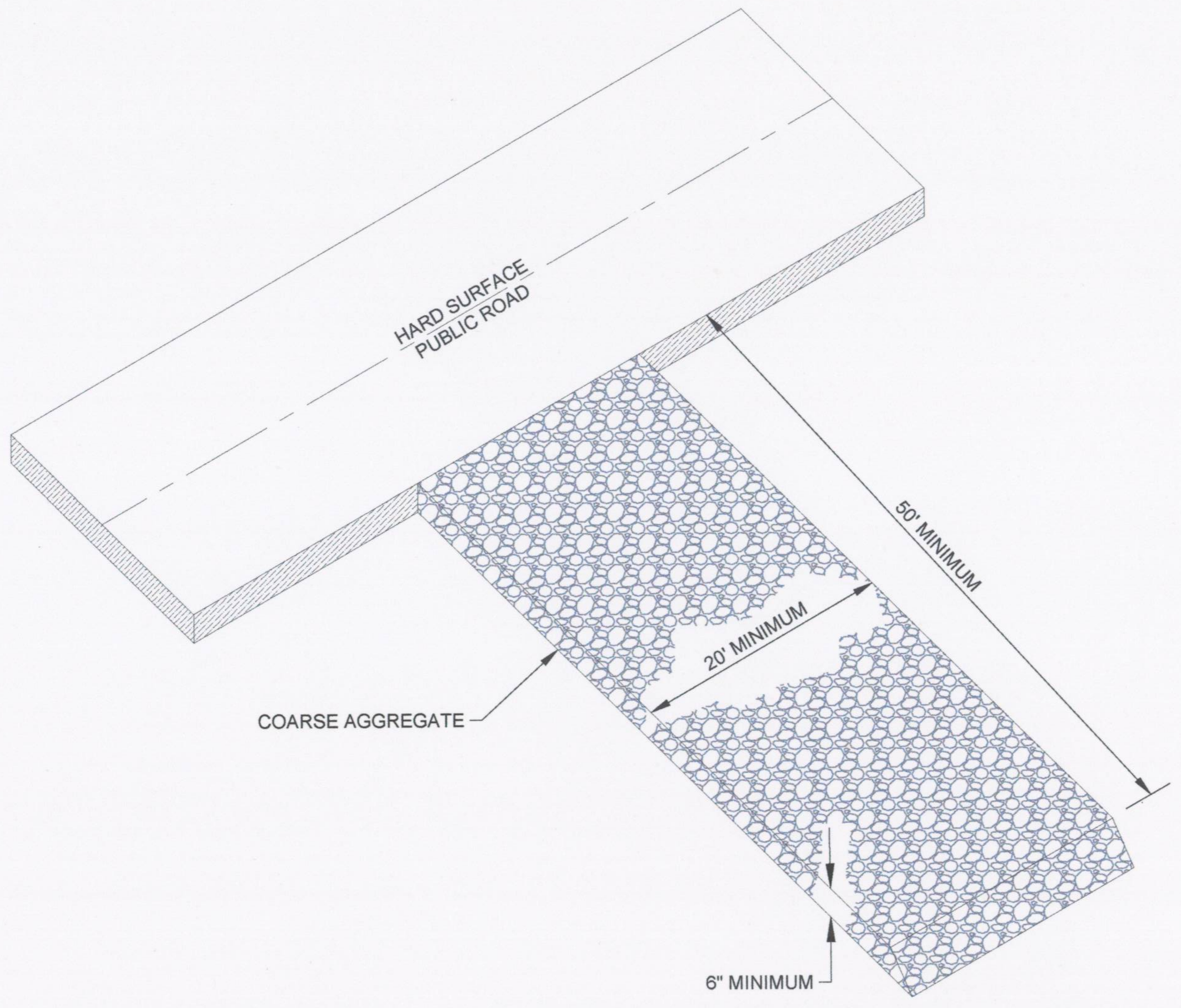
GREGORY L. HEBELER
ALABAMA PROFESSIONAL ENGINEER
CERTIFICATE NUMBER 12687

CONSULTANT
GOLDER

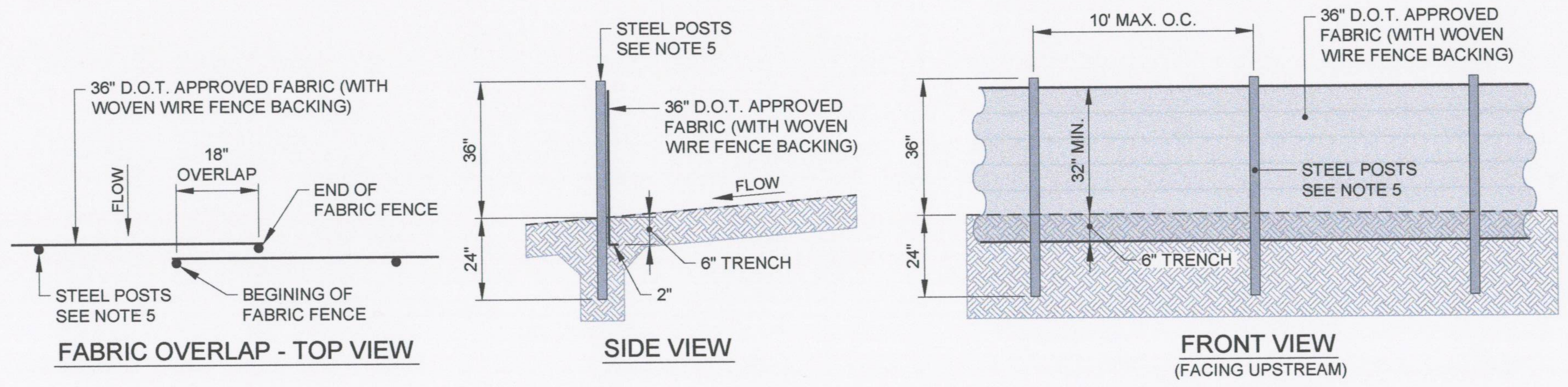
YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. 0 | DRAWING ES-02

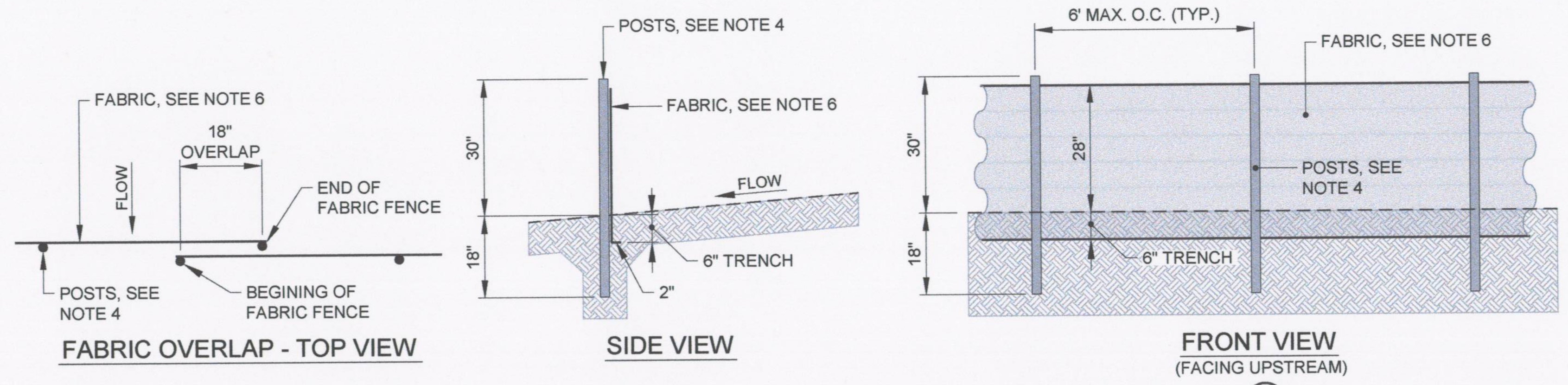
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



1 CONSTRUCTION EXIT PAD (CEP)
ES-09
NTS



2 SILT FENCE - TYPE A (SB)
ES-09
NTS



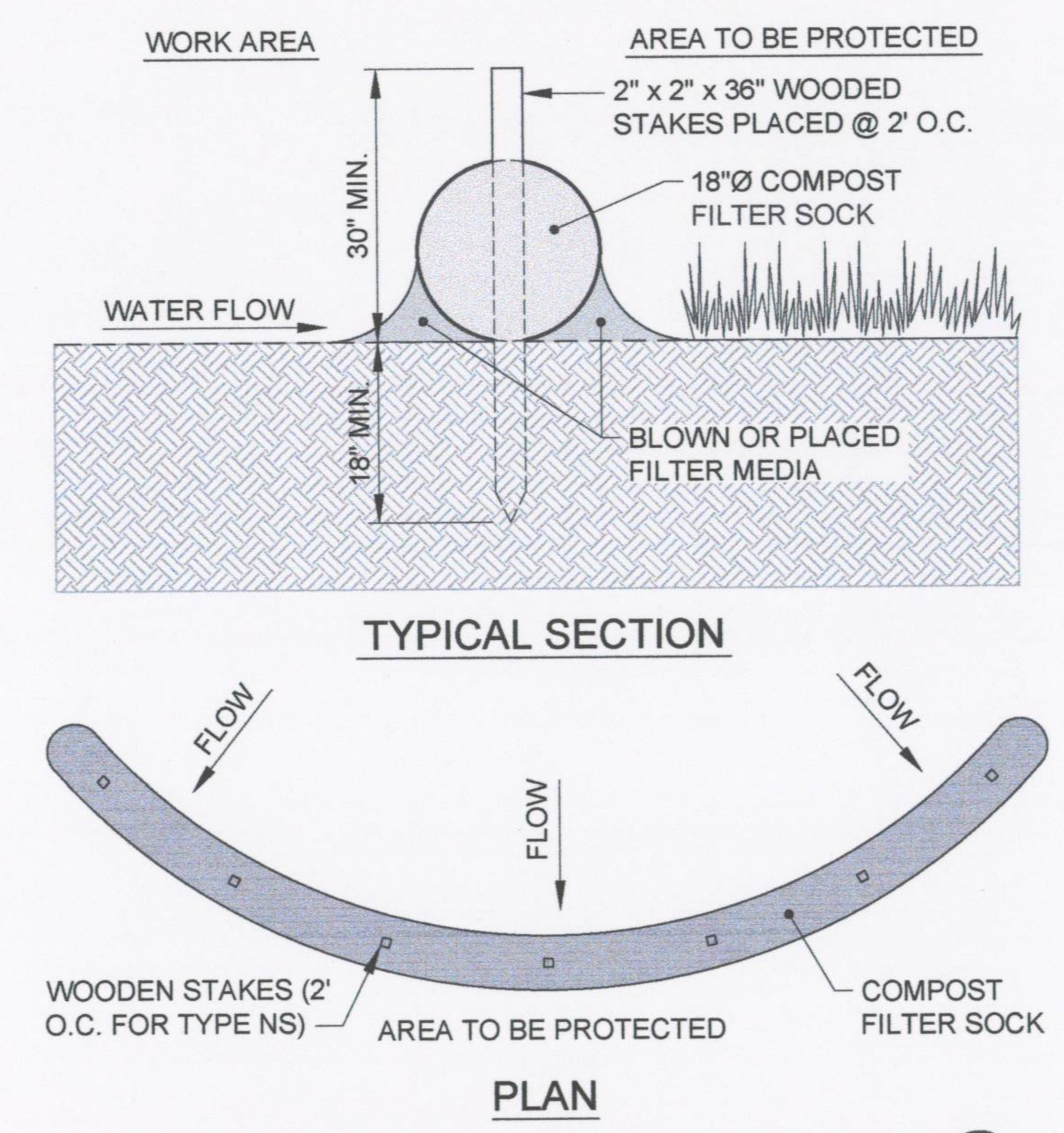
3 SILT FENCE NON-SENSITIVE - TYPE B (SB)
ES-09
NTS

SEDIMENT BARRIER NOTES

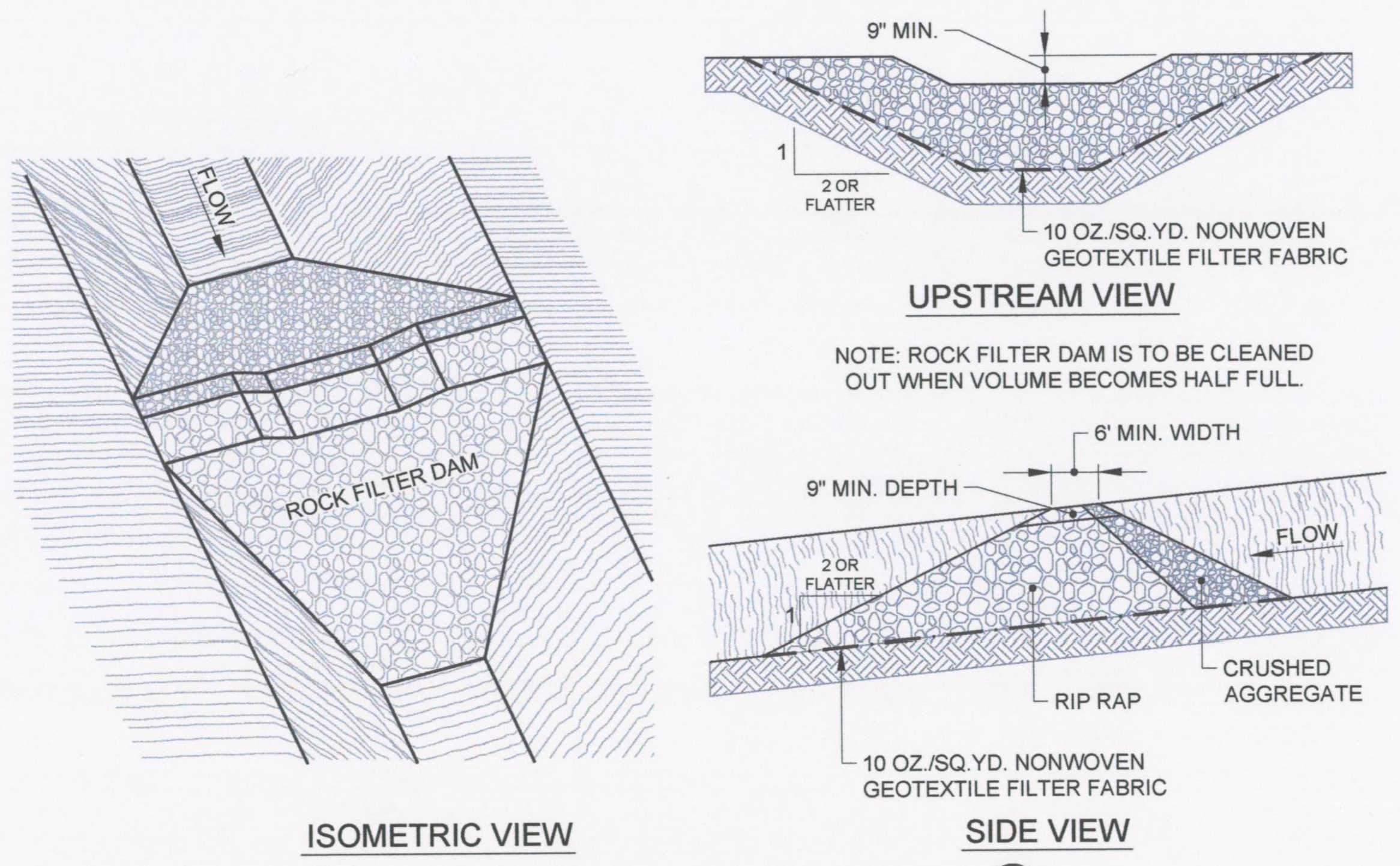
1. SILT FENCE SHALL BE INSTALLED ACCORDING TO THE STANDARDS FOR TYPE A SEDIMENT BARRIER SILT FENCE AS DESCRIBED IN THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL, AND STORMWATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS (ALABAMA HANDBOOK).
2. SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER.
3. SEDIMENT BARRIERS SHALL BE REPLACED WHENEVER THEY HAVE DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE PRODUCT IS REDUCED (APPROXIMATELY SIX MONTHS) OR THE HEIGHT OF THE PRODUCT IS NOT MAINTAINING 80% OF ITS PROPERLY INSTALLED HEIGHT.
4. TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.
5. POSTS SHALL BE STEEL, AS DESCRIBED IN THE ALABAMA HANDBOOK TABLE SB-2.

SEDIMENT BARRIER NOTES

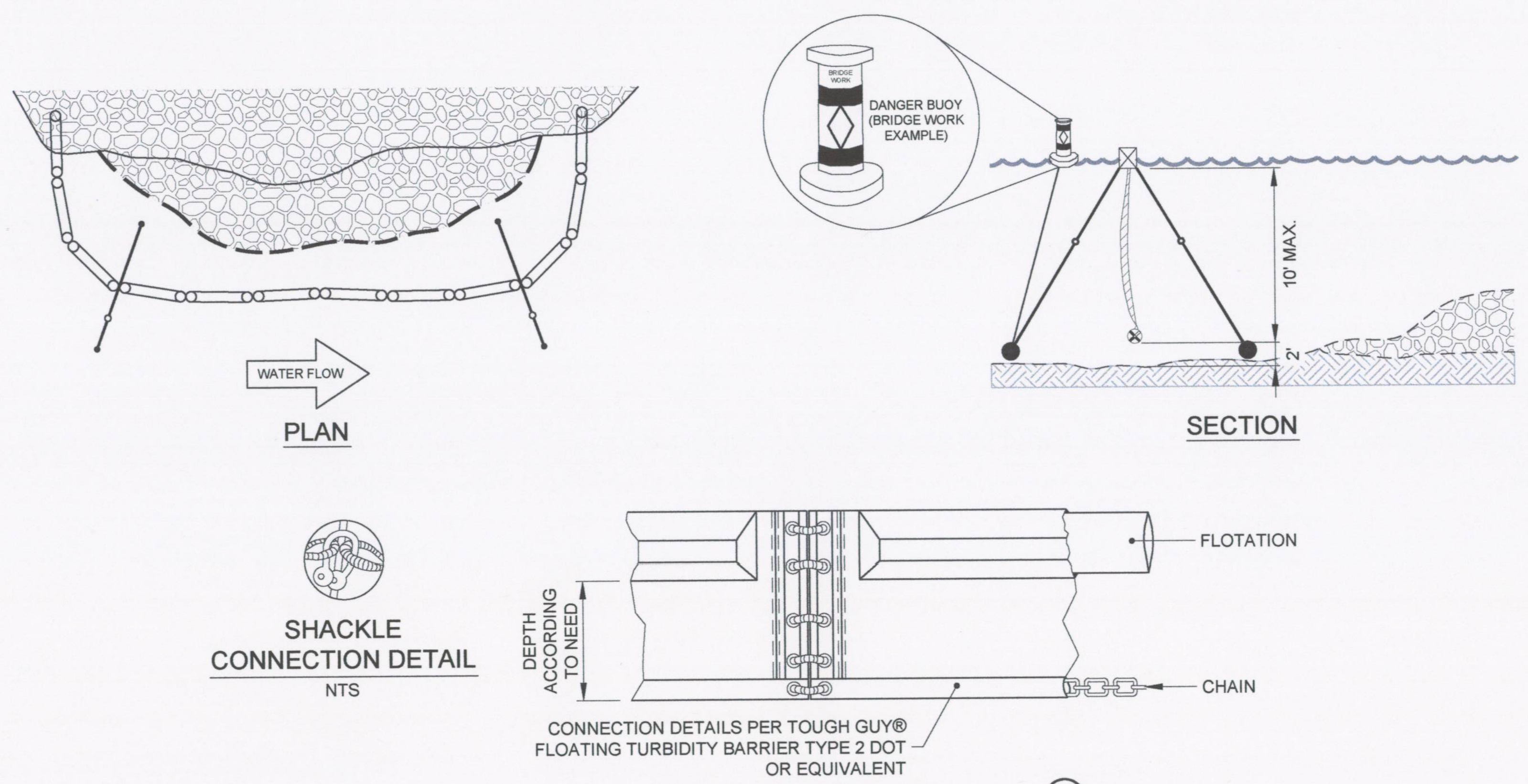
1. SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER.
2. SEDIMENT BARRIERS SHALL BE REPLACED WHENEVER THEY HAVE DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE PRODUCT IS REDUCED (APPROXIMATELY SIX MONTHS) OR THE HEIGHT OF THE PRODUCT IS NOT MAINTAINING 80% OF ITS PROPERLY INSTALLED HEIGHT.
3. TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.
4. POSTS SHALL BE STEEL OR AS SPECIFIED ON EROSION, SEDIMENT & POLLUTION CONTROL PLAN.
5. SEDIMENT BARRIERS BEING USED AS TYPE NS SHALL HAVE A SUPPORT SPACING OF NO GREATER THAN 6 FEET ON CENTERS, EACH DRIVEN INTO THE GROUND A MINIMUM OF 18 INCHES.
6. TYPE NS BARRIER SHALL HAVE A P-FACTOR NO GREATER THAN 0.045.



4 COMPOST FILTER SOCK (SB)
ES-09
NTS



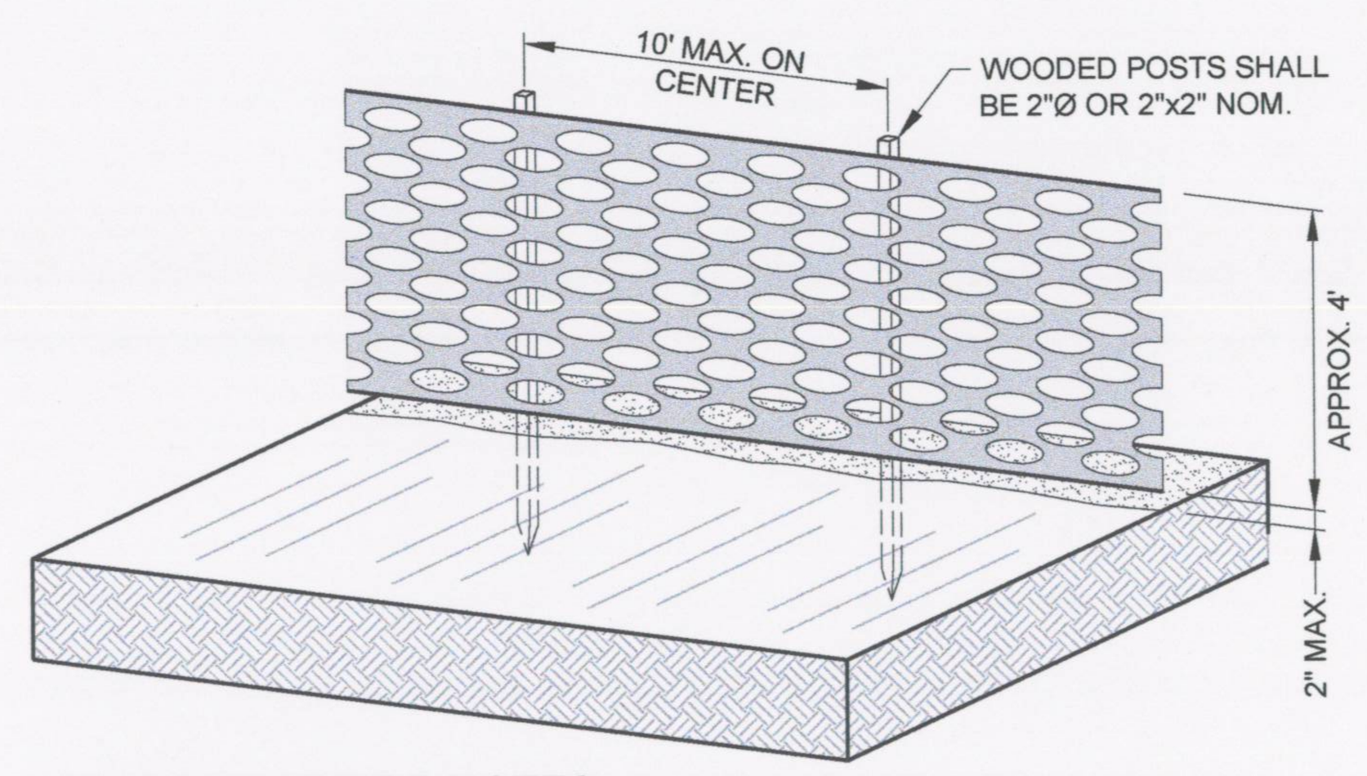
5 ROCK FILTER DAM (RD)
ES-09
NTS



6 TURBIDITY CURTAIN (TC)
ES-09
NTS

TURBIDITY CURTAIN NOTES

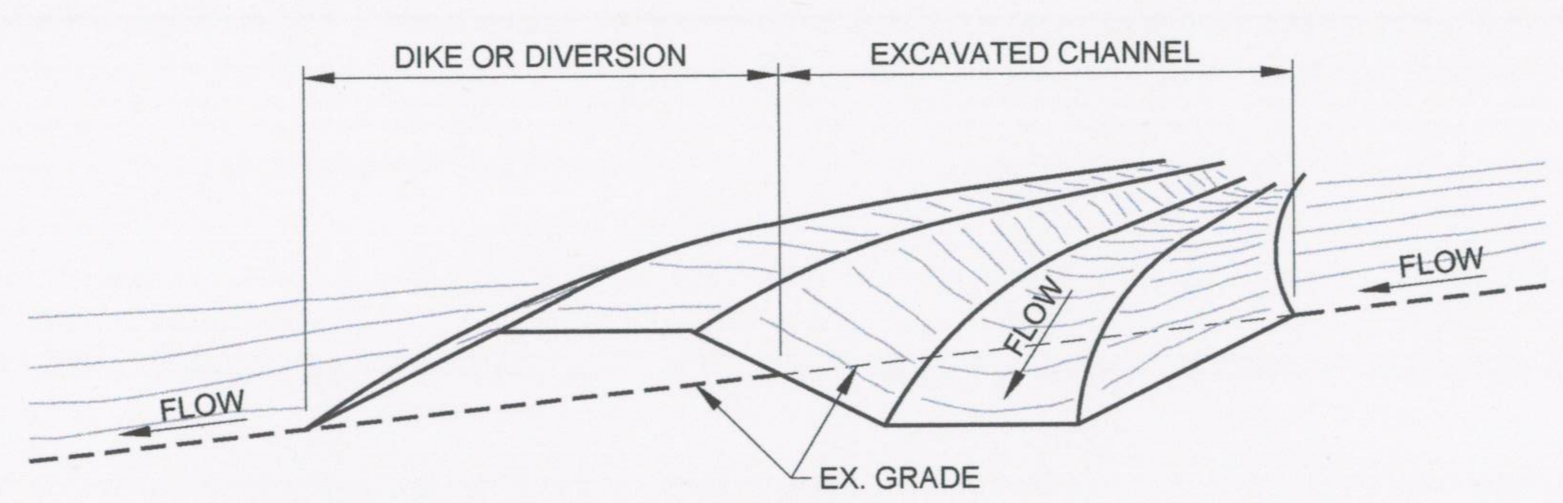
1. SILT CURTAINS SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF FLOW.
2. FOR SITES NOT SUBJECT TO HEAVY WAVE ACTION, THE CURTAIN HEIGHT SHALL PROVIDE SUFFICIENT SLACK TO ALLOW THE TOP OF THE CURTAIN TO RISE TO THE MAXIMUM EXPECTED HIGH-WATER LEVEL (INCLUDING WAVES) WHILE THE BOTTOM MAINTAINS CONTINUOUS CONTACT WITH THE BOTTOM OF THE WATER BODY. THE BOTTOM EDGE OF THE CURTAIN SHALL HAVE A WEIGHT SYSTEM CAPABLE OF HOLDING THE BOTTOM OF THE CURTAIN DOWN AND CONFORMING TO THE BOTTOM OF THE WATER BODY, SO AS TO PROHIBIT ESCAPE OF TURBID WATER UNDER THE CURTAIN.
3. THE SILT CURTAIN SHALL BE ANCHORED INTO PLACE (THE ALIGNMENT SHOULD BE SET AS CLOSE TO THE WORK AREA AS POSSIBLE BUT NO SO CLOSE AS TO BE DISRUPTED BY CONSTRUCTION EQUIPMENT).
4. DANGER BUOYS SHALL BE USED AS DIRECTED BY THE COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERS.
5. THE ENDS OF THE SILT CURTAIN SHALL BE SECURELY ANCHORED AND KEYED IN ORDER TO ENCLOSE THE AREA.
6. A GENERAL RULE OF THUMB FOR ATTACHING ANCHORS IS TO DO SO AT 100' INTERVALS (DEPENDING ON CURRENT AND TIDAL CONDITIONS, IT MAY BE NECESSARY TO ANCHOR THE BARRIER ON BOTH SIDES-AS SHOWN).
6. FLOATING TURBIDITY BARRIER SHALL BE "TOUGH GUY, TYPE 2 DOT" OR APPROVED EQUIVALENT.



ORANGE BARRIER NOTES

1. WHERE APPLICABLE, OFFSET 10' FROM SILT FENCE.
2. CONSTRUCTION SAFETY FENCE SHALL BE INSTALLED AS DESCRIBED IN ALABAMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2018 EDITION, SECTION 674.
3. CONSTRUCTION SAFETY FENCE SHALL BE BRIGHT ORANGE POLYETHYLENE FENCE FABRIC.
4. POSTS SHALL BE OF TYPE AND MATERIAL THAT WILL ADEQUATELY SERVE TEH INTENDED PURPOSE FOR THE DURATION OF THE PROJECT, AS APPROVED BY THE OWNER.
5. JOINTS SHALL OVERLAP A MINIMUM OF 12 INCHES.
6. DRIVE 6 FOOT (72") POSTS 12"-18" INTO SOIL.

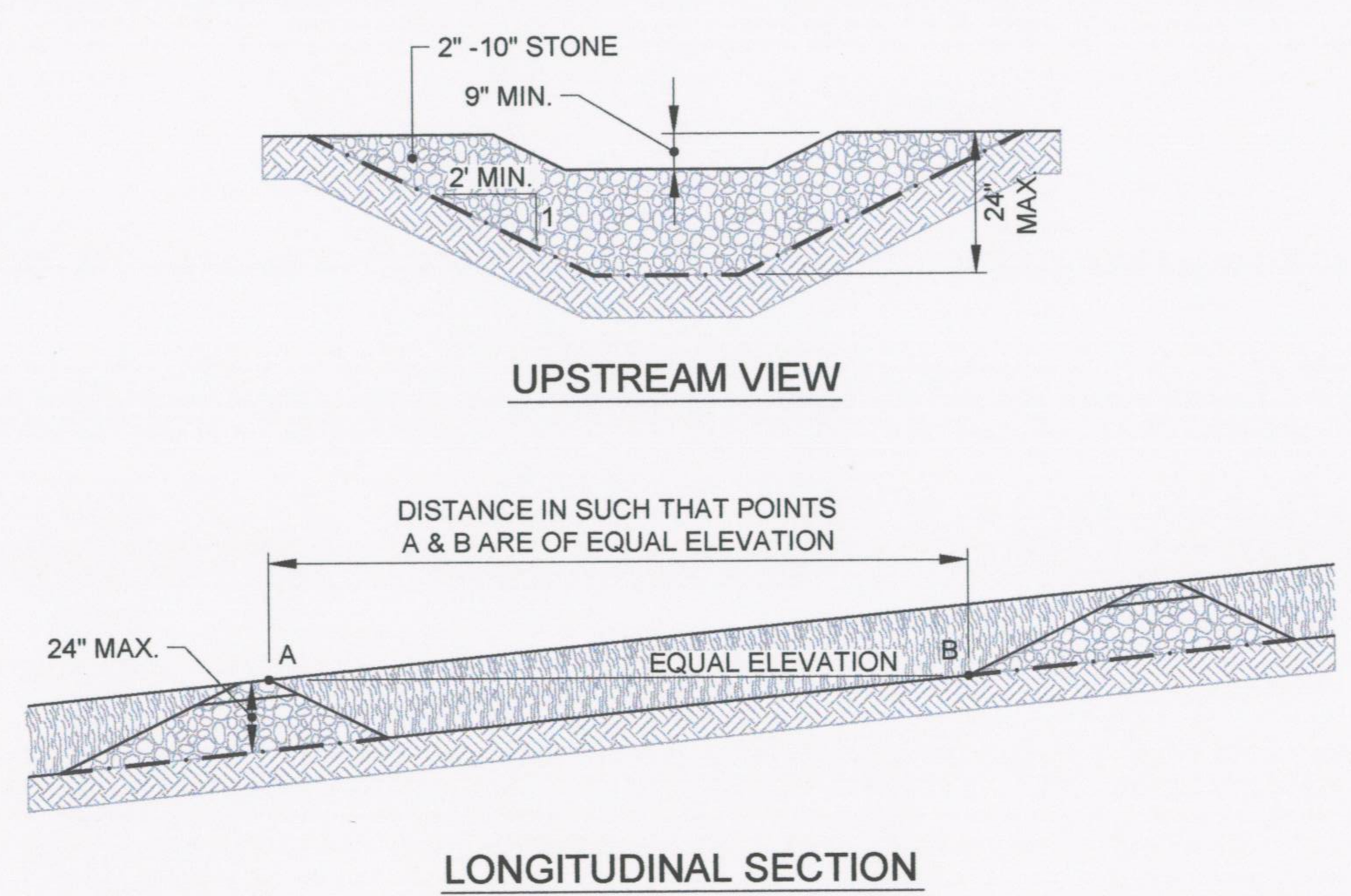
7 ORANGE BARRIER (Tr)
ES-09
NTS



TEMPORARY DIVERSION NOTES

1. REMOVE TREES, BRUSH, STUMPS AND OTHER OBJECTIONABLE MATERIAL.
2. EXCAVATE NARROW, DEEP CHANNELS ON STEEPS AND BROAD, SHALLOW CHANNELS ON GENTLE SLOPES. SIDE SLOPES SHOULD BE 2:1 OR FLATTER. CHANNEL CROSS-SECTION SHOULD BE TRAPEZOIDAL OR PARABOLIC IN SHAPE.
3. COMPACT ALL FILLS.
4. ADEQUATE OUTLET MUST BE PRESENT.
5. STABILIZE CHANNEL AND OUTLET WITH VEGETATION (MULCH REQUIRED FOR ALL SEEDED OR SPRIGGED CHANNELS), RIP RAP, OR PAVEMENT.
6. DISPOSE OF AND/OR STABILIZED UNNEEDED EXCAVATED MATERIAL.

8 DIVERSION BERM (DV)
ES-09
NTS



9 CHECK DAM (CD)
ES-09
NTS

REFERENCES

1. CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN FOR GORGAS ASH POND CLOSURE PREPARED BY ALABAMA POWER, SEPTEMBER 2018.

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2019/02/15	ISSUED FOR INITIAL PHASE OF CONSTRUCTION	SCN	RMS	GLH	GLH

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Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

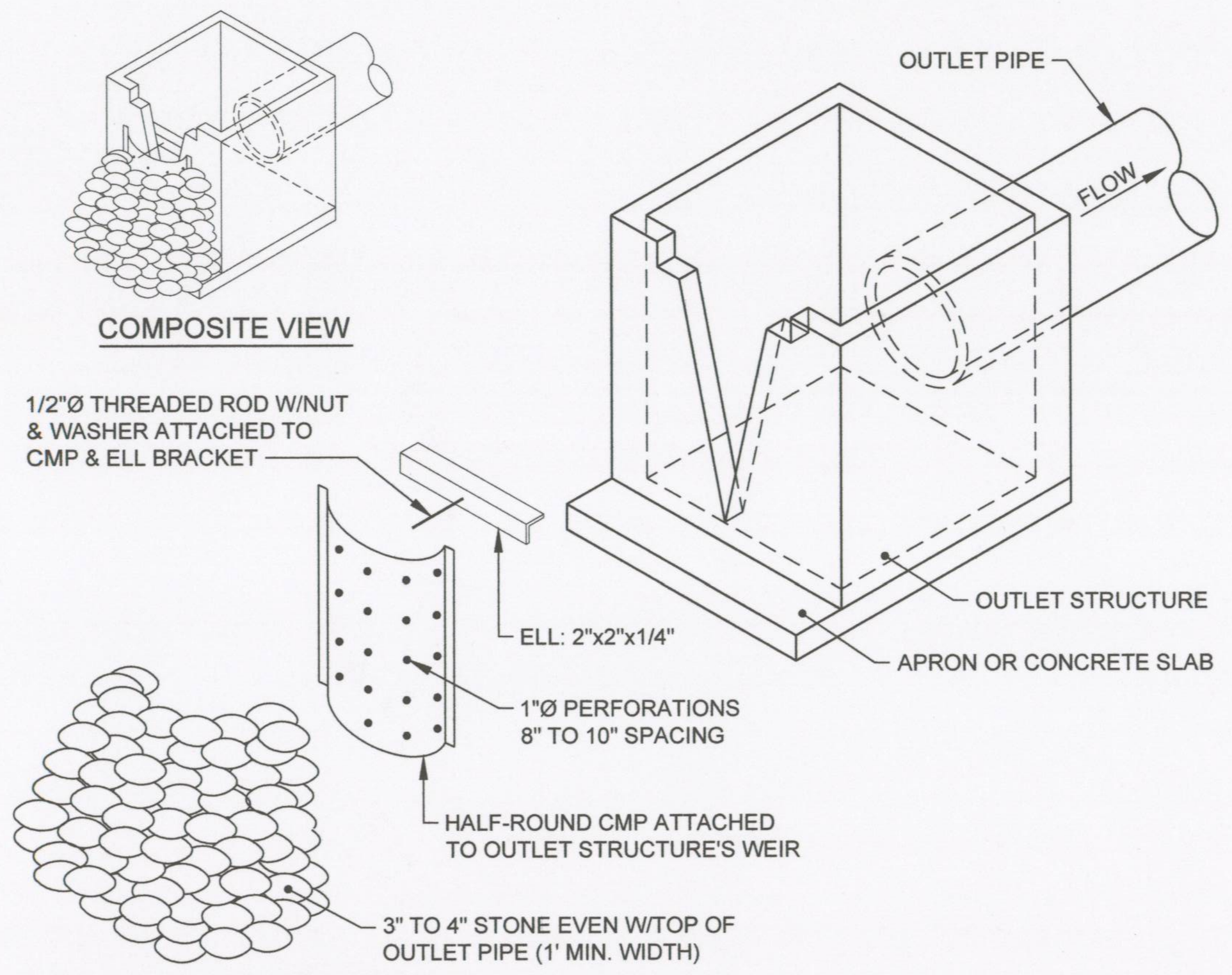
TITLE
CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN
DETAILS 1 OF 2

CONSULTANT: GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. 0 | DRAWING ES-09

GREGORY L. HEBELER
ALABAMA PROFESSIONAL ENGINEER
CERTIFICATE NUMBER 29143



RETROFITTING NOTES

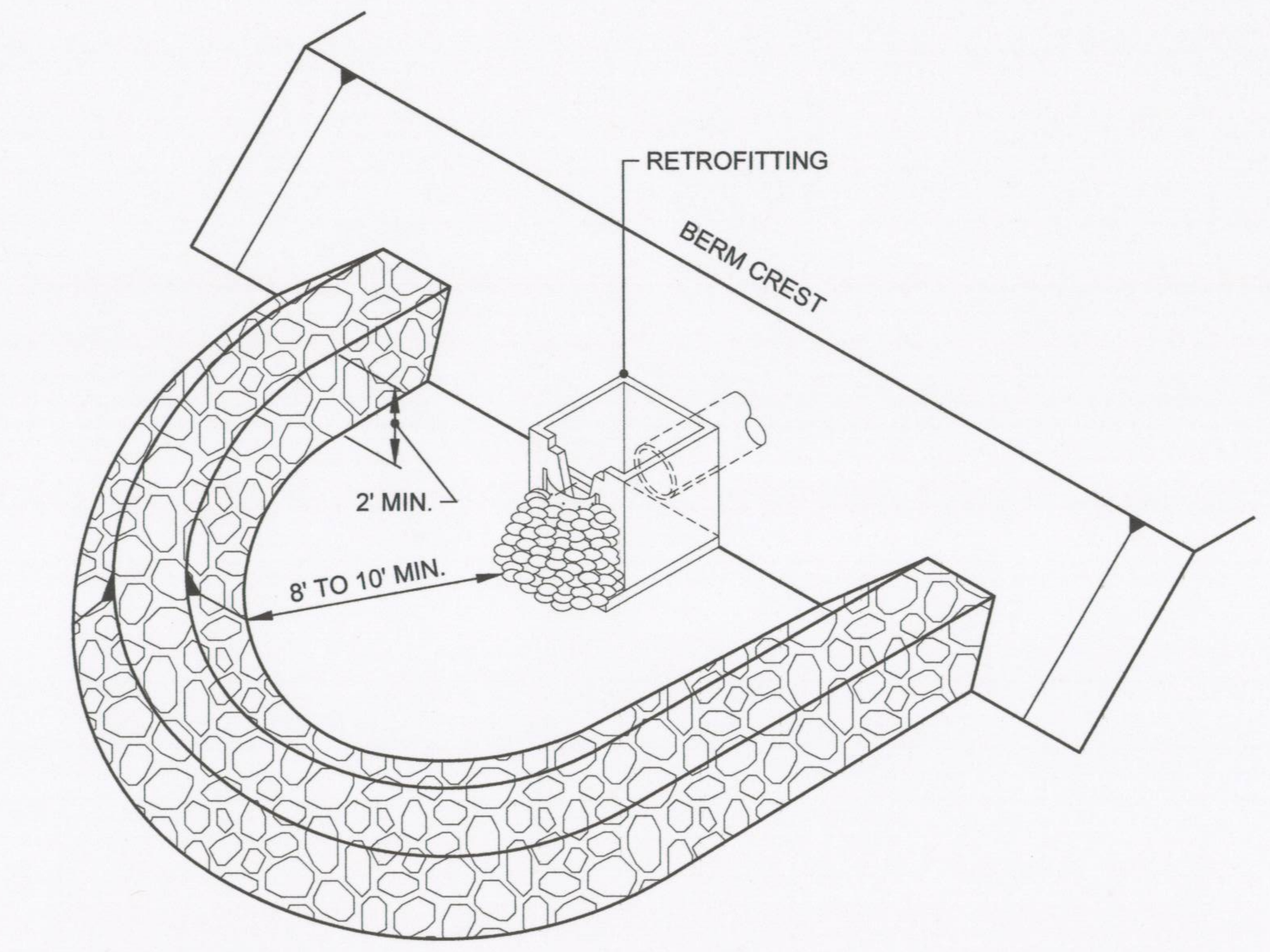
INSTALLATION

1. HALF-ROUND CMP DIAMETER SHOULD BE 1.5 TIMES THE DIAMETER OF THE OUTLET PIPE OR WIDER THAN THE GREATEST WIDTH OF THE CONCRETE WEIR.
2. ATTACH TO OUTLET STRUCTURE, BUT NEVER ON EXPOSED PIPE OR WINGED HEADWALL.
3. DRAINAGE AREA NOT TO EXCEED 30 ACRES.

STONE FILTER RING

1. STONE FILTER RING SHALL HAVE A MINIMUM HEIGHT OF 2 FEET, AND A MINIMUM DISTANCE OF 8 TO 10 FEET BETWEEN RETROFIT AND RING.
2. OUTLET PIPE WITH DIAMETER LARGER THAN 12 INCHES REQUIRES 10 TO 15 INCH STONE, FACED WITH SMALLER FILTER STONE.

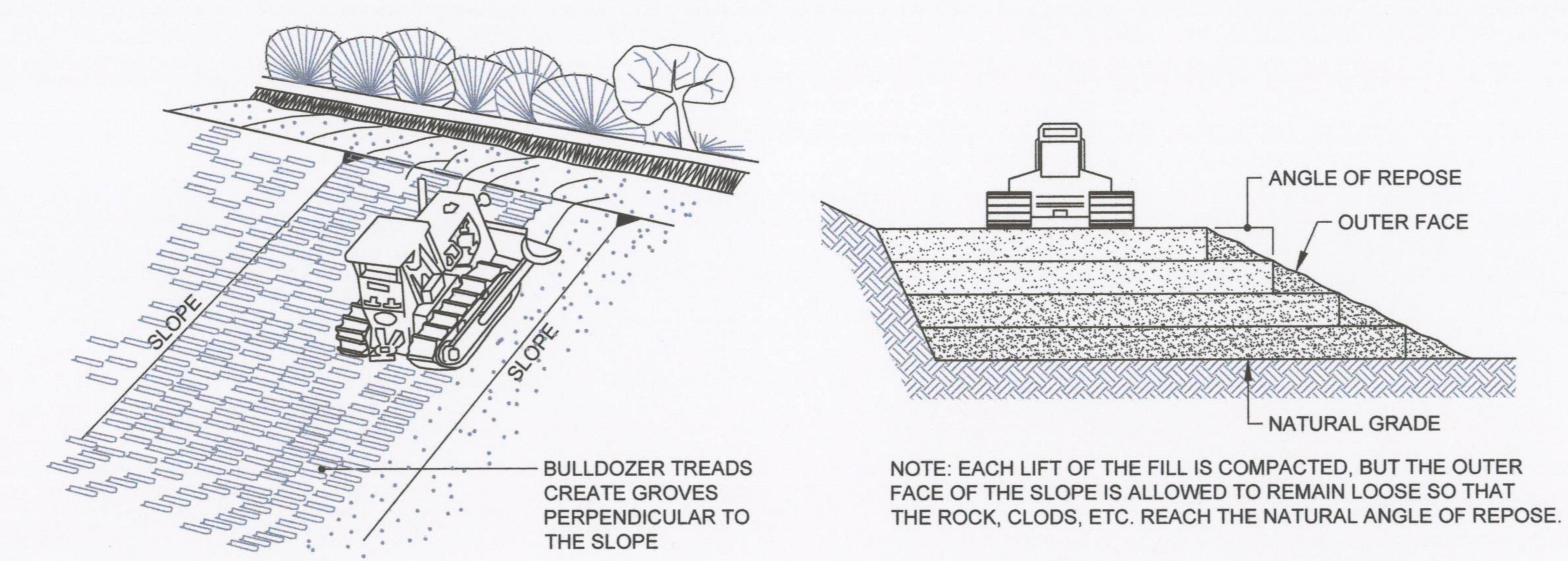
1 ES-10 RETROFITTING (Rt)
NTS



FILTER RING NOTES

1. FILTER RING SHALL BE USED IN CONJUNCTION WITH OTHER SEDIMENT CONTROL MEASURES, EXCEPT WHERE OTHER PRACTICES ARE NOT APPROPRIATE.
2. THE FILTER RING SHALL SURROUND ALL SIDES OR THE STRUCTURE RECEIVING RUNOFF FROM DISTURBED AREAS.
3. THE RING SHOULD BE PLACED A MINIMUM OF 4 FEET FROM THE STRUCTURE.
4. IF THE RING IS UTILIZED ABOVE A RETROFIT STRUCTURE, IT SHOULD BE A MINIMUM OF 8 TO 10 FEET FROM THE STRUCTURE.
5. WHEN UTILIZED AT INLETS WITH DIAMETERS LESS THAN 12 INCHES, THE FILTER RING SHALL BE CONSTRUCTED OF STONE NO SMALLER THAN 3-5 INCHES (15-30 LBS.).
6. WHEN UTILIZED AT PIPES WITH DIAMETERS GREATER THAN 12 INCHES, THE FILTER RING SHALL BE CONSTRUCTED OF STONE NO SMALLER THAN 10-15 INCHES (50-100 LBS.).
7. THE FILTER RING SHALL BE CONSTRUCTED AT A HEIGHT NO LESS THAN 2 FEET ABOVE GRADE.

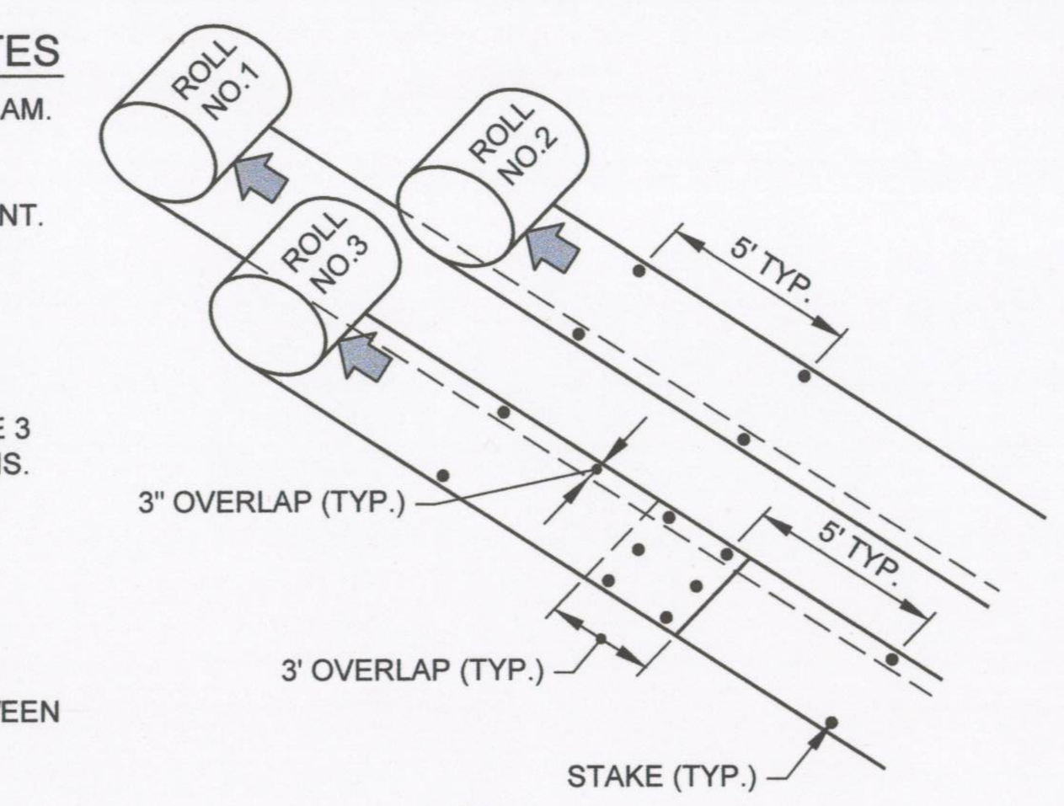
2 ES-10 FILTER RING (Fr)
NTS



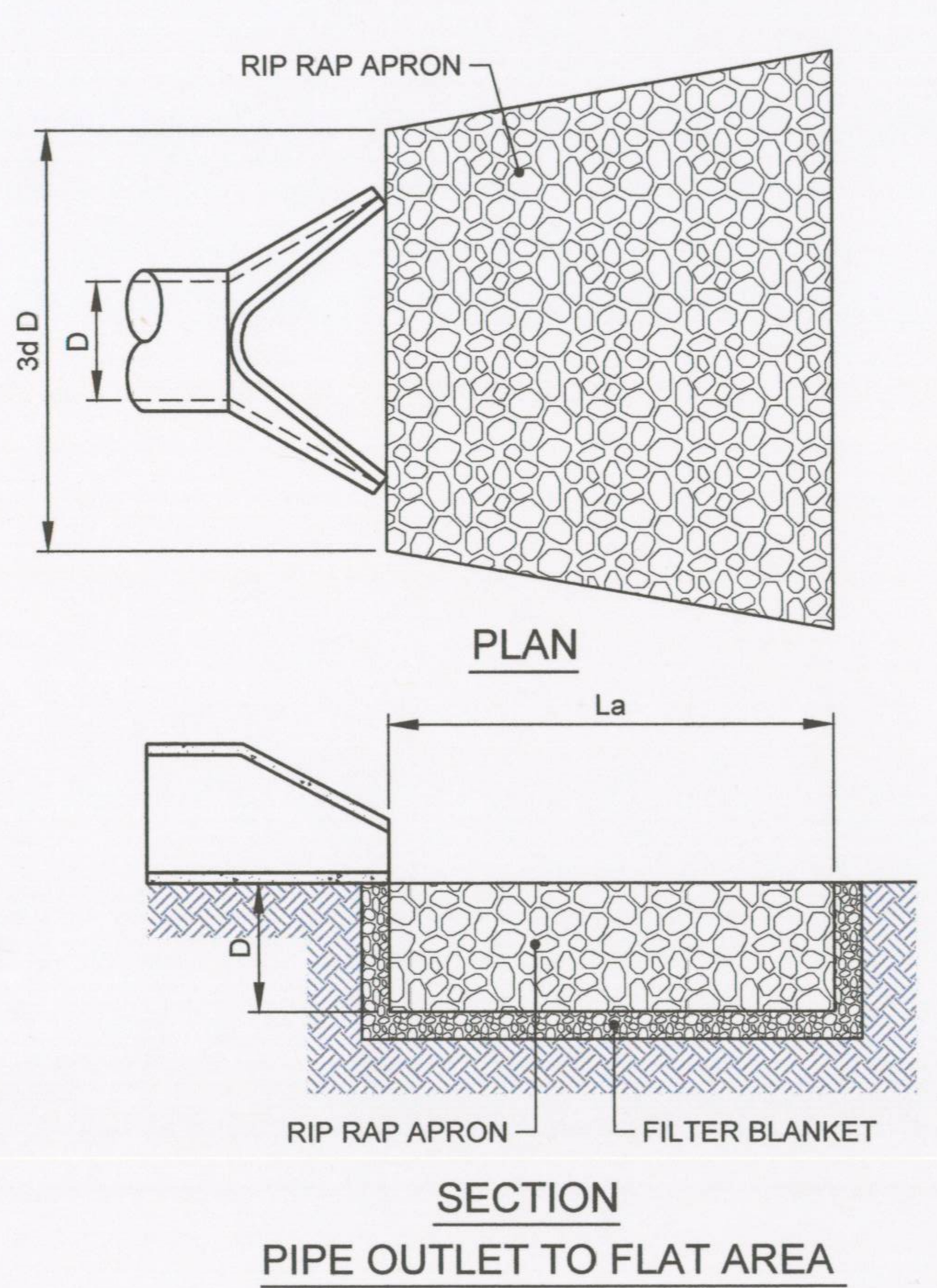
3 ES-10 SURFACE ROUGHING (Su)
NTS

ROLLED EROSION CONTROL PRODUCT NOTES

1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED. SEQUENCE BEHIND FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
4. WORK OUTWARDS FROM CHANNEL CENTER TO EDGE. E. USE 3 INCH OVERLAP AND STAKE AT 5 FOOT INTERVALS ALONG SEAMS.
5. USE 3 FOOT OVERLAP AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.
6. MAT SHALL BE SECURED AT UPSTREAM AND DOWNSTREAM ENDS USING STAKES AND ENTRENCHMENT. INTERMEDIATE STAKES SHALL BE USED TO ENSURE INTIMATE CONTACT BETWEEN MATS AND SUBGRADE.

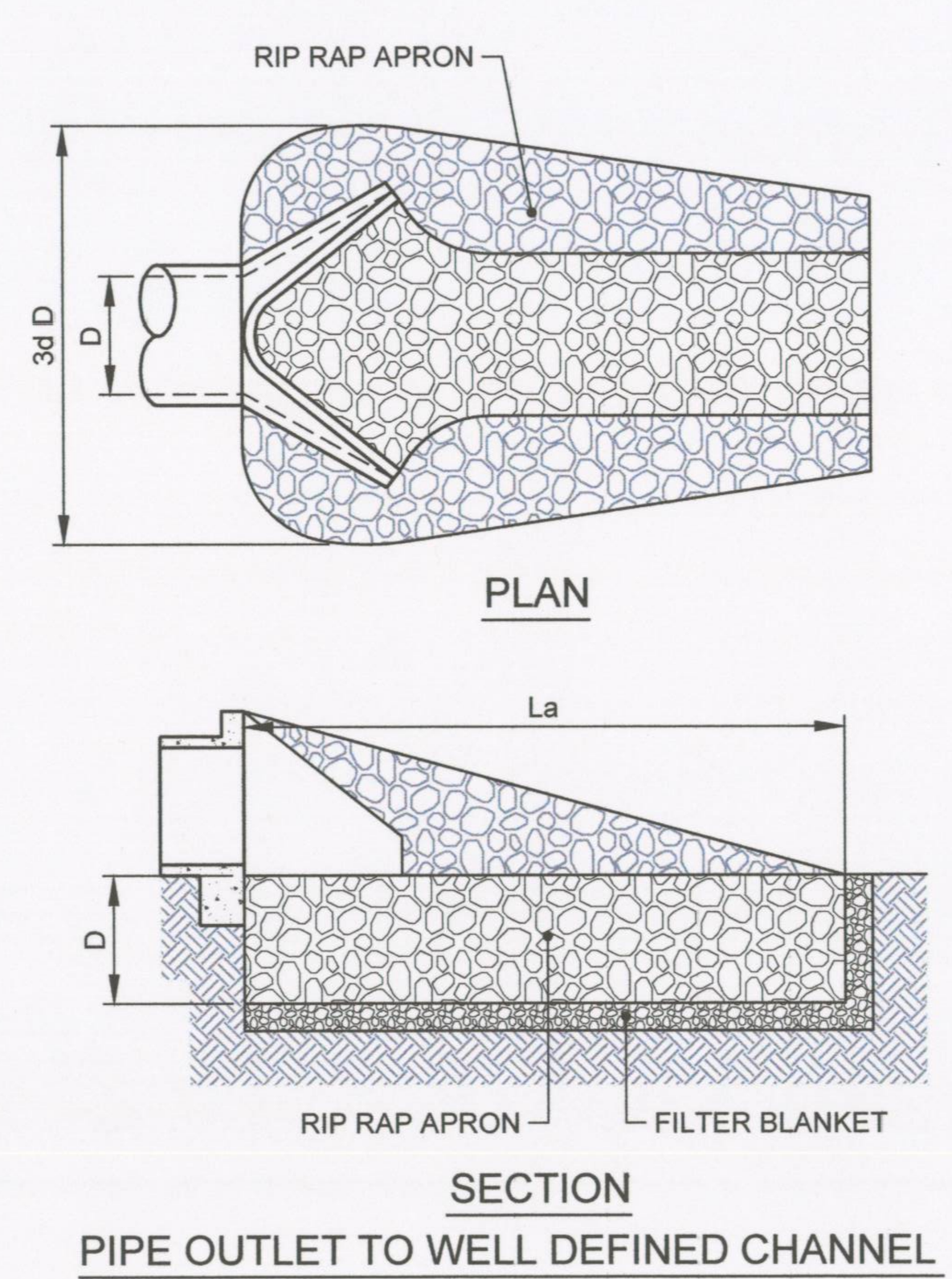


4 ES-10 EROSION CONTROL BLANKET (ECB)
NTS



RIP RAP OUTLET PROTECTION NOTES

1. La IS THE LENGTH OF THE RIP RAP APRON.
2. D=1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6 INCHES.
3. IN A WELL DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO THE ELEVATION OF SIX INCHES ABOVE THE MAXIMUM TAIL WATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND THE SOIL FOUNDATION.



5 ES-10 RIP RAP OUTLET PROTECTION (OP)
NTS

SITE PREPARATION & SOIL AMENDMENTS

COMPLETE GRADING AND SHAPING BEFORE APPLYING SOIL AMENDMENTS IF NEEDED TO PROVIDE A SURFACE ON WHICH EQUIPMENT CAN SAFELY AND EFFICIENTLY BE USED TO APPLY SOIL AMENDMENTS AND ACCOMPLISH SEEDBED PREPARATION AND SEEDING.

LIME

APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF A SOIL TEST IS NOT AVAILABLE, USE 1 TON OF AGRICULTURAL LIMESTONE OR EQUIVALENT PER ACRE ON COARSE TEXTURED SOILS AND 2 TONS PER ACRE ON FINE TEXTURED SOILS. DO NOT APPLY LIME TO ALKALINE SOILS OR TO AREAS WHICH HAVE BEEN LIMED DURING THE PRECEDING 2 YEARS. OTHER LIMING MATERIALS THAT MAY BE SELECTED SHOULD BE PROVIDED IN AMOUNTS THAT PROVIDE EQUAL VALUE TO THE CRITERIA LISTED FOR AGRICULTURAL LIME OR BE USED IN COMBINATION WITH AGRICULTURAL LIMESTONE OR SELMA CHALK TO PROVIDE EQUIVALENT VALUES TO AGRICULTURAL LIMESTONE.

FERTILIZER

APPLY FERTILIZER ACCORDING TO SOIL TEST RESULTS. IF A SOIL TEST IS NOT AVAILABLE, APPLY 8-24-24 FERTILIZER. WHEN VEGETATION HAS EMERGED TO A STAND AND IS GROWING, 30 TO 40 LBS/ACRE (APPROXIMATELY 0.8 LBS/1000 FT2) OF ADDITIONAL NITROGEN FERTILIZER SHOULD BE APPLIED.

NOTE: FERTILIZER CAN BE BLENDED TO MEET EXACT FERTILIZER RECOMMENDATIONS. TAKE SOIL TEST RECOMMENDATIONS TO LOCAL FERTILIZER DEALER FOR BULK FERTILIZER BLENDS. THIS MAY BE MORE ECONOMICAL THAN BAGGED FERTILIZER.

Table TS-I Commonly Used Plants for Temporary Cover

Species	Seeding Rate/AC PLS	North	Central	South
			Seeding Dates	
Millet, Browntop or German	40 lbs	Apr1-Aug 1	Apr1- Aug 15	Apr 1-Aug 15
Rye	3 bu	Sep l-Nov 15	Sep 15-Nov 15	Sep 15-Nov 15
Ryegrass	30 lbs	Aug l-Sep 15	Sep l-Oct 15	Sep 1-Oct 15
Sorghum-Sudan Hybrids	40 lbs	May l-Aug 1	Apr 15-Aug 1	Apr l-Aug 15
Sudangrass	40 lbs	May l-Aug l	Apr 15-Aug	Apr l-Aug 15
Wheat	3 bu	Sep l-Nov 1	Sep 15-Nov 15	Sep 15-Nov 15
Common Bermudagrass	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Crimson Clover	10lbs	Sept 1-Nov 1	Sept 1-Nov 1	Sept 1-Nov 1

PLS means pure live seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, PLS= 0.8X 0.9 = 72%. 10 lbs PLS = 10/0.72 = 13.9 lbs of the species to be planted.

6 ES-10 TEMPORARY SEEDING (TS)
NTS

PLANT NUTRIENTS

COMMERCIAL GRADE FERTILIZERS THAT COMPLY WITH CURRENT ALABAMA FERTILIZER LAWS SHOULD BE USED TO SUPPLY NUTRIENTS REQUIRED TO ESTABLISH VEGETATION. LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTING IS PERFORMED BY THE AUBURN UNIVERSITY SOIL TESTING LABORATORY AND PROVIDES RECOMMENDATIONS BASED ON FIELD TESTS ON ALABAMA SOILS. THE LOCAL COUNTY COOPERATIVE EXTENSION SERVICE CAN PROVIDE INFORMATION ON OBTAINING SOIL TESTS. COMMERCIAL LABORATORIES THAT MAKE RECOMMENDATIONS BASED ON SOIL ANALYSIS MAY BE USED.

WHEN SOIL TESTS ARE NOT AVAILABLE, USE THE FOLLOWING RATES FOR APPLICATION OF SOIL AMENDMENTS.

SANDY SOILS: USE 1 TON/ACRE (EXCEPTION ON SANDY SOILS – IF THE COVER WILL BE TALL FESCUE AND CLOVER) USE 2 TONS/ACRE.

CLAYEY SOILS: 2 TONS/ACRE. (DO NOT APPLY LIME TO ALKALINE SOILS).

GRASSES ALONE: USE 400 LBS/ACRE OF 8-24-24 OR THE EQUIVALENT. APPLY 30 LBS OF ADDITIONAL NITROGEN WHEN GRASS HAS EMERGED AND BEGUN GROWTH (APPROXIMATELY 0.8LBS/1000 FT2).

GRASS-LEGUME MIXTURES: USE 800 TO 1200 LBS/ACRE OF 5-10-10 OR THE EQUIVALENT. LEGUMES ALONE: USE 400 TO 600 LBS/ACRE OF 0-20-20 OR THE EQUIVALENT.

NOTE: FERTILIZER CAN BE BLENDED TO MEET EXACT FERTILIZER RECOMMENDATIONS. TAKE SOIL TEST RECOMMENDATIONS TO LOCAL FERTILIZER DEALER FOR BULK FERTILIZER BLENDS. THIS MAY BE MORE ECONOMICAL THAN BAGGED FERTILIZER.

Table PS-1 Commonly used Plants for Permanent Cover with Seeding Rates and Dates

Species	Seeding Rates/Ac PLS	North	Central	South
			Seeding Dates	
Bahiagrass, Pensacola	40 lbs	--	Mar 1-Jul y 1	Feb 1-Nov 1
Bermudagrass, Common	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Bahiagrass, Pensacola Bermudagrass, Common	30 lbs 5 lbs	--	Mar 1-July 1	Mar 1-July 15
Bermudagrass, Hybrid (Lawn Types)	Solid Sod	Anytime	Anytime	Anytime
Bermudagrass, Hybrid (Lawn Types)	Sprigs 1/sq ft	Mar 1-Aug 1	Mar 1-Aug 1	Feb 15 - Sep 1
Fescue, Tall	40-50 lbs	Sep 1-Nov 1	Sep 1-Nov 1	--
Sericea	40-60 lbs	Mar 15-July 15	Mar 1-July 15	Feb 15 -July 15
Sericea & Common Bermudagrass	40 lbs 10 lbs	Mar 15 -July 15	Mar 1-July 15	Feb 15-July 15
Switchgrass, Alamo	4 lbs	Apr 1-Jun 15	Mar 15-Jun 15	Mar 15-June 15

PLS means pure live seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, PLS= 0.8X 0.9 = 72%. 10 lbs PLS = 10/0.72 = 13.9 lbs of the species to be planted.

7 ES-10 PERMANENT SEEDING (PS)
NTS

REFERENCES

1. CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN FOR GORGAS ASH POND CLOSURE PREPARED BY ALABAMA POWER, SEPTEMBER 2018.

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
△	2019/02/15	ISSUED FOR INITIAL PHASE OF CONSTRUCTION	SCN	RMS	GLH	GLH

CLIENT
SOUTHERN COMPANY
Southern Company | Alabama Power

PROJECT
PLANT GORGAS
ASH POND CLOSURE
DESIGN PLANS

TITLE
CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN
DETAILS 2 OF 2

CONSULTANT
GOLDER

YYYY-MM-DD	2019/02/15
DESIGNED	CCP
PREPARED	VPM
CHECKED	SCN
REVIEWED / APPROVED	GLH

GREGORY L. HEBELER
ALABAMA PROFESSIONAL ENGINEER
CERTIFICATE NUMBER 29143

PROJECT NO. 1789848 | SCS REF. GOR17010 | REV. 0 | DRAWING ES-10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D