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January 30, 2026

Ms. Beverly Tipton  
Georgia Environmental Protection Division  
Solid Waste Management Program  
4244 International Parkway, Suite 104  
Atlanta, Georgia 30354

**Subject: Georgia Power Company – Plant Yates Ash Management Area  
Engineering Controls Evaluations**

Dear Ms. Tipton:

Enclosed please find the submittal through GEOS of Georgia Power Company's (Georgia Power) Advanced Engineering Measures Feasibility Evaluation and As-Built Engineering Control Summary Report for the Plant Yates AMA CCR unit. This cover letter and the enclosed reports summarize the feasibility considerations and anticipated benefits of the selected advanced engineering measure (AEM) Subsurface Drain at Plant Yates, located in Coweta County, Georgia.

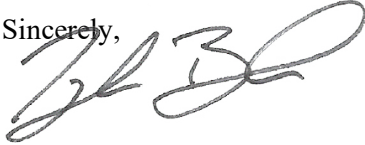
Closure activities in accordance with 40 CFR 257.100 were initiated on December 7, 2015 (AP-A) and April 20, 2018 (AP-B, AP-B', and AP-3). AP-A and AP-B were closed by removal with consolidation of CCR from those impoundments to AP-B' and AP-3, which now form the footprint of the Ash Management Area (AMA). A final cover system has been placed over the consolidated AMA footprint. To enhance the closure of the AMA, TRC's enclosed Advanced Engineering Measures Feasibility Evaluation (Attachment A) evaluates, on behalf of Georgia Power, the feasibility considerations of various AEM options, supported by a numerical groundwater model as a screening tool. The feasibility considerations presented support Georgia Power's selection of a subsurface drain as an AEM for the closure of AMA. While several evaluated technologies offered similar improvements to the planned closure, the deep subsurface drain (i.e., AMA subsurface drain) was selected based on the balance of implementation considerations, predicted effectiveness in lowering the potentiometric surface, and the anticipated benefits of capturing groundwater flow through the AMA footprint. The screening-level numerical groundwater model predicted that the AEM subsurface drain would capture 90% of the groundwater flow through the AMA footprint. TRC oversaw the installation of the AEM subsurface drain between July 8 and December 6, 2019.

Since installation of the AEM subsurface drain and substantial completion of closure activities, Georgia Power's groundwater consultants have conducted short-term pumping testing to evaluate its anticipated long-term performance. Drawdown observations during the pumping testing exceeded those predicted during previous modeling activities. Arcadis analyzed the results of these tests using a transient model to assess the predicted future performance of the system using the as-built subsurface drain information. A summary of the pump test activities and documentation related to model updates is included in Attachment

B. Results from these pumping tests and corresponding model revisions indicate that the as-built AEM subsurface drain is predicted to capture 100% of the groundwater flow through the AMA footprint.

Should you have any questions regarding this submittal, please contact Michael Smilley at 470-559-5853.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tyler Boyles', written over the word 'Sincerely,'.

Tyler Boyles  
Waste & Remediation Manager  
Environmental Affairs  
Georgia Power Company

**Attachment:**

**ATTACHMENT 1: Advanced Engineering Method Feasibility Report**

**ATTACHMENT 2: Plant Yates Ash Management Area As-Built Advanced Engineering Method Evaluation**

# **ATTACHMENT 1**



# Advanced Engineering Method Feasibility Report

**Georgia Power Company**

*Plant Yates AP-3, A and B/B' (AMA)*

December 2025

Handwritten signature of John M. Rice in blue ink.

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John, M. Rice, P.H.  
Technical Director

Handwritten signature of Karen C. Saucier in blue ink.

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Karen C. Saucier, Ph.D.  
VP, Deputy National Practice Leader

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Jonah Jackson  
Senior Hydrogeological Engineer

Handwritten signature of Michelle Hays in blue ink.

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Michelle Hays, P.G.  
Senior Remediation Project Manager

TRC Environmental Corporation | Georgia Power Company Plant Yates  
AEM Feasibility Study Report



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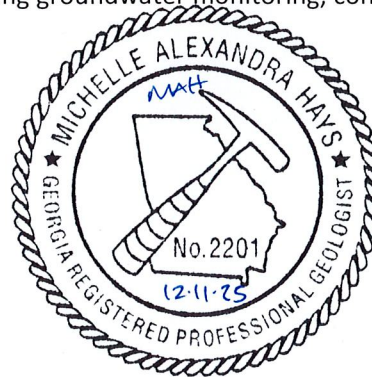
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Appendix A	Groundwater Modeling Report Addendum
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# Certification Statement

I hereby certify that this *Advanced Engineering Method Feasibility Report* was prepared by, or under the direct supervision of, a Qualified Groundwater Scientist, in accordance with the Georgia Environmental Protection Division Rules of Solid Waste Management. According to 391-3-4-.01, a Qualified Groundwater Scientist is “a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.”



Michelle Hays, P.G.

License No. 2375

License Renewal Date 12/31/2027

December 11, 2025

Date

# Section 1

## Introduction

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### 1.1 Background and Purpose

Plant Yates (the Plant), located at 708 Dyer Road, is an electric generating facility located on the east bank of the Chattahoochee River in Coweta County, Georgia near the Coweta and Carroll County line. The Plant is located approximately 9 miles northwest of Newnan, Georgia, and is owned by Georgia Power Company (Georgia Power). Since the beginning of operation in 1950, coal was the main fuel source for power generation at the Plant. Plant Yates originally operated seven coal-fired steam generating units. Five of the units were retired in 2015 and the two largest units were converted from coal to natural gas and currently operate as a natural gas electric generation plant.

The Plant occupies approximately 2,400 acres and is bordered to the east by U.S. Highway 27/Alternate North, the Chattahoochee River to the west, and is bisected by Dyer Road. The Plant is surrounded by sparsely populated rural land to the north, east, and south. **Figure 1-1** shows a plan view of the Plant along with the six original Coal Combustion Residual (CCR) surface impoundments at the Plant (*i.e.*, Ash Pond 1 [AP-1], AP-2, AP-3, AP-A, AP-B, and AP-B'). During coal-fired operations, the Plant utilized a series of permitted surface impoundments (National Pollutant Discharge Elimination System [NPDES] Permit No. GA0001473) that functioned as a multi-CCR unit wastewater treatment system.

On 17 April 2015, the United States Environmental Protection Agency (USEPA) published regulations on the disposal of CCR titled “40 CFR Parts 257 and 261: Hazardous and Solid Waste Management System; Disposal of Coal Combustible Residuals from Electric Utilities; Final Rule” (the USEPA CCR Rule). The USEPA CCR Rule became effective on 19 October 2015, which established regulations regarding closure and continued operation and monitoring of both existing and new CCR surface impoundments and landfills. In November 2016, Georgia’s Environmental Protection Division (GA EPD) adopted amendments to the State’s Rules for Solid Waste Management that address CCR (GA EPD 391-3-4-.10, *i.e.*, the State CCR Rule). The State CCR Rule incorporates by reference most of the provisions of the USEPA CCR Rule. On December 16, 2019, USEPA approved GA EPD’s partial CCR permit program to operate in lieu of the Federal CCR Rule, with the exception of the threatened and endangered species provisions.

The ash management area (AMA) permit boundary encompasses Former AP-A, AP-B, AP-B’, and AP-3. The closure of AMA consists of CCR removal from AP-A and AP-B, with consolidation of the CCR into AP-B’ and AP-3, which make up the footprint of the AMA consolidation area. CCR from AP-2 was removed and consolidated within the AMA footprint. Additionally, some CCR from Former AP-1 and Former AP-A has been removed and consolidated within the AMA footprint and the R6 CCR Landfill. The

inactive R6 CCR Landfill is undergoing closure in place, will be issued a separate permit, and is located immediately west of the AMA.

This report has been prepared by TRC Environmental Corporation (TRC) to document its evaluation of the feasibility of a variety of advanced engineering method (AEM) options for the AMA closure at Plant Yates, including presenting the feasibility considerations for the AEM option selected by Georgia Power: the hydraulic conveyance (deep subsurface drain) system. Here, the term AEM refers to engineering controls that are designed to enhance the protection of groundwater and closure effectiveness, and/or further minimize future maintenance of the unit.

The report summarizes the conceptual site model (CSM) for the AMA and then presents an initial screening of potential AEMs and the feasibility of certain technologies and measures. Then, considering the anticipated effects from the AMA closure at Plant Yates, the list of AEM options is refined and evaluated in detail by comparing AEM relative effectiveness. The effectiveness evaluation relies on numerical groundwater flow model and particle tracking, implementability, and potential impacts associated with construction.

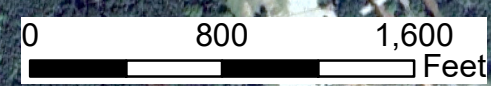
## 1.2 Report Organization



The remaining parts of this report are organized as follows:

- Section 2 presents a summary of the CSM. A detailed discussion of the CSM is provided in the *Hydrogeological Assessment Report (rev. 1)* (Atlantic Coast Consulting, Inc. [ACC], 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021);
- Section 3 discusses an overview of the AMA closure measures;
- Section 4 presents the initial screening and focused evaluation of the various AEMs considered for the AMA;
- Section 5 presents a comparative discussion of the evaluated AEM options; and
- Section 6 provides a list of references.



AERIAL SOURCE: GOOGLE EARTH PRO (10/2024)



- Notes:
-  AMA CCR Permit Boundary
  -  Area where Ash has been Certified Removed as of 1/31/2024

PROJECT: <b>GEORGIA POWER COMPANY - PLANT YATES WHITESBURG, GEORGIA</b>			
SHEET TITLE: <b>SITE MAP</b>			
DRAWN BY: DJS	SCALE: 1:9,600	PROJ. NO. 621802.0.0	
CHECKED BY: MAH		FILE NO. Fig01-01_SiteLayout_2025_1.mxd	
APPROVED BY: KCS	DATE PRINTED:	<b>FIGURE 1-1</b>	
DATE: OCTOBER 2025			



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# Section 2

## Conceptual Site Model

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The CSM is presented in the *Hydrogeological Assessment Report (rev. 1)* (ACC, 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021) and describes the geologic model elements and the hydrogeologic elements (groundwater and surface water) for the units.

### 2.1 Regional Geologic and Hydrogeologic Setting

The Plant is located within the Middle Chattahoochee River basin of the Inner Piedmont Physiographic province of western Georgia, southeast of the regional zone of deformation referred to as the Brevard Zone (ACC, 2018, Revised July 2021). This province characteristically has moderate rolling hills that are steeply cut with surface water drainages. The CSM identifies the bedrock as Ordovician-age, Dadeville Complex of the Inner Piedmont Physiographic Province. The rocks are characterized by igneous and metamorphic units such as granitic/migmatitic gneiss, interlayered biotite gneiss/amphibolite and muscovite schist. There is typically a zone of variable thickness (approximately 5 to 20 feet) of transitionally weathered rock on top of the competent bedrock surface. The overlying residuum is called saprolite and is characterized by silts and clays from the weathering of the parent bedrock and constitutes the unconsolidated uppermost aquifer at the site. The saprolite extends to typical depths of 20 to 40 feet below ground surface. A thin layer of soil from one to two feet thick overlies a thick layer of saprolite. Localized alluvial soils consisting of generally coarser material (silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles) than that observed in saprolite may be related to historical river channel migration. The regional thrust faulting around the facility is defined as Ordovician age that is the boundary between the Dadeville Complex and the Brevard Zone. The folding and joint sets are both parallel and perpendicular to foliation.

### 2.2 Uppermost Groundwater Aquifer

In this region, and specifically at the Plant site, the depth to groundwater is variable depending on the topography; the depth to groundwater is deeper at topographic highs and shallower at topographic lows. In this region, there is no confining unit above groundwater, and the upper aquifer is under unconfined conditions. The water table is typically noted in the saprolite near the bedrock-residuum interface. Deeper groundwater flow is within the fractured bedrock and along discontinuities. Groundwater flow direction in the upper aquifer is influenced by topography and by naturally occurring and man-made drainage features.

## **2.3 Groundwater Flow Conditions**

Previous subsurface investigations have included site-wide groundwater gauging, hydraulic conductivity testing of the lithology and the CCR, constant rate pumping tests using dewatering points, and bedrock depth investigations. Data from the 2024 Annual Groundwater Monitoring and Corrective Action Report (Arcadis, January 2025) shows the general direction of groundwater flow from the AMA toward the west and northeast. Competent bedrock depth ranges from approximately 42 to 52 feet below ground surface west of the AMA but is known to be approximately 60 feet below ground surface in the southern portion of the site based on monitoring well installation data.

# Section 3

## Overview of AMA Closure Measures

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The AMA consolidated footprint is closed in place in accordance with the State CCR Rule and the USEPA CCR Rule. The AMA permit boundary<sup>1</sup> encompasses AP-A, AP-B, AP-B', and AP-3, and closure includes CCR removal from AP-A and AP-B, with consolidation to AP-B' and AP-3, which make up the footprint of the AMA Consolidation Area. Following completion of this CCR consolidation activity, the consolidated footprint within the AMA was capped with the final cover system.

Per the Closure Plan section of the CCR Permit Application (Part A, Section 7, 6 Final Cover System, October 2025), CCR consolidated within the AMA was moisture conditioned, as necessary, spread, and compacted prior to capping with the final cover system. The final cover system consists of a prepared subgrade overlain with ClosureTurf®. The cover system, from bottom to top, consists of a 50-millimeter Linear Low-density Polyethylene MicroDrain® geomembrane, an engineered synthetic turf, and a minimum 0.5-inch thickness of sand infill material. The ClosureTurf® was treated with Armorfill® on the side slopes and ditches.

The engineered final cover system described in the permit application: (i) precludes the probability of ponding water on top of the consolidated and covered CCR through grading and stormwater conveyance features; and (ii) virtually eliminates infiltration into the underlying CCR by installation of an essentially impermeable geomembrane as part of the final cover system. As described in the closure permit application, the ClosureTurf® final cover system meets the baseline requirements of GA EPD 391-3-4-.10 (7)(b) [40 CFR § 257.102(d)(3)].

In addition, the final cover system is constructed with final slopes promoting positive drainage to stormwater conveyance systems. Stormwater conveyance systems are designed to carry the stormwater away from the final cover system, precluding the probability of future impoundment and further controlling, minimizing, and eliminating the ability of conveyed stormwater to infiltrate the closed CCR unit.

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<sup>1</sup> Closure Plan section of the CCR Permit Application (Part A, Section 7, 1 General)

# Section 4

## Evaluation of Advanced Engineering Methods

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### 4.1 Overview

The purpose of this section is to provide an overview of the screening of various AEMs considered to potentially enhance in-place closure of the AMA and present evaluation criteria. The evaluation of six AEM alternatives is presented in this report: hydraulic containment with one vertical engineered barrier (VEB), hydraulic containment with two VEBs, hydraulic diversion with one VEB, hydraulic diversion with two VEBs, hydraulic conveyance, and a passive constructed wetland treatment.

The selection and design of an AEM generally depends on various factors, including effectiveness, implementation challenges, and long-term operation and maintenance. Below, technologies and concepts are initially screened based on effectiveness and implementability. Based on the initial screening process, three options are eliminated in Section 4.2, and the remaining three options are evaluated in more detail in Section 4.4 to compare the relative effects modeled to result from each AEM option.

### 4.2 Initial Screening of Technologies

Based on the conceptual site model, the saprolite/weathered rock interface is the predominant groundwater flow zone within the uppermost aquifer across the AMA. To be effective, an AEM for the AMA would need to lower the elevation of the potentiometric surface within the saprolite/weathered rock interface.

The six AEM options considered below include:

1. hydraulic containment with one VEB (**Figure 4-1**) (Model Scenario 2<sup>2</sup>),
2. hydraulic containment with two VEBs (**Figure 4-2**),
3. hydraulic diversion with one VEB (**Figure 4-3**) (Model Scenario 3),
4. hydraulic diversion with two VEBs (**Figure 4-4**),
5. hydraulic conveyance (**Figure 4-5**) (Model Scenario 4), and
6. passive treatment with constructed wetland (**Figure 4-6**).

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<sup>2</sup> Scenario numbers are included for the options that moved forward to the modeling effort.

Initial screening criteria are implementability and expected effectiveness given the existing infrastructure and hydrogeologic conditions at the AMA. These considerations are briefly discussed below.

#### **4.2.1 Vertical Engineered Barriers for Hydraulic Containment or Hydraulic Diversion**

Subsurface low permeability barriers, or VEBs, typically include the installation of physical structure constructed below grade to restrict or divert groundwater flow. Methods for the design and construction of VEBs are established, and when properly designed and installed, they can be an effective long-term solution for inhibiting and/or redirecting groundwater migration (Gerber and Fayer, 1994).

Both hydraulic containment and hydraulic diversion use VEBs to isolate the CCR consolidated within the AMA from groundwater flow. The hydraulic containment option includes installing a VEB to restrict flow in the highly transmissive layer and fully encircle both the R6 CCR Landfill and the AMA due to the proximity of the units. The hydraulic diversion option includes constructing one VEB upgradient and side-gradient of the R6 CCR Landfill and the AMA, due to their proximity, either as one continuous VEB or as two VEBs.

The major design considerations for hydraulic containment and hydraulic diversion are:

- alignment of the VEBs would be limited by factors such as distance from existing topographic slopes;
- construction between the R6 CCR Landfill and AMA presents safety management needs;
- VEBs must be installed through the highly transmissive layer, which is an irregular surface at variable and deep depths in the area;
- extraction and/or treatment of groundwater extracted from within a fully contained area;
- potential extraction and/or treatment of groundwater mounding on the upgradient side of containment and diversion options;
- operation and maintenance costs associated with groundwater recovery and treatment; and
- recovered groundwater would be subject to discharge permitting requirements.

Both hydraulic containment and hydraulic diversion AEMs with one VEB are retained for further evaluation below. The hydraulic containment and hydraulic diversion AEM options with two VEBs were eliminated due to significant implementability challenges because two VEBs would be challenging to install in the available area between the R6 CCR Landfill and AMA.

## 4.2.2 Hydraulic Conveyance

The hydraulic conveyance AEM option selected by Georgia Power includes installation of a deep subsurface drain and pumping system to capture groundwater. This AEM is designed based on the highly transmissive saprolite/weathered rock interface and promotes the extraction of groundwater flowing through this unit by installing a permeable drain to collect groundwater. Groundwater entering and then pumped from the drain would lower the water table and thereby reduce the volume of CCR below the potentiometric surface. The major design considerations for hydraulic conveyance are:

- alignment of the drain would be limited by factors such as distance from existing slopes;
- alignment of the drain needs to consider the natural groundwater flow direction;
- construction between the R6 CCR Landfill and AMA presents safety management needs;
- groundwater recovery wells would be required to extract captured groundwater from the drain and thereby lower the groundwater table;
- operation and maintenance costs associated with groundwater recovery and treatment; and
- recovered groundwater would be subject to discharge permitting requirements.

The hydraulic conveyance AEM, or deep subsurface drain option, takes advantage of the natural groundwater flow direction and conventional construction methods. The hydraulic conveyance AEM option is retained for further evaluation below.

## 4.2.3 Passive Constructed Wetland Treatment

The passive treatment with a constructed wetland AEM option includes utilizing a groundwater diversion structure with an engineered wetland. This AEM would include constructed treatment wetlands north of the R6 CCR Landfill and west of Dyer Road. For this AEM, a groundwater diversion structure would be installed through the highly transmissive layer to divert groundwater flow up, out of the ground, and through the wetland treatment system, which would be constructed at a lower elevation. The diverted groundwater would flow through the wetland treatment system under gravity flow conditions. The major design considerations for the constructed wetland are as follows:

- alignment of the groundwater diversion structure would be limited by factors such as distance from existing slopes; and
- groundwater diversion structure must be installed through the highly transmissive layer, which is an irregular surface at variable and deep depths in the area.

The passive constructed wetland option was eliminated in this initial screening because it would not reduce the volume of CCR below the potentiometric surface.

### 4.3 Groundwater Modeling Objectives

As presented in **Table 4-1**, the groundwater numerical model was developed to represent pre-closure conditions (Scenario 0) and the consolidation and capping of material in the AMA (Scenario 1), described in the *Groundwater Modeling Report* (prepared by TRC and submitted to EPD in the *Hydrogeological Assessment Report (rev. 1)* (ACC, 2018, Revised July 2021). The consolidation and capping condition of the AMA is represented in the groundwater model as the closure baseline for the evaluation of each AEM option. The model was developed during closure construction activities, using closure design features and design documents available between the initiation of closure and submission of the model document in July 2021. The additional model scenarios presented in **Table 4-1** were used to evaluate the AEMs are documented in a separate report, the *Groundwater Model Report Addendum*, included as **Appendix A**. Model scenarios were simulated to steady state conditions, which provides a consistent tool to compare the relative effectiveness of the AEM options and configurations.

**Table 4-1  
Summary of Modeled Scenarios**

SCENARIO NUMBER	DESCRIPTION OF MODELED SCENARIOS	SUMMARY OF SCENARIO
0	Pre-Closure	No Action
1	Consolidation and Capping	Consolidation and capping of material in the AMA
2	Hydraulic Containment	VEB Encircling AMA and R6 CCR Landfill (includes consolidation and capping of the AMA with groundwater recovery and treatment)
3	Hydraulic Diversion	VEB Partially Circling AMA and R6 CCR Landfill (includes consolidation and capping of the AMA)
4	Hydraulic Conveyance	Deep Subsurface Drain to capture groundwater (includes consolidation and capping of the AMA with groundwater extraction)

The particle tracking simulations represent the path and estimated time it would conservatively take a water particle to travel from the greatest thickness of CCR below the potentiometric surface to either the AMA permit boundary or to the point of capture and removal. Groundwater flow is calculated by the model water balance based on the volume of water flowing through the bottom of the CCR model layer, and the percent reduction for each scenario relative to the pre-closure conditions.

Groundwater flow models are simplified mathematical representations of complex natural systems. Therefore, all groundwater models have limits to their accuracy and associated uncertainties in model predictions. The goal of this modeling was to provide relative effectiveness on groundwater elevation and flow to facilitate the comparison of AEM options.

#### 4.4 Detailed Evaluation of Technologies

Following initial screening and the development of the groundwater flow model, the hydraulic containment with one VEB, hydraulic diversion with one VEB, and hydraulic conveyance AEMs were further evaluated using the predictive model to provide information related to the following criteria for the AMA:

- the maximum thickness of CCR below the potentiometric surface,
- the volume of CCR below the potentiometric surface,
- the groundwater flow through the AMA unit,
- the time taken for a water particle to travel from the location of the greatest thickness of CCR below the potentiometric surface to the AMA permit boundary or point of capture and removal from the model (*i.e.*, subsurface drain or groundwater extraction), and
- implementability considerations such as constructability, operations and maintenance considerations, and potential impacts of the AEM.

**Table 4-2** presents a summary of the predictive results obtained from the groundwater flow modeling simulations (see **Appendix A**).

##### 4.4.1 AMA Closure Conditions

The AMA is closed in place, as described above and as presented in Scenario 1 in **Table 4-2**. Closure conditions consist of a cover system over CCR with associated surface water controls, cover surface drains, and adjoining constructed drainage features. As compared to pre-closure conditions, the simulated steady state modeling of the baseline closure indicated an approximate reduction in the volume of CCR below the potentiometric surface of 65 percent, with an 81 percent reduction in vertical groundwater flow through CCR. Particle tracking simulations estimated a travel time of 16 years for a particle of water originating at the bottom of CCR material where the thickness of the CCR below the potentiometric surface is greatest within the AMA consolidation footprint to exit the permit boundary.

#### 4.4.2 Vertical Engineered Barriers with Hydraulic Containment or Hydraulic Diversion

##### ***Hydraulic Containment***

As described above, the hydraulic containment AEM option, presented as Scenario 2 in **Table 4-2**, would include installing a VEB encircling the R6 CCR Landfill and the AMA consolidated footprint, a groundwater extraction well to reduce mounding within the containment structure, and potentially a groundwater extraction well on the upgradient side if groundwater mounding is observed against the VEB. The VEB would extend through the highly transmissive layer and would therefore divert groundwater around the R6 CCR Landfill and the AMA. A lined ditch would be installed to divert surface water between the R6 CCR Landfill and the AMA. **Figure 4-1** presents a conceptual design of hydraulic containment with one VEB.

Modeling results indicated that the installation of a VEB in this scenario would result in higher groundwater elevations within the footprint of the AMA as compared to pre-closure (approximately 0.1 to 6.5 feet) such that groundwater extraction via pumping from a recovery well would be required to maintain or lower the potentiometric surface. Groundwater collected from within the VEB and the potential upgradient side of the VEB would be subject to NPDES permitting conditions. With groundwater extraction within the containment structure to reduce mounding, this scenario represents a 74 percent reduction in the total volume of CCR below the potentiometric surface and an 83 percent reduction in groundwater flow through the CCR compared to pre-closure conditions. Particle tracking simulations estimated a travel time of 37 years to the permit boundary.

##### ***Hydraulic Diversion***

The hydraulic diversion AEM option, presented as Scenario 3 in **Table 4-2**, would include installing a VEB along the eastern (side gradient), northern, and southern (upgradient) boundaries of the AMA and R6 CCR Landfill. The western (downgradient) border of the R6 CCR Landfill would remain open. The VEB would extend through the highly transmissive layer to divert groundwater around the R6 CCR Landfill and the AMA. A lined ditch would be installed to divert surface water between the R6 CCR Landfill and the AMA. **Figure 4-3** presents the conceptual design of the hydraulic diversion with one VEB.

Model simulations suggest that the installation of a VEB in this scenario would result in higher groundwater elevations and mounding on the upgradient side of the VEB as compared to pre-closure conditions. As such, groundwater extraction wells could be

required to address the groundwater mounding. If groundwater extraction is required on the upgradient side of the VEB, the recovered groundwater would be subject to NPDES permitting conditions. Compared to pre-closure conditions, this represents a 69 percent reduction in the total volume of CCR below the potentiometric surface and an 82 percent reduction in groundwater flow through the CCR. Particle tracking simulations estimated a travel time of 34 years to the permit boundary.

#### **4.4.3 Hydraulic Conveyance (Deep Subsurface Drain)**

The hydraulic conveyance AEM option, presented as Scenario 4 in **Table 4-2**, includes installing a deep subsurface drain and pumping system between the R6 CCR Landfill and the AMA to capture groundwater. This system is intended to capture groundwater upgradient, side-gradient, and downgradient of the AMA and lowers the potentiometric surface. The deep subsurface drain consists of a gravel, high-permeability material installed along the bottom of the drain within the saprolite/weathered rock interface, at the top of the bedrock surface. Because the bedrock surface is variable, pump stations are installed along the drain to extract the groundwater from lower elevation points. To facilitate groundwater conveyance, a screened pipe is placed within the gravel bedding and connected to the pump risers. The gravel bedding is wrapped with filter fabric to prevent fine-grained material from clogging the pore space within the gravel. Groundwater pumped from the deep subsurface drain will be managed and discharged in accordance with applicable NPDES permitting conditions. A clay-capped lined surface ditch (the Shared Stormwater Infrastructure Ditch) was installed between the R6 CCR Landfill and the AMA above, and adjacent to, the drain to collect and convey non-contact surface water and reduce potential infiltration to the drain to the maximum extent feasible. The Shared Stormwater Infrastructure Ditch will convey the stormwater away from the AMA. **Figure 4-5** presents the design of the deep subsurface drain option.

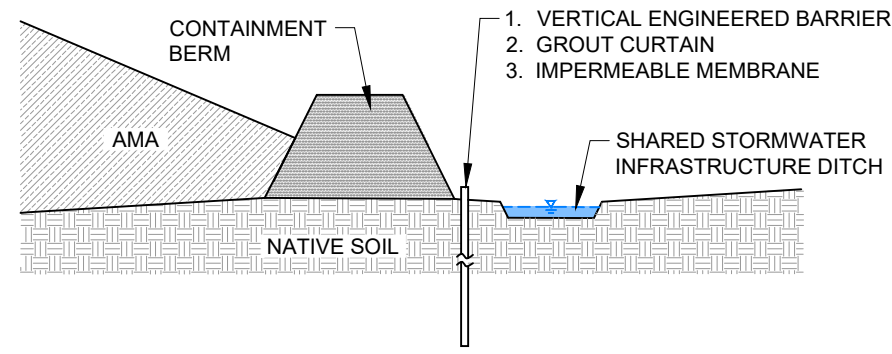
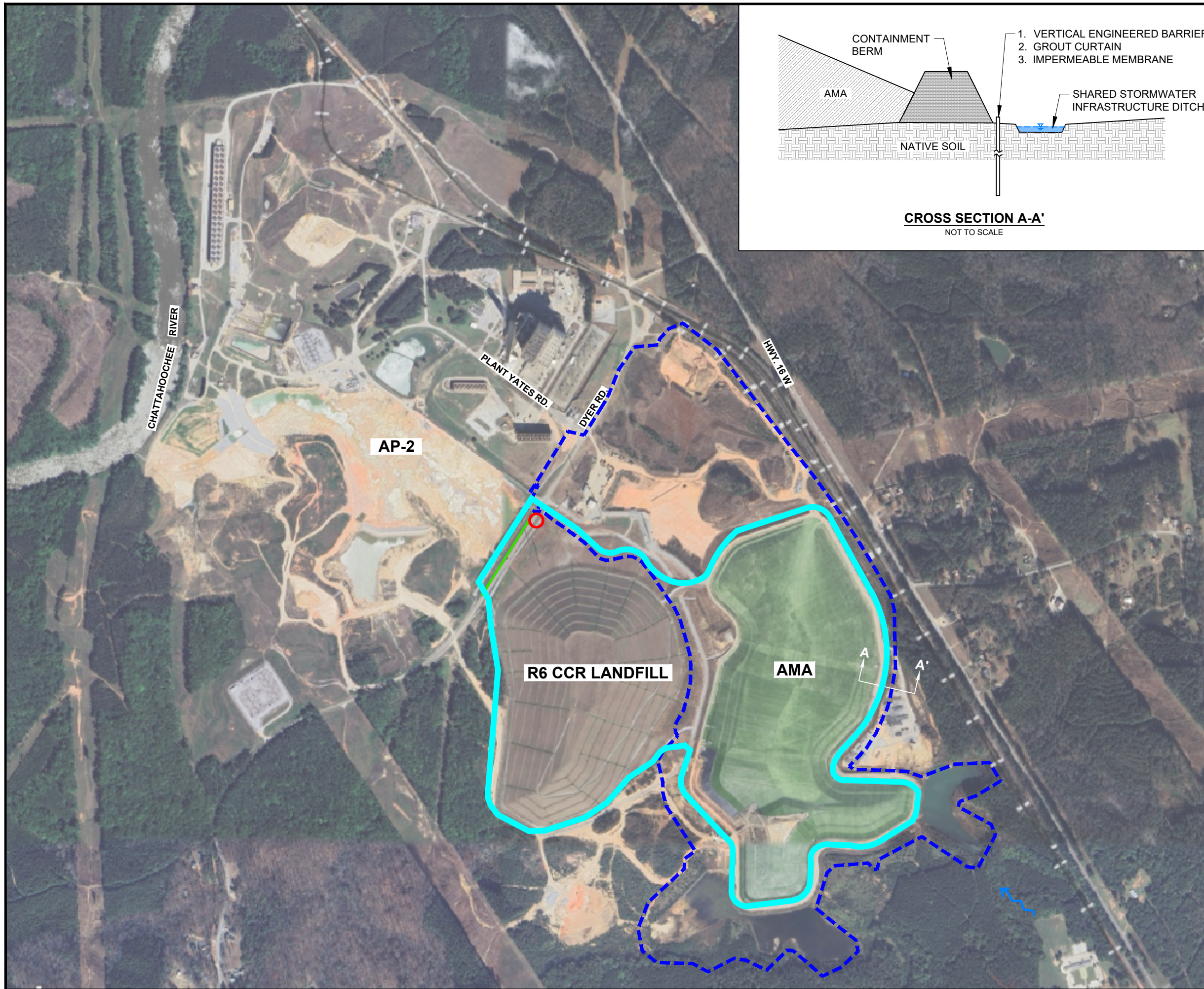
Because of the depth of the drain and the addition of groundwater extraction, the reduction in CCR below the potentiometric surface will increase as compared to the other modeled AEM options. This option represents a 75 percent reduction in the total volume of CCR below the potentiometric surface and an 80 percent reduction in vertical groundwater flow through the bottom of the CCR due to the combined effects of the AMA cap and the hydraulic conveyance. Additionally, horizontal groundwater flow paths, as suggested by particle tracking in the groundwater model, indicate that over 90 percent of the area within the AMA is within the hydraulic conveyance capture zone. Particle tracking simulations estimated a travel time of 14 years for a water particle originating at the greatest thickness of the CCR below the water table to be captured and removed by the subsurface drain.

**Table 4-2  
Summary of Focused AEM Evaluation  
Plant Yates, Whitesburg, Georgia**

Scenario No.	AMA Conditions	Enhancement	Description of Enhancement	Effectiveness <sup>(1, 2)</sup>					Implementability Considerations	
				Maximum Height of Potentiometric Surface Above Bottom of AMA (ft)	Volume of CCR in the AMA Below the Potentiometric Surface (CY)	% Reduction in Volume of CCR in the AMA Below the Potentiometric Surface	% Reduction in Groundwater Flow <sup>(3)</sup>	Time for Particles to be Captured or Reach AMA Permit Boundary (years) <sup>(4)</sup>	Constructability	Potential Impacts
0	Pre-Closure	-	-	27	1,644,400	-	-	11	-	-
<b>Ash Consolidation and AMA Construction Condition</b>										
1	Consolidate and cap	-	-	15	572,000	65%	81%	16	(i) Dewatering and mechanical removal is required to excavate the ash. (ii) Newly placed ash in the AMA will require a cover system. (iii) AMA surface water runoff requires treatment until cap is in place.	-
<b>AEM Scenarios</b>										
2	Consolidate and cap	Hydraulic Containment	Vertical engineered barrier (VEB) installed encompassing the AMA and R6 CCR Landfill to restrict groundwater flow.	15	413,000	74%	83%	37	(i) The alignment of the VEB is limited by factors such as distance from existing topographic slopes. (ii) Construction between the R6 CCR Landfill and AMA presents safety management needs (iii) Construction of the VEBs must be installed through the highly transmissive layer, which presents constructability issues as depths could exceed equipment capabilities.	(i) Groundwater within the fully contained area will need to be extracted and treated. (ii) Operation and maintenance costs associated with groundwater recovery and treatment. (iii) Recovered groundwater would be subject to discharge permitting requirements. (iv) Flow underneath the VEB is possible.
3	Consolidate and cap	Hydraulic Diversion	VEB installed up-gradient and side-gradient of the AMA and R6 CCR Landfill to restrict groundwater flow.	14	499,900	69%	82%	34	(i) The alignment of the VEB is limited by factors such as distance from existing topographic slopes. (ii) Construction between the R6 CCR Landfill and AMA presents safety management needs (iii) Construction of the VEBs must be installed through the highly transmissive layer, which presents constructability issues as depths could exceed equipment capabilities.	(i) Groundwater mounded upgradient of the diversion feature may need to be extracted and treated. (ii) Operation and maintenance costs associated with groundwater recovery and treatment. (iii) Recovered groundwater would be subject to discharge permitting requirements. (iv) Flow underneath the VEB is possible.
4	Consolidate and cap	Hydraulic Conveyance	Installation of a deep subsurface drain/pumping system to capture groundwater and reduce the volume of CCR below the potentiometric surface.	14	402,600	75%	80%	14 <sup>(5)</sup> Particles are captured in this scenario	(i) The alignment of the drain is limited by factors such as distance from existing slopes. (ii) The alignment of the drain needs to consider the natural groundwater flow direction. (iii) Construction between the R6 CCR Landfill and AMA presents safety management needs	(i) Groundwater recovery wells would be required to extract collected groundwater from the deep subsurface drain; and thereby, lower the groundwater table. (ii) Operation and maintenance costs associated with groundwater recovery and treatment. (iii) Recovered groundwater would be subject to discharge permitting requirements.

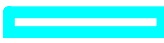




Notes:

1. These values were obtained from groundwater flow modeling results. It is noted that groundwater flow models are simplified mathematical representations of complex natural systems. Because of this, groundwater models have limits to their accuracy.
2. These model results were intended for use as relative comparisons between scenarios, and not as precise predictions of consolidation and capping conditions.
3. Flow estimates were calculated in the model by the volume of water passing vertically through the bottom of model cells in the CCR layer.
4. Particle tracking represents a theoretical particle of water traveling by advection only, and does not account for geochemistry, retardation, or diffusion.
5. Within the portion of the AMA captured by the subsurface drain (over 90 percent by area), particle tracking simulations estimated a travel time of 14 years for a particle originating at the greatest thickness of the CCR below the water table to be captured and removed by the subsurface drain.



**CROSS SECTION A-A'**  
NOT TO SCALE

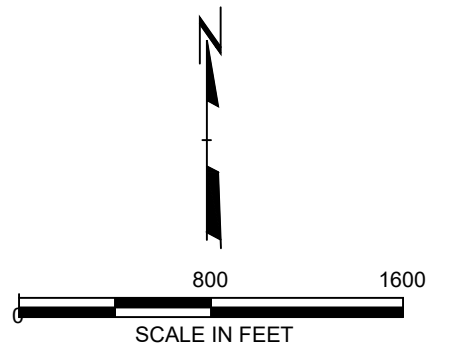
**LEGEND**

-  VERTICAL ENGINEERED BARRIER
-  APPROXIMATE GROUNDWATER FLOW
-  AMA CCR PERMIT BOUNDARY
-  DYER ROAD SHEET PILE
-  GROUNDWATER EXTRACTION

- NOTES**
1. ENCIRCLE R6 CCR LANDFILL AND AMA AS A SINGLE UNIT.
  2. GROUNDWATER WILL BE DIVERTED AROUND BOTH R6 CCR LANDFILL AND AMA.
  3. GROUNDWATER WILL BE COLLECTED AND PUMPED TO A TREATMENT SYSTEM.

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



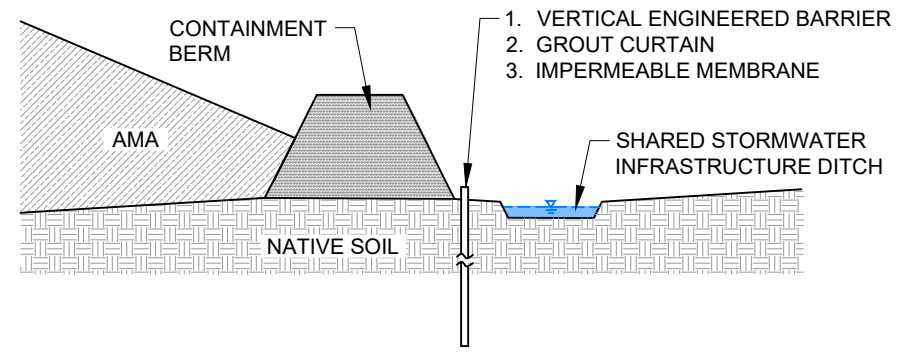
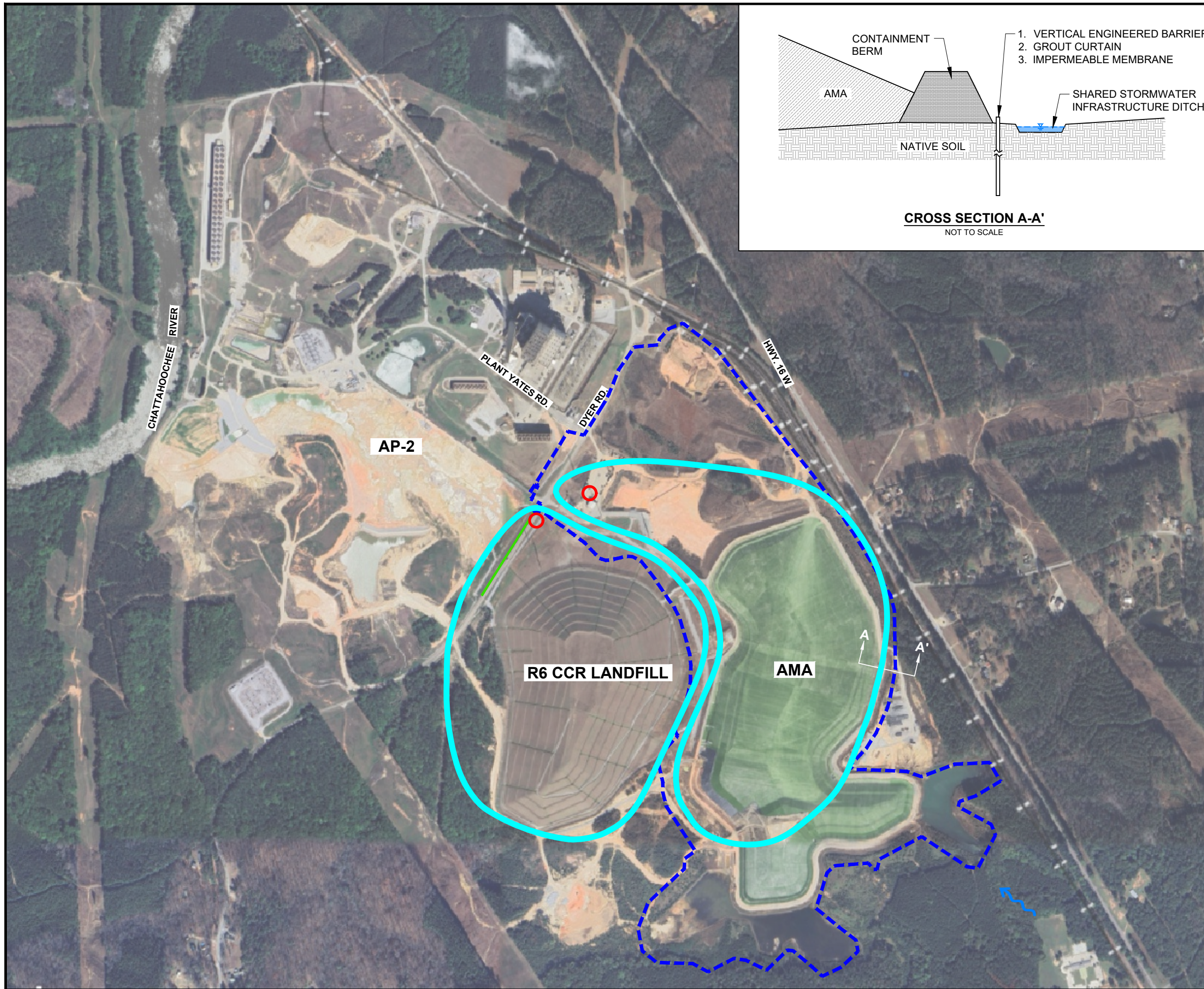
PROJECT: **GEORGIA POWER COMPANY  
PLANT YATES  
WHITESBURG, GA**

TITLE: **SCENARIO 2:  
HYDRAULIC CONTAINMENT (ONE VEB) AEM**

DRAWN BY: L. COOK	PROJ NO.: 621802.0000.0000
CHECKED BY: M. HAYS	<b>FIGURE 4-1</b>
APPROVED BY: M. HAYS	
DATE: OCTOBER 2025	

**TRC** 50 International Drive  
Patewood Plaza Three, Suite 150  
Greenville, SC 29615  
Phone: 864.281.0030

FILE NO.: 621802-FIGURES.dwg



**CROSS SECTION A-A'**  
NOT TO SCALE

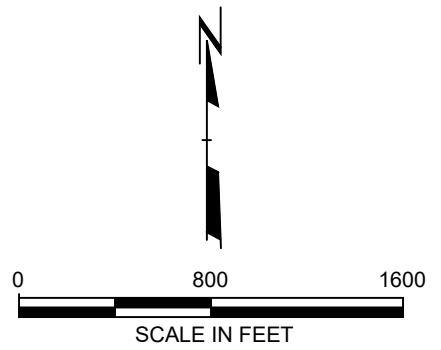
**LEGEND**

- VERTICAL ENGINEERED BARRIER
- APPROXIMATE GROUNDWATER FLOW
- AMA CCR PERMIT BOUNDARY
- DYER ROAD SHEET PILE
- GROUNDWATER EXTRACTION

- NOTES**
1. THE R6 LANDFILL AND THE AMA WILL BE ENCIRCLED SEPARATELY.
  2. GROUNDWATER WILL BE DIVERTED AROUND AND BETWEEN THE R6 CCR LANDFILL AND AMA.
  3. GROUNDWATER WILL BE COLLECTED AND PUMPED TO A TREATMENT SYSTEM.

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



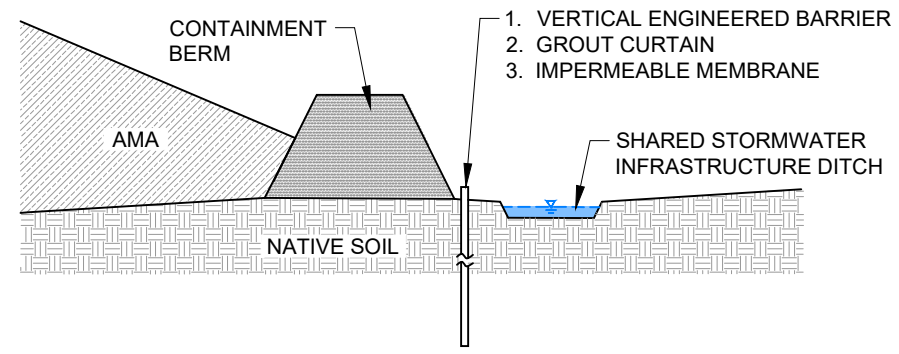
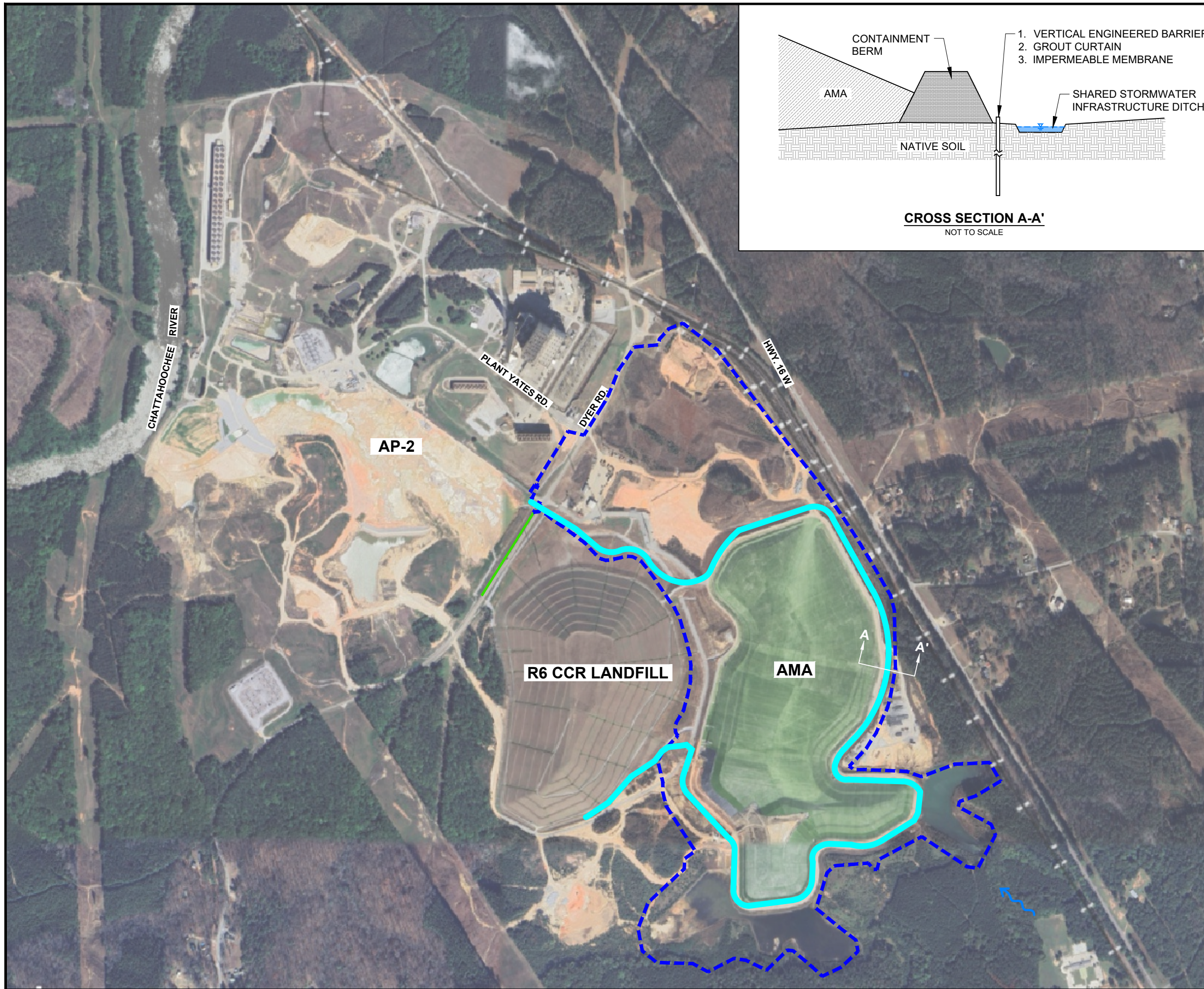
PROJECT: **GEORGIA POWER COMPANY  
PLANT YATES  
WHITESBURG, GA**

TITLE: **HYDRAULIC CONTAINMENT (TWO VEBS) AEM**

DRAWN BY: L. COOK	PROJ NO.: 621802.0000.0000
CHECKED BY: M. HAYS	<b>FIGURE 4-2</b>
APPROVED BY: M. HAYS	
DATE: OCTOBER 2025	

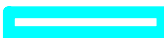



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FILE NO.: 621802-FIGURES.dwg



**CROSS SECTION A-A'**  
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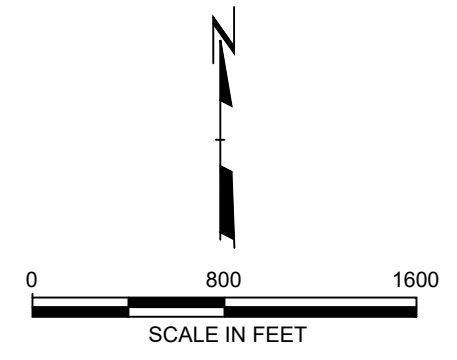
**LEGEND**

-  VERTICAL ENGINEERED BARRIER
-  APPROXIMATE GROUNDWATER FLOW
-  AMA CCR PERMIT BOUNDARY
-  DYER ROAD SHEET PILE

- NOTES**
- DIVERT WATER AROUND R6 CCR LANDFILL AND AMA WITH A SINGLE UNIT.
  - GROUNDWATER WILL BE DIVERTED AROUND BOTH R6 CCR LANDFILL AND AMA.

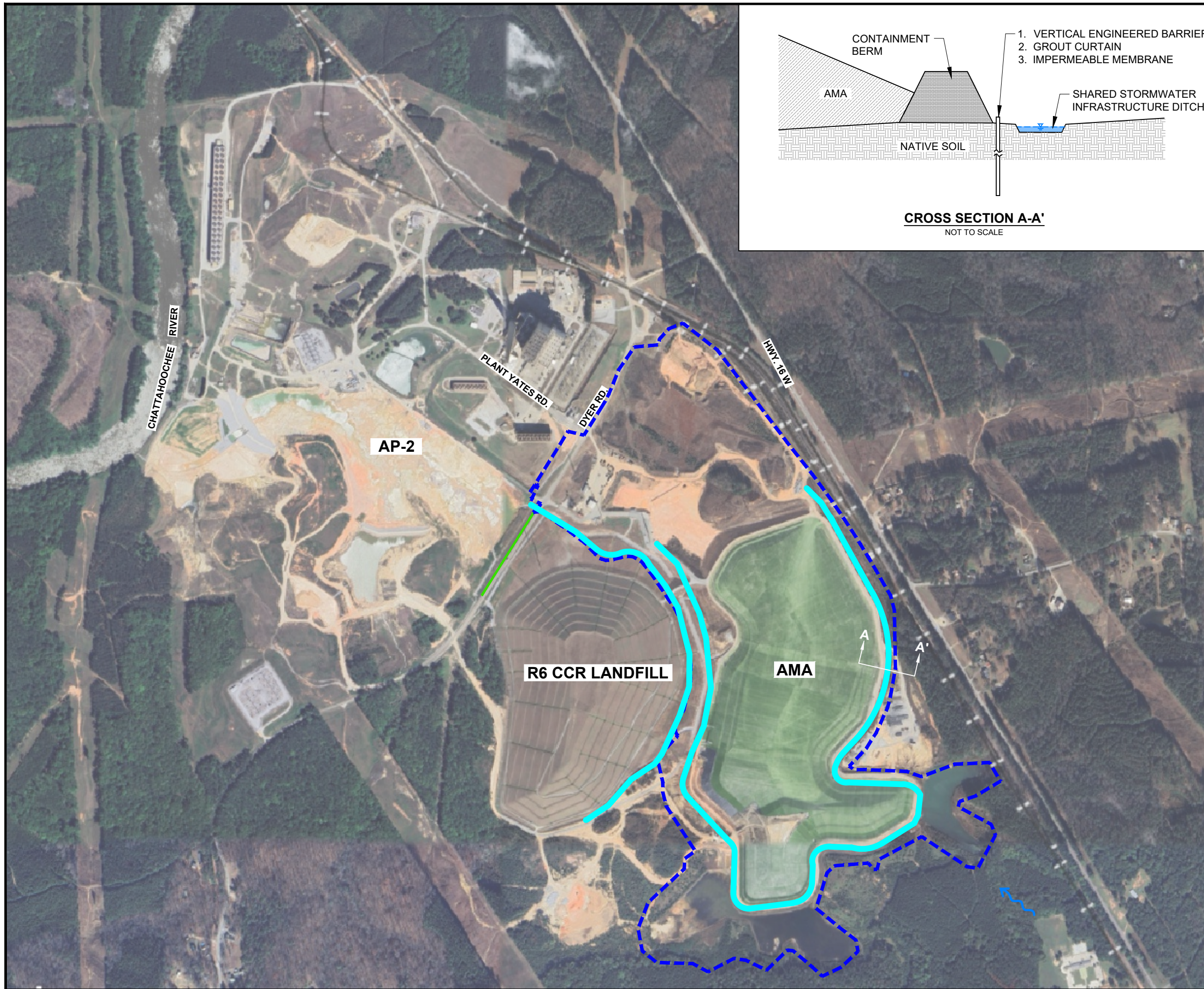
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- OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



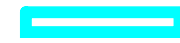



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		SCENARIO 3: HYDRAULIC DIVERSION (ONE VEB) AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 4-3</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
FILE NO.:		621802-FIGURES.dwg	

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**LEGEND**

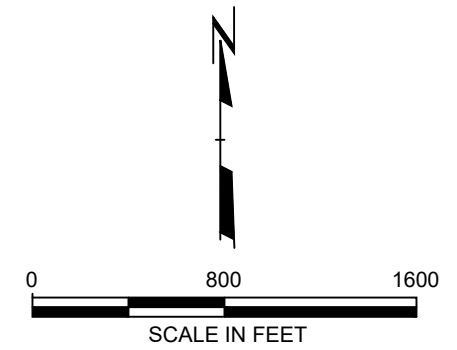
-  VERTICAL ENGINEERED BARRIER
-  APPROXIMATE GROUNDWATER FLOW
-  AMA CCR PERMIT BOUNDARY
-  DYER ROAD SHEET PILE

**NOTES**

1. THE R6 CCR LANDFILL AND THE AMA WILL HAVE TWO SEPARATE UNITS.
2. GROUNDWATER WILL BE DIVERTED AROUND AND BETWEEN THE R6 CCR LANDFILL AND AMA.

**SOURCE**

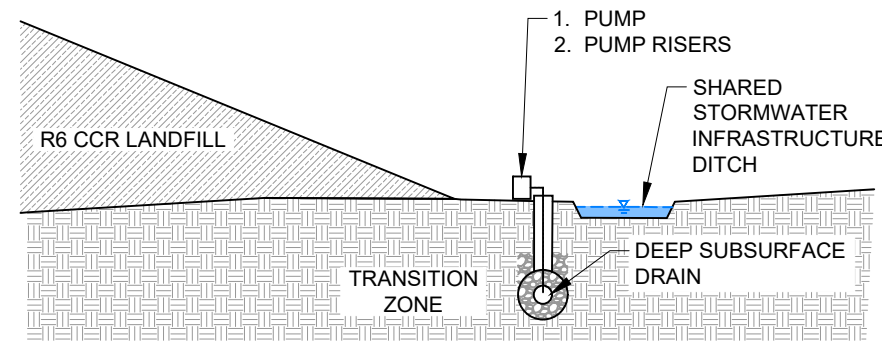
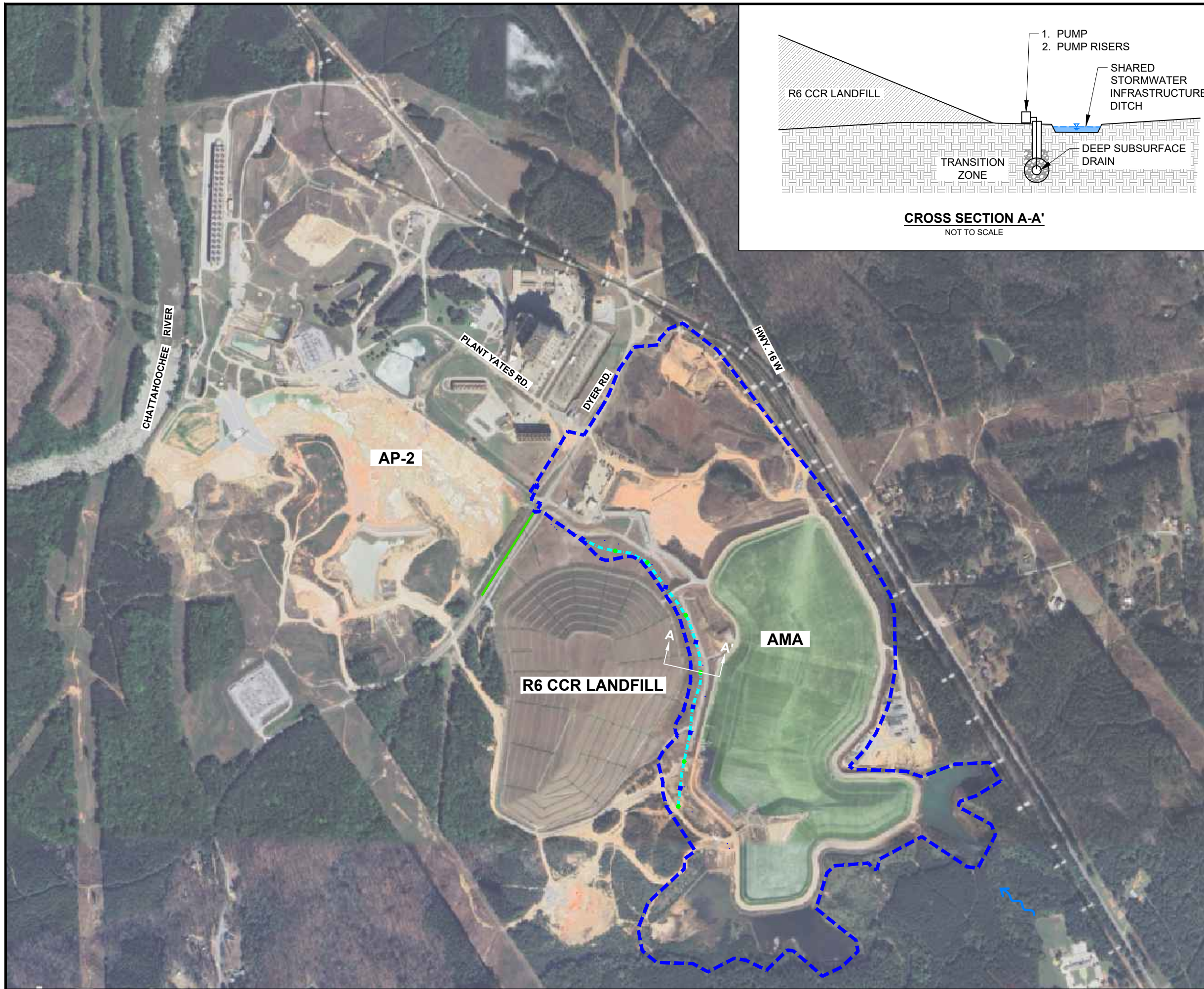
1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		HYDRAULIC DIVERSION (TWO VEBS) AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 4-4</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
FILE NO.:		621802-FIGURES.dwg	



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**LEGEND**

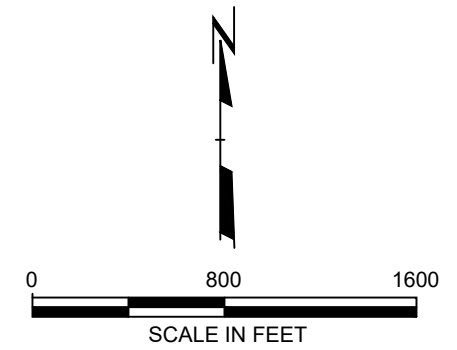
- PUMP RISER APPROXIMATE LOCATION
- CLEANOUT APPROXIMATE LOCATION
- ~ APPROXIMATE GROUNDWATER FLOW
- - - AMA CCR PERMIT BOUNDARY
- - - DEEP SUBSURFACE DRAIN
- DYER ROAD SHEET PILE

**NOTES**

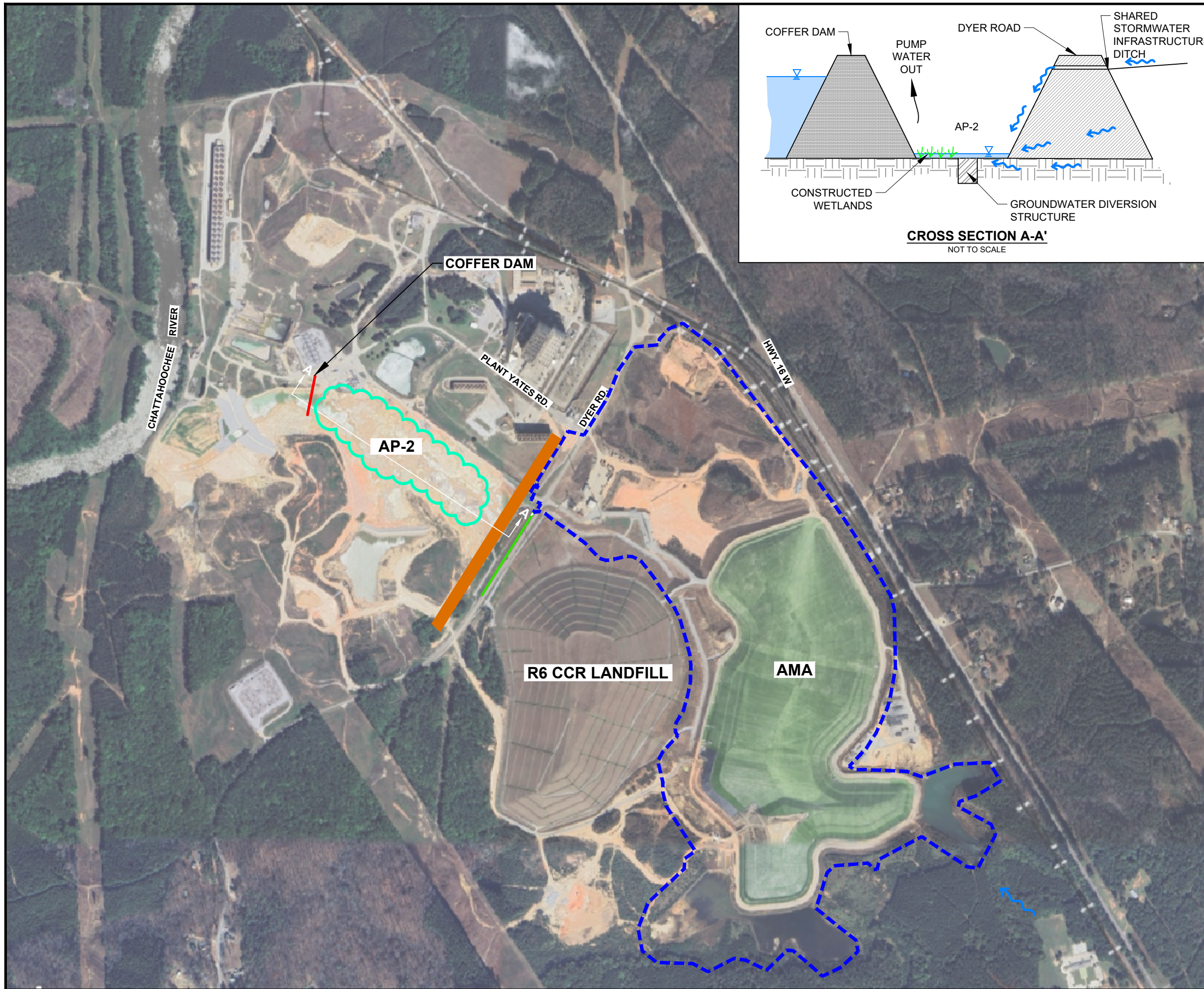
1. GROUNDWATER PUMPED FROM THE DEEP SUBSURFACE DRAIN WILL BE MANAGED AND DISCHARGED IN ACCORDANCE WITH APPLICABLE NPDES PERMITTING CONDITIONS.

**SOURCE**






1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		SCENARIO 4: HYDRAULIC CONVEYANCE AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 4-5</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
FILE NO.:		621802-FIGURE 4-5.dwg	



### LEGEND

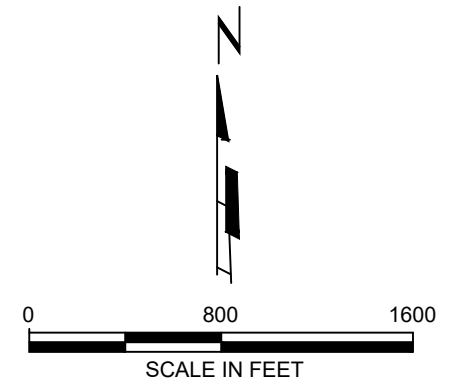
-  GROUNDWATER DIVERSION FEATURE
-  CONSTRUCTED WETLANDS
-  APPROXIMATE GROUNDWATER FLOW
-  AMA CCR PERMIT BOUNDARY
-  DYER ROAD SHEET PILE

### NOTES

- TREATED WATER FROM THE WETLAND WOULD BE MANAGED IN ACCORDANCE WITH APPLICABLE NPDES PERMITTING CONDITIONS.

### SOURCE

- OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT: **GEORGIA POWER COMPANY  
PLANT YATES  
WHITESBURG, GA**

TITLE: **PASSIVE CONSTRUCTED  
WETLAND TREATMENT AEM**

DRAWN BY: L. COOK	PROJ NO.: 621802.0000.0000
CHECKED BY: M. HAYS	<b>FIGURE 4-6</b>
APPROVED BY: M. HAYS	
DATE: OCTOBER 2025	

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FILE NO.: 621802-FIGURES.dwg

# Section 5

## Comparison of Options

---

### 5.1 Overview

Based on the CSM, the saprolite/weathered rock interface is the predominant groundwater flow zone within the uppermost aquifer at the AMA. Controlling groundwater flow through the AMA requires mitigation of the flow in the highly transmissive saprolite/weathered rock interface at the top of the competent bedrock surface.

Groundwater elevation in the consolidation and capping model is estimated to decrease within the AMA approximately 12 feet as compared to pre-closure conditions. Thus, the in-place closure of the AMA, without the incorporation of an AEM, provides a substantial reduction in groundwater elevation and flow at the AMA. Moreover, Georgia Power, based on consultation with third party engineers and groundwater scientists, decided to incorporate an AEM in the closure to provide further reductions of the volume of CCR below the potentiometric surface within the AMA.

### 5.2 Relative Comparison of AEMs

Three AEMs were retained for evaluation through modeling. The hydraulic containment AEM option relies on a VEB to encompass the R6 CCR Landfill and AMA, reducing groundwater flow through the AMA. The hydraulic diversion AEM uses a VEB on the upgradient side of the R6 CCR Landfill and AMA to divert groundwater around the area. The deep subsurface drain AEM takes advantage of the natural groundwater flow direction using a deep subsurface drain and pumping to capture groundwater; thus, lowering the groundwater elevation.

Based on the modeled simulations presented in **Appendix A**, additional reduction of groundwater elevations and/or reduction of flow in the AMA may be achieved by each of the AEM options (*i.e.*, hydraulic containment, hydraulic diversion, and deep subsurface drain). A comparison of groundwater travel times from the AMA to the permit boundary or capture is presented in **Table 4-2**. This section presents a comparative discussion of the evaluated AEM options based on effectiveness and implementability considerations.

#### 5.2.1 Hydraulic Containment

The hydraulic containment option could reduce the volume of CCR below the potentiometric surface by an additional 9 percent from the consolidation and capping condition, assuming groundwater extraction was utilized.

Construction of the hydraulic containment AEM would pose major implementability challenges, including the following:

- To be effective based on site-specific geology, the VEB must be installed through the highly transmissive layer, which is an irregular surface at variable and deep depths that would present constructability issues;
- groundwater mounding would likely occur inside the VEB, which would require groundwater extraction and management to achieve a lowered potentiometric surface;
- groundwater mounding potentially may occur on the upgradient side of the VEB such that groundwater extraction and management could be required; and
- there would be potential for flow beneath the VEB.

### **5.2.2 Hydraulic Diversion**

The hydraulic diversion option could reduce the volume of CCR below the potentiometric surface by an additional 4 percent from the consolidation and capping condition.

Construction of the hydraulic diversion AEM would pose major implementability challenges, including the following:

- To be effective based on site-specific geology, the VEB must be installed through the highly transmissive layer, which is an irregular surface at variable and deep depths that would present constructability issues;
- groundwater mounding potentially may occur on the upgradient side of the VEB such that groundwater extraction and management could be required; and
- there would be potential for flow beneath the VEB.

### **5.2.3 Hydraulic Conveyance (Deep Subsurface Drain)**

Shallow groundwater in the vicinity of the AMA naturally converges and flows between R6 CCR Landfill and the AMA. Constructing a subsurface drain to create a preferential path for the natural groundwater flow direction is modeled to achieve a reduction in volume of CCR below the potentiometric surface. With groundwater extraction to remove captured groundwater from the deep subsurface drain, a more substantial reduction in volume of CCR below potentiometric surface (an additional 10 percent from the consolidation and capping condition) is modeled to be achieved. Additionally, groundwater flow paths, as suggested by particle tracking in the groundwater model, suggest that over 90 percent of the area within the AMA is within the hydraulic conveyance capture zone.

The following implementability challenges relate to construction of a deep subsurface drain AEM:

- the design and construction of the deep subsurface drain required conventional excavation equipment; however, due to the alignment of the drain between the R6 CCR Landfill and AMA, safety precautions were considered. A temporary VEB was installed along the alignment corridor near the toe of the R6 CCR Landfill to protect workers during the construction of the drain. The temporary VEB was removed following the installation of the deep subsurface drain;
- the need to dewater and the use of inclinometers to effectively install and monitor the temporary VEB; and
- the need for long term management of hydraulic controls via groundwater extraction and discharge in accordance with applicable NPDES permitting conditions.

### 5.3 Conclusions

Based on the evaluation presented in this report, the in-place closure of the AMA provides substantial reduction in the volume of CCR below the potentiometric surface, groundwater flow through the unit, and a decrease in groundwater travel rate for the AMA due to the consolidation and capping of the unit. The AEM options advanced for this comparative analysis are each predicted to offer additional improvements in comparison to the baseline closure conditions and would enhance the protection of groundwater and closure effectiveness of the AMA. However, the balance of implementation considerations and predicted effectiveness, as evaluated by third party engineers and groundwater scientists, supports Georgia Power's selection of the deep subsurface drain AEM option.

While each of the AEM options is predicted to offer some benefit, implementation challenges and modeled performance differentiate the three AEM options that were evaluated. The hydraulic containment and hydraulic diversion options present significant implementation challenges. The effectiveness of these containment/diversion AEMs is dependent on installing the VEBs through the highly transmissive layer. Given the depths and variability of this layer, these options may not be achievable. Potential adverse impacts may also result from the hydraulic containment and diversion AEM options due to mounding of groundwater.

In comparison, the deep subsurface drain option selected by Georgia Power is implementable, and the safety and constructability issues in this AEM option are more manageable compared to the hydraulic containment and diversion options. Moreover, the use of the deep subsurface drain is supported by a better understanding of the bedrock depth and variability of the surface in the area of the drain. And finally, this AEM option is predicted to result in the greatest lowering of the potentiometric surface as compared to the other modeled AEM simulations as well as predicted that over 90 percent of the area

within the AMA is within the hydraulic conveyance capture zone. Thus, feasibility considerations support Georgia Power's selection of the deep subsurface drain option as an AEM for the closure of the AMA.

# Section 6

## References

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Arcadis U.S., Inc. 2025. 2024 Annual Groundwater Monitoring and Corrective Action Report. January 31, 2025.

Atlantic Coast Consulting, Inc. 2018, Revised 2021. Hydrogeologic Assessment Report – Plant Yates R6 CCR Landfill and Ash Management Area. November 2018, Revised July 2021.

Georgia Power Company. Plant Yates Ash Management Area Revised Permit Application. July 15, 2021.

Gerber, M.A. and Fayer, M.J. 1994. *“In Situ Remediation Integrated Program: Evaluation and Assessment of Containment Technology.”* Prepared by Pacific Northwest Laboratory for the U.S. Department of Energy, Office of Environmental Management, Office of Technology Development, Washington, D.C.

# Appendix A

## Groundwater Modeling Report Addendum

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## Groundwater Modeling Report Addendum

Georgia Power Company


*Plant Yates*

December 2025



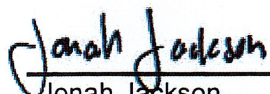
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John, M. Rice, P.H.  
Technical Director



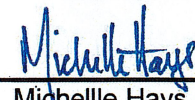
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Senior Hydrogeological Engineer



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Michelle Hays, P.G.  
Senior Remediation Project Manager

TRC Environmental Corporation | Georgia Power Company Plant Yates  
Groundwater Modeling Report Addendum



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# Section 1

## Introduction

---

This *Groundwater Modeling Report Addendum* was prepared to document the results of advanced engineering method (AEM) model scenarios conducted for the groundwater flow conditions in the vicinity of the ash management area (AMA) at the Georgia Power Company (Georgia Power) owned and operated Plant Yates (The Plant). The Plant, located at 708 Dyer Road, is an electric generating facility located on the east bank of the Chattahoochee River in Coweta County, Georgia near the Coweta and Carroll County line. The AEMs evaluated in this groundwater modeling report addendum include:

- hydraulic containment with vertical engineered barrier (VEB) encircling the R6 Coal Combustion Residual (CCR) Landfill and AMA,
- hydraulic diversion with partial VEB installed upgradient and side-gradient of the R6 CCR Landfill and AMA, and
- hydraulic conveyance (deep subsurface drain installed between R6 CCR Landfill and AMA).

The conceptual site model (CSM) and model construction and calibration, prepared by TRC Environmental Corporation (TRC) were documented in the *Hydrogeologic Assessment Report (rev. 1)* (Atlantic Coast Consulting, Inc. [ACC], 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021) and submitted to Georgia Environmental Protection Division (EPD). This Groundwater Modeling Report Addendum has been prepared by TRC for Georgia Power.

## Section 2

# Model Objectives

---

The objective of the numerical groundwater flow modeling was to simulate the future conditions of groundwater near the AMA under the following conditions:

- The closure of the Plant Yates AMA consists of closure by removal for Ash Pond A (AP-A) and AP-B, with consolidation of CCR from those impoundments to AP-B' and AP-3, which make up the footprint of the AMA consolidation area. Additionally, CCR from AP-1 has been removed and consolidated within the AMA footprint. AP-2 is being closed by removal with consolidation within the AMA. Upon completion of CCR removal activity, the consolidated footprint within the AMA will be capped and closed in place.
- The implementation of the above-mentioned AEM options.

The scenarios were evaluated for relative effectiveness with respect to (1) maximum height of the potentiometric surface above the bottom of the AMA, (2) volume of CCR below the potentiometric surface, (3) percent reduction of CCR volume below the potentiometric surface relative to pre-closure conditions, (4) percent reduction in groundwater flow within the CCR, and (5) simulated water particle for either capture and removal or time to reach the permit boundary.

# Section 3

## Predictive Simulations and Results

---

The calibrated groundwater model was used to predict the groundwater conditions for five scenarios at steady state. These scenarios were as follows:

- Scenario 0: Pre-closure conditions with CCR present in AP-2, R6 CCR Landfill, and AP-3. This scenario is prior to the construction of the AMA and presented in greater detail in Appendix E of the *Hydrogeological Assessment Report (rev. 1)* (ACC, 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021).
- Scenario 1: Consolidation and capping conditions where CCR from AP-2 and AP-3 has been removed and placed within the AMA. The elimination of infiltration over the AMA through the use of an impermeable cover has been incorporated by reducing recharge to zero over the AMA footprint. The AP-3 area has been modified to reflect the separation of the East Cove and the South Cove whereby the constant head boundary condition of 748.50 feet above mean sea level (AMSL) was applied to the East Cove and a constant head boundary elevation of 744.50 feet AMSL was applied to the South Cove. The constant head boundary conditions were based on anticipated operating levels provided by Georgia Power. Additional details for this scenario are presented in Appendix E of the *Hydrogeological Assessment Report (rev. 1)* (ACC, 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021).
- Scenario 2: Hydraulic Containment – The hydraulic containment AEM option would include installing a VEB encircling the R6 CCR Landfill and the AMA. Although the AMA is the focus of the AEM, the R6 CCR Landfill is immediately adjacent to the AMA and is therefore included in this AEM. The VEB would extend through the highly transmissive layer (represented by model layers 2 through 4) to restrict groundwater flow. Other materials such as cement, geomembranes, and steel sheet piling can also be used separately or in combination. A hydraulic conductivity of  $2.8 \times 10^{-4}$  ft/day (average value representative of slurry walls) and a thickness of 4 feet was assigned to the VEB in the groundwater model. The VEB was simulated with the horizontal flow barrier (HFB) package in MODFLOW. Groundwater extraction was included at a rate of 35.7 gallons per minute (gpm) to prevent mounding of groundwater from within the VEB. This extraction rate was selected based on a mass balance calculation within the model to offset the groundwater mounding from the incorporation of the VEB. The extraction well was added as an analytical element in the groundwater modeling software with a well screen from 730 to 670 ft above mean sea level. The same boundary conditions as Scenario 1 (consolidation and capping) were applied. **Figure 1** presents the conceptual design of the Scenario 2 (hydraulic containment).

- Scenario 3: Hydraulic Diversion – The hydraulic diversion with one feature AEM option would include installing a VEB along the eastern boundary of the AMA and the northern/southern boundaries of the AMA and R6 CCR Landfill. Similarly, the diversion options include the R6 CCR Landfill due to its proximity; however, the focus of the reduction of CCR below the potentiometric surface is within the AMA. The western (downgradient) border of the R6 CCR Landfill would remain open allowing groundwater to flow out of these areas. The VEB would extend through the highly transmissive layer (represented by model layers 2 through 4) to restrict groundwater flow. Other materials such as cement, geomembranes, and steel sheet piling can also be used separately or in combination. A hydraulic conductivity of  $2.8 \times 10^{-4}$  ft/day (average value representative of slurry walls) and a thickness of 4 feet was assigned to the VEB and the same boundary conditions as Scenario 1 (consolidation and capping) were applied. The VEB was simulated with the HFB package in MODFLOW. **Figure 2** presents the conceptual design of Scenario 3 (hydraulic diversion).
- Scenario 4: Hydraulic Conveyance (Deep Subsurface Drain) – This option includes a deep subsurface drain and groundwater pumping system between the R6 CCR Landfill and the AMA. This system is intended to capture groundwater upgradient, side-gradient, and downgradient of the AMA and lower the potentiometric surface. The deep subsurface drain system consists of a gravel, high-permeability material installed along the bottom of the drain within the transition zone, at the top of the bedrock surface. Because the bedrock surface is variable, pump stations are installed along the drain to extract the groundwater from lower elevation points. Pumping from the system was 35.3 gpm from the model mass balance estimate. The conveyance was simulated using the MODFLOW drain (DRN) package, and a conductance of  $6.8 \times 10^3$  ft<sup>2</sup>/day was used based on the assumption of the use of No. 57 stone for the gravel underlayment surrounding the drain. The conveyance elevation was imported to the model based on the as-built CAD file. Groundwater pumped from the deep subsurface drain will be managed and discharged in accordance with applicable National Pollutant Discharge Elimination System (NPDES) permitting terms. The same boundary conditions as Scenario 1 (consolidation and capping) were applied. **Figure 3** presents the design of Scenario 4 (deep subsurface drain).

The results of the calibrated model for Scenario 0 (pre-closure conditions), Scenario 1 (consolidation and capping), and Scenarios 2 through 4 (the AEM options) are summarized in **Table 1**. This table includes the volume of CCR modeled to extend below the potentiometric surface, the maximum predicted thickness of such CCR beneath the water table, and the amount of time it would take a conservative tracer (water particle with no decay or retardation) to travel from the location of greatest thickness of CCR below the potentiometric surface of the AMA to either the permit boundary or to be captured by the AEM. For the purposes of calculating these travel times, groundwater particles are started at the bottom of the CCR material (bottom of Layer 1 / top of Layer 2 in the model). Groundwater flowpaths and travel times were calculated using the particle tracking code MODPATH Version 5 (Pollack, 2004). MODPATH, originally developed by the U.S. Geological Survey (USGS), is a post-processing tool that

works with groundwater flow models like MODFLOW. It tracks the movement of hypothetical water particles through a simulated aquifer using the flow data from a previous simulation. **Table 1** also presents an estimate of the reduction in groundwater flow moving downward across the bottom of the CCR for Scenarios 1 through 4. This value was calculated by comparing the groundwater flow across the bottom of model cells representing CCR below the potentiometric surface for Scenarios 1 through 4 from the groundwater flow through the bottom of the CCR for Scenario 0 (pre-closure conditions).

Figures illustrating the simulated conditions (predicted groundwater levels) for the scenarios discussed above are shown in **Figures 4** through **8**. Groundwater flowpaths and water particle travel times in the vicinity of the AMA were calculated for Scenario 4 (hydraulic conveyance/deep subsurface drain) to quantify percent capture by the hydraulic conveyance. **Figure 8** depicts an example of a predicted water particle that starts from the location of greatest thickness of CCR below the potentiometric surface of the AMA. Particles were placed in each model grid cell in model Layer 2 (saprolite) within the areas where CCR material is present beneath the simulated water table for Scenario 4 (hydraulic conveyance/deep subsurface drain), and MODPATH was run in forward mode to delineate flowpaths from those CCR areas to downgradient sinks. A porosity value of 0.2 was used for the saprolite in the model. This value was based on previous work conducted at the site and referenced in Appendix E of the *Hydrogeologic Assessment Report (rev. 1)* (ACC, 2018, Revised July 2021; CCR Permit Application, Part B, Section 1, July 2021). The total area where CCR material exists beneath the water table is approximately 1,770,000 square feet (sq. ft.) and the total AMA footprint is approximately 3,470,000 sq. ft. Of the approximate 1,770,000 sq. ft. area where CCR material exists beneath the water table, approximately 1,490,000 sq. ft. is captured by the hydraulic conveyance/deep subsurface.

Within the portion of the AMA captured by the subsurface drain (over 90 percent by area), particle tracking simulations estimated a travel time of 14 years for a water particle originating at the greatest thickness of the CCR below the water table to be captured and removed by the subsurface drain.

A figure depicting the predicted footprint and thickness of CCR below the potentiometric surface within the AMA following implementation of the hydraulic conveyance (deep subsurface drain) AEM is shown in **Figure 9**.

# Section 4

## References

---

Atlantic Coast Consulting, Inc. 2018, Revised 2021. Hydrogeologic Assessment Report – Plant Yates R6 CCR Landfill and Ash Management Area. November 2018, Revised July 2021.

Georgia Department of Natural Resources Environmental Protection Division, Land Protection Branch. 2016. *Guidance: Groundwater Contaminant Fate and Transport Modeling (rev 1)*. October 2016

# Tables

---

**Table 1  
Summary of Modeling Results  
Plant Yates, Whitesburg, Georgia**

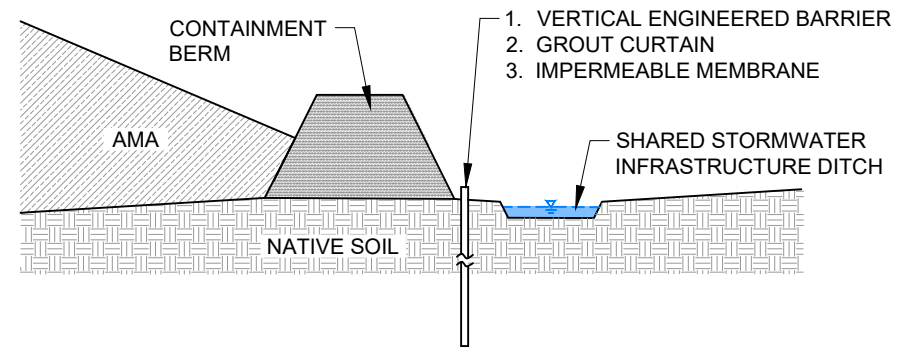
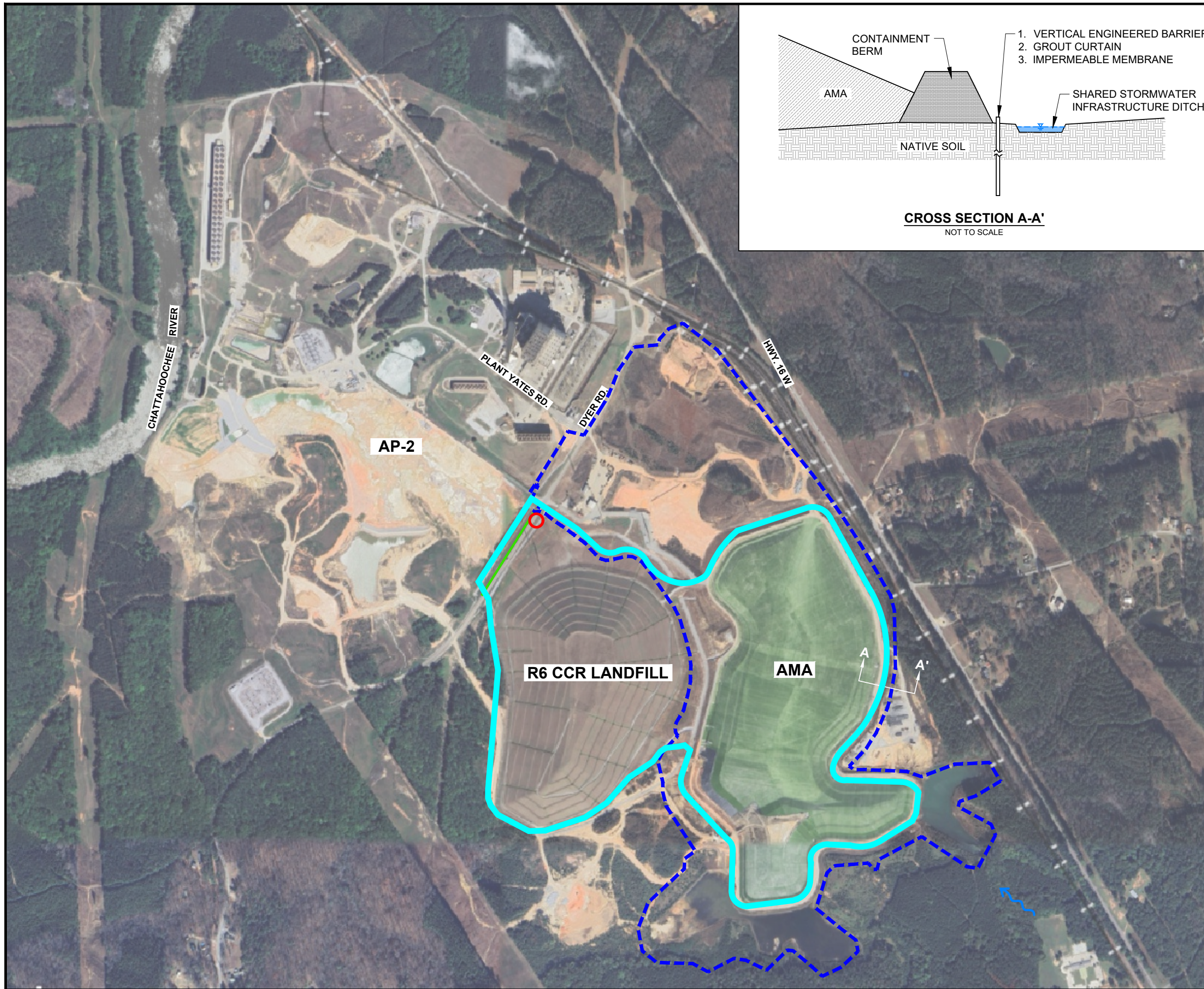
Scenario No.	AMA Conditions	Enhancement	Description of Enhancement	Effectiveness <sup>(1,2)</sup>				
				Maximum Height of Potentiometric Surface Above Bottom of AMA (ft)	Volume of CCR in the AMA Below the Potentiometric Surface (CY)	% Reduction in Volume of CCR in AMA Below the Potentiometric Surface	% Reduction in Groundwater Flow <sup>(3)</sup>	Time for Particles to be Captured or Reach AMA Permit Boundary (years) <sup>(4)</sup>
0	Pre-closure	-	-	27	1,644,400	-	-	11
1	Consolidate and cap	-	-	15	572,000	65%	81%	16
2	Consolidate and cap	Hydraulic Containment	Vertical engineered barrier (VEB) installed encompassing the AMA and R6 CCR Landfill to restrict groundwater flow.	15	413,000	74%	83%	37
3	Consolidate and cap	Hydraulic Diversion	VEB installed up-gradient and side-gradient of the AMA and R6 CCR Landfill to restrict groundwater flow.	14	499,900	69%	82%	34
4	Consolidate and cap	Hydraulic Conveyance	Installation of a deep subsurface drain/pumping system to capture groundwater and reduce the volume of CCR below the potentiometric surface.	14	402,600	75%	80%	14 <sup>(5)</sup> Particles are captured in this scenario

Notes:

1. These values were obtained from groundwater flow modeling results. It is noted that groundwater flow models are simplified mathematical representations of complex natural systems. Because of this, groundwater models have limits to their accuracy.
2. These model results were intended for use as relative comparisons between scenarios, and not as precise predictions of consolidation and capping conditions.
3. Flow estimates were calculated in the model by the volume of water passing vertically through the bottom of model cells in the CCR layer
4. Particle tracking represents a theoretical particle of water traveling by advection only, and does not account for geochemistry, retardation, or diffusion.
5. Within the portion of the AMA captured by the subsurface drain (over 90 percent by area), particle tracking simulations estimated a travel time of 14 years for a particle originating at the greatest thickness of the CCR below the water table to be captured and removed by the subsurface drain.

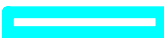




# Figures

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**CROSS SECTION A-A'**  
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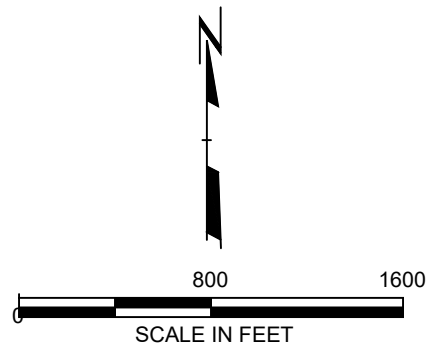
**LEGEND**


-  VERTICAL ENGINEERED BARRIER
-  APPROXIMATE GROUNDWATER FLOW
-  AMA CCR PERMIT BOUNDARY
-  DYER ROAD SHEET PILE
-  GROUNDWATER EXTRACTION

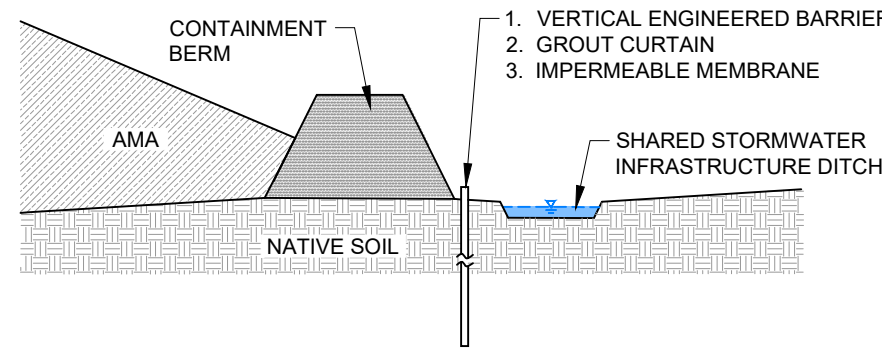
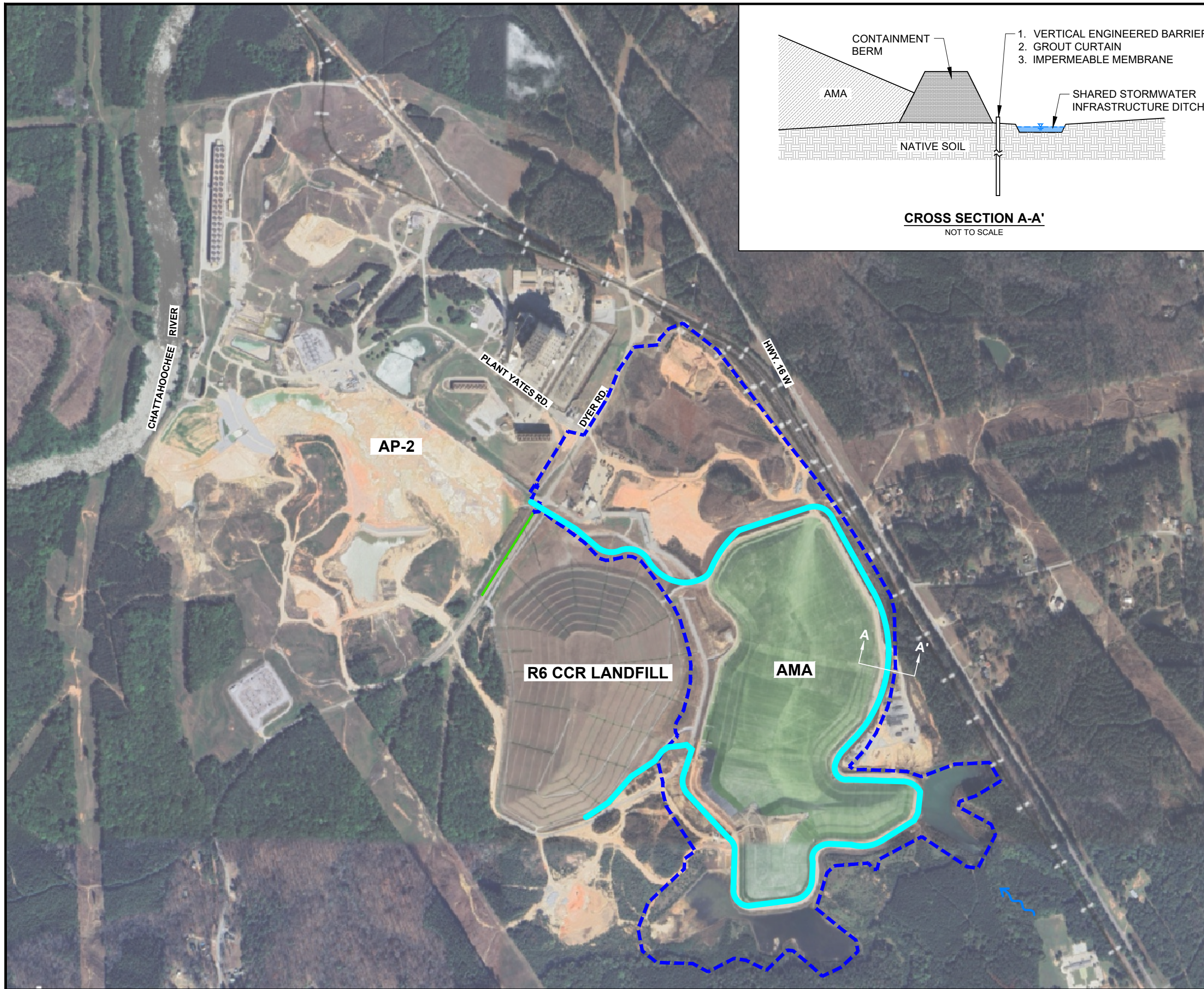
- NOTES**
1. ENCIRCLE R6 CCR LANDFILL AND AMA AS A SINGLE UNIT.
  2. GROUNDWATER WILL BE DIVERTED AROUND BOTH R6 CCR LANDFILL AND AMA.
  3. GROUNDWATER WILL BE COLLECTED AND PUMPED TO A TREATMENT SYSTEM.

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		SCENARIO 2: HYDRAULIC CONTAINMENT (ONE VEB) AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 1</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
FILE NO.:		621802-FIGURES.dwg	



**CROSS SECTION A-A'**  
NOT TO SCALE

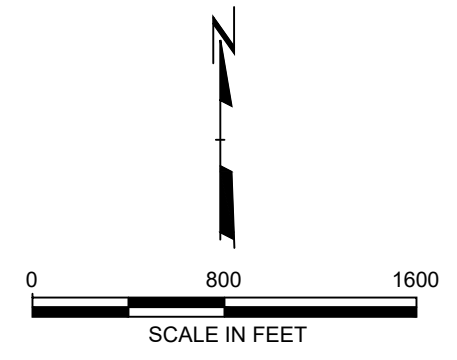
**LEGEND**

- VERTICAL ENGINEERED BARRIER
- APPROXIMATE GROUNDWATER FLOW
- AMA CCR PERMIT BOUNDARY
- DYER ROAD SHEET PILE

- NOTES**
1. DIVERT WATER AROUND R6 CCR LANDFILL AND AMA WITH A SINGLE UNIT.
  2. GROUNDWATER WILL BE DIVERTED AROUND BOTH R6 CCR LANDFILL AND AMA.

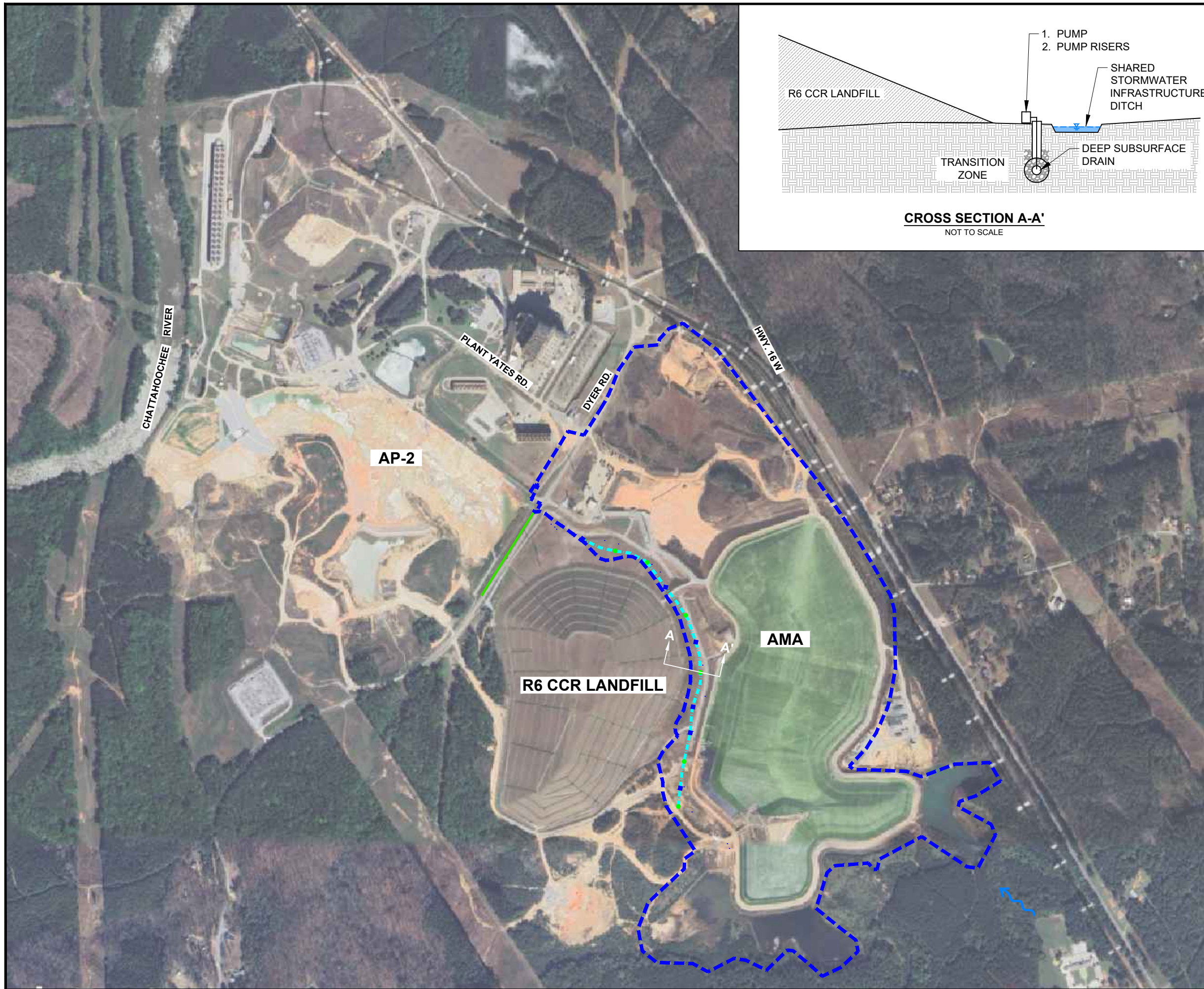
**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		SCENARIO 3: HYDRAULIC DIVERSION (ONE VEB) AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 2</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
FILE NO.:		621802-FIGURES.dwg	

**TRC**  
50 International Drive  
Patewood Plaza Three, Suite 150  
Greenville, SC 29615  
Phone: 864.281.0030



**CROSS SECTION A-A'**  
NOT TO SCALE

**LEGEND**

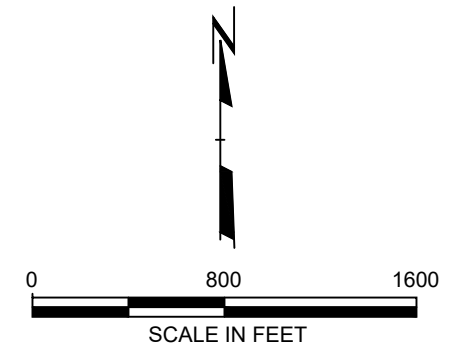
- PUMP RISER APPROXIMATE LOCATION
- CLEANOUT APPROXIMATE LOCATION
- ~ APPROXIMATE GROUNDWATER FLOW
- - - AMA CCR PERMIT BOUNDARY
- - - DEEP SUBSURFACE DRAIN
- DYER ROAD SHEET PILE

**NOTES**

1. GROUNDWATER PUMPED FROM THE DEEP SUBSURFACE DRAIN WILL BE MANAGED AND DISCHARGED IN ACCORDANCE WITH APPLICABLE NPDES PERMITTING CONDITIONS.

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GA	
TITLE:		SCENARIO 4: HYDRAULIC CONVEYANCE (DEEP SUBSURFACE DRAIN) AEM	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0000.0000
CHECKED BY:	M. HAYS	<b>FIGURE 3</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
FILE NO.:	621802-FIGURE 4-5.dwg		

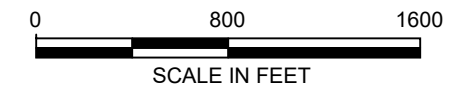



**LEGEND**

- 720 — GROUNDWATER CONTOURS (10-FT CONTOUR INTERVAL)
- - - AMA CCR PERMIT BOUNDARY

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		<b>GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GEORGIA</b>	
TITLE:		<b>SCENARIO 0: PREDICTED GROUNDWATER LEVELS FOR PRE-CLOSURE CONDITIONS</b>	
DRAWN BY:	L. COOK	PROJ NO.:	621802.0.0.1
CHECKED BY:	J. JACKSON	<b>FIGURE 4</b>	
APPROVED BY:	M. HAYS		
DATE:	OCTOBER 2025		
FILE NO.:			

50 International Drive  
Patewood Plaza Three, Suite 150  
Greenville, SC 29615  
Phone: 864.281.0030

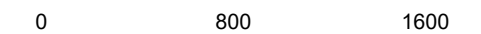


**LEGEND**

- 720 — GROUNDWATER CONTOURS (10-FT CONTOUR INTERVAL)
- - - AMA CCR PERMIT BOUNDARY
- DYER ROAD SHEET PILE (THIS IS NOT MODELED FEATURE IN THIS COMPARATIVE ANALYSIS EVALUATION AND IT IS ONLY DISPLAYED GRAPHICALLY)

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



SCALE IN FEET

<b>PROJECT:</b>		<b>GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GEORGIA</b>
<b>TITLE:</b>		<b>SCENARIO 1: PREDICTED GROUNDWATER LEVELS FOR CONSOLIDATION AND CAPPING</b>
DRAWN BY:	L. COOK	PROJ NO.: 621802.0.0.1
CHECKED BY:	J. JACKSON	<b>FIGURE 5</b>
APPROVED BY:	M. HAYS	
DATE:	OCTOBER 2025	
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030
FILE NO.:		



**LEGEND**

- 720 — GROUNDWATER CONTOURS (10-FT CONTOUR INTERVAL)
- - - AMA CCR PERMIT BOUNDARY
- DYER ROAD SHEET PILE (THIS IS NOT MODELED FEATURE IN THIS COMPARATIVE ANALYSIS EVALUATION AND IT IS ONLY DISPLAYED GRAPHICALLY)
- GROUNDWATER EXTRACTION

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



<b>PROJECT:</b>	
<b>GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GEORGIA</b>	
<b>TITLE:</b>	
<b>SCENARIO 2: PREDICTED GROUNDWATER LEVELS FOR HYDRAULIC CONTAINMENT AEM</b>	
<b>DRAWN BY:</b> L. COOK	<b>PROJ NO.:</b> 621802.0.0.1
<b>CHECKED BY:</b> J. JACKSON	<b>FIGURE 6</b>
<b>APPROVED BY:</b> M. HAYS	
<b>DATE:</b> DECEMBER 2025	
<b>TRC</b>	
<small>50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030</small>	
<b>FILE NO.:</b>	

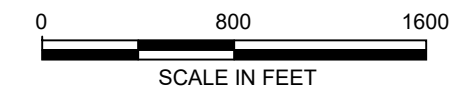


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- 720 — GROUNDWATER CONTOURS (10-FT CONTOUR INTERVAL)
- - - AMA CCR PERMIT BOUNDARY
- DYER ROAD SHEET PILE (THIS IS NOT MODELED FEATURE IN THIS COMPARATIVE ANALYSIS EVALUATION AND IT IS ONLY DISPLAYED GRAPHICALLY)

**SOURCE**

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<b>PROJECT:</b>		<b>GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GEORGIA</b>
<b>TITLE:</b>		<b>SCENARIO 3: PREDICTED GROUNDWATER LEVELS FOR HYDRAULIC DIVERSION AEM</b>
DRAWN BY:	L. COOK	PROJ NO.: 621802.0.0.1
CHECKED BY:	J. JACKSON	<b>FIGURE 7</b>
APPROVED BY:	M. HAYS	
DATE:	OCTOBER 2025	
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030
FILE NO.:		



**LEGEND**

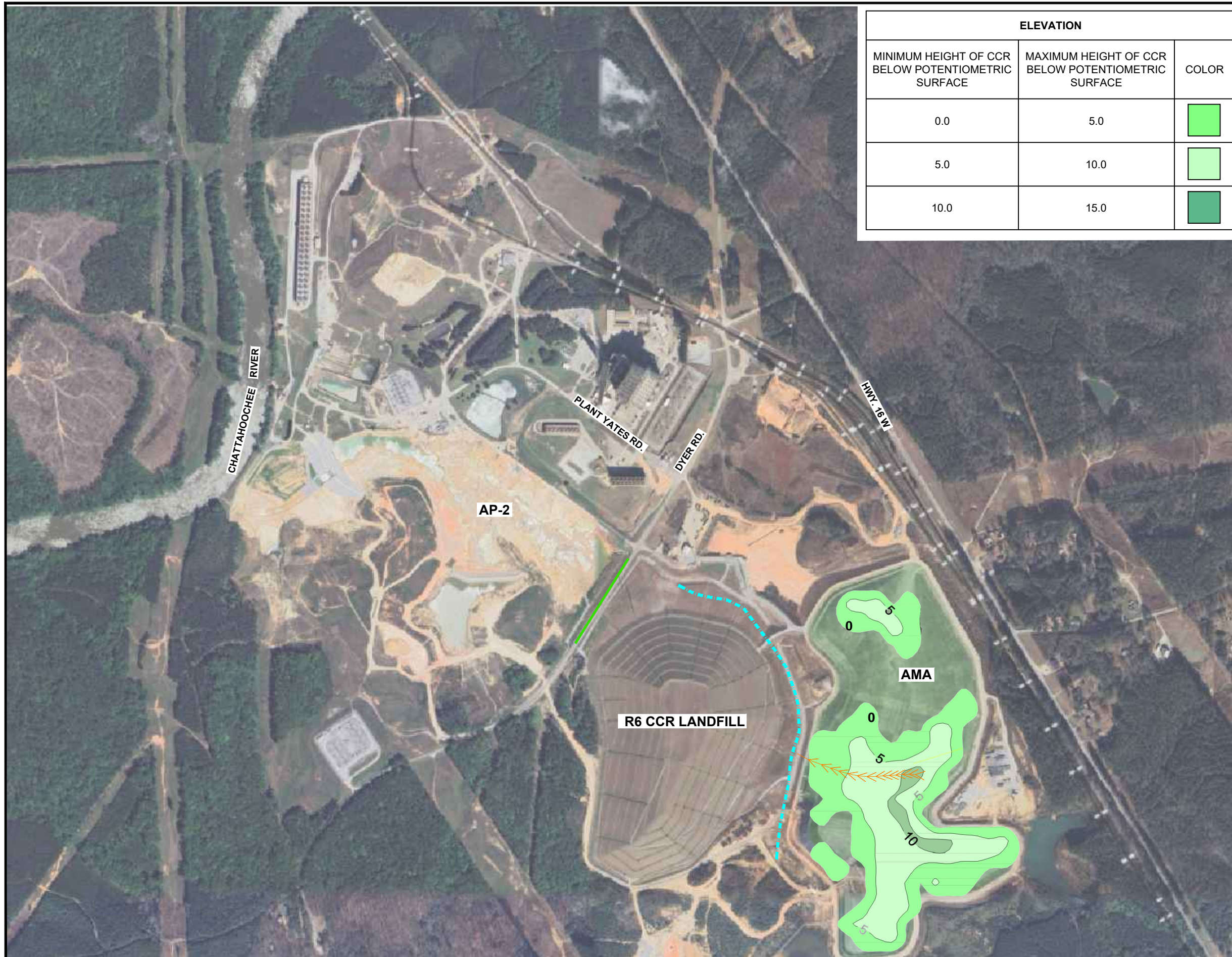
- 720 — GROUNDWATER CONTOURS (10-FT CONTOUR INTERVAL)
  
- GROUNDWATER FLOWPATHS:**
- ← GROUNDWATER FLOWPATHS ORIGINATE AT THE BOTTOM OF LAYER 1 (CCR) / TOP OF LAYER 2 (RESIDUAL SOIL) AT THE LOCATION WHERE THE THICKNESS OF THE OVERLYING CCR MATERIAL IS GREATEST BELOW THE WATER TABLE. ARROWS PLACED AT 1-YEAR INTERVALS ALONG THE FLOWPATHS.
  
- - - AMA CCR PERMIT BOUNDARY
  
- DYER ROAD SHEET PILE (THIS IS NOT MODELED FEATURE IN THIS COMPARATIVE ANALYSIS EVALUATION AND IT IS ONLY DISPLAYED GRAPHICALLY)
  
- - - DEEP SUBSURFACE DRAIN

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



<b>PROJECT:</b>	
<b>GEORGIA POWER COMPANY PLANT YATES WHITESBURG, GEORGIA</b>	
<b>TITLE:</b>	
<b>SCENARIO 4: PREDICTED GROUNDWATER LEVELS FOR HYDRAULIC CONVEYANCE (DEEP SUBSURFACE DRAIN) AEM</b>	
DRAWN BY: L. COOK	PROJ NO.: 621802.0.0.1
CHECKED BY: J. JACKSON	<b>FIGURE 8</b>
APPROVED BY: M. HAYS	
DATE: OCTOBER 2025	
50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
FILE NO.:	



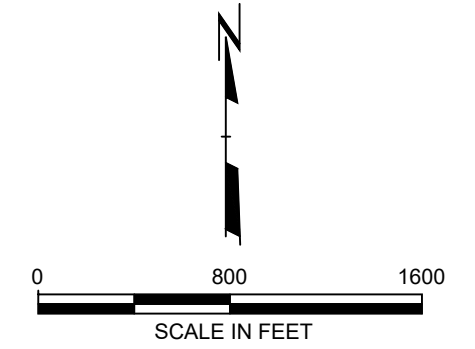
ELEVATION		
MINIMUM HEIGHT OF CCR BELOW POTENTIOMETRIC SURFACE	MAXIMUM HEIGHT OF CCR BELOW POTENTIOMETRIC SURFACE	COLOR
0.0	5.0	
5.0	10.0	
10.0	15.0	

**LEGEND**

- DYER ROAD SHEET PILE (THIS IS NOT MODELED FEATURE IN THIS COMPARATIVE ANALYSIS EVALUATION AND IT IS ONLY DISPLAYED GRAPHICALLY)
- DEEP SUBSURFACE DRAIN
- GROUNDWATER FLOWPATHS:**
- GROUNDWATER FLOWPATHS ORIGINATE AT THE BOTTOM OF LAYER 1 (CCR) / TOP OF LAYER 2 (RESIDUAL SOIL) AT THE LOCATION WHERE THE THICKNESS OF THE OVERLYING CCR MATERIAL IS GREATEST BELOW THE WATER TABLE. ARROWS PLACED AT 1-YEAR INTERVALS ALONG THE FLOWPATHS.

**SOURCE**

1. OCTOBER 2024 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



VOLUME OF CCR BELOW POTENTIOMETRIC SURFACE (AMA): 402, 600 CU. YD.  
 MAXIMUM HEIGHT OF POTENTIOMETRIC SURFACE ABOVE BOTTOM OF AMA APPROXIMATELY 14 FEET

PROJECT: **GEORGIA POWER COMPANY  
PLANT YATES  
WHITESBURG, GEORGIA**

TITLE: **THICKNESS OF CCR BELOW POTENTIOMETRIC SURFACE FOR SCENARIO 4: HYDRAULIC CONVEYANCE (DEEP SUBSURFACE DRAIN) AEM**

DRAWN BY: L. COOK	PROJ NO.: 621802.0000.0000
CHECKED BY: J. JACKSON	<b>FIGURE 9</b>
APPROVED BY: M. HAYS	
DATE: OCTOBER 2025	

50 International Drive  
Patewood Plaza Three, Suite 150  
Greenville, SC 29615  
Phone: 864.281.0030

FILE NO.:

## **ATTACHMENT 2**



# Plant Yates Ash Management Area As-Built Advanced Engineering Method Evaluation

Georgia Power Company  
Newnan, Georgia

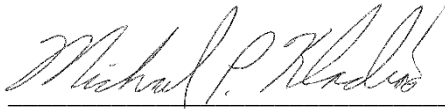
November 26, 2025



# Plant Yates Ash Management Area As-Built Advanced Engineering Method Evaluation

**Georgia Power Company**  
**Newnan, Georgia**  
11.26.2025

**Prepared By:**  
Arcadis U.S., Inc.  
2839 Paces Ferry Rd. Ste. 1000  
Atlanta, Georgia 30339  
Phone: 770.431.8666



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Michael Kladias  
Technical Expert - Modeling Services



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Geoffrey Gay, PE  
Technical Expert, Vice President

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Acronyms and Abbreviations.....	iii
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1.1 Background and Purpose.....	1
1.2 As-Built AEM Subsurface Drain Construction Summary.....	2
1.3 AEM Subsurface Drain Pumping Test.....	2
1.3.1 AEM Pumping Test Results.....	3
2 Detailed Evaluation of the As-Built AEM Subsurface Drain.....	3
3 Findings.....	4
4 References.....	4

## Figures

Figure 1 Site Location Map

Figure 2 As-Built AEM Alignment and Pumping Test Layout

Figure 3 As Built AEM Subsurface Drain Profile

Figure 4 As Built AEM Pumping Test Calculated Drawdown Response

Figure 5 As-Built AEM Pumping Test Groundwater Elevation Time Series

Figure 6 Post-Closure Model: Simulated Water-Level and Drawdown Contours

Figure 7 Post-Closure Model: Simulated Capture Extent

## Appendices

Appendix A Transient Groundwater Flow Model Development

## Acronyms and Abbreviations

AEM	Advanced Engineering Method
AMA	Ash Management Area
Arcadis U.S., Inc.	Arcadis
bgs	below ground surface
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CLN	connected linear network package
cm/sec	centimeter per second
CSM	conceptual site model
DRN	drain package
ET	evapotranspiration package
ET <sub>0</sub>	reference evapotranspiration rate
Et <sub>a</sub>	actual evapotranspiration rate
°F	degrees Fahrenheit
ft/d	feet per day
ft <sup>2</sup> /day	square feet per day
GA EPD	Georgia Environmental Protection Division
GIS	geographic information system
GPC	Georgia Power Company
gpm	gallon per minute
GWV	Groundwater Vistas
HDPE	high-density polyethylene
HFB	hydraulic flow barrier package
in/yr	inches per year
Kh	horizontal hydraulic conductivity
Kv	vertical hydraulic conductivity
LAK	lake package
msl	mean sea level
NAVD88	North American Vertical Datum of 1988
PEST	parameter estimation

## Plant Yates Ash Management Area As-Built AEM Evaluation

PWR	partially weathered bedrock
RCH	recharge package
RIV	river package
RSS	residual sum of squares
RSTD	residual standard deviation
SCS	Southern Company Services, Inc.
SFR	streamflow-routing package
TIB	transient IBOUND array of boundaries
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
USGT	USG-Transport v.2.5.0

## Professional Certification

I certify that I am a qualified groundwater scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration, professional certifications, and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.



---

J. Geoffrey Gay  
Technical Expert (Eng), Vice President  
GA Registration No. PE 27801

# 1 Introduction

Georgia Power Company (GPC) operates a natural gas-fired station at Plant Yates (the Site) approximately 8 miles northwest of Newnan, Coweta County, Georgia. Arcadis U.S., Inc. (Arcadis) prepared this As-Built Advanced Engineering Method (AEM) Evaluation Report (the Report), on behalf of GPC to evaluate the performance of the selected AEM for the Ash Management Area (AMA) in connection with other closure conditions for the Plant Yates Site. The purpose of the AEM subsurface drain, associated risers, and pumps is to capture and remove groundwater from the area, which will result in lowering the potentiometric surface within the AMA. The AMA footprint includes AP-B' and AP-3, which were consolidated and are being closed in place. CCR from AP-A and AP-B were removed and placed in the consolidated footprint of AP-B' and AP-3. A transient groundwater flow model, using AEM as-built information and recent groundwater data, was used to support the evaluation and is presented herein. Here, the term AEM is used to refer to technologies or measures that are designed to enhance the protection of groundwater and closure effectiveness, and/or further minimize future maintenance of closed units.

The existing CSM and steady-state groundwater flow model, developed by TRC in 2020 (ACC 2021), were used to evaluate hydrologic conditions around the Site to support closure design decisions focused on the AMA. Steady-state modeling completed in 2020 evaluated various AEM scenarios to support the closure of the AMA CCR footprint. Based on the evaluation results, GPC selected the AMA subsurface drain.

In this study, the existing CSM and steady-state model were updated to evaluate transient groundwater flow conditions (transient model) and to include as-built conditions for the AEM subsurface drain. This was done by reviewing updated hydrogeologic information (ACC 2021) and publicly available geologic/hydrogeologic data near the Site area. The transient model was used to evaluate current and post-closure (future) groundwater conditions at the Site, as well as the effect of the as-built AEM subsurface drain on the closure of the AMA CCR footprint. Details of the transient model development are presented in **Appendix A**.

## 1.1 Background and Purpose

Plant Yates is located at 708 Dyer Road, in Newnan, Coweta County, Georgia. The AMA, located on the southeastern portion of the Plant Yates property, is shown on **Figure 1**. CCR was consolidated within the AMA footprint and graded to provide adequate levels of slope stability and promote positive drainage for surface water prior to final cover system placement. The final cover system consists of a prepared subgrade overlain with a high-density geomembrane liner covered by an engineered synthetic turf that will minimize infiltration to the maximum extent feasible. Following completion of closure, the AMA will enter post-closure care for a minimum period of 30 years.

## 1.2 As-Built AEM Subsurface Drain Construction Summary

The purpose of the AEM subsurface drain is to collect and remove groundwater beneath the AMA footprint, which will result in the lowering of the potentiometric surface within the entire AMA boundary. The as-built AEM subsurface drain extends for a length of approximately 2,800 feet along the east and north side of the R6 CCR Landfill and along the west side of the AMA boundary (**Figure 2**). The AEM subsurface drain, designed by environmental consultant TRC, was installed between July and December 2019. Because the bedrock surface elevation is variable, 12 risers were installed along the AEM subsurface drain to extract groundwater from multiple low elevation points. The extraction points consist of six pump risers made of 12-inch diameter, Schedule 80 PVC pipes. The cleanout points are 8-inch diameter Schedule 80 PVC pipes (**Figure 3**). The actual drains being pumped are connected segments of 8-inch diameter slotted high density polyethylene (HDPE) (ADS-brand) pipe placed within the gravel bedding. The drain is connected to the pump/cleanout risers (**Figure 3**). Prior to adding gravel bedding, the drain was wrapped with a non-woven polypropylene fabric sock. Additionally, the gravel bedding is also wrapped with non-woven polypropylene geotextile fabric to further prevent fine-grained material from clogging the pore space.

- In general, the bottom of the AEM subsurface drain rests on the surface of the bedrock, allowing trench sidewalls to intercept the “transition zone” between the bedrock and the upper saprolitic soils. This transition zone, consisting of highly weathered and fractured bedrock provides the greatest groundwater yield within the vertical section of trench. The bottom depth of the AEM subsurface drain measures between 10 and 46 feet below land surface (see the AEM subsurface drain profile on **Figure 3**).
- The AEM subsurface drain was installed using conventional excavating equipment with a width of approximately 4 feet.
- An 8-inch diameter, slotted HDPE lateral groundwater drain collection pipe was installed within the excavated trench.
- Aggregate consisting of ASTM No. 57 crushed stone was placed to provide a 6-inch layer of bedding for the slotted HDPE drain collection pipe as well as backfill to a depth of at least 2 feet above the top of the collection pipe.

## 1.3 AEM Subsurface Drain Pumping Test

A pumping test was conducted to evaluate the effects of constant pumping on the aquifer by the AEM subsurface drain, and the results were incorporated into the transient model to evaluate the suitability of this rate for the test and long-term operation. The pumping test operational equipment (e.g., generators, fuel tanks, groundwater pumps, control panels) were installed the week of June 10, 2024. Pumping began on June 17, 2024, and continued until termination on July 1, 2024.

On June 17, 2024, Arcadis personnel collected manual water level measurements from the pumping test wells, piezometers, and observation risers immediately before starting the test. Following this

manual gauging round, the test began at 1:55 pm at a target rate of 14 gpm from pump risers (Riser-4, Riser-5, Riser-6, Riser-9, and Riser-12). During the first hour, the system underwent a period of fine tuning and observation and very quickly achieved and maintained 14 gpm at each pump riser. The combined riser flowrate created a total flow that remained close to but below 100,000 gpd.

### 1.3.1 AEM Pumping Test Results

The AEM Drain underwent continuous testing from June 17 to July 1, 2025. Two isolated equipment malfunctions resulted in brief operational interruptions; however, these did not materially influence the integrity of the overall aquifer pumping test results. The data compiled from the test was used to directly inform transient groundwater flow model development to include verification of the drawdown response. Observed drawdown results exceeded those originally anticipated from the initial transient model by as much as 4 feet. The resulting drawdown response used in the modeling from the AEM subsurface drain performance pumping test is shown on **Figure 4**. Drawdown was calculated from the start on June 17 at 1:55pm with a constant flowrate of 14 gpm per pump riser. The flowrate was constant except for minor interruptions due to equipment (generator) failures. The pumping test continued for 14 days that provided a robust response data set with drawdowns reaching nearly 8 feet at Riser-7, Riser-8, Riser-10, and Riser-11 within the central portion of the AEM subsurface drain and more subdued, but discernable, influence responses at locations located further away from the AEM subsurface drain at YGWC-36A, YGWC-23S, and PZ-37. Recovery observations that continued for approximately 15 days after cessation of pumping show a rapid response over the first 24 to 48 hours for proximal wells followed by a slower recovery response for the remaining recording period.

Groundwater elevations relative to the survey point for each well were calibrated to the manual depth to water measurements. The resulting hydrographs were generated as shown in **Figure 5**. As with the drawdown chart, the elevations shown indicated that subdued responses to the pumping tests over longer periods of time are discernable at PZ-37, YGWC-23S, and YGWC-36A.

## 2 Detailed Evaluation of the As-Built AEM Subsurface Drain

The operation and performance of the as-built AEM subsurface drain was evaluated using the transient model. The transient model was also used to determine the degree of hydraulic capture of groundwater from beneath the AMA by the AEM subsurface drain.

The transient modeling also predicted the long-term groundwater flow patterns after closure of the AMA. The post-closure model was run for 30 years, and the simulated groundwater elevations at end of the simulation were evaluated. **Figure 6** shows the simulated long-term groundwater potentiometric surface contours from post-closure model scenario. It shows groundwater levels and flow patterns were altered locally around the AEM subsurface drain with the formation of an elongated “cone” of depression around the AEM subsurface drain primarily in model layers 1 through 3. This indicates that the operation of the AEM subsurface drain effectively lowers the groundwater potentiometric surface

near the AMA. Based on review of transient simulated water levels, the model indicates that the potentiometric surface will reach steady-state conditions approximately 10 to 15 years after closure activities are completed with operation of the AEM subsurface drain. As shown on the figure, long-term operation of the AEM subsurface drain will effectively lower the groundwater elevation by a range of 5 to 20 feet in model layers 1 through 3 as compared to conditions without pumping of the AEM subsurface drain.

**Figure 7** presents the overall simulated hydraulic capture extent of underlying hydrogeologic units, which encompasses the entire footprint of the AMA. The as-built AEM subsurface drain pumping at 70 gpm is expected to capture and remove 100% of the groundwater resulting from CCR porewater within the AMA CCR footprint. Details of this model evaluation are presented in **Appendix A**.

### 3 Findings

The testing and modeling evaluation of the as-built AEM subsurface drain illustrates that the selected AEM, as installed, is capable of effectively lowering the groundwater potentiometric surface levels and providing full hydraulic containment within the AMA CCR footprint. The modeling evaluation consisted of first performing a pre-closure model calibration to observed groundwater level data, followed by a predictive simulation of post-closure (future) conditions to assess the effects of closure and long-term operation of the AEM subsurface drain.

During the pre-closure flow model calibration, satisfactory matches were achieved between observed and simulated water levels. The transient model calibration was shown to be useful to determine appropriate storage properties and to simulate the temporal trend of the observed change in water levels during site activities and other temporal changes in hydrologic conditions. The transient model is recommended for future use because it robustly predicts post-closure conditions at the Site. Following the development and calibration of the pre-closure flow model, a predictive post-closure model scenario was developed to evaluate the potential changes in groundwater flow directions and water levels from closure activities and selected AEM.

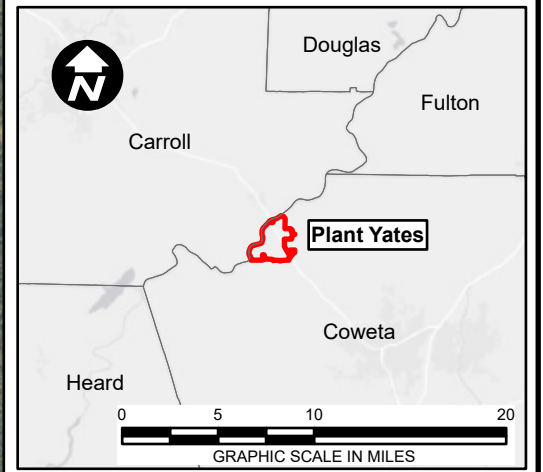
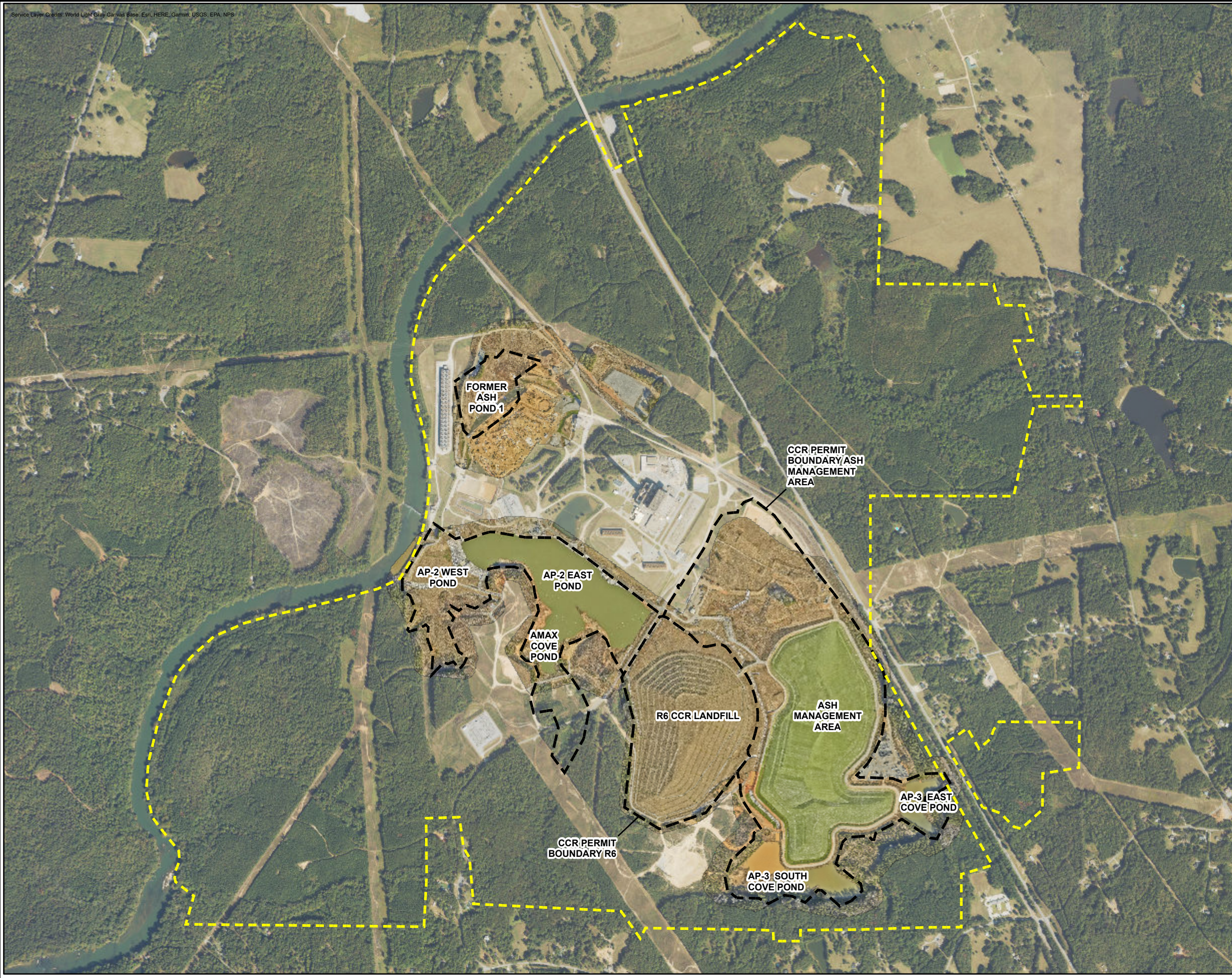
Based on predictions from the transient groundwater flow model developed for this study, the combined closure activities, including the installation of final cover systems over the AMA CCR footprint and the operation of the as-built AEM subsurface drain, are expected to result in hydraulic capture of the groundwater that has come into contact with CCR within the AMA CCR footprint. The model also predicts that the potentiometric elevation reaches steady-state conditions after approximately 10 to 15 years of post-closure conditions.



### 4 References

ACC. 2021. Hydrogeologic Assessment Report (rev. 1) Plant Yates R6 CCR Landfill and Ash Management Area (AMA) Coweta County, Georgia for Georgia Power, May 2021. Atlantic Coast Consulting, Inc.

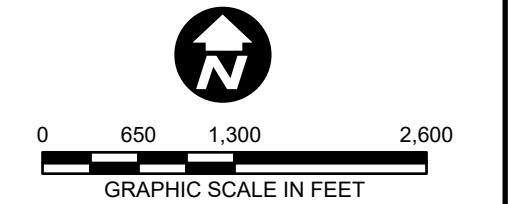
# Figures

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**LEGEND**  
 APPROXIMATE PROPERTY BOUNDARY  
 PERMITTED UNIT BOUNDARY

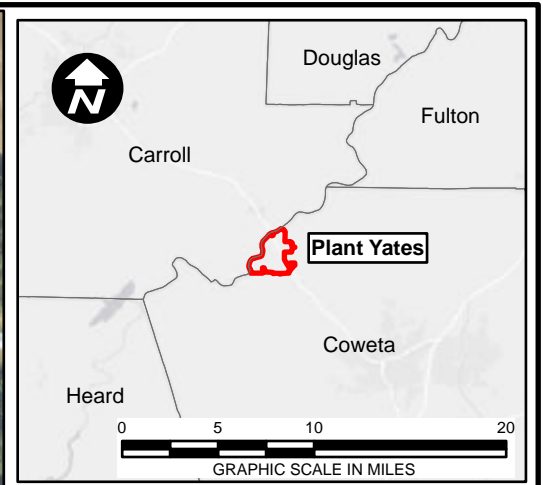
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GEORGIA WEST FIPS 1002 FEET

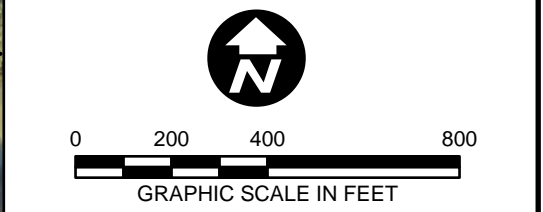
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**SITE LOCATION MAP**



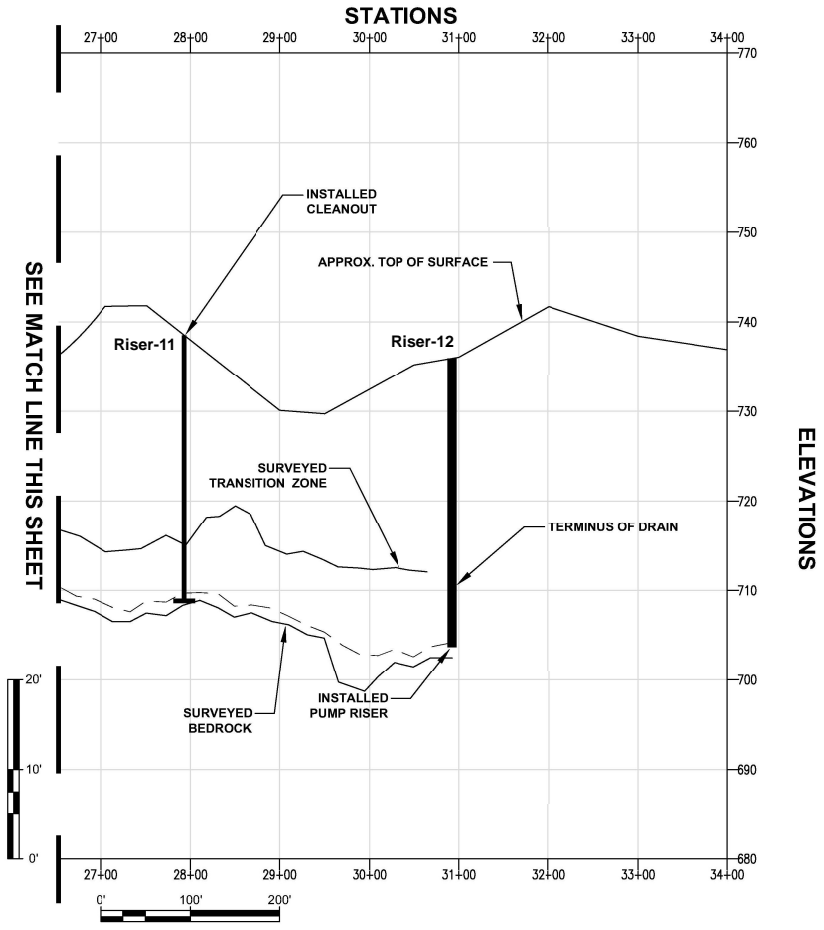
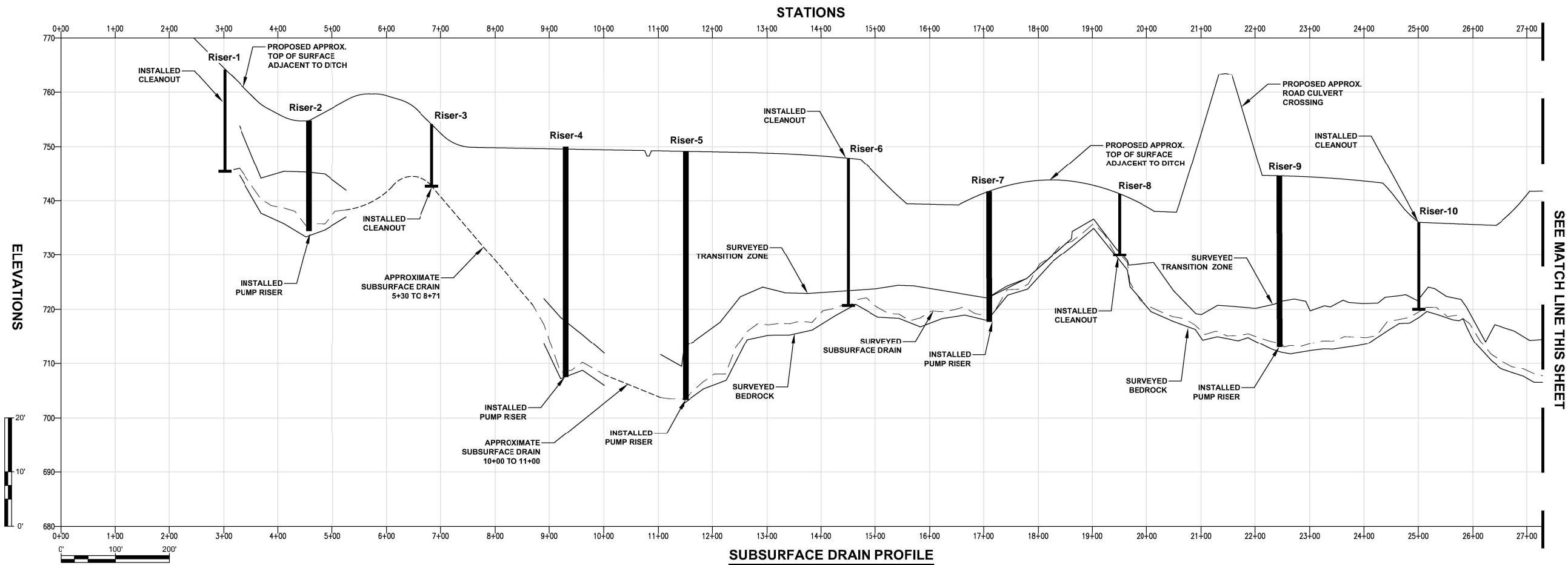
- LEGEND**
- SAPROLITE DETECTION MONITORING WELL LOCATION
  - TRANSITION DETECTION MONITORING WELL LOCATION
  - BEDROCK DETECTION MONITORING WELL LOCATION
  - SAPROLITE ASSESSMENT WELL/PIEZOMETER
  - TRANSITION ASSESSMENT WELL/PIEZOMETER
  - BEDROCK ASSESSMENT WELL/PIEZOMETER
  - AEM RISER
  - PIEZOMETER
  - PROPOSED PIEZOMETER
  - AEM PUMP RISER
  - AEM SUBSURFACE DRAIN
  - PERMITTED UNIT BOUNDARY
  - FRAC TANKS (2) AND TRANSFER PUMP
  - CONTROL PANEL
  - GENERATOR
  - PZ-9 TRANSDUCER DATA LOGGER

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**AS-BUILT AEM ALIGNMENT  
 AND PUMPING TEST LAYOUT**



**LEGEND**

	PUMP RISER
	CLEANOUT
	SURVEYED SUBSURFACE DRAIN
	APPROXIMATE SUBSURFACE DRAIN

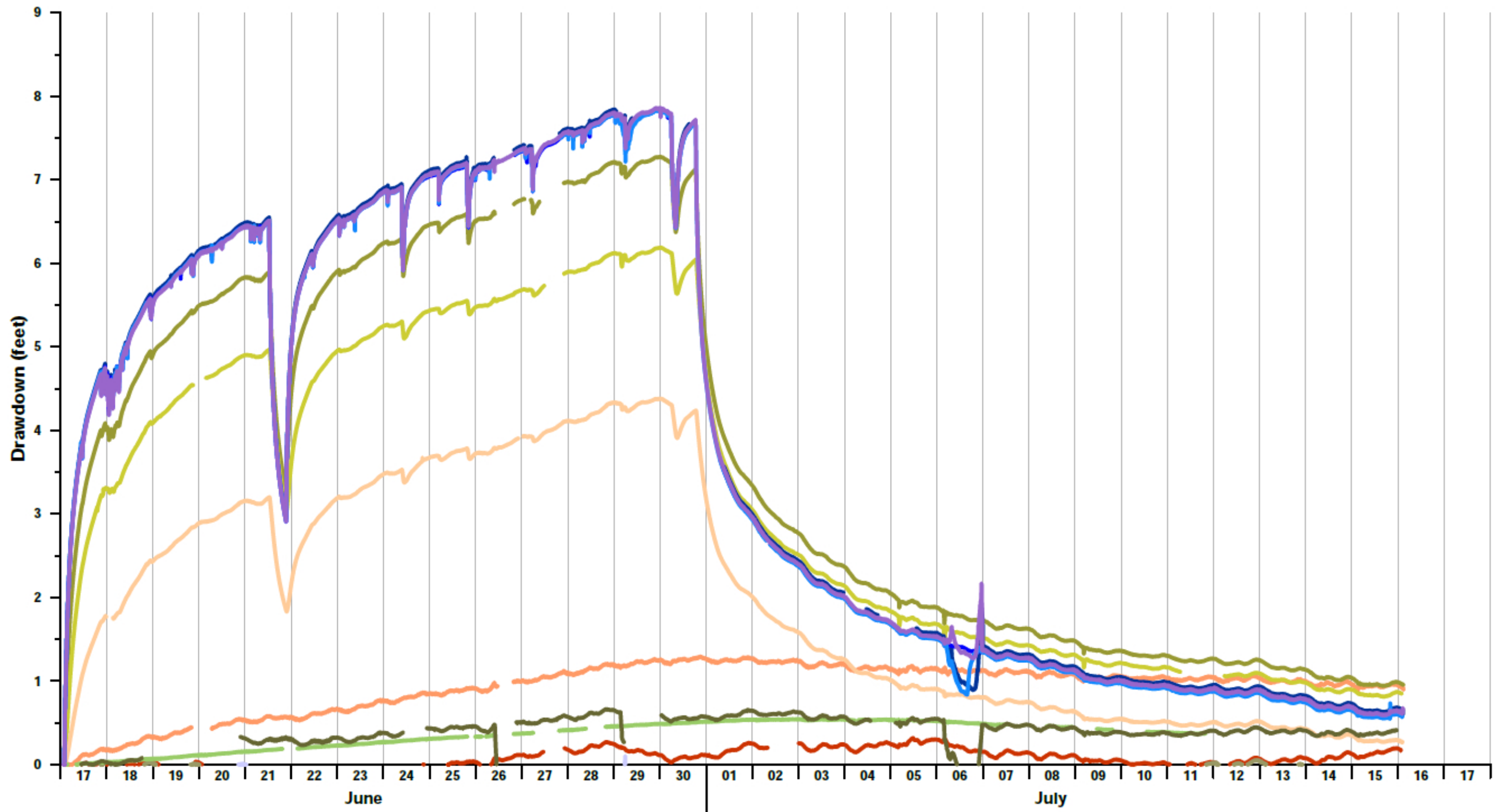
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**AS-BUILT AEM SUBSURFACE  
DRAIN PROFILE**

**ARCADIS**

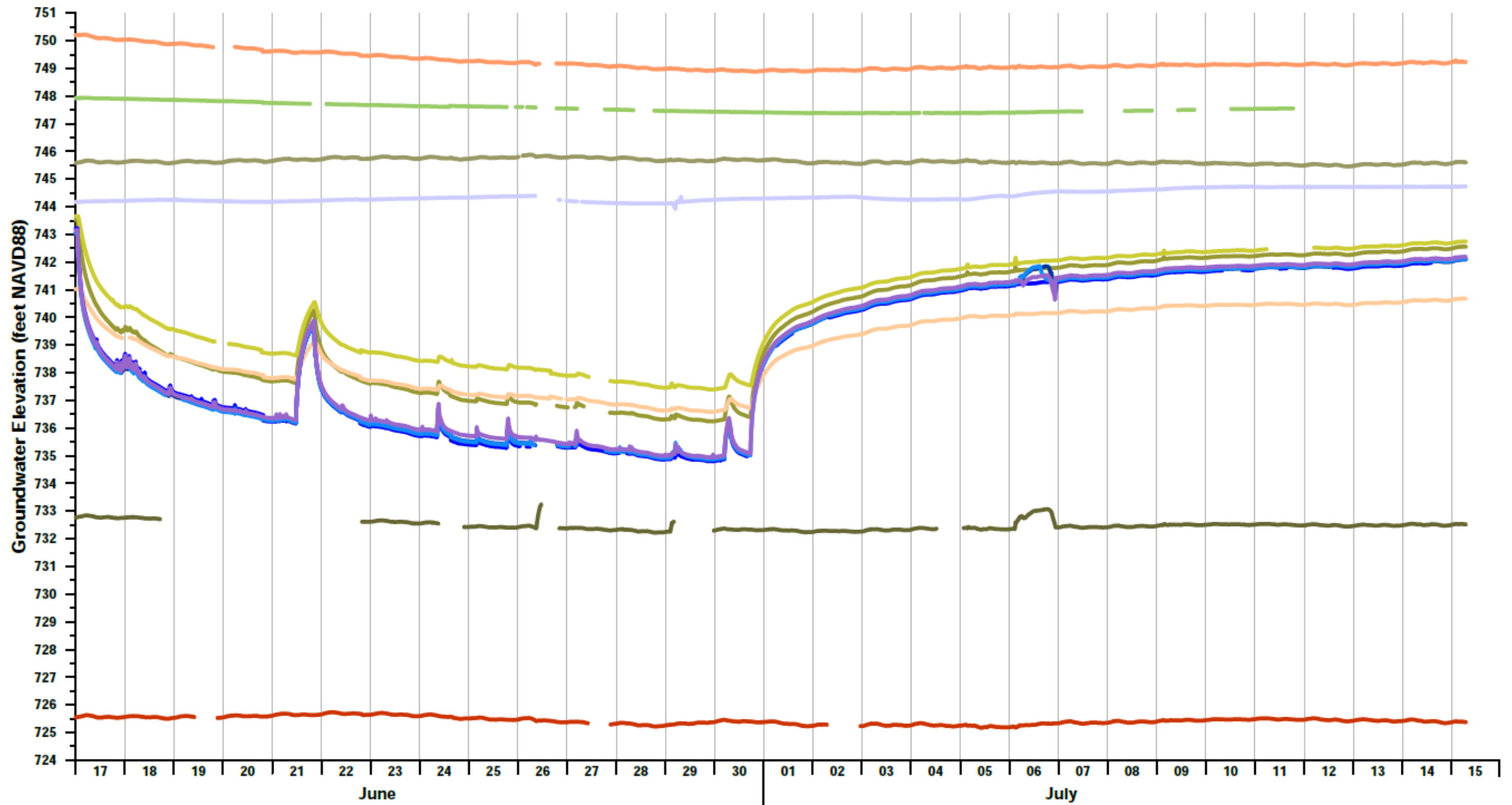
FIGURE  
**3**



- |            |            |            |          |
|------------|------------|------------|----------|
| — Riser-8  | — Riser-7  | — Riser-10 | — PZ-52B |
| — PZ-53R   | — Riser-2  | — PZ-9     | — PZ-37  |
| — YGWC-36A | — Riser-11 | — PZ-54B   | — PZ-25I |
| — YGWC-23S |            |            |          |

**Notes:**

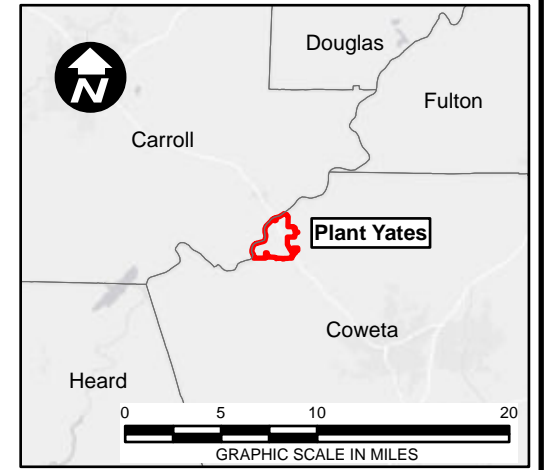
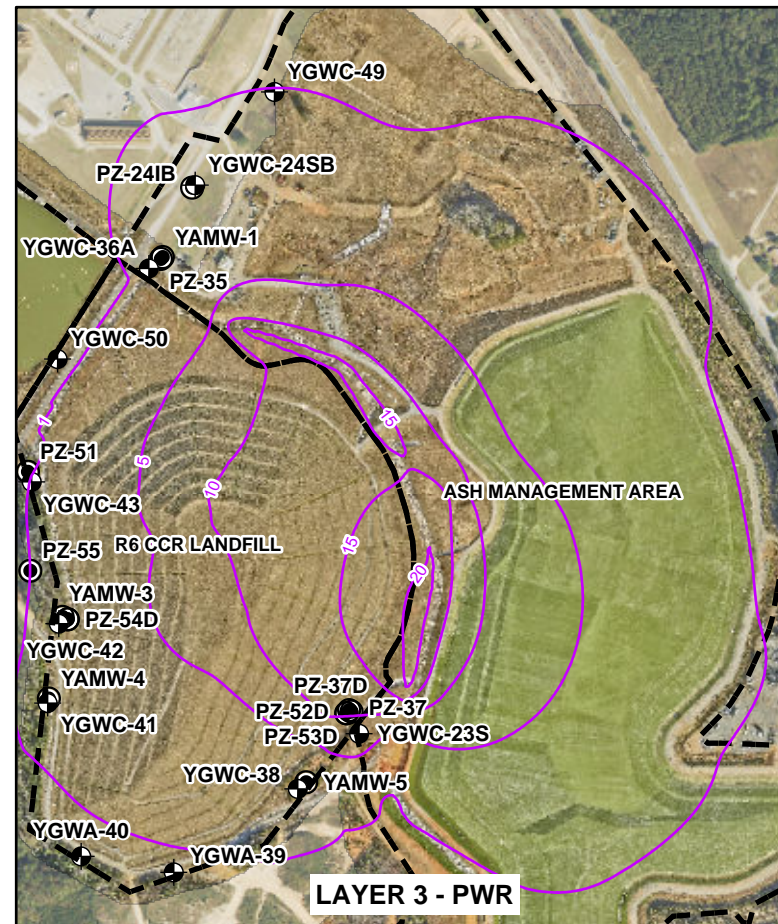
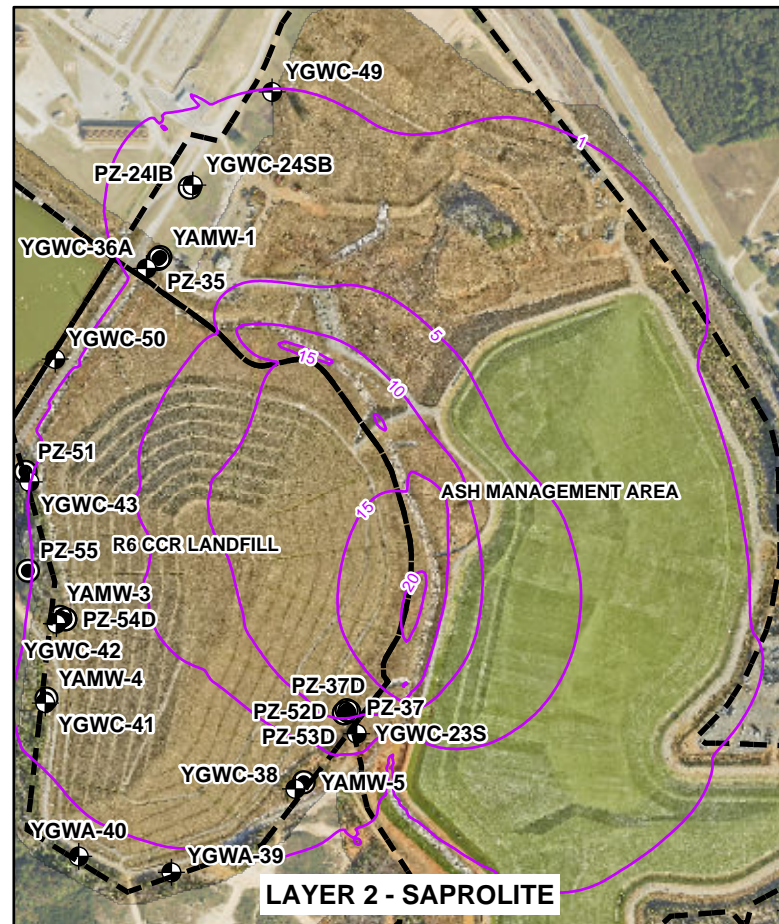
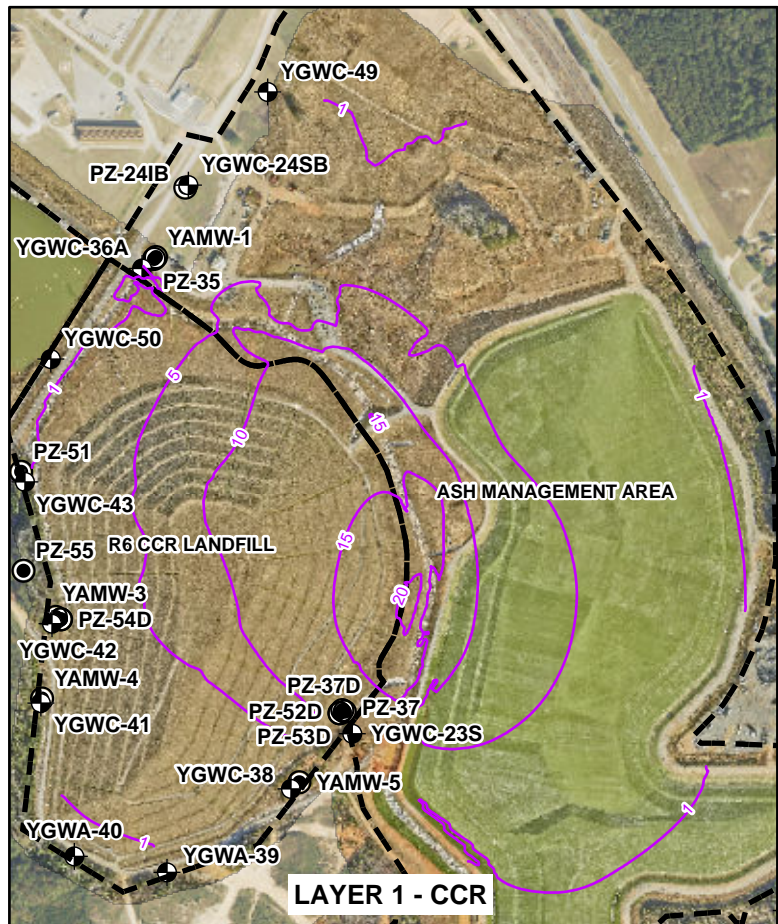
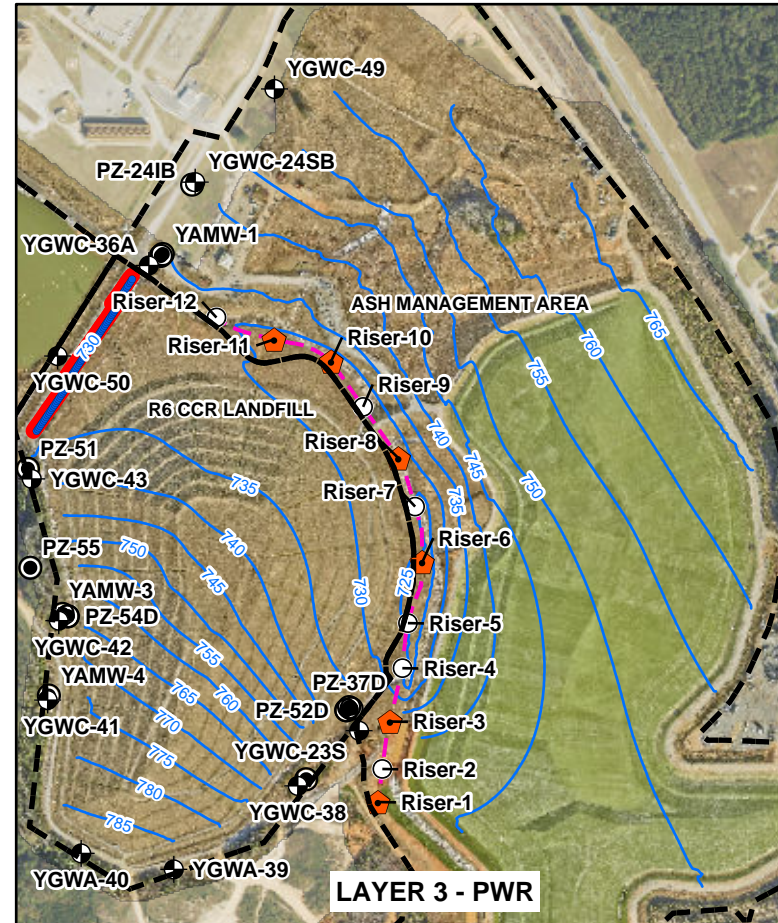
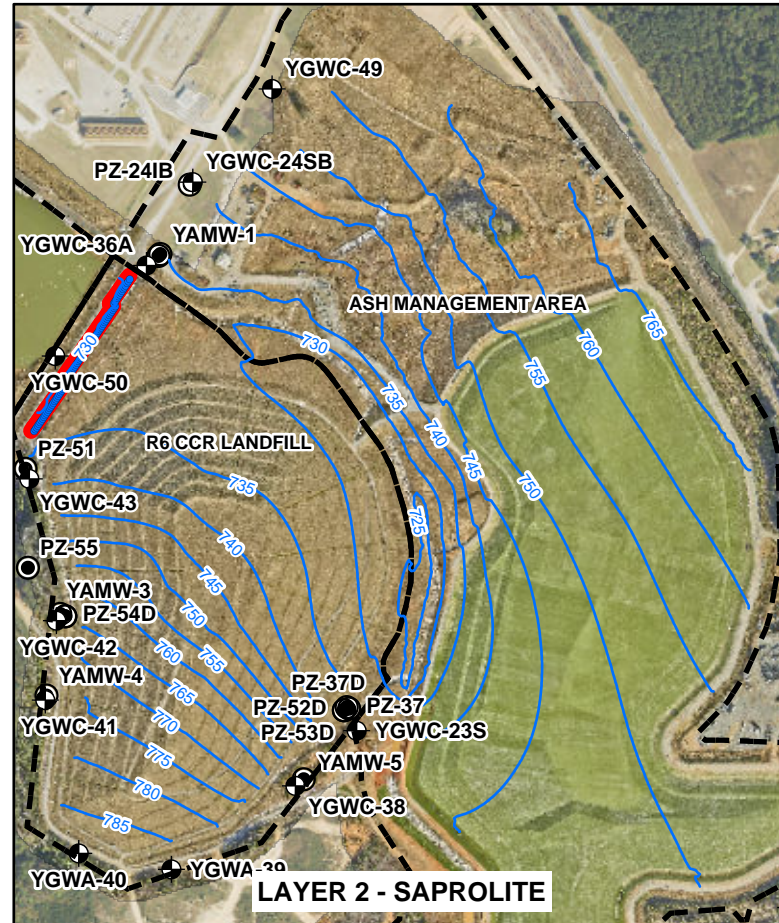
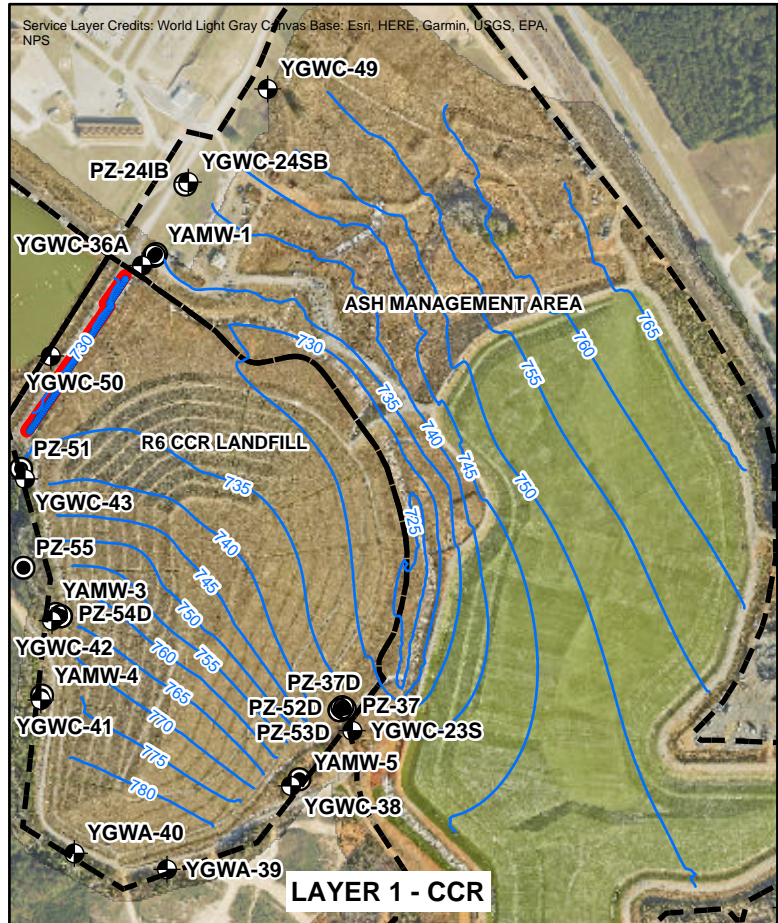
1. Drawdown calculated from system start time on June 17 at 13:55.
2. System was shut down on July 1 at 6:30.
3. Riser-2 response was near zero for the test.
4. The system was run continuously from June 17 to July 1 with two periods of downtime due to equipment malfunctioning. These periods of downtime occurred June 22 and June 30.



- |          |          |          |        |
|----------|----------|----------|--------|
| Riser-8  | Riser-7  | Riser-10 | PZ-52B |
| PZ-53R   | Riser-2  | PZ-9     | PZ-37  |
| YGWC-36A | Riser-11 | PZ-54B   | PZ-25I |
| YGWC-23S |          |          |        |

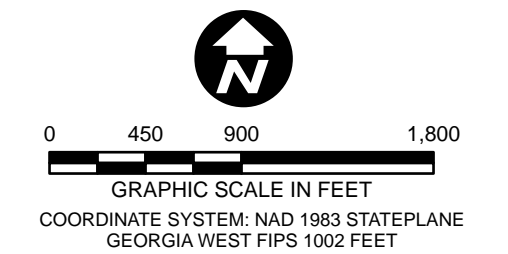
**Notes:**

1. Groundwater level data calibrated to survey point in feet NAVD88.
2. NAVD88 = North American Vertical Datum 1988.
3. The system was run continuously from June 17 to July 1 with two periods of downtime due to equipment malfunctioning. These periods of downtime occurred June 22 and June 30.



- LEGEND**
- PERMITTED UNIT BOUNDARY
  - ⊕ MONITORING WELL LOCATION
  - ⊕ PIEZOMETER
  - ⊙ NON-NETWORK WELL/PIEZOMETER
  - DYER ROAD DEWATERING WELL TEMPORARILY RUNNING FROM 2020 TO 2021
  - ⬮ INSTALLED CLEANOUT
  - INSTALLED PUMP RISER
  - DYER ROAD BARRIER WALL HORIZONTAL FLOW BARRIER PACKAGE
  - AEM SUBSURFACE DRAIN
  - SIMULATED GROUNDWATER ELEVATION CONTOUR (FT)
  - SIMULATED DRAWDOWN CONTOURS (FT)
  - CCR COAL COMBUSTION RESIDUALS
  - PWR PARTIALLY WEATHERED BEDROCK

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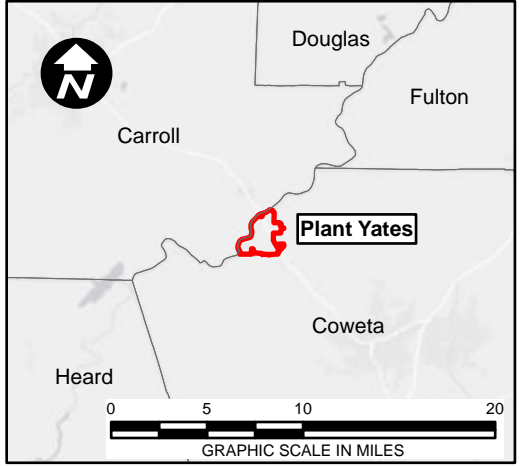
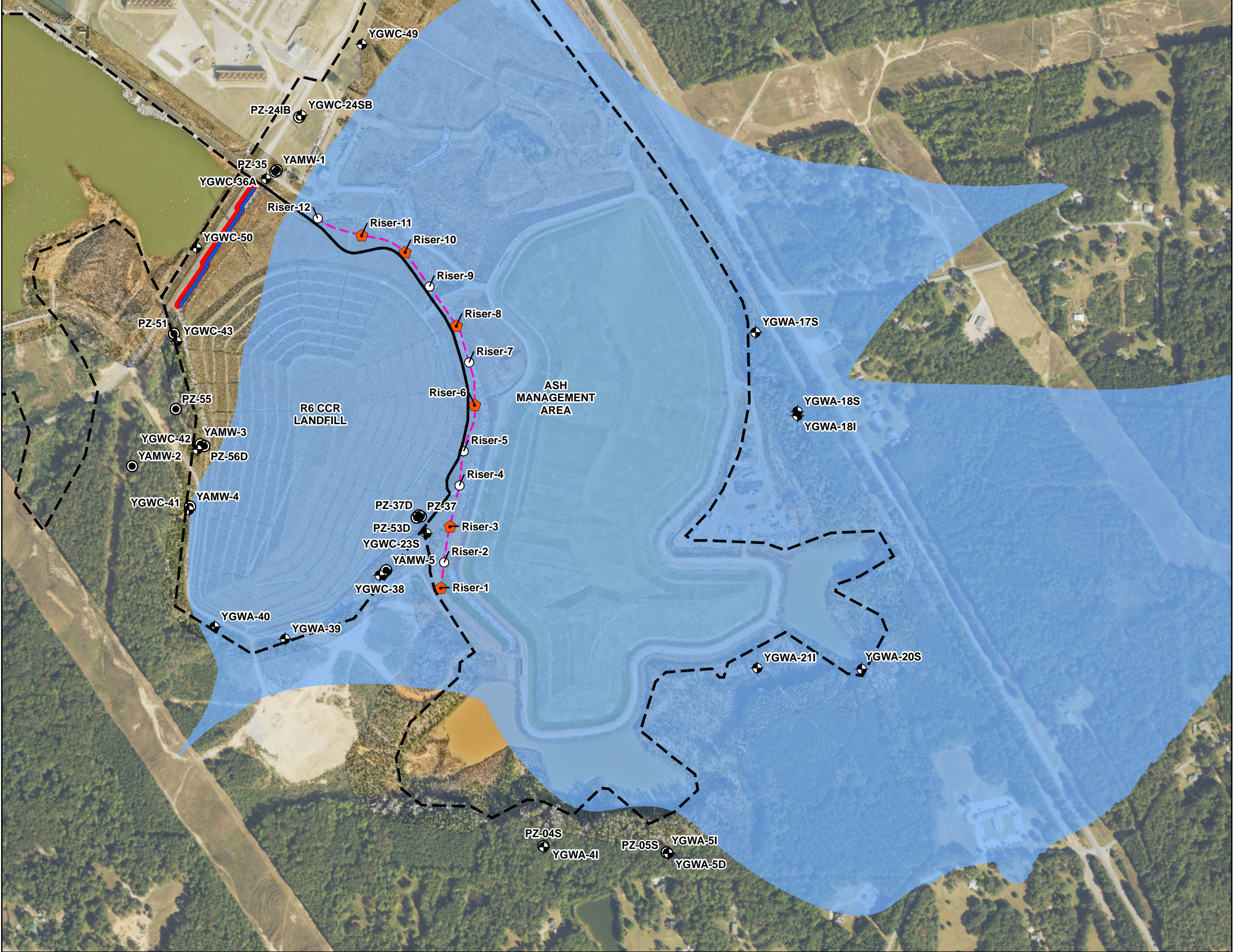


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**POST-CLOSURE MODEL: SIMULATED  
 WATER-LEVEL AND DRAWDOWN CONTOURS**

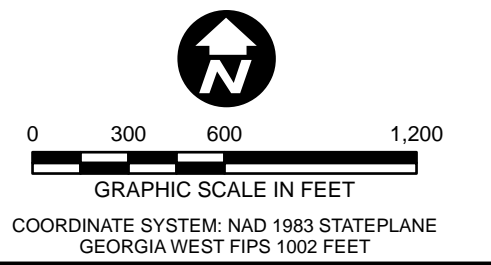
**ARCADIS** | **FIGURE 6**

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- LEGEND**
- PERMITTED UNIT BOUNDARY
  - MONITORING WELL LOCATION
  - PIEZOMETER
  - NON-NETWORK WELL/PIEZOMETER
  - DYER ROAD DEWATERING WELL TEMPORARILY RUNNING FROM 2020 TO 2021
  - INSTALLED CLEANOUT
  - INSTALLED PUMP RISER
  - DYER ROAD BARRIER WALL HORIZONTAL FLOW BARRIER PACKAGE
  - AEM SUBSURFACE DRAIN
  - SIMULATED GROUNDWATER CAPTURE

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**POST-CLOSURE MODEL: SIMULATED CAPTURE EXTENT**

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**ARCADIS** | **FIGURE 7**

# Appendix A

## Transient Groundwater Flow Model Development



# Appendix A

## Transient Groundwater Flow Model Development

**Georgia Power Company  
Newnan, Georgia**

November 26, 2025

## Appendix A Transient Groundwater Flow Model Development

**Georgia Power Company – Plant Yates**

November 26, 2025

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Technical Expert - Modeling Services



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Geoffrey Gay, PE  
Technical Expert, Vice President

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**Figure A-13 Steady State Calibration Plot Observed vs Simulated Groundwater Elevation**

**Figure A-14 Simulated Groundwater Elevation Contours and Residuals – End of 2020**

**Figure A-15 Transient Calibration Plot Observed vs Simulated Groundwater Elevation**

**Figure A-16 Comparison Between Observed and Model Computed Drawdown at AEM Riser Locations**

**Figure A-17 Comparison Between Observed and Model Computed Drawdown at Monitoring Locations**

**Figure A-18 Sensitivity Analysis Plots**

# 1 Model Objectives

The primary objective of the groundwater flow model is to evaluate historical and current groundwater conditions at Plant Yates (the Site) under changing conditions and to evaluate post closure conditions over time. The model was developed to contain sufficient details of closure activities such as activation of an AEM subsurface drain (actively pumped), installation of sheet pile walls and dewatering activity along Dyer Road, and cover installations at R6 CCR Landfill and the AMA. This evaluation was performed to evaluate a pumping rate estimate for the AEM subsurface drain that was installed between the R6 CCR Landfill and AMA areas to maximize dewatering capability and to achieve hydraulic capture.

The modeling scope primarily includes the following two tasks:

1. Update the Conceptual Site Model (ACC 2021)
2. Update the Existing Groundwater Flow Model and Calibration (ACC 2021)

The existing steady-state groundwater flow model (ACC 2021) was developed to incorporate conceptualization of the hydrostratigraphy, hydrogeology, and groundwater/surface water dynamics at the Site, and to inform the preliminary evaluation of groundwater flow conditions and closure approach proposed at the Site. In the current study, described herein, the existing CSM and numerical groundwater flow model were updated.

Arcadis has worked to comprehensively review all publicly available site data and publicly available geologic and hydrogeologic data for the site area. This information was used to confirm and/or refine the CSM and serve as the basis for updating the existing groundwater model. Existing model parameter values were evaluated based on available and relevant hydrogeologic data such as: (1) boring logs and other site-specific geologic information; (2) water level data; (3) aquifer hydraulic properties; (4) precipitation data; and (5) review of all relevant and readily available hydrologic studies for the Site and vicinity. The existing groundwater flow model was developed using the public domain MODFLOW-NWT (Niswonger et al. 2011) groundwater flow simulator. For increased stability and for future adaptation of local grid refinement, Arcadis converted the model to an unstructured format with MODFLOW USG (Panday et al. 2017), a newer version of the popular MODFLOW simulator. The version of MODFLOW USG used during this update is referred to as USG-Transport (USGT [Panday 2020]) which was adopted for its advanced capability to simulate horizontal features (i.e., subsurface drains) with the connected linear network (CLN) package. All groundwater models were constructed using the Groundwater Vistas (GWV) platform (Version 9). Given the complexity of time varying boundary conditions some of the model files were developed outside of the GWV platform.

USGT is also well suited to simulate conditions in the water-bearing units beneath the Site and surrounding area (i.e., colluvium, CCR, and fractured bedrock). USGT has advanced capabilities to represent surface water features (i.e., CCR ponds) and their communication with underlying aquifers. Based on the conceptual model updates and findings, the structure of the existing groundwater flow model was revised to better reflect the hydrostratigraphic units at the Site. The model extent was expanded to include the entire basin's shape to improve understanding of the flow system water balance. The hydraulic properties were re-assigned and calibrated within the range of hydraulic conductivity estimates from field testing (i.e., slug tests). Arcadis calibrated the model by examining statistical properties of the model residuals, defined as the difference between measured water levels and those computed by the model at on-site monitoring wells. Calibration was attained through both "trial-error" techniques and automatic techniques (e.g., PEST [Doherty, 2015]), which incorporate a nonlinear least-squares method of parameter estimation. Additionally, a transient pre-closure model calibration was

conducted to evaluate changes in site groundwater conditions corresponding to changing hydraulic stresses such as pond closure and variable climate conditions. The overall modeling approach employed by Arcadis for this study (and in general) is in accordance with the widely accepted practices as outlined in the State of Georgia Fate and Transport Modeling Guidance (Georgia 2016). After calibration, the pre-closure flow model was then applied for predictive model simulation which includes simulation of a closure construction period and 30 years of post-closure conditions. The calibrated groundwater flow model serves as the basis for performing long-term transient evaluation of the proposed closure measures.

## 2 Regional Climate, Topography, and Hydrology

The climate of Newnan, Georgia is characterized as humid continental with an average rainfall of approximately 51.4 inches annually based on 85 years of data from weather station Newnan 4 NE, located approximately 10 miles southeast of the Site. The average maximum temperature is 74.5 degrees Fahrenheit (°F), and the average minimum temperature is 49.9°F with an average temperature around 61°F. The warmest time of year is generally early to mid-August, when highs are regularly around 91.6°F, with temperatures rarely dropping below 69.7°F at night (ACC, 2021).

Topography near Plant Yates is characterized as exhibiting moderate relief. Plant Yates is located within the northeast quarter of the Whitesburg, GA United States Geological Survey (USGS) 7.5-minute topographic quadrangle (USGS 1965). Elevations range from approximately 700 feet above mean sea level (msl) in areas near the Site to more than 800 feet msl near the northern portion and a maximum of 870 feet near the southern portion of the Site (ACC 2021). Thus, drainage across the Site occurs from both the northern and southern areas, towards the central valley, and then to the Chattahoochee River (**Figure A-1**). The Chattahoochee River originates in the mountains of north Georgia and then flows southwest through Atlanta to southwest Georgia. The nearest active USGS monitoring station (02338000) is located on the Chattahoochee River at U.S. Highway 27, approximately 2 miles north of the Site.

## 3 Geology and Hydrogeology

Plant Yates is in the Inner Piedmont Physiographic Province of western Georgia, immediately southeast of the Brevard Zone, a regional fault zone that separates the Piedmont from the Blue Ridge. Bedrock units at the Site are primarily interlayered gneiss and schists (**Figure A-2**). The rocks in the area have been subjected to extensive metamorphism, deformation, and igneous intrusions. Extensive fracture sets are present in the underlying bedrock. Surface expressions of these fractures are observed on topographic maps and aerial photos of the Plant Yates area (ACC 2021).

A layer of soil up to 10 feet thick overlays the saprolite. The saprolite, which extends to typical depths of 20 to 40 feet below ground surface, was formed in place by the physical and chemical weathering of the underlying metamorphic rocks. The saprolite typically consists of clay- and silt-rich soils that grade to sandier soils with depth. A zone of variable thickness (approximately 10 to 40 feet) of transitionally weathered rock typically exists between the saprolite and competent/hard bedrock. The lithology of this zone is highly variable and ranges from medium to coarse unconsolidated material to highly fractured and weathered rock fragments. Localized alluvial soils consisting of generally coarser material (silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles) that have been observed in saprolite and may be related to historical river channel migration (Arcadis 2024).

At Plant Yates, groundwater is typically encountered slightly above the saprolite/weathered rock interface. Groundwater flow in the saprolite zone is through interconnected pores and relict textures and fractures. As the rock becomes increasingly competent with depth, groundwater flow occurs mainly through joints and fractures (i.e., secondary porosity). Recharge to the water-bearing zones in fractured bedrock takes place by seepage through the overlying mantle of soil/saprolite or by direct entrance through openings in outcrops. The average depth of the water table at Plant Yates varies with topography, ranging from approximately 5 to 50 feet. The water table occurs in the saprolite and in the transitionally weathered zone, at least several feet above the top of rock (Arcadis 2024).

Saprolite, transition zone, and shallow bedrock groundwater elevation data were used to prepare site-wide contour maps for September 2024 (Arcadis 2024) (**Figure A-3**). Groundwater elevations ranged from 728.37 feet (PZ-35) to 796.38 feet (YGWA-39). The general site-wide groundwater flow direction is from the east to the west, with localized flow direction controlled by surface water bodies and eventually towards Chattahoochee River. The groundwater flow direction for the saprolite, transition zone, and shallow bedrock wells is generally towards the west, northeast, and east from the southern portion of the R6 CCR Landfill, which is a topographic high point. Groundwater flows west from the eastern portions of the AMA to the central portion of the Site. The groundwater flow direction is consistent with historical patterns based on similar water level distributions previously presented (ACC 2021).

## 4 Model Construction and Calibration

### 4.1 Model Grid

The finite difference technique employed in USGT to simulate hydraulic head distributions in multi-layered systems requires horizontal and vertical discretization via the definition of the horizontal grid and vertical model layers. For the flow model update, the existing model domain was expanded to include the full extent of the local watershed to enable definition of natural groundwater flow boundaries (i.e., hydraulic divides formed based on topographic ridges (recharge divides) or at major drainage features such as the Chattahoochee River) in the model. Compared to the existing 2020 model, the updated model extends farther to the northeast, east, and southwest. The finite difference model grid encompasses an area of approximately 7.2 square miles with a uniform 20-foot by 20-foot grid-cell spacing throughout the model domain to provide sufficient numerical accuracy (**Figure A-4**). The model grid axes were also rotated 55 degrees clockwise to align the major axes of the model with the major flow directions as well as the prevalent direction of lineaments mapped (ACC, 2021) at the Site in the area covered by the model.

### 4.2 Model Layering

The primary model structure updates involved modification of the model structure to reflect the updated hydrostratigraphic interpretation based on the review of site-wide boring logs. The updated groundwater model was discretized vertically into six model layers to provide a vertical profile representative of the site hydrostratigraphic framework. The hydrostratigraphic framework includes the site features that are above the pre-existing topographic surface, saprolite, partially weathered bedrock (PWR) unit, slightly fractured bedrock unit, as well as the regional bedrock unit.

Specifically, model layer 1 corresponds to site features such as the coal combustion residual (CCR) ponds, clean water ponds, and landfill materials that are above the pre-existing topography surface. This is accomplished using recent LIDAR surveys as the top elevation of Layer 1 and setting the bottom elevation of Layer 1 to the 1965 topographic contour elevation based on photogrammetric methods from aerial photographs taken in 1962 (USGS 1965). However, in the AMA, the bottom elevations were adjusted using available site data to define the actual base of CCR material which occurs at a higher elevation than the 1965 topographic surface.

Model layer 2 (saprolite) represents the unconsolidated regolith/saprolite, which typically consists of clay and silt-rich soils that grade to sandier soils with depth. Information from site boring logs was used to define the layer elevations where available. To control interpolation where saprolite depth information is not available, supplemental points were created by extracting elevations from the 1965 topographic contours at approximately every 175 feet. Saprolite elevations were calculated from these supplemental points by offsetting from the pre-existing topographic elevation with an average saprolite thickness of 30 feet based on monitoring well borings logs. Once supplemental information was developed, the bottom of the saprolite aquifer (Layer 2) was interpolated using mapping software (Surfer®) from 131 boring logs shown in **Table A-1** and the supplemental data points.

Model layer 3 (PWR) corresponds to partially weathered rock, which is described as highly/moderately fractured, highly weathered bedrock that underlies model layer 2. The thickness of model layer 3 varies based on site boring logs with an average thickness of approximately 15 feet. Similar to the development of the bottom surface of model layer 2, the bottom elevation of the partially weathered bedrock (Layer 3) was interpolated from 67 boring logs shown in **Table A-1** as well as the same set of supplemental points used in model layer 2 development where information is not available. The bottom elevation of PWR at the supplemental points was calculated by offsetting the average PWR thickness of 15 feet from the bottom elevation of saprolite (model layer 2).

Model layer 4 (slightly fractured bedrock) represents the bedrock unit that is slightly fractured/weathered where the fracture density decreased, and the bedrock was less weathered. There are 16 boring logs used to develop the surface that corresponds to the bottom of the slightly fractured bedrock layer at an average thickness of approximately 35 feet. **Table A-1** lists the monitoring boring logs used for surface interpolation for model layer 4. The same set of supplemental points discussed above were also used where lithology information on slightly fractured bedrock was not available.

Model layer 5 (upper deep bedrock) and model layer 6 (lower deep bedrock) correspond to the deep bedrock unit described as competent rock with no visible fractures. Model layer 5 represents the upper portion of the deep bedrock and was defined by boring log information from wells within that zone (Table A-1). The thickness of the lower portion of the deeper bedrock (Layer 6) was assumed to vary, and the model base was set at an elevation of 550 feet above mean sea level to minimize any vertical boundary effect based on regional geologic information (USGS 1983).

## 4.3 Model Boundary Conditions

Boundary conditions must be imposed to define the spatial boundaries of the model on the top, bottom, and all sides of the model grid. In addition to these boundary conditions, sources, and sinks of groundwater (such as wells, drains, and rivers) can be included within the model's external boundaries. A boundary condition can represent different types of physical boundaries, depending on the rules that govern groundwater flow across the boundary. The groundwater flow model includes seven types of boundary conditions: no-flow, CLN, transient

IBOUND (TIB), drains (head-dependent flow), river (head-dependent flow), wells, recharge (constant flux), and evapotranspiration (ET). The locations and types of boundary conditions are shown on **Figures A-5 and A-6**.

The pre-closure transient model contains changing stresses from 2018 to 2020. During closure construction and post-closure, additional changes were made to transient boundary conditions. Boundary condition changes during closure construction and post-closure are shown in **Figure A-7**. The relevant changes to boundary conditions during pre-closure, closure and post-closure are discussed below.

### 4.3.1 No-Flow Boundary

Grid cells that extend beyond the area of study are made inactive, so groundwater flow is not calculated. Adjacent to the study area, these inactive cells become a vertical planar no-flow boundary which usually coincides with a surface water drainage divide. No-flow boundaries were used to define the inactive areas within the extents of model grid and represent zero flux across the boundary. Model layer 1 uses no-flow cells for non-CCR areas as shown on **Figure A-4**. The layer 1 no-flow cells also preserve the ability to specify recharge and evapotranspiration in the highest active layers below. In model layers 2 through 6, to the northeast, east, and southwest of the model grid, no-flow boundaries are defined to coincide with natural watershed extent, whereas to the northwest, the no-flow boundary follows Chattahoochee River across the model domain. The base of the model is an implied no-flow condition.

### 4.3.2 CLN Boundary (Surface Water)

The surface water pond features identified within the model domain include CCR ponds and clean water ponds which were all simulated using the CLN package (**Figure A-5**). As the name suggests, this package provides a generic framework to represent connected features. It is a separate flow process that is solved simultaneously with the ground water flow (GWF) process. Different CLN to GWF connectivity options give the CLN package the flexibility to simulate a variety of features like ponds, lakes, rivers, wetlands, or multi-aquifer pumping wells. Furthermore, because the CLN network is essentially a separate modeled flow system, boundary conditions can be applied to it independent of the GWF system. In the updated groundwater flow model, the drain (DRN) package boundary was attached to the pond CLN network to regulate the pond stages of AP-2 East Pond, AMAX Cove Pond, and AP3-South Cove and AP3-East Cove Ponds. The attached drain simulates periodic removal of water from the pond. The pond stages for AP-2 Pond and Amax Cove Pond were estimated to be approximately 722.0 feet from the AP-2 Pond level monitoring data. The pond stages for AP-3 South Cove Pond and AP-3 East Cove Pond are maintained at approximately 744.5 and 748 feet, respectively, based on design information provided by SCS.

The interconnectivity of CLN cells (or nodes) is specified using the same approach as the unstructured discretization package for the GWF system. Namely, for each CLN cell, there is a specified connection to a groundwater node. This flexibility allows for a surface water network that can better represent the interconnectivity of rivers, creeks, ponds, lakes, and wetlands. Bathymetry data were collected for the Site Pond features such as AP-2 East Pond, AP-6 Pond, AP-3 South Cove, and AP-3 East Cove Ponds. The bathymetry elevation contours were generated using simple kriging from the bathymetry survey points, which represent the bottom elevation of the site pond features. The contours were then used in conjunction with the bottom elevations of model layers to parameterize the bottom elevation of each CLN cell. The bottom elevations for all other lakes and ponds outside of the site property boundary were estimated by assuming a uniform depth; smaller natural ponds (mostly

unnamed) were assumed to be 1 foot deep, and larger pond features, like Belle Lake, were assumed to be 5 feet deep.

### 4.3.3 CLN Boundary (AEM Subsurface Drain)

The AEM drain is a subsurface drainage system installed in 2019 with pump risers for the collection and conveyance of subsurface water. The purpose of the AEM subsurface drain is to collect and remove groundwater from the area, which will result in lowering the potentiometric surface within the AMA. **Figure A-7** shows the locations of the as-built AEM subsurface drain along with the pump and cleanout risers.

The AEM subsurface drain was represented with CLN cells in the model at locations according to the survey coordinates from the as-built drawings. Conductance values were assigned to each CLN cell to represent the interaction between the subsurface drain (CLN cells) and the surrounding aquifer (groundwater cell). These conductance values were further evaluated during calibration of the model to the AEM subsurface drain pumping test discussed in Section 6.5.

When simulating the active pumping of the as-built AEM subsurface drain through the pump risers, well pumping boundary cells were paired with the CLN cells that represent the pump riser locations. The groundwater extraction rate of the AEM subsurface drain was set to rates sustained during the recent pumping test of the AEM subsurface drain. The pumping test flow rates were deemed suitable for long-term pumping and were incorporated into the transient simulation of the post-closure flow model to represent the long-term operation of AEM subsurface drain to assess hydraulic impact across the AMA.

### 4.3.4 Transient IBOUND Boundary

The Transient IBOUND Boundary (TIB) package provides the flexibility to activate or deactivate any groundwater cell or CLN cell at any stress period of the model simulation. During the transient calibration period from 2017 to 2020, the TIB package was used to represent the creation, removal, and modification of the site pond features to account for construction and dewatering. The extents of the AP-2 East Pond and AP-2 West Pond were reduced due to pond dewatering and CCR removal. The Amax Cove Pond was created in 2019 and expanded further south to Dyer Road in 2020. AP-3 East Cove and AP-3 South Cove Ponds were created in 2019 and sustained throughout the model simulation period. Little West Pond, located near the AP-2 East Pond, was constructed in 2020 to retain precipitation and runoff. To represent the variation of pond extent and the creation of new ponds from 2017 to 2020, the TIB package was used to activate or deactivate different portions of CLN cells at appropriate times according to the construction schedule or aerial photos from Google Earth. **Figure A-5** shows all the pond features simulated by the CLN cells and which CLN cells were switched on and off during the transient calibration period from 2017 to 2020.

### 4.3.5 Drain Boundary

Drain cells were used to represent the intermittent stream features and man-made surface water ditches within the model domain as shown on **Figure A-6**. Drain cells allow for the specification of a surface-water stage and a conductance term. If the simulated water level in the aquifer is below the drain elevation, the drain becomes inactive (dry). However, if the simulated water level in the aquifer rises above the specified drain elevation, groundwater flows out of the aquifer and into the drain cell. For smaller surface water features, drains are preferred over CLNs because they offer more stability in the model and given the shallow depth of water in these

features, simulation of the changes in stage is typically not beneficial for these features and the model can easily deactivate drains if groundwater discharges are reduced. Stage elevation monitoring data for the intermittent stream features are not available; therefore, the stage elevations of the drain cells in the model were assigned based on 2018 LIDAR survey surface. Drain conductance values for the drain cells were initially calculated using cell width, length, aquifer hydraulic conductivity, and thickness. Drain conductance was further adjusted during model calibration to better match the observed water levels. Depending on the surrounding geology and simulated hydraulic conductivities, the drain conductance varies more than an order of magnitude.

Note that the unnamed stream features flowing to the AP-2 West Pond existed in 2017 and 2018, then the area was excavated to build Amax Cove Pond. As a result, the drain cells that overlapped with Amax Cove Pond were removed to accurately represent the construction in that area during 2019 and 2020 as shown on **Figure A-6**. Drain cells were also used to represent the surface ditch surrounding the east side of the R6 CCR Landfill as well as the perimeter ditch surrounding the AMA. The surface ditch was constructed from compacted clay fill, and a low conductance value of 3 square feet per day (ft<sup>2</sup>/d) was used to represent its limited interaction with groundwater.

#### 4.3.6 River Boundary

River cells are head-dependent boundary conditions that allow for the specification of river stages and a conductance term, which regulates the amount of groundwater discharging to, or recharging from, the river. Given their flexibility over other kinds of boundaries, the constant head boundaries used in the existing model (ACC 2021) were replaced with river cells to properly represent the interaction between groundwater and the Chattahoochee River (**Figure A-6**). The river bottom elevation was set based on results from a river bathymetry study conducted on November 10, 2020, across 20 transects along Chattahoochee River. A river bottom surface was interpolated from the bathymetry survey locations and intersected with the river boundary cells using a geographic information system (GIS) tool. The river bottom elevation across the model domain drops approximately 10 feet from 683.6 feet above mean sea level (msl) to 673.2 feet msl from the most upgradient transect to the most downgradient transect. River elevation was also gauged during the bathymetry survey along each of the 20 transects. The river stage elevation gradually descends from 691.0 feet msl to 686.0 feet msl with a gradient of 0.0003534 (foot/foot) across 14,145 feet of Chattahoochee River. Using the gauged river stage elevation from the 20 transects, a surface elevation of Chattahoochee River was interpolated using a kriging method to represent the river elevation distribution for November 2020. Stage gauging data collected at USGS station 02338000 from 2018 to 2020 were used to adjust the river stage elevation at each Chattahoochee River model cell over time.

The differences in stage for each quarter from 2018 to 2020 were computed by comparing to the average river stage in fourth quarter 2020. The surface elevation of the Chattahoochee River for each quarter within the model domain can then be estimated based on the surface elevation distribution of the Chattahoochee River in November 2020 and the quarterly stage differences relative to November 2020 at the USGS station. As a result, the river elevation in each model cell varied, but the gradient of the Chattahoochee River elevation remains unchanged between transient stress periods.

#### 4.3.7 Horizontal Flow Barrier Boundary

As part of closure activities, a sheet pile wall along Dyer Road was completed in January 2021 and will be a permanent feature at the Site. The sheet pile wall is approximately 850 feet long and is driven to refusal into the

PWR. USGTs horizontal flow barrier package (HFB) was used to simulate the hydraulic effect of the barrier wall in model layers 1 through 3. The HFB was assigned a low hydraulic conductivity of 1E-06 feet per day (ft/d) to represent the small amount of leakage through the joints of the impermeable sheet pile wall. A thickness of one foot was used in the HFB conductance calculation. The sheet pile wall remained active in the model throughout the post-closure model simulation period.

### 4.3.8 Well Boundary

A total of 83 extraction wells were installed behind the sheet pile wall to a depth of approximately 40 to 50 feet below ground surface. The extraction wells were pumping at a total rate of approximately 160 gpm (based on totalizer data collected in March 2021) to lower the water level behind the sheet pile wall. The pumping activity began in early 2021 and was discontinued at the end of 2021. The well package was used to simulate the dewatering process behind the sheet pile wall. The total pumping rate of 160 gpm was evenly distributed to each of the 83 extraction wells because totalizer data for individual wells were not available.

### 4.3.9 Recharge and Evapotranspiration

Recharge represents the infiltration process from precipitation events, while ET is the sum of evaporation from the land surface plus transpiration from plants. The difference of precipitation and ET provides the “available water” to a hydrologic system for stream flow through runoff and aquifer recharge. In the groundwater model, recharge and ET were explicitly simulated and represented as a specified flux boundary and were applied to the top or highest active layer.

The simulated precipitation between 2017 and 2020 is based on rainfall data collected from the Georgia Power on-site weather station. Nine recharge zones were developed based on land use types and the administrative area (USEPA 2001). An initial estimate of groundwater recharge rate was calculated using quarterly rainfall rate from the on-site weather station and the runoff coefficient for a specific land use type based on literature value (USEPA 2001). The runoff coefficient for each zone was further adjusted during model calibration based on topographic trends/slopes that indicate potential differences in runoff amount. **Figures A-8a and A8b** show the simulated recharge zonation distribution, and **Table A-2** presents the definition of each recharge zone and related runoff coefficient (USEPA 2001). The groundwater recharge rate was calculated by multiplying the precipitation rate by the runoff coefficient. The recharge rate was further refined during calibration.

Similar ET zones were developed to represent spatial distribution of ET at the Site. The reference ET ( $ET_0$ ) data from 2017 to 2020 were acquired from a nearby weather station in Rome – approximately 50 miles northwest of the Site (University of Georgia 2021), to represent the average  $ET_0$  for the steady-state model. The simulated actual evapotranspiration rate ( $ET_a$ ) for each ET zone in the model was calculated based on land cover types. The ratio of  $ET_a/ET_0$  for various land cover types was based on a regional study from the USGS in East Central Florida (Sepúlveda 2018). For the transient model, a cyclic pattern of ET was represented based on a quarterly average  $ET_0$  from Station Rome (University of Georgia 2021) and the ratio of  $ET_a/ET_0$ . **Figures A-9a and A-9b** show the simulated ET zonation distribution in the model, and **Table A-3** presents the definition of the ET zonation and related  $ET_a/ET_0$  ratio for various land use types at the Site.

During the closure simulations, the model Recharge and ET over the AMA area was reduced to 0 inches per year (in/yr) starting in phases (cover installation periods) to represent the elimination of rainfall infiltration and ET from installation of the geosynthetic cover as shown in **Figure A-10**. Cover installation of AMA was completed by

January of 2024. Grading has been designed to minimize ponding in ditches and on top of other areas to minimize infiltration.

## 5 Aquifer Parameters

Hydraulic conductivity values were assigned using hydrogeologic zones in the groundwater flow model. Hydrogeologic zones are areas where hydraulic parameters are set to a constant value. In this groundwater flow model update, a background hydraulic conductivity value was assigned to each layer corresponding to the conceptual site model (CSM) layering. The background hydraulic conductivity zones include CCR placed above the pre-existing topographic surface (model layer 1), saprolite (model layer 2), PWR (model layer 3), slightly fractured bedrock (model layer 4), upper deep bedrock (model layer 5), and lower deep bedrock (model layer 6). Additional zones were delineated representing AP-2 dikes (in model layer 1), alluvium material along pre-existing streams (in model layers 2 and 3), silty sand/silt material under gypsum landfill (in model layer 2), clay/silt ridge zone to the west of the Site (in model layers 2 and 3), and higher degree of fractured zone along Chattahoochee River (in model layer 4).

Values of horizontal and vertical hydraulic conductivity for each of the model zones are generally based on hydraulic conductivity estimates for the appropriate material types and available slug testing data. The details of the slug testing results are provided in the hydrogeologic investigation report (ACC 2021). **Table A-4** provides a summary of horizontal hydraulic conductivity estimates from the slug testing results as well as the summary statistics of hydraulic conductivity testing results that correspond to the background hydrostratigraphic unit in each layer. The geomean value of the slug testing results was assigned as the initial background hydraulic conductivity value in each layer during model simulation. The horizontal hydraulic conductivity and the anisotropy ratio between horizontal hydraulic conductivity and vertical hydraulic conductivity were varied during model calibration. Calibrated hydraulic conductivity values generally agree with the average/geomean values and are well within the range of the slug test results. The horizontal to vertical conductivity ratios for the saprolite and PWR were calibrated to 10:1 and 216:1 and 1,000:1 for the upper and lower deep bedrock units, respectively. The final calibrated hydraulic conductivity values for the groundwater flow model are summarized in **Table A-4**; hydraulic conductivity zones for each model layer are presented on **Figure A-11**. The sensitivities of horizontal hydraulic conductivities and the primary recharge zone (zone 1) were evaluated during the calibration to help ensure selection of optimal values for model calibration.

Transient groundwater flow modeling requires storage terms that represent the amount of water released per unit change in head (specific yield and storativity depending on aquifer type) or water released per unit decline in head per aquifer thickness (specific storage). Specific yield is more dominant for unconfined aquifers, whereas storage/specific storage plays the primary role in confined aquifer types during model simulation.

Uniform storage zones were assigned in each layer for the transient flow model. Initial storage estimates were based on values from published literature (USEPA, 1989; Domenico and Mifflin 1965; Batu 1998; Lohman 1972) and were varied during model calibration. Hydraulic testing of the as-built AEM drain (discussed in Section 6.5) was used to refine storage value estimates used in the model.

**Table A-5** summarizes the specific yield and the specific storage values in each model layer. The specific yield was calibrated to 0.17 for CCR in model layer 1, which is within the data range provided in the literature, where specific storage is not applicable for an unconfined aquifer type used in model layer 1. Model layer 2 represents saprolite with convertible layer type. A convertible layer type indicates that the model layer would convert to either an unconfined aquifer type or a confined aquifer type during simulation depending on the simulated groundwater

head and model layer structure. Both specific yield and specific storage values were assigned to model layer 2. Only specific storage values were applicable to model layers 3 through 6 as confined layer types. A mean specific storage value was calculated based on the range of specific storage values from literature and was simulated for each storage zone during calibration. In general, the specific storage values increase in model layers 2 and 3, where a higher degree of weathering and fracturing occurs, while it decreases in the deeper bedrock layers, where competent rock is present.

## 6 Model Calibration

### 6.1 Model Calibration Methodology

In the calibration of a groundwater flow model, use of point data eliminates the potential for interpretive bias that may result from attempting to match a contoured potentiometric surface (Konikow 1978; Anderson et al. 2015). The primary criterion for evaluating the calibration of a groundwater flow model is the difference between simulated and observed water levels at a set of calibration targets. A residual or model error is defined as the difference between the observed and simulated hydraulic heads at a target location.

A negative residual indicates over-prediction by the model (i.e., the simulated head is higher than the observed value). Conversely, a positive residual indicates under-prediction. The goal of the model calibration is to minimize simulated residuals and other residual statistics including the residual sum of squares (RSS), the residual standard deviation (RSTD), and the residual mean.

The groundwater flow model calibration required numerous individual computer simulations. The values of the various parameters and zones in the model are gradually varied until a reasonable solution is achieved and is in agreement with the CSM. Calibration of the parameters of the groundwater flow model is based on a combination of: (a) manual and principally qualitative adjustments, and (b) automated and more quantitative procedures facilitated using the inverse modeling code PEST\_HP v.17.1 (Watermark Numerical Computing 2020). This calibration procedure is consistent with metrics and methodology from State of Georgia Fate and Transport Modeling Guidance (Georgia 2016). The statistical goals of model recalibration included the following:

- RSTD less than 10 percent of the total head change observed across the model domain.
- A residual mean value close to zero (indicating little or no bias) and the majority of calculated residuals less than 10 percent of the range in observed water level elevations.

Because of the complexities of a transient model simulation, an additional set of calibration metrics can be used where substantial changes in flow conditions occur during the simulation. In this case a calibration metric such as the Nash-Sutcliffe coefficient of efficiency (NS) is recommended. A perfect model calibration would yield a NS value of 1 and a very poor model calibration would yield a NS value of 0. Anderson et al. (2015) suggests that NS values close to 1 can indicate a good fit and that values greater than 0.5 can be considered acceptable depending on the difficulty of the problem.

Waseem et al. (2017) indicates that the NS equation, depending on variability of the observed data, can sometimes overestimate the NS, providing a misleading goodness of fit. Therefore, they suggest that two additional metrics be applied to transient models. These include the percent bias (PBIAS), which measures the average negative deviation of the predicted data from the observed data with an optimum value of 0 meaning no deviation, and the root squared residual (RSR) which normalizes the root mean square error (RMSE) with the

standard deviation of observed values. According to Waseem et al. (2017), a satisfactorily calibrated model should have an NS value greater than 0.5, an RSR less than or equal to 0.7, and a PBIAS +/-25%. Models ranked as very good have an NS value greater than 0.75 and RSR less than 0.5

The calibrated steady-state model results serve as the initial or starting condition for the transient flow model calibration. The transient groundwater flow model calibration evaluates time-varying groundwater levels collected from January 2018 to December 2020 and is used to assess the competency of the numerical model in replicating observed temporal trends in groundwater elevations under changing stresses from 2018 to 2020 and to prepare the model for predictive modeling to evaluate the planned closure approaches at the Site.

During transient model calibration, CLN cells, drain cells, river cells, and recharge cells were modified from their steady-state values to represent the evolution of site construction and climate variation at the Site. The storage properties and groundwater recharge rates were evaluated and adjusted to better match the observed groundwater levels between 2018 to 2020. The temporal discretization for the transient pre-closure model calibration included a total of 13 model stress periods that represent the groundwater flow condition variation from 2017 to 2020. The first stress period is simulated as steady-state to represent the average groundwater flow condition in Year 2017. Following the steady-state flow model simulation, stress periods, 2 through 13 simulated transient flow from 2018 to 2020 at quarterly stress periods. This two-phase approach (i.e., steady-state and transient flow calibration) improves confidence in application of the model predictive evaluation of closure conditions. **Table A-6** presents a summary of the pre-closure model stress periods. For the transient model calibration, the focus was on matching trends and changes in water levels rather than closely matching actual water levels. This is because the model starts out with some calibration bias at each target, over or under predictions from the steady-state calibration, and that bias will usually carry through the transient calibration. Additionally, the steady-state and transient models were refined based on simulation of the two-week long pumping test of the as-built AEM subsurface drain. By matching the pattern of drawdown from this test (discussed in **Section 6.5**), additional refinements to hydraulic conductivity zones in the vicinity of the AEM subsurface drain could be made. The sections below incorporate the final parameter estimates from these phases of calibration.

## 6.2 Model Calibration Targets

For this model update, the steady-state groundwater flow model was recalibrated using 75 water level targets measured at piezometer and monitoring wells distributed throughout the Site including 69 target monitored water levels in saprolite, PWR, and slightly fractured bedrock units, and six target monitored water levels in the dike of AP-2 and AP-B Ponds (**Table A-7**). Observation weights were developed using professional judgement during development of the inverse model. Weights were generally 1.0 for most targets but were ascribed 0.5 for dike piezometers due to raised uncertainties from the lack of well construction information (i.e., screened depth) and complex site operation history (i.e., instantaneous dewatering), for which such data was not available. The steady-state calibration targets were computed as the average of observed water levels from 2017 at each of the 75 monitoring locations. The average of the observed water levels collected during 2017 was used to ensure the calibration best represents a stable starting condition for subsequent transient model calibration (2018 to 2020).

In the transient calibration, quarterly or bi-monthly observed water levels from 2018 to 2020 were used during calibration as the transient targets (**Table A-8**). An additional 10 water level targets in the plant area were included, as new wells were installed during the transient calibration period. Therefore, the transient calibration used data from a total of 85 wells throughout the model area.

## 6.3 Steady-State Calibration Results

Simulated hydraulic head contour maps were prepared to depict the calibrated groundwater flow conditions throughout the model domain (**Figure A-12**). As shown, simulated groundwater elevations are generally higher at the south and southeastern extents of the model, which serves as a topographic high and groundwater recharge areas. The groundwater flow direction for the saprolite, PWR, and slightly fractured bedrock is generally towards the west, northeast, and east from the southern portion of the R6 CCR Landfill. Groundwater flows west from the eastern portions of the AMA, Ash Pond 3, and Ash Pond B areas to the central portion of the Site. The groundwater flow direction is consistent with historical patterns based on observed water levels (ACC 2021).

Residual statistics for the steady-state calibrated groundwater flow model indicate good agreement between simulated and measured groundwater elevations (**Table A-7**). The residual mean is  $-0.05$  ft, and the RSTD is calculated to be 3.18 ft or approximately 2.4 percent of the range of observed water level elevations (132.98 ft) for the entire model domain, indicating that the statistical goals for model calibration were achieved (**Table A-9**). The residual mean value close to zero indicates no overall model bias. Simulated groundwater elevations and calibration target elevations are plotted on **Figure A-13**. The calibration targets generally follow along the 1-to-1 regression line, which indicates robust calibration results. Overall, the distribution of simulated heads and corresponding residual statistics indicates that a satisfactory degree of calibration has been achieved for the steady-state groundwater flow model.

## 6.4 Transient Calibration Results

Results of the transient flow calibration are presented using the same method for the steady-state calibration (**Table A-8**). **Figure A-14** presents the simulated groundwater contours in 2020. An overall plot of observed water levels versus simulated values is shown on **Figure A-15**. Overall, the simulated groundwater flow direction and contours are consistent with the historical interpretations and groundwater patterns observed in September 2024 (Arcadis 2024; ACC 2021). The residual mean is  $-0.61$  ft, which indicates that the transient calibration carries a minor overprediction bias. The RSTD is calculated to be 3.77 ft, or about 2.8 percent of the range of observed water level elevations (136.23 ft), for the entire model domain (**Table A-9**). Additionally, water level hydrographs for comparing simulated and observed water levels at the monitoring wells were reviewed with a goal of matching the trend of the water levels (i.e., increasing or decreasing) and the magnitude of water level variation (decline and rebound) due to climate and available site construction information from 2018 to 2020. The simulated hydrographs show that the transient simulation successfully replicates the fluctuations in observed water levels during the transient simulation period and thus meets the calibration goal.

For the Plant Yates model, the NS value was calculated to be 0.9865 with an RSR of 0.12 and a PBIAS of  $-0.08\%$  (**Table A-9**). According to the metrics provided by Waseem et al. (2017), this model calibration is clearly in the very good performance rating range.

Based on the ability of the model to provide a satisfactory match between observed and simulated change in water levels, the transient model calibration has been shown to be able to simulate the temporal trends of the observed change in water levels during site activities and other temporal changes in hydrologic conditions. Therefore, the updated groundwater model is a robust tool to evaluate future groundwater flow conditions at the Site.

## 6.5 AEM Subsurface Drain Pumping Test Evaluation

The data collected during the pumping tests, including water levels from monitoring wells, piezometers, and risers in the AEM subsurface drain, were processed to evaluate drawdown associated with pumping of the AEM subsurface drain. To analyze the data, the drawdown values over time at various locations were compared to the simulated drawdown from the transient groundwater flow model. The model can represent the three-dimensional groundwater flow system and dynamics of the AEM subsurface drain better than other analytical solutions used to evaluate drawdown from pumping tests to determine aquifer hydraulic parameters. Because the transient calibrated model was setup to run through the year 2020, additional stress periods were added to the model to bring the simulation period up to mid-2024 just prior to the start of the pumping test. The additional stress periods included representation of actual quarterly precipitation recharge during the period and representation of cover and ditches installed over time at the AMA. Simulated water levels were qualitatively compared to water levels collected in the fall of 2023 to ensure accurate and realistic representation of recharge and AMA features for this period.

Simulated and measured drawdowns during the test are illustrated on **Figures A-16 and A-17**. Drawdown within the AEM subsurface drain measured from the various risers indicates that a maximum drawdown of approximately 8 ft was achieved during the test. Additionally, a consistent drawdown was measured along the risers in the AEM subsurface drain indicating good hydraulic continuity along segments of the AEM. Riser-2, located at the southwest extent of the AEM subsurface drain, did not show response from the test because a portion of the southwest extent of the drain is effectively dried out during pumping because the AEM subsurface drain follows a bedrock high point.

Drawdown measured at monitoring locations proximate to the AEM subsurface drain, such as PZ-52B, PZ-53R, and PZ-54B (**Figure A-17**), indicate slightly less drawdown than within the AEM subsurface drain. As seen in **Figure A-17**, drawdown from the test is significantly less (approximately 1 foot or less) at more distant monitoring wells such as PZ-37, YGWC-36A, and YGWC-23S. At all locations, data indicate that after 14 days, drawdown was continuing at locations along the AEM subsurface drain and at all monitoring locations that illustrated a drawdown response. After the 14-day test was completed, water level recovery was monitored for an additional two weeks. While most of the recovery occurred within a few days, full recovery was still not obtained during the two-week period (**Figures A-16 and A-17**).

To evaluate the hydraulic response with the existing site transient groundwater flow model, the model was updated to include the following features:

- Simulated precipitation recharge was updated based on actual recorded precipitation through June 2024
- Additional stress periods and time steps were added to simulate the two-week long pumping test and recovery period
- One intermediate stress period was added to simulate the 9-hour long generator failure one week into the test

Initial simulations of the pumping test indicated that the model underpredicted drawdowns along the AEM subsurface drain (by as much as 4 ft) and at nearby monitoring locations. To fit the test data more closely, numerous model simulations were performed to evaluate adjustment to aquifer hydraulic parameters and parameters representing the AEM subsurface drain. Initial hydraulic conductivity adjustments included testing of larger zones in the AEM subsurface drain area, with final simulations isolating more localized hydraulic conductivity zones in the saprolite and PWR units near the AEM subsurface drain.

As previously discussed, the AEM subsurface drain is represented in the model as a CLN, a feature included in USGT. The CLN flow process solves flow through a network of 1-dimensional cells representing wells, rivers, or fracture networks, which can interact with the groundwater flow nodes of the model. During calibration, additional adjustments to the CLN parameters were required as discussed below.

The adjustments (conducted through manual trial and error process) to the model resulted in a much-improved fit to the observed drawdown data as shown in **Figures A-15** and **A-16**. The flow model adequately simulates drawdown within and near to the AEM drain, even though the model continued to slightly underpredict drawdown. The same effect is also shown at more distant monitoring wells. The parameter estimates from the model calibration can also be used to evaluate hydraulic parameters from the pumping test. The following parameters were incorporated into the steady-state and transient groundwater flow model:

- AEM Drain Parameters
  - CLN hydraulic conductivity of 10,000 ft/d
  - CLN conductance term of 100 ft/d
- Aquifer Hydraulic Parameters
  - Added a localized saprolite zone of 1.75 ft/d
  - Added a localized PWR zone of 2.75 ft/d
- Storage Parameters
  - Specific storage in the saprolite layer of 0.00002
  - Specific storage in the PWR layer of 0.0000075

These parameters resulted in a closer match between the model simulation and pumping test data. Because the most significant changes to the models' hydraulic parameters are localized to the AEM subsurface drain area, the changes had very little impact on the initial steady state and historical transient model calibrations (both Sections 4.3 and 4.4 reflect inclusion of these parameters). The CLN hydraulic conductivity represents the lateral conduit and gravel media comprising the AEM subsurface drain and the CLN conductance term represents the degree of communication between the PWR and the AEM subsurface drain. These CLN parameters were adjusted to better reflect observations including similar drawdown along the length of the AEM subsurface drain and the amount of gradient between the PWR unit the AEM subsurface drain as indicated from water levels in nearby piezometers and riser data. This model calibration also resulted in reductions in initial storage parameter estimates which has helped to improve the historical calibration transient seasonal responses.

## 6.6 Sensitivity Analysis

Sensitivity analysis is the evaluation of model input parameters to determine how much they affect model results, mainly the RSS. Sensitivity analysis also is inherently part of model calibration to determine the most optimal and representative parameter values that result in the closest match to observed values. During the sensitivity analysis, multiple model simulations are made in which a single parameter is adjusted by a given amount. The changes to the model output for the parameter changes may be displayed in tables or graphs for evaluation.

The sensitivity analysis for the steady-state flow model primarily focused on the hydraulic parameters including horizontal hydraulic conductivity (Kh) and recharge. **Figure A-18** indicates that the model is more sensitive to the Kh value of the background zones in model layers 2 through 4 that represents saprolite, PWR, and slightly fractured bedrock units, respectively. Generally, the lowest sum of squares was achieved with a multiplier value of 1.0 on the X axis, suggesting that the calibrated Kh values reasonably simulated the groundwater flow condition

at the Site and were able to achieve the minimum sum of squares of residuals. The sensitivity analysis also indicates that some smaller and deep horizontal hydraulic conductivity zones in the model are relatively insensitive. The recharge sensitivity plot shown on **Figure A-18** indicates that the model is very sensitive to changes in recharge as this is primary source of groundwater in the model. The analysis indicates that the optimal value was derived in the calibrated model.

## 7 Post-Closure Model

The post-closure model was developed to represent a closure construction period and post-closure period of 30 years (January 2021 to December 2050). **Table A-10** outlines the stress period setup of the predictive groundwater flow model. The predictive flow model incorporated relevant closure activities that have a hydraulic impact on groundwater flow at the Site. Primarily around the AEM subsurface drain and the AMA, boundary condition modifications during this period were previously presented in Section 3. To the best of our knowledge, these closure activities are the most significant and were implemented according to the timeline modeled; actual timelines may differ from the representation in the model. Relevant model boundary conditions were developed to represent these closure activities in the post-closure model as well as the closure surface topography.

The post-closure groundwater flow model was used to evaluate future groundwater patterns and hydraulic impact during closure construction activities and following the completion of closure. Groundwater capture by the AEM subsurface drain was also demonstrated. Based on results of the transient model, groundwater capture provided by the AEM subsurface drain intercepts and removes all groundwater that has come into contact with CCR in the AMA. The simulated hydraulic capture zone analysis was performed using the MODALL program developed by Arcadis (Potter et al. 2008). MODALL uses the calculated cell-by-cell flow output file from the flow model to determine the percentage of flow in each grid cell that has either originated from a given source or flows to a specified sink. The capture zones generated by MODALL improve upon the conventional pathline based capture zone analysis by providing a measure of capture strength through delineation of capture fraction contours. Using the flow terms from the post closure (30 years) simulations, MODALL simulated the capture extent of the as-built AEM subsurface drain in each model layer. The simulated total pumping rate of the AEM subsurface drain was 70 gpm from the pump riser locations. The results of this analysis are presented in Section 2 of the main report.

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# Tables

**Table A-1**  
**Boring Logs For Model Structure Development**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well Name	Ground Elevation (ft msl)	Easting (feet)	Northing (feet)	Saprolite	PWR	Slightly Fractured Bedrock	Upper Deep Bedrock
GWA-2	803.1	2073509.98	1261383.11	✓	✓	✓	NA
GWC-1R	770.5	2073279.85	1261869.77	✓	NA	NA	NA
GWC-2R	766.8	2072755.92	1261942.15	✓	NA	NA	NA
GWC-3R	772.2	2072841.28	1261647.1	✓	NA	NA	NA
GWC-4R	754.6	2072841.28	1262046.56	✓	NA	NA	NA
GWC-5R	780	2073027.56	1261439.91	✓	NA	NA	NA
GYP-1	813.4	2071763.17	1256388.43	✓	✓	NA	NA
GYP-10	795.2	2073319.31	1256805.64	✓	✓	✓	NA
GYP-11	733.3	2074109.02	1258188.48	✓	NA	NA	NA
GYP-12	749.8	2075098.2	1257187.26	✓	NA	NA	NA
GYP-13	760.5	2074864.35	1256288.42	✓	✓	NA	NA
GYP-14	787.8	2074634.11	1255839.36	✓	NA	NA	NA
GYP-15	765.8	2075306.91	1255728.33	✓	NA	NA	NA
GYP-16	803.7	2074068.63	1255109.29	✓	✓	NA	NA
GYP-17	757.2	2075066.01	1254661.52	✓	NA	NA	NA
GYP-18	777.1	2076426.94	1255004.16	✓	✓	NA	NA
GYP-19	784.8	2076497.86	1255222.71	✓	✓	NA	NA
GYP-20	811.4	2077134.29	1255159.02	✓	✓	NA	NA
GYP-21	771.7	2077827.81	1255521.29	✓	NA	NA	NA
GYP-22	775.4	2077102.32	1256545.27	✓	NA	NA	NA
GYP-23	778	2076518.45	1256463.41	✓	NA	NA	NA
GYP-24	790.5	2077030.77	1257042.57	✓	NA	NA	NA
GYP-25	780.8	2076209.31	1257374.23	✓	NA	NA	NA
GYP-26	807.5	2073903.43	1255521.01	✓	✓	NA	NA
GYP-27	838.6	2072618.7	1255141.38	✓	NA	NA	NA
GYP-28	774.3	2075448.13	1254826.98	✓	✓	NA	NA
GYP-4	806.1	2072327.78	1255819.39	✓	✓	NA	NA
GYP-5	838.5	2072923.45	1254749.19	✓	✓	NA	NA
GYP-6	761.4	2072818.42	1256726.08	✓	✓	NA	NA
GYP-7	809.7	2073321.94	1256346.08	✓	NA	NA	NA
GYP-8	802	2073255.36	1255716.55	✓	✓	NA	NA
GYP-9	736	2073324.84	1257794.01	✓	NA	NA	NA
PZ-10I	697.8	2070551.98	1260809.64	✓	✓	NA	NA
PZ-10S	698.1	2070552.32	1260802.29	✓	✓	NA	NA
PZ-13I	805.4	2069817.1	1257850.3	✓	✓	NA	NA
PZ-13S	805.5	2069810.25	1257849.98	✓	✓	NA	NA
PZ-14I	747.2	2072542.59	1257826.16	✓	✓	NA	NA
PZ-1S	834.5	2070101.24	1256871.97	✓	✓	NA	NA
PZ-24IA	761.8	2073930.07	1258910.76	✓	✓	✓	NA
PZ-25I	763.8	2073491.1	1258860.75	✓	✓	NA	NA

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Well Name	Ground Elevation (ft msl)	Easting (feet)	Northing (feet)	Saprolite	PWR	Slightly Fractured Bedrock	Upper Deep Bedrock
PZ-25S	763.8	2073497.99	1258856.99	✓	✓	NA	NA
PZ-31S	735.9	2072820.25	1258313.7	✓	✓	NA	NA
PZ-35	740.9	2073805.6	1258593.16	✓	NA	NA	NA
PZ-37	758	2074699.59	1256471.14	✓	✓	NA	NA
PZ-3S	794	2072021.63	1256410.86	✓	✓	NA	NA
PZ-47/YGWC-47	755.6	2071818.05	1262411.84	✓	✓	NA	NA
PZ-48/YGWC-48	777.2	2074528	1259868.04	✓	✓	NA	NA
PZ-4S	781.8	2075454.2	1254442.8	✓	✓	NA	NA
PZ-51	741.3	2073182.55	1257595.8	✓	✓	NA	NA
PZ-53/YAMW-6	729.9	2070920.38	1260964.5	✓	✓	✓	NA
PZ-5S	782.2	2076211.43	1254404.42	✓	✓	NA	NA
PZ-6D	779.5	2074782.68	1260480.15	✓	✓	✓	✓
PZ-9I	709.8	2070720.09	1261995.81	✓	✓	NA	NA
PZ-9S	709.8	2070720.43	1262003.49	✓	✓	NA	NA
YAMW-1	740.9	2073815.29	1258602.12	✓	✓	NA	NA
YAMW-2	777.9	2072924.89	1256780.59	✓	✓	NA	NA
YAMW-3	793.2	2073345.21	1256915.25	✓	✓	NA	NA
YAMW-4	802.6	2073280.71	1256532.64	✓	✓	✓	NA
YAMW-5	785.9	2074486.69	1256140.21	✓	✓	NA	NA
YGWA-14S	746.8	2072537.24	1257828.64	✓	✓	NA	NA
YGWA-17S	780.2	2076758.31	1257602.79	✓	✓	NA	NA
YGWA-18I	787.9	2077015.82	1257090.05	✓	✓	NA	NA
YGWA-1D	834.9	2070104.61	1256867.34	✓	✓	✓	✓
YGWA-1I	834.3	2070097.91	1256876.13	✓	✓	NA	NA
YGWA-20S	764.6	2077410.37	1255531.55	✓	✓	NA	NA
YGWA-21I	780.8	2076768.14	1255538.27	✓	✓	NA	NA
YGWA-2I	864	2070790.49	1256144.08	✓	✓	NA	NA
YGWA-30I	760.1	2071107.11	1258421.86	✓	✓	NA	NA
YGWA-39/PZ-39	815.6	2073865.58	1255717.13	✓	✓	✓	NA
YGWA-3D	794.1	2072026.21	1256399.94	✓	✓	✓	✓
YGWA-3I	794	2072024.2	1256405.2	✓	✓	NA	NA
YGWA-40/PZ-40	813.5	2073431.34	1255791.95	✓	✓	NA	NA
YGWA-4I	781.9	2075455.62	1254436.58	✓	✓	NA	NA
YGWA-5D	781.9	2076223.63	1254396.67	✓	✓	✓	✓
YGWA-5I	782.1	2076218.86	1254399.95	✓	✓	NA	NA
YGWA-6I/PZ-6I	780.2	2074790.49	1260490.02	✓	✓	NA	NA
YGWA-6S/PZ-6S	779.8	2074786.49	1260484.87	✓	✓	NA	NA
YGWC-24SA	762	2073924.81	1258907.98	✓	✓	NA	NA
YGWC-26I	713.1	2070613.56	1259725.79	✓	✓	NA	NA
YGWC-26S	713.1	2070615.87	1259734.66	✓	✓	NA	NA
YGWC-27I	713.2	2070460.89	1259423.73	✓	✓	NA	NA

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**Boring Logs For Model Structure Development**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well Name	Ground Elevation (ft msl)	Easting (feet)	Northing (feet)	Saprolite	PWR	Slightly Fractured Bedrock	Upper Deep Bedrock
YGWC-27S	713	2070454.17	1259417.12	✓	✓	NA	NA
YGWC-28I	715	2070328.27	1259226.47	✓	✓	NA	NA
YGWC-28S	715	2070322.23	1259218.37	✓	✓	NA	NA
YGWC-29I	714.8	2070203.26	1258974.06	✓	✓	NA	NA
YGWC-38/PZ-38	797.1	2074446.8	1256108.38	✓	✓	✓	NA
YGWC-41/PZ-41	801.1	2073.274.41	1256510.62	✓	✓	NA	NA
YGWC-42/PZ-42	795.1	2073326.52	1256882.87	✓	✓	NA	NA
YGWC-43/PZ-43	742.3	2073199.65	1257547.41	✓	✓	✓	NA
YGWC-44/PZ-44	755.5	2071219.39	1261874.34	✓	✓	✓	NA
YGWC-45/PZ-45	716.5	2070912.6	1261668.95	✓	✓	✓	NA
YGWC-46A	730.1	2070970.3	1260994.59	✓	✓	✓	NA
YGWC-49/PZ-49	780.1	2074337.51	1259375.23	✓	✓	NA	NA
YGWC-52	752.9	2071464.36	1262145.22	✓	✓	NA	NA
BD-08B	741	2075001.77	1256855.28	✓	NA	NA	NA
BD-17B	748.3	2074537.09	1258359.17	✓	NA	NA	NA
BD-18C	744.4	2074475.12	1258264.63	✓	NA	NA	NA
YTPR-33	728.6	2073387.86	1258104.88	✓	NA	NA	NA
YTPR-36	738.7	2073107.33	1257825.28	✓	NA	NA	NA
YTPR-37	736.5	2073118.9	1257875.76	✓	NA	NA	NA
YTPR-38	734.5	2073160.18	1257910.9	✓	✓	NA	NA
YTPR-39	733.1	2073173.23	1257960.81	✓	NA	NA	NA
YTPR-40	732.1	2073214.48	1257997.28	✓	NA	NA	NA
YTPR-41	731.6	2073226.62	1258046.03	✓	NA	NA	NA
YTPR-42	731.1	2073268.83	1258082.11	✓	NA	NA	NA
YTPR-43	730.8	2073280.73	1258131.8	✓	NA	NA	NA
YTPR-44	730.6	2073323.33	1258167.67	✓	NA	NA	NA
YTPR-45	730.5	2073336.65	1258217.87	✓	NA	NA	NA
YTPR-46	730.4	2073378.02	1258253.19	✓	✓	NA	NA
YTPR-47	730.7	2073390.17	1258302.05	✓	NA	NA	NA
YTPR-48	730.6	2073430.28	1258336.9	✓	NA	NA	NA
YTPR-49	730.7	2073432.53	1258370.28	✓	NA	NA	NA
YTPR-50	730.7	2073469.56	1258399.57	✓	NA	NA	NA
YTPR-51	730.6	2073491.24	1258434.11	✓	✓	NA	NA
YTPR-52	730.7	2073495.59	1258473.76	✓	NA	NA	NA
YTPR-53	731.2	2073542.76	1258550.54	✓	NA	NA	NA
YTPR-54	731.3	2073571.9	1258567.89	✓	NA	NA	NA
YTPR-55	732.1	2073606.21	1258619.87	✓	✓	NA	NA
PZ-07I	745.6	2072529.54	1262713.8	✓	✓	NA	NA
PZ-07S	745.4	2072535.45	1262715.67	✓	NA	NA	NA
PZ-08I	745.6	2072745.74	1262284.59	✓	✓	NA	NA
PZ-08S	745.2	2072739.49	1262287.37	✓	NA	NA	NA

**Table A-1**  
**Boring Logs For Model Structure Development**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well Name	Ground Elevation (ft msl)	Easting (feet)	Northing (feet)	Saprolite	PWR	Slightly Fractured Bedrock	Upper Deep Bedrock
PZ-16I	807.3	2073879.69	1261572.17	✓	✓	NA	NA
PZ-24I	764.33	2073893.24	1258883.67	✓	✓	✓	NA
YGWC-19S	761.66	2075494.74	1255593.91	✓	NA	NA	NA
YGWC-22S	748.47	2075086.37	1257176.36	✓	NA	NA	NA
YGWC-32I	755.1	2075022.29	1257643.15	✓	✓	NA	NA
YGWC-32S	754.14	2075014.68	1257645.86	✓	NA	NA	NA
YGWC-34I	770.02	2075231.62	1257485.48	✓	✓	NA	NA
YGWC-23S	761	2074734.07	1256366.93	✓	✓	NA	NA
YGWC-33S	741.61	2074258.64	1258345.18	✓	✓	NA	NA

**Notes:**

ft msl = feet mean sea level

PWR = Partially Weathered Bedrock

NA = Boring Logs Were Not Used

✓ = Boring Logs Were Used

Boring log data from ACC. 2021. Hydrogeologic Assessment Report (rev. 1) Plant Yates R6 CCR Landfill and Ash Management Area (AMA) Coweta County, Georgia for Georgia Power, May 2021.

Atlantic Coast Consulting, Inc., 1150 North meadow Pkwy, Ste 100, Roswell, GA

**Table A-2**  
**Model Simulated Recharge Rate**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Recharge Zone	Administrative Area	Land Type	Calibrated Runoff Coefficient	Recharge Rate (in/yr)	Data Source And Assumption
1	Offsite	Forest/Bushland	0.25	17.8	Literature <sup>1</sup>
2	Onsite - Disturbed Area 1	Lawns (sandy soil)	0.27	17.3	Literature <sup>1</sup>
3	Pond features	Open water	NA	0.0	Surface Water <sup>3</sup>
4	AMA	Graded No Plant Cover/Clayey soil, average, 5-10%	0.66	8.0	Literature <sup>1</sup>
5	R6 CCR Landfill, Ash Pond 1	Clay cover - graded	NA	1.0	Field Data/Model Calibration <sup>2</sup>
6	Chattahoochee River	Open water	NA	0.0	Surface Water <sup>3</sup>
7	Gypsum Landfill	Clay cover - graded	NA	1.0	Literature <sup>3</sup>
8	Onsite - Disturbed Area 2	Graded No Plant Cover/Clayey soil, average, 5-10%	0.66	8.0	Literature <sup>1</sup>
9	Onsite - Disturbed Area 3	Graded No Plant Cover/Clayey soil, average, 5-10%	0.50	12.0	Literature <sup>1</sup>

**Notes:**

in/yr = inches per year

AMA = Ash Management Area

CCR = coal combustion residuals

NA = Not applicable.

<sup>1</sup> United States Environmental Protection Agency. 2001. Georgia Stormwater Management Manual Table 2.1.4-2. Volume 2. Technical Handbook. First Edition – August 2001.

Prepared by AMEC Earth and Environmental, Center for Watershed Protection, Debo and Associates, Jordan Jones and Goulding, Atlanta Regional Commission.

<sup>2</sup> ACC. 2021. Hydrogeologic Assessment Report (rev. 1) Plant Yates R6 CCR Landfill and Ash Management Area (AMA) Coweta County, Georgia for Georgia Power, May 2021.

Atlantic Coast Consulting, Inc., 1150 North meadow Pkwy, Ste 100, Roswell, GA

<sup>3</sup> Recharge rate on open water features such as the CCR pond and river are assumed to be 0 by considering recharge, evapotranspiration, and pumping from CCR pond will achieve net zero water balance.

**Table A-3**  
**Model Simulated ET Rate**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Recharge Zone	Administrative Area	Land Type	ETa/ET <sub>0</sub> ratio	ETa Rate (in/yr)	Extinction Depth (ft)	Data Source And Assumption
1	Offsite	Forest/Bushland	0.76	29.3	6	Literature <sup>1</sup>
2	Onsite - Disturbed Area	Lawns (sandy soil)	0.72	27.7	4	Literature <sup>1</sup>
3	Pond features	Open water	NA	0	NA	Surface Water <sup>3</sup>
4	AMA	Graded No Plant Cover/Clayey soil, average, 5-10%	0.67	25.9	4	Literature <sup>1</sup>
5	R6 Landfill, Ash Pond 1	Clay cover - graded	NA	0	NA	Model Calibration <sup>2</sup>
6	Chattahoochee River	Open water	NA	0	NA	Surface Water <sup>3</sup>
7	Gypsum Landfill	Clay cover - graded	NA	0	NA	Model Calibration <sup>2</sup>

**Notes:**

NA = Not applicable.

CCR = coal combustion residuals

ET = evapotranspiration

in/yr = inches per year

ft = feet

AMA = Ash Management Area

<sup>1</sup> = Sepúlveda, N. 2018. Data Sets for the actual evapotranspiration (AET) rates from 2000 to 2017 in east-central and northeast Florida basins calculated using water-budget balance analysis (WBA), the Simplified Surface Energy Balance Operational (SSEBop) method, and the land-cover types method: U.S. Geological Survey data release, <https://doi.org/10.5066/P9WAS05D>.

<sup>2</sup> = ACC. 2021. Hydrogeologic Assessment Report (rev. 1) Plant Yates R6 CCR Landfill and Ash Management Area (AMA) Coweta County, Georgia for Georgia Power, May 2021. Atlantic Coast Consulting, Inc., 1150 North meadow Pkwy, Ste 100, Roswell, GA p. 770-594-5998, f. 770-594-5967.

<sup>3</sup> = Evapotranspiration rate on open water features such as the CCR pond and river are assumed to be 0 by considering recharge, evapotranspiration, and pumping from the CCR pond will achieve net zero water balance.

**Table A-4**  
**Model Simulated Hydraulic Conductivity**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Model Structure		Field Test				Calibrated		Reference
Hydrostratigraphic Unit	Model Layer	Min	Max	Average	Geomean	Horizontal	Vertical	
CCR	1	0.015	0.05	0.02	0.02	0.02	0.02	Slug Test <sup>1</sup>
Saprolite	2	0.1	5.9	1.4	0.9	3.2	0.32	Slug Test <sup>1</sup>
PWR	3	1.2	8.9	4.7	4.0	5.2	0.52	Slug Test <sup>1</sup>
Slightly Fractured Bedrock	4	0.07	2.7	0.8	0.5	0.17	0.017	Slug Test <sup>1</sup>
Upper Deep Bedrock	5	--	--	--	--	0.008	0.000037	Calibrated
Lower Deep Bedrock	6	--	--	--	--	0.001	0.000001	Calibrated

**Notes:**

PWR = Partially Weathered Bedrock

ft/d = feet per day

<sup>1</sup> = ACC. 2021. Hydrogeologic Assessment Report (rev. 1) Plant Yates R6 CCR Landfill and Ash Management Area (AMA) Coweta County, Georgia for Georgia Power, May 2021. Atlantic Coast Consulting, Inc., 1150 North meadow Pkwy, Ste 100, Roswell, GA

**Table A-5**  
**Model Simulated Storage Parameter**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Model Structure		Literature Value		Calibrated Value	
		Storage Coefficient <sup>1,2,3,4</sup>			
Hydrostratigraphic Unit	Model Layer	Specific Yield	Specific Storage	Specific Yield	Specific Storage
CCR	1	0.1 to 0.4	NA	0.17	NA
Saprolite	2	0.1 to 0.3	3.9E-05 to 6.2E-05	0.15	0.00002
PWR	3	NA	1.5E-05 to 3.1E-05	NA	0.0000075
Slightly Fractured Bedrock	4	NA	1.0E-06 to 2.1E-05	NA	0.000005
Upper Deep Bedrock	5	NA	1.0E-06 to 2.1E-05	NA	0.000001
Lower Deep Bedrock	6	NA	<1E-06	NA	0.0000001

**Notes:**

NA = Not applicable.

PWR = Partially Weathered Bedrock

1. Batu, V. 1998. Aquifer Hydraulics: A Comprehensive Guide to Hydrogeologic Data Analysis, John Wiley & Sons, New York, 727p
2. Domenico, P.A. and M.D. Mifflin. 1965. Water from low-permeability sediments and land subsidence, Water Resources Research, vol. 1, no. 4., pp. 563-576.
3. Lohman, S.W. 1972. Ground-water hydraulics, U.S. Geological Survey Prof. Paper 708, 70p.
4. United States Environmental Protection Agency (USEPA). 1989. Interim Final RCRA Facility Investigation (RFI) Guidance Volume I of IV. Development of An RFI Work Plan and General Considerations For RCRA Facility Investigations. EPA 530/SW-89-031. May 1989.

**Table A-6**  
**Pre-Closure Flow Model Stress Period Summary**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Model Stress Period	Stress Period Type: Flow	Start Date	End Date	Stress Period Length (days)	Cumulative Time (days)	No. of Time Step	Site Condition
1	Steady State	1/1/2017	12/31/2017	365	365	1	Average Yearly Hydraulic Condition
2	Transient	1/1/2018	3/31/2018	90	455	4	Average Quarterly Hydraulic Condition
3	Transient	4/1/2018	6/30/2018	91	546	4	Average Quarterly Hydraulic Condition
4	Transient	7/1/2018	9/30/2018	92	638	4	Average Quarterly Hydraulic Condition
5	Transient	10/1/2018	12/31/2018	92	730	4	Average Quarterly Hydraulic Condition
6	Transient	1/1/2019	3/31/2019	90	820	4	Average Quarterly Hydraulic Condition
7	Transient	4/1/2019	6/30/2019	91	911	4	Average Quarterly Hydraulic Condition
8	Transient	7/1/2019	9/30/2019	92	1003	4	Average Quarterly Hydraulic Condition
9	Transient	10/1/2019	12/31/2019	92	1095	4	Average Quarterly Hydraulic Condition
10	Transient	1/1/2020	3/31/2020	91	1186	4	Average Quarterly Hydraulic Condition
11	Transient	4/1/2020	6/30/2020	91	1277	4	Average Quarterly Hydraulic Condition
12	Transient	7/1/2020	9/30/2020	92	1369	4	Average Quarterly Hydraulic Condition
13	Transient	10/1/2020	12/31/2020	92	1461	4	Average Quarterly Hydraulic Condition

**Table A-7**  
**Steady-State Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Easting State Plane (feet)	Northing State Plane (feet)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, feet)
GWA-2	2073509.98	1261383.11	764.73	762.03	1	2.70
GWC-1R	2073279.85	1261869.77	746.75	746.19	1	0.56
GWC-2R	2072755.91	1261942.15	738.87	737.60	1	1.27
GWC-3R	2072841.28	1261647.10	743.71	742.34	1	1.37
GWC-4R	2072953.68	1262046.56	738.63	738.66	1	-0.04
GWC-5R	2073027.56	1261439.91	748.85	746.81	1	2.04
GWC-6R	2073479.40	1261732.91	748.97	751.67	1	-2.70
PZ-01S	2070101.23	1256871.97	802.89	803.29	1	-0.41
PZ-03S	2072021.63	1256410.86	759.29	754.24	1	5.05
PZ-04S	2075454.20	1254442.86	758.55	762.32	1	-3.77
PZ-05S	2076211.43	1254404.42	764.21	763.87	1	0.35
PZ-06D	2074782.68	1260480.15	757.42	756.76	1	0.65
PZ-09I	2070720.09	1261995.81	693.60	693.95	1	-0.35
PZ-09S	2070720.43	1262003.49	693.71	694.02	1	-0.31
PZ-10I	2070551.98	1260809.64	686.87	687.55	1	-0.68
PZ-10S	2070552.32	1260802.29	693.17	687.22	1	5.94
PZ-13I	2069817.10	1257850.30	765.81	767.56	1	-1.75
PZ-13S	2069810.25	1257849.98	770.11	770.42	1	-0.31
PZ-14I	2072542.59	1257826.16	730.81	731.38	1	-0.56
PZ-24I	2073893.24	1258883.66	735.21	736.97	1	-1.77
PZ-25I	2073491.10	1258860.75	729.04	731.52	1	-2.48
PZ-25S	2073497.99	1258856.99	730.45	731.43	1	-0.98
PZ-31S	2072820.25	1258313.70	724.05	726.60	1	-2.55
PZ-37	2074699.59	1256471.14	748.86	750.52	1	-1.66
PZ-48	2074527.25	1259868.79	755.88	755.35	1	0.53
YGWA-14S	2072537.24	1257828.65	731.24	731.43	1	-0.19
YGWA-17S	2076758.31	1257602.80	770.20	767.43	1	2.77
YGWA-18I	2077015.82	1257090.05	765.85	766.01	1	-0.16
YGWA-18S	2077015.25	1257116.05	767.66	766.32	1	1.34
YGWA-1D	2070104.61	1256867.34	784.55	781.60	1	2.94
YGWA-1I	2070097.91	1256876.13	796.14	800.86	1	-4.72
YGWA-20S	2077410.37	1255531.55	756.60	758.56	1	-1.96
YGWA-21I	2076768.14	1255538.27	752.25	756.86	1	-4.61
YGWA-2I	2070790.49	1256144.08	819.84	816.41	1	3.43
YGWA-30I	2071107.10	1258421.86	724.97	724.24	1	0.73
YGWA-39	2073865.58	1255717.13	793.19	789.06	1	4.13
YGWA-3D	2072026.21	1256399.94	763.05	756.48	1	6.57
YGWA-3I	2072024.20	1256405.20	746.13	750.57	1	-4.44
YGWA-40	2073431.34	1255791.95	788.17	789.04	1	-0.87
YGWA-47	2071818.05	1262411.84	725.75	715.44	1	10.31
YGWA-4I	2075455.62	1254436.68	759.67	762.34	1	-2.67

**Table A-7**  
**Steady-State Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Easting State Plane (feet)	North State Plane (feet)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, feet)
YGWA-5D	2076223.64	1254396.67	764.35	764.14	1	0.21
YGWA-5I	2076218.86	1254399.95	764.10	764.04	1	0.06
YGWA-6I	2074790.49	1260490.02	760.66	758.84	1	1.82
YGWA-6S	2074786.49	1260484.87	760.66	759.10	1	1.56
YGWC-19S	2075494.73	1255593.91	748.91	748.74	1	0.18
YGWC-22S	2075086.38	1257176.36	742.36	743.85	1	-1.48
YGWC-23S	2074734.06	1256366.93	749.65	752.07	1	-2.42
YGWC-24S	2073885.88	1258878.26	735.57	736.64	1	-1.07
YGWC-26I	2070613.56	1259725.79	691.81	695.23	1	-3.42
YGWC-26S	2070615.87	1259734.66	695.96	695.81	1	0.14
YGWC-27I	2070460.89	1259423.73	688.50	695.52	1	-7.02
YGWC-27S	2070454.17	1259417.12	689.57	695.36	1	-5.79
YGWC-28I	2070328.27	1259226.47	694.04	694.72	1	-0.69
YGWC-28S	2070322.23	1259218.37	695.45	695.10	1	0.34
YGWC-29I	2070203.26	1258974.06	690.91	697.00	1	-6.09
YGWC-32I	2075022.29	1257643.15	741.89	745.35	1	-3.47
YGWC-32S	2075014.68	1257645.86	739.92	745.23	1	-5.31
YGWC-33S	2074258.64	1258345.18	735.98	735.31	1	0.67
YGWC-34I	2075231.62	1257485.47	749.27	747.86	1	1.41
YGWC-36	2073771.05	1258513.80	729.38	732.05	1	-2.67
YGWC-38	2074446.80	1256108.38	767.91	765.40	1	2.51
YGWC-41	2073274.41	1256510.62	775.11	775.34	1	-0.23
YGWC-42	2073326.52	1256882.87	769.24	766.33	1	2.91
YGWC-43	2073199.65	1257547.41	730.50	738.45	1	-7.95
YGWC-44	2071219.39	1261874.34	708.41	702.99	1	5.42
YGWC-45	2070912.60	1261668.95	696.75	696.39	1	0.36
YGWC-46	2071035.31	1261031.45	700.71	699.30	1	1.41
YGWC-49	2074337.51	1259375.23	749.43	749.89	1	-0.46
AP2-3	2070299.02	1259293.75	689.74	688.17	0.5	0.78
AP2D-1	2070344.47	1259231.46	697.75	696.62	0.5	0.56
AP2D-2	2070344.54	1259256.83	695.58	694.83	0.5	0.38
APB'-1	2075198.96	1258084.49	754.37	748.93	0.5	2.72
APB'-2	2075279.61	1258197.60	759.90	745.90	0.5	7.00
APB'-3	2075224.62	1258288.40	750.34	747.59	0.5	1.37

**NOTES:**

msl = mean sea level

ft = feet

Water levels represent an average from 2017

A residual weight of 0.5 was used for dike piezometers due lack of well construction information (i.e., screened depth) and complex site operation history (i.e., instantaneous dewatering), for which such data was not available

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
PZ-04S	1/10/2018	2075454.20	1254442.86	757.80	762.28	1	-4.48
PZ-04S	3/27/2018	2075454.20	1254442.86	759.68	762.51	1	-2.83
PZ-04S	6/5/2018	2075454.20	1254442.86	760.00	762.76	1	-2.76
PZ-04S	8/7/2018	2075454.20	1254442.86	759.32	762.65	1	-3.33
PZ-04S	9/18/2018	2075454.20	1254442.86	758.82	762.40	1	-3.58
PZ-04S	2/26/2019	2075454.20	1254442.86	762.80	763.49	1	-0.69
PZ-04S	3/26/2019	2075454.20	1254442.86	763.60	763.12	1	0.48
PZ-04S	8/20/2019	2075454.20	1254442.86	759.66	762.01	1	-2.35
PZ-04S	9/24/2019	2075454.20	1254442.86	758.37	761.49	1	-3.12
PZ-04S	10/8/2019	2075454.20	1254442.86	757.89	761.41	1	-3.52
PZ-04S	3/17/2020	2075454.20	1254442.86	763.98	763.99	1	-0.01
PZ-04S	9/22/2020	2075454.20	1254442.86	759.30	762.95	1	-3.65
PZ-04S	11/11/2020	2075454.20	1254442.86	759.32	762.85	1	-3.53
PZ-05S	1/10/2018	2076211.43	1254404.42	762.99	763.82	1	-0.83
PZ-05S	3/27/2018	2076211.43	1254404.42	765.55	764.14	1	1.41
PZ-05S	6/5/2018	2076211.43	1254404.42	765.54	764.57	1	0.97
PZ-05S	8/7/2018	2076211.43	1254404.42	764.85	764.45	1	0.40
PZ-05S	9/18/2018	2076211.43	1254404.42	764.01	764.14	1	-0.13
PZ-05S	2/26/2019	2076211.43	1254404.42	769.02	766.43	1	2.59
PZ-05S	3/26/2019	2076211.43	1254404.42	769.24	766.25	1	2.99
PZ-05S	8/20/2019	2076211.43	1254404.42	764.95	764.75	1	0.20
PZ-05S	9/24/2019	2076211.43	1254404.42	763.57	763.99	1	-0.42
PZ-05S	10/8/2019	2076211.43	1254404.42	763.06	763.84	1	-0.78
PZ-05S	3/17/2020	2076211.43	1254404.42	770.26	767.39	1	2.87
PZ-05S	9/22/2020	2076211.43	1254404.42	764.83	766.28	1	-1.45
PZ-05S	11/11/2020	2076211.43	1254404.42	765.03	766.08	1	-1.05
PZ-06D	1/10/2018	2074782.68	1260480.15	758.02	756.79	1	1.23
PZ-06D	3/27/2018	2074782.68	1260480.15	759.14	757.03	1	2.11
PZ-06D	6/5/2018	2074782.68	1260480.15	759.35	757.56	1	1.79
PZ-06D	8/7/2018	2074782.68	1260480.15	759.70	757.63	1	2.07
PZ-06D	9/18/2018	2074782.68	1260480.15	758.84	757.47	1	1.37
PZ-06D	2/26/2019	2074782.68	1260480.15	761.65	759.89	1	1.76
PZ-06D	3/26/2019	2074782.68	1260480.15	761.90	759.77	1	2.13
PZ-06D	8/20/2019	2074782.68	1260480.15	759.86	757.97	1	1.89
PZ-06D	9/24/2019	2074782.68	1260480.15	758.85	757.14	1	1.71
PZ-06D	10/8/2019	2074782.68	1260480.15	758.54	756.91	1	1.63
PZ-06D	3/17/2020	2074782.68	1260480.15	762.56	759.08	1	3.48
PZ-06D	8/22/2020	2074782.68	1260480.15	757.02	759.72	1	-2.70
PZ-06D	9/22/2020	2074782.68	1260480.15	760.59	759.59	1	1.00
PZ-06D	11/11/2020	2074782.68	1260480.15	760.58	759.32	1	1.26
PZ-24I	1/10/2018	2073893.24	1258883.66	735.21	737.33	1	-2.12
PZ-24I	3/27/2018	2073893.24	1258883.66	735.85	737.88	1	-2.03
PZ-24I	6/5/2018	2073893.24	1258883.66	735.70	737.78	1	-2.08
PZ-24I	8/7/2018	2073893.24	1258883.66	735.38	737.47	1	-2.09
PZ-24I	9/18/2018	2073893.24	1258883.66	734.77	737.17	1	-2.40
PZ-24I	2/26/2019	2073893.24	1258883.66	736.84	739.65	1	-2.81
PZ-24I	3/26/2019	2073893.24	1258883.66	736.70	739.63	1	-2.93
PZ-24I	8/20/2019	2073893.24	1258883.66	735.29	737.58	1	-2.29
PZ-24I	9/24/2019	2073893.24	1258883.66	734.72	736.90	1	-2.18
PZ-24I	10/8/2019	2073893.24	1258883.66	734.55	736.79	1	-2.24
PZ-24I	3/17/2020	2073893.24	1258883.66	737.30	739.62	1	-2.32
PZ-35	2/26/2019	2073805.59	1258593.16	732.00	736.20	1	-4.20
PZ-35	3/26/2019	2073805.59	1258593.16	730.59	736.08	1	-5.49
PZ-35	8/20/2019	2073805.59	1258593.16	730.87	733.21	1	-2.34
PZ-35	9/24/2019	2073805.59	1258593.16	730.59	732.52	1	-1.93
PZ-35	10/8/2019	2073805.59	1258593.16	730.51	732.49	1	-1.98
PZ-35	3/17/2020	2073805.59	1258593.16	731.87	736.48	1	-4.61
PZ-35	9/22/2020	2073805.59	1258593.16	728.37	733.89	1	-5.52
PZ-35	11/11/2020	2073805.59	1258593.16	728.82	734.41	1	-5.59
PZ-37	1/10/2018	2074699.59	1256471.14	749.08	750.44	1	-1.36
PZ-37	3/27/2018	2074699.59	1256471.14	749.76	751.02	1	-1.26
PZ-37	6/5/2018	2074699.59	1256471.14	749.55	750.81	1	-1.26
PZ-37	7/8/2018	2074699.59	1256471.14	749.74	750.66	1	-0.92
PZ-37	9/18/2018	2074699.59	1256471.14	745.49	750.20	1	-4.71
PZ-37	2/26/2019	2074699.59	1256471.14	744.47	752.42	1	-7.95
PZ-37	3/26/2019	2074699.59	1256471.14	744.32	752.51	1	-8.19
PZ-37	8/20/2019	2074699.59	1256471.14	744.32	750.78	1	-6.46
PZ-37	9/24/2019	2074699.59	1256471.14	742.83	750.23	1	-7.40
PZ-37	10/8/2019	2074699.59	1256471.14	743.44	750.14	1	-6.70
PZ-37	3/17/2020	2074699.59	1256471.14	748.10	752.38	1	-4.28
PZ-37	9/22/2020	2074699.59	1256471.14	746.99	751.23	1	-4.24
PZ-37	11/11/2020	2074699.59	1256471.14	747.23	751.43	1	-4.20
PZ-48	1/10/2018	2074527.25	1259868.79	757.63	755.40	1	2.23
PZ-48	3/27/2018	2074527.25	1259868.79	759.20	755.66	1	3.54
PZ-48	6/5/2018	2074527.25	1259868.79	759.18	755.94	1	3.24
PZ-48	8/7/2018	2074527.25	1259868.79	759.45	755.93	1	3.52
PZ-48	9/18/2018	2074527.25	1259868.79	758.81	755.79	1	3.02

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
PZ-48	2/26/2019	2074527.25	1259868.79	761.74	758.07	1	3.67
PZ-48	3/26/2019	2074527.25	1259868.79	761.84	758.02	1	3.82
PZ-48	8/20/2019	2074527.25	1259868.79	759.65	756.42	1	3.23
PZ-48	9/24/2019	2074527.25	1259868.79	758.68	755.78	1	2.90
PZ-48	10/8/2019	2074527.25	1259868.79	758.34	755.61	1	2.73
PZ-48	3/17/2020	2074527.25	1259868.79	762.45	757.49	1	4.96
PZ-48	9/22/2020	2074527.25	1259868.79	759.89	757.41	1	2.48
PZ-48	11/11/2020	2074527.25	1259868.79	760.08	757.37	1	2.71
YAMW-1	2/26/2019	2073814.55	1258602.12	732.29	736.52	1	-4.23
YAMW-1	3/26/2019	2073814.55	1258602.12	731.75	736.42	1	-4.67
YAMW-1	8/20/2019	2073814.55	1258602.12	731.09	733.71	1	-2.62
YAMW-1	9/24/2019	2073814.55	1258602.12	730.80	733.04	1	-2.24
YAMW-1	10/8/2019	2073814.55	1258602.12	730.69	732.99	1	-2.30
YAMW-1	3/17/2020	2073814.55	1258602.12	732.09	736.75	1	-4.66
YAMW-1	9/22/2020	2073814.55	1258602.12	728.69	734.38	1	-5.69
YAMW-1	11/11/2020	2073814.55	1258602.12	729.04	734.84	1	-5.80
YGWA-17S	1/10/2018	2076758.31	1257602.80	769.62	767.48	1	2.14
YGWA-17S	3/27/2018	2076758.31	1257602.80	771.10	768.08	1	3.02
YGWA-17S	6/5/2018	2076758.31	1257602.80	770.50	768.21	1	2.29
YGWA-17S	8/7/2018	2076758.31	1257602.80	770.32	767.89	1	2.43
YGWA-17S	9/18/2018	2076758.31	1257602.80	768.95	767.49	1	1.46
YGWA-17S	2/26/2019	2076758.31	1257602.80	773.03	771.07	1	1.96
YGWA-17S	3/26/2019	2076758.31	1257602.80	772.00	770.99	1	1.01
YGWA-17S	8/20/2019	2076758.31	1257602.80	768.42	767.71	1	0.71
YGWA-17S	9/24/2019	2076758.31	1257602.80	767.52	766.60	1	0.92
YGWA-17S	10/8/2019	2076758.31	1257602.80	767.23	766.39	1	0.84
YGWA-17S	3/17/2020	2076758.31	1257602.80	773.66	771.33	1	2.33
YGWA-17S	9/22/2020	2076758.31	1257602.80	770.43	769.17	1	1.26
YGWA-17S	11/11/2020	2076758.31	1257602.80	770.66	769.29	1	1.37
YGWA-18I	1/10/2018	2077015.82	1257090.05	765.47	765.99	1	-0.52
YGWA-18I	3/27/2018	2077015.82	1257090.05	767.04	766.41	1	0.63
YGWA-18I	6/5/2018	2077015.82	1257090.05	766.91	766.86	1	0.05
YGWA-18I	8/7/2018	2077015.82	1257090.05	766.42	766.72	1	-0.30
YGWA-18I	9/18/2018	2077015.82	1257090.05	765.54	766.36	1	-0.82
YGWA-18I	2/26/2019	2077015.82	1257090.05	769.65	769.48	1	0.17
YGWA-18I	3/26/2019	2077015.82	1257090.05	769.79	769.32	1	0.47
YGWA-18I	8/20/2019	2077015.82	1257090.05	766.20	766.44	1	-0.24
YGWA-18I	9/24/2019	2077015.82	1257090.05	765.07	765.32	1	-0.25
YGWA-18I	10/8/2019	2077015.82	1257090.05	764.65	765.06	1	-0.41
YGWA-18I	3/17/2020	2077015.82	1257090.05	770.70	769.55	1	1.15
YGWA-18I	9/22/2020	2077015.82	1257090.05	766.98	768.21	1	-1.23
YGWA-18I	11/11/2020	2077015.82	1257090.05	767.17	768.06	1	-0.89
YGWA-18S	1/10/2018	2077015.25	1257116.05	768.60	766.30	1	2.30
YGWA-18S	3/27/2018	2077015.25	1257116.05	770.38	766.72	1	3.66
YGWA-18S	6/5/2018	2077015.25	1257116.05	770.26	767.19	1	3.07
YGWA-18S	8/7/2018	2077015.25	1257116.05	769.64	767.05	1	2.59
YGWA-18S	9/18/2018	2077015.25	1257116.05	768.72	766.69	1	2.03
YGWA-18S	2/26/2019	2077015.25	1257116.05	773.22	769.80	1	3.42
YGWA-18S	3/26/2019	2077015.25	1257116.05	773.42	769.63	1	3.79
YGWA-18S	8/20/2019	2077015.25	1257116.05	769.35	766.77	1	2.58
YGWA-18S	10/8/2019	2077015.25	1257116.05	768.02	765.64	1	2.38
YGWA-18S	3/17/2020	2077015.25	1257116.05	774.53	769.84	1	4.69
YGWA-18S	9/22/2020	2077015.25	1257116.05	770.18	768.56	1	1.62
YGWA-18S	11/11/2020	2077015.25	1257116.05	770.43	768.39	1	2.04
YGWA-18S	1/10/2018	2077410.37	1255531.55	755.42	758.53	1	-3.11
YGWA-20S	3/27/2018	2077410.37	1255531.55	755.52	758.69	1	-3.17
YGWA-20S	6/5/2018	2077410.37	1255531.55	755.25	758.68	1	-3.43
YGWA-20S	8/7/2018	2077410.37	1255531.55	755.26	758.60	1	-3.34
YGWA-20S	9/18/2018	2077410.37	1255531.55	754.44	758.52	1	-4.08
YGWA-20S	2/26/2019	2077410.37	1255531.55	756.11	759.22	1	-3.11
YGWA-20S	3/26/2019	2077410.37	1255531.55	756.02	759.16	1	-3.14
YGWA-20S	8/20/2019	2077410.37	1255531.55	754.66	758.53	1	-3.87
YGWA-20S	9/24/2019	2077410.37	1255531.55	754.17	758.32	1	-4.15
YGWA-20S	10/8/2019	2077410.37	1255531.55	754.03	758.30	1	-4.27
YGWA-20S	3/17/2020	2077410.37	1255531.55	756.25	759.52	1	-3.27
YGWA-20S	9/22/2020	2077410.37	1255531.55	755.68	758.90	1	-3.22
YGWA-20S	11/11/2020	2077410.37	1255531.55	755.74	758.94	1	-3.20
YGWA-20S	1/10/2018	2076768.14	1255538.27	750.45	756.66	1	-6.21
YGWA-21I	3/27/2018	2076768.14	1255538.27	751.46	757.33	1	-5.87
YGWA-21I	6/5/2018	2076768.14	1255538.27	751.45	757.58	1	-6.13
YGWA-21I	7/8/2018	2076768.14	1255538.27	751.48	757.59	1	-6.11
YGWA-21I	9/15/2018	2076768.14	1255538.27	752.14	756.85	1	-4.71
YGWA-21I	2/26/2019	2076768.14	1255538.27	755.59	759.60	1	-4.01
YGWA-21I	3/26/2019	2076768.14	1255538.27	756.04	759.22	1	-3.18
YGWA-21I	8/20/2019	2076768.14	1255538.27	756.04	756.68	1	-0.64
YGWA-21I	9/24/2019	2076768.14	1255538.27	753.86	755.71	1	-1.85
YGWA-21I	10/8/2019	2076768.14	1255538.27	753.68	755.53	1	-1.85
YGWA-21I	3/17/2020	2076768.14	1255538.27	757.93	759.69	1	-1.76

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
YGWA-21I	9/22/2020	2076768.14	1255538.27	752.41	758.27	1	-5.86
YGWA-21I	11/11/2020	2076768.14	1255538.27	752.65	758.13	1	-5.48
YGWA-21I	1/10/2018	2073865.58	1255717.13	792.99	789.14	1	3.85
YGWA-39	3/27/2018	2073865.58	1255717.13	793.39	789.29	1	4.10
YGWA-39	6/5/2018	2073865.58	1255717.13	793.69	789.70	1	3.99
YGWA-39	8/7/2018	2073865.58	1255717.13	793.86	789.78	1	4.08
YGWA-39	9/18/2018	2073865.58	1255717.13	793.66	789.69	1	3.97
YGWA-39	2/26/2019	2073865.58	1255717.13	794.04	791.44	1	2.60
YGWA-39	3/26/2019	2073865.58	1255717.13	795.78	791.35	1	4.43
YGWA-39	8/20/2019	2073865.58	1255717.13	795.31	790.50	1	4.81
YGWA-39	9/24/2019	2073865.58	1255717.13	794.73	789.98	1	4.75
YGWA-39	10/8/2019	2073865.58	1255717.13	794.41	789.84	1	4.57
YGWA-39	3/17/2020	2073865.58	1255717.13	796.55	791.45	1	5.10
YGWA-39	9/22/2020	2073865.58	1255717.13	796.38	791.87	1	4.51
YGWA-39	11/11/2020	2073865.58	1255717.13	796.77	791.74	1	5.03
YGWA-40	1/10/2018	2073431.34	1255791.95	788.13	789.18	1	-1.05
YGWA-40	3/27/2018	2073431.34	1255791.95	789.98	789.71	1	0.27
YGWA-40	6/5/2018	2073431.34	1255791.95	789.57	789.94	1	-0.37
YGWA-40	8/7/2018	2073431.34	1255791.95	789.08	789.76	1	-0.68
YGWA-40	9/18/2018	2073431.34	1255791.95	788.36	789.46	1	-1.10
YGWA-40	2/26/2019	2073431.34	1255791.95	791.84	793.00	1	-1.16
YGWA-40	3/26/2019	2073431.34	1255791.95	791.91	792.98	1	-1.07
YGWA-40	8/20/2019	2073431.34	1255791.95	789.19	790.53	1	-1.34
YGWA-40	9/24/2019	2073431.34	1255791.95	788.18	789.65	1	-1.47
YGWA-40	10/8/2019	2073431.34	1255791.95	787.78	789.44	1	-1.66
YGWA-40	3/17/2020	2073431.34	1255791.95	794.28	792.86	1	1.42
YGWA-40	9/22/2020	2073431.34	1255791.95	790.29	791.85	1	-1.56
YGWA-40	11/11/2020	2073431.34	1255791.95	791.03	791.82	1	-0.79
YGWA-4I	1/10/2018	2075455.62	1254436.68	759.41	762.30	1	-2.89
YGWA-4I	3/27/2018	2075455.62	1254436.68	761.33	762.53	1	-1.20
YGWA-4I	6/5/2018	2075455.62	1254436.68	761.6	762.75	1	-1.15
YGWA-4I	8/7/2018	2075455.62	1254436.68	760.86	762.63	1	-1.77
YGWA-4I	9/18/2018	2075455.62	1254436.68	760.24	762.41	1	-2.17
YGWA-4I	2/26/2019	2075455.62	1254436.68	764.42	763.46	1	0.96
YGWA-4I	3/26/2019	2075455.62	1254436.68	765.18	763.14	1	2.04
YGWA-4I	8/20/2019	2075455.62	1254436.68	761.04	762.07	1	-1.03
YGWA-4I	9/24/2019	2075455.62	1254436.68	759.66	761.59	1	-1.93
YGWA-4I	10/8/2019	2075455.62	1254436.68	759.18	761.51	1	-2.33
YGWA-4I	3/17/2020	2075455.62	1254436.68	765.26	763.86	1	1.40
YGWA-4I	9/22/2020	2075455.62	1254436.68	760.76	762.95	1	-2.19
YGWA-4I	11/11/2020	2075455.62	1254436.68	760.77	762.87	1	-2.10
YGWA-5D	1/10/2018	2076223.64	1254396.67	756.38	764.09	1	-7.71
YGWA-5D	3/27/2018	2076223.64	1254396.67	757.29	764.42	1	-7.13
YGWA-5D	6/5/2018	2076223.64	1254396.67	757.77	764.80	1	-7.03
YGWA-5D	8/7/2018	2076223.64	1254396.67	758.76	764.68	1	-5.92
YGWA-5D	9/18/2018	2076223.64	1254396.67	758.25	764.39	1	-6.14
YGWA-5D	2/26/2019	2076223.64	1254396.67	760.62	766.65	1	-6.03
YGWA-5D	3/26/2019	2076223.64	1254396.67	761.96	766.51	1	-4.55
YGWA-5D	8/20/2019	2076223.64	1254396.67	761.21	765.03	1	-3.82
YGWA-5D	9/24/2019	2076223.64	1254396.67	760.24	764.30	1	-4.06
YGWA-5D	10/8/2019	2076223.64	1254396.67	760.08	764.16	1	-4.08
YGWA-5D	3/17/2020	2076223.64	1254396.67	763.22	767.51	1	-4.29
YGWA-5D	9/22/2020	2076223.64	1254396.67	762.02	766.48	1	-4.46
YGWA-5D	11/11/2020	2076223.64	1254396.67	762.28	766.31	1	-4.03
YGWA-5I	1/10/2018	2076218.86	1254399.95	762.88	764.00	1	-1.12
YGWA-5I	3/27/2018	2076218.86	1254399.95	765.41	764.32	1	1.09
YGWA-5I	6/5/2018	2076218.86	1254399.95	765.37	764.71	1	0.66
YGWA-5I	8/7/2018	2076218.86	1254399.95	764.74	764.60	1	0.14
YGWA-5I	9/18/2018	2076218.86	1254399.95	763.93	764.30	1	-0.37
YGWA-5I	2/26/2019	2076218.86	1254399.95	768.79	766.57	1	2.22
YGWA-5I	3/26/2019	2076218.86	1254399.95	769.05	766.42	1	2.63
YGWA-5I	8/20/2019	2076218.86	1254399.95	764.86	764.93	1	-0.07
YGWA-5I	9/24/2019	2076218.86	1254399.95	763.49	764.19	1	-0.70
YGWA-5I	10/8/2019	2076218.86	1254399.95	763.01	764.05	1	-1.04
YGWA-5I	3/17/2020	2076218.86	1254399.95	770.01	767.46	1	2.55
YGWA-5I	9/22/2020	2076218.86	1254399.95	764.72	766.40	1	-1.68
YGWA-5I	11/11/2020	2076218.86	1254399.95	764.91	766.22	1	-1.31
YGWA-6I	1/10/2018	2074790.49	1260490.02	760.98	758.86	1	2.12
YGWA-6I	3/27/2018	2074790.49	1260490.02	762.60	759.10	1	3.50
YGWA-6I	6/5/2018	2074790.49	1260490.02	762.66	759.74	1	2.92
YGWA-6I	8/7/2018	2074790.49	1260490.02	763.17	759.82	1	3.35
YGWA-6I	9/18/2018	2074790.49	1260490.02	762.20	759.62	1	2.58
YGWA-6I	2/26/2019	2074790.49	1260490.02	765.61	762.17	1	3.44
YGWA-6I	3/26/2019	2074790.49	1260490.02	765.56	761.93	1	3.63
YGWA-6I	8/20/2019	2074790.49	1260490.02	763.12	760.08	1	3.04
YGWA-6I	9/24/2019	2074790.49	1260490.02	761.97	759.14	1	2.83
YGWA-6I	10/8/2019	2074790.49	1260490.02	761.44	758.88	1	2.56
YGWA-6I	3/17/2020	2074790.49	1260490.02	766.91	761.58	1	5.33

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
YGWA-6I	9/22/2020	2074790.49	1260490.02	764.25	761.95	1	2.30
YGWA-6I	11/11/2020	2074790.49	1260490.02	764.26	761.64	1	2.62
YGWA-6S	1/10/2018	2074786.49	1260484.87	760.99	759.13	1	1.86
YGWA-6S	3/27/2018	2074786.49	1260484.87	762.67	759.37	1	3.30
YGWA-6S	6/5/2018	2074786.49	1260484.87	762.68	760.02	1	2.66
YGWA-6S	8/7/2018	2074786.49	1260484.87	763.15	760.10	1	3.05
YGWA-6S	9/18/2018	2074786.49	1260484.87	762.23	759.90	1	2.33
YGWA-6S	2/26/2019	2074786.49	1260484.87	765.81	762.46	1	3.35
YGWA-6S	3/26/2019	2074786.49	1260484.87	765.85	762.20	1	3.65
YGWA-6S	8/20/2019	2074786.49	1260484.87	763.20	760.35	1	2.85
YGWA-6S	9/24/2019	2074786.49	1260484.87	762.04	759.40	1	2.64
YGWA-6S	10/8/2019	2074786.49	1260484.87	761.61	759.14	1	2.47
YGWA-6S	3/17/2020	2074786.49	1260484.87	767.32	761.89	1	5.43
YGWA-6S	9/22/2020	2074786.49	1260484.87	764.25	762.26	1	1.99
YGWA-6S	11/11/2020	2074786.49	1260484.87	764.32	761.95	1	2.37
YGWC-19S	1/10/2018	2075494.73	1255593.91	748.90	748.41	1	0.49
YGWC-22S	1/10/2018	2075086.38	1257176.36	742.66	743.90	1	-1.24
YGWC-23S	1/10/2018	2074734.06	1256366.93	749.69	751.94	1	-2.25
YGWC-23S	3/27/2018	2074734.06	1256366.93	750.86	752.30	1	-1.44
YGWC-23S	6/5/2018	2074734.06	1256366.93	750.58	752.50	1	-1.92
YGWC-23S	7/8/2018	2074734.06	1256366.93	750.59	752.53	1	-1.94
YGWC-23S	9/15/2018	2074734.06	1256366.93	746.86	752.08	1	-5.22
YGWC-23S	2/26/2019	2074734.06	1256366.93	749.72	753.82	1	-4.10
YGWC-23S	3/26/2019	2074734.06	1256366.93	748.84	753.88	1	-5.04
YGWC-23S	8/20/2019	2074734.06	1256366.93	748.84	752.65	1	-3.81
YGWC-23S	9/24/2019	2074734.06	1256366.93	744.91	752.03	1	-7.12
YGWC-23S	10/8/2019	2074734.06	1256366.93	744.77	751.88	1	-7.11
YGWC-23S	3/17/2020	2074734.06	1256366.93	748.98	753.68	1	-4.70
YGWC-23S	9/22/2020	2074734.06	1256366.93	747.30	753.24	1	-5.94
YGWC-23S	11/11/2020	2074734.06	1256366.93	747.57	753.13	1	-5.56
YGWC-24S	1/10/2018	2073885.88	1258878.26	735.56	737.01	1	-1.45
YGWC-24S	3/27/2018	2073885.88	1258878.26	736.17	737.56	1	-1.39
YGWC-24S	6/5/2018	2073885.88	1258878.26	736.18	737.47	1	-1.29
YGWC-24S	8/7/2018	2073885.88	1258878.26	735.91	737.15	1	-1.24
YGWC-24S	9/18/2018	2073885.88	1258878.26	735.25	736.85	1	-1.60
YGWC-24S	2/26/2019	2073885.88	1258878.26	737.56	739.33	1	-1.77
YGWC-24S	3/26/2019	2073885.88	1258878.26	737.45	739.31	1	-1.86
YGWC-24S	8/20/2019	2073885.88	1258878.26	735.89	737.24	1	-1.35
YGWC-24S	9/24/2019	2073885.88	1258878.26	734.53	736.56	1	-2.03
YGWC-24S	10/8/2019	2073885.88	1258878.26	735.12	736.44	1	-1.32
YGWC-24S	3/17/2020	2073885.88	1258878.26	738.16	739.32	1	-1.16
YGWC-32I	1/10/2018	2075022.29	1257643.15	739.01	745.36	1	-6.35
YGWC-32S	1/10/2018	2075014.68	1257645.86	740.76	745.23	1	-4.47
YGWC-33S	1/10/2018	2074258.64	1258345.18	736.27	735.65	1	0.62
YGWC-33S	3/27/2018	2074258.64	1258345.18	734.79	736.38	1	-1.59
YGWC-33S	6/5/2018	2074258.64	1258345.18	734.47	735.90	1	-1.43
YGWC-33S	7/8/2018	2074258.64	1258345.18	734.47	735.63	1	-1.16
YGWC-33S	9/15/2018	2074258.64	1258345.18	729.88	735.06	1	-5.18
YGWC-33S	2/26/2019	2074258.64	1258345.18	732.07	737.71	1	-5.64
YGWC-33S	3/26/2019	2074258.64	1258345.18	731.32	737.80	1	-6.48
YGWC-33S	8/20/2019	2074258.64	1258345.18	731.32	735.40	1	-4.08
YGWC-33S	9/24/2019	2074258.64	1258345.18	728.36	734.77	1	-6.41
YGWC-33S	10/8/2019	2074258.64	1258345.18	728.41	734.71	1	-6.30
YGWC-33S	3/17/2020	2074258.64	1258345.18	729.67	737.80	1	-8.13
YGWC-34I	1/10/2018	2075231.62	1257485.47	748.59	747.85	1	0.74
YGWC-36	1/10/2018	2073771.05	1258513.80	729.33	732.85	1	-3.52
YGWC-36	3/27/2018	2073771.05	1258513.80	729.37	733.69	1	-4.32
YGWC-36	6/5/2018	2073771.05	1258513.80	729.35	733.07	1	-3.72
YGWC-36	7/8/2018	2073771.05	1258513.80	729.39	732.74	1	-3.35
YGWC-36	9/15/2018	2073771.05	1258513.80	729.05	732.20	1	-3.15
YGWC-36	2/26/2019	2073771.05	1258513.80	729.88	735.18	1	-5.30
YGWC-36	3/26/2019	2073771.05	1258513.80	729.53	735.06	1	-5.53
YGWC-36	8/20/2019	2073771.05	1258513.80	729.53	732.34	1	-2.81
YGWC-36	9/24/2019	2073771.05	1258513.80	729.14	731.69	1	-2.55
YGWC-36	10/8/2019	2073771.05	1258513.80	729.12	731.66	1	-2.54
YGWC-36	3/17/2020	2073771.05	1258513.80	730.15	735.48	1	-5.33
YGWC-36	11/11/2020	2073771.05	1258513.80	726.23	733.48	1	-7.25
YGWC-38	1/10/2018	2074446.80	1256108.38	767.54	765.40	1	2.14
YGWC-38	3/27/2018	2074446.80	1256108.38	768.40	765.57	1	2.83
YGWC-38	6/5/2018	2074446.80	1256108.38	768.67	765.95	1	2.72
YGWC-38	7/8/2018	2074446.80	1256108.38	768.69	766.07	1	2.62
YGWC-38	9/18/2018	2074446.80	1256108.38	768.21	765.85	1	2.36
YGWC-38	2/26/2019	2074446.80	1256108.38	770.12	767.39	1	2.73
YGWC-38	3/26/2019	2074446.80	1256108.38	770.72	767.27	1	3.45
YGWC-38	8/20/2019	2074446.80	1256108.38	770.72	766.27	1	4.45
YGWC-38	9/24/2019	2074446.80	1256108.38	769.25	765.73	1	3.52
YGWC-38	10/8/2019	2074446.80	1256108.38	768.98	765.59	1	3.39
YGWC-38	3/17/2020	2074446.80	1256108.38	771.44	767.25	1	4.19

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
YGWC-38	9/22/2020	2074446.80	1256108.38	769.87	767.35	1	2.52
YGWC-38	11/11/2020	2074446.80	1256108.38	769.42	767.19	1	2.23
YGWC-41	1/10/2018	2073274.41	1256510.62	774.45	775.76	1	-1.31
YGWC-41	3/27/2018	2073274.41	1256510.62	776.04	775.97	1	0.07
YGWC-41	6/5/2018	2073274.41	1256510.62	776.50	776.54	1	-0.04
YGWC-41	8/7/2018	2073274.41	1256510.62	776.07	776.61	1	-0.54
YGWC-41	9/18/2018	2073274.41	1256510.62	775.35	776.44	1	-1.09
YGWC-41	2/26/2019	2073274.41	1256510.62	775.69	778.67	1	-2.98
YGWC-41	3/26/2019	2073274.41	1256510.62	778.30	778.40	1	-0.10
YGWC-41	8/20/2019	2073274.41	1256510.62	776.72	776.88	1	-0.16
YGWC-41	9/24/2019	2073274.41	1256510.62	775.56	776.08	1	-0.52
YGWC-41	10/8/2019	2073274.41	1256510.62	775.09	775.87	1	-0.78
YGWC-41	3/17/2020	2073274.41	1256510.62	779.68	778.56	1	1.12
YGWC-41	9/22/2020	2073274.41	1256510.62	777.01	778.85	1	-1.84
YGWC-41	11/11/2020	2073274.41	1256510.62	777.09	778.60	1	-1.51
YGWC-42	1/10/2018	2073326.52	1256882.87	768.33	766.75	1	1.58
YGWC-42	3/27/2018	2073326.52	1256882.87	769.88	766.88	1	3.00
YGWC-42	6/5/2018	2073326.52	1256882.87	770.06	767.35	1	2.71
YGWC-42	8/7/2018	2073326.52	1256882.87	769.09	767.44	1	1.65
YGWC-42	9/18/2018	2073326.52	1256882.87	768.55	767.33	1	1.22
YGWC-42	2/26/2019	2073326.52	1256882.87	768.87	769.16	1	-0.29
YGWC-42	3/26/2019	2073326.52	1256882.87	772.41	768.91	1	3.50
YGWC-42	8/20/2019	2073326.52	1256882.87	769.40	767.66	1	1.74
YGWC-42	9/24/2019	2073326.52	1256882.87	768.30	767.05	1	1.25
YGWC-42	10/8/2019	2073326.52	1256882.87	767.92	766.88	1	1.04
YGWC-42	3/17/2020	2073326.52	1256882.87	773.42	769.01	1	4.41
YGWC-42	9/22/2020	2073326.52	1256882.87	770.38	769.23	1	1.15
YGWC-42	11/11/2020	2073326.52	1256882.87	770.07	769.02	1	1.05
YGWC-43	1/10/2018	2073199.65	1257547.41	728.99	739.08	1	-10.09
YGWC-43	3/27/2018	2073199.65	1257547.41	729.19	739.43	1	-10.24
YGWC-43	6/5/2018	2073199.65	1257547.41	728.73	739.95	1	-11.22
YGWC-43	8/7/2018	2073199.65	1257547.41	729.01	739.85	1	-10.84
YGWC-43	9/18/2018	2073199.65	1257547.41	728.73	739.50	1	-10.77
YGWC-43	2/26/2019	2073199.65	1257547.41	731.17	741.93	1	-10.76
YGWC-43	3/26/2019	2073199.65	1257547.41	730.88	741.32	1	-10.44
YGWC-43	8/20/2019	2073199.65	1257547.41	729.22	739.17	1	-9.95
YGWC-43	9/24/2019	2073199.65	1257547.41	728.06	738.27	1	-10.21
YGWC-43	10/8/2019	2073199.65	1257547.41	727.79	738.06	1	-10.27
YGWC-43	3/17/2020	2073199.65	1257547.41	731.01	742.06	1	-11.05
YGWC-43	9/22/2020	2073199.65	1257547.41	729.85	740.59	1	-10.74
YGWC-43	11/11/2020	2073199.65	1257547.41	729.14	740.27	1	-11.13
YGWC-49	1/10/2018	2074337.51	1259375.23	750.13	749.98	1	0.15
YGWC-49	3/27/2018	2074337.51	1259375.23	750.90	750.22	1	0.68
YGWC-49	6/5/2018	2074337.51	1259375.23	751.42	750.50	1	0.92
YGWC-49	8/7/2018	2074337.51	1259375.23	751.31	750.46	1	0.85
YGWC-49	9/18/2018	2074337.51	1259375.23	751.07	750.29	1	0.78
YGWC-49	2/26/2019	2074337.51	1259375.23	752.92	752.17	1	0.75
YGWC-49	3/26/2019	2074337.51	1259375.23	753.39	752.18	1	1.21
YGWC-49	8/20/2019	2074337.51	1259375.23	733.20	750.94	1	-17.74
YGWC-49	9/24/2019	2074337.51	1259375.23	751.22	750.33	1	0.89
YGWC-49	10/8/2019	2074337.51	1259375.23	750.94	750.17	1	0.77
YGWC-49	3/17/2020	2074337.51	1259375.23	753.39	751.75	1	1.64
YGWC-49	9/22/2020	2074337.51	1259375.23	751.73	751.72	1	0.01
YGWC-49	11/11/2020	2074337.51	1259375.23	751.38	751.61	1	-0.23
PZ-09I	1/10/2018	2070720.09	1261995.81	692.34	693.98	1	-1.64
PZ-09I	3/27/2018	2070720.09	1261995.81	695.48	694.53	1	0.95
PZ-09I	6/5/2018	2070720.09	1261995.81	694.83	695.29	1	-0.46
PZ-09I	8/7/2018	2070720.09	1261995.81	695.70	695.28	1	0.42
PZ-09I	9/18/2018	2070720.09	1261995.81	692.86	694.96	1	-2.10
PZ-09I	2/26/2019	2070720.09	1261995.81	698.19	697.37	1	0.82
PZ-09I	3/26/2019	2070720.09	1261995.81	696.46	697.22	1	-0.76
PZ-09I	8/20/2019	2070720.09	1261995.81	692.66	695.07	1	-2.41
PZ-09I	9/24/2019	2070720.09	1261995.81	691.92	694.15	1	-2.23
PZ-09I	10/8/2019	2070720.09	1261995.81	691.51	693.95	1	-2.44
PZ-09I	11/11/2020	2070720.09	1261995.81	695.16	696.09	1	-0.93
PZ-09S	1/10/2018	2070720.43	1262003.49	692.54	694.05	1	-1.51
PZ-09S	3/27/2018	2070720.43	1262003.49	695.63	694.59	1	1.04
PZ-09S	6/5/2018	2070720.43	1262003.49	695.03	695.36	1	-0.33
PZ-09S	8/7/2018	2070720.43	1262003.49	695.90	695.36	1	0.54
PZ-09S	9/18/2018	2070720.43	1262003.49	693.06	695.03	1	-1.97
PZ-09S	2/26/2019	2070720.43	1262003.49	698.28	697.44	1	0.84
PZ-09S	3/26/2019	2070720.43	1262003.49	696.67	697.28	1	-0.61
PZ-09S	8/20/2019	2070720.43	1262003.49	692.34	695.13	1	-2.79
PZ-09S	9/24/2019	2070720.43	1262003.49	691.58	694.20	1	-2.62
PZ-09S	10/8/2019	2070720.43	1262003.49	691.72	693.99	1	-2.27
PZ-09S	11/11/2020	2070720.43	1262003.49	695.34	696.16	1	-0.82
PZ-10I	1/10/2018	2070551.98	1260809.64	686.49	687.66	1	-1.17
PZ-10I	3/27/2018	2070551.98	1260809.64	688.30	688.52	1	-0.22

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
PZ-10I	6/5/2018	2070551.98	1260809.64	689.30	689.09	1	0.21
PZ-10I	8/7/2018	2070551.98	1260809.64	688.01	688.92	1	-0.91
PZ-10I	9/18/2018	2070551.98	1260809.64	686.30	688.50	1	-2.20
PZ-10I	2/26/2019	2070551.98	1260809.64	690.77	690.94	1	-0.17
PZ-10I	3/26/2019	2070551.98	1260809.64	689.14	691.17	1	-2.03
PZ-10I	8/20/2019	2070551.98	1260809.64	686.35	688.51	1	-2.16
PZ-10I	9/24/2019	2070551.98	1260809.64	686.21	687.75	1	-1.54
PZ-10I	10/8/2019	2070551.98	1260809.64	686.14	687.61	1	-1.47
PZ-10I	11/11/2020	2070551.98	1260809.64	688.23	689.04	1	-0.81
PZ-10S	1/10/2018	2070552.32	1260802.29	692.51	687.33	1	5.18
PZ-10S	3/27/2018	2070552.32	1260802.29	694.05	688.20	1	5.85
PZ-10S	6/5/2018	2070552.32	1260802.29	693.60	688.74	1	4.86
PZ-10S	8/7/2018	2070552.32	1260802.29	694.05	688.56	1	5.49
PZ-10S	9/18/2018	2070552.32	1260802.29	692.51	688.14	1	4.37
PZ-10S	2/26/2019	2070552.32	1260802.29	694.96	690.59	1	4.37
PZ-10S	3/26/2019	2070552.32	1260802.29	694.19	690.82	1	3.37
PZ-10S	8/20/2019	2070552.32	1260802.29	692.08	688.13	1	3.95
PZ-10S	9/24/2019	2070552.32	1260802.29	692.56	687.39	1	5.17
PZ-10S	10/8/2019	2070552.32	1260802.29	692.36	687.25	1	5.11
PZ-10S	11/11/2020	2070552.32	1260802.29	693.78	688.66	1	5.12
YGWA-47	1/10/2018	2071818.05	1262411.84	722.56	715.26	1	7.30
YGWA-47	3/27/2018	2071818.05	1262411.84	722.23	715.50	1	6.73
YGWA-47	6/5/2018	2071818.05	1262411.84	722.53	716.21	1	6.32
YGWA-47	8/7/2018	2071818.05	1262411.84	722.62	716.36	1	6.26
YGWA-47	9/18/2018	2071818.05	1262411.84	722.24	716.20	1	6.04
YGWA-47	2/26/2019	2071818.05	1262411.84	725.59	718.83	1	6.76
YGWA-47	3/26/2019	2071818.05	1262411.84	726.64	718.57	1	8.07
YGWA-47	8/20/2019	2071818.05	1262411.84	724.42	716.81	1	7.61
YGWA-47	9/24/2019	2071818.05	1262411.84	723.13	715.87	1	7.26
YGWA-47	10/8/2019	2071818.05	1262411.84	722.67	715.62	1	7.05
YGWA-47	11/11/2020	2071818.05	1262411.84	724.19	718.65	1	5.54
YGWC-44	1/10/2018	2071219.39	1261874.34	707.12	702.94	1	4.18
YGWC-44	3/27/2018	2071219.39	1261874.34	707.66	703.23	1	4.43
YGWC-44	6/5/2018	2071219.39	1261874.34	707.74	703.87	1	3.87
YGWC-44	8/7/2018	2071219.39	1261874.34	708.09	704.05	1	4.04
YGWC-44	9/18/2018	2071219.39	1261874.34	707.73	703.98	1	3.75
YGWC-44	2/26/2019	2071219.39	1261874.34	710.04	706.30	1	3.74
YGWC-44	3/26/2019	2071219.39	1261874.34	710.47	706.28	1	4.19
YGWC-44	8/20/2019	2071219.39	1261874.34	708.82	704.89	1	3.93
YGWC-44	9/24/2019	2071219.39	1261874.34	707.99	704.15	1	3.84
YGWC-44	10/8/2019	2071219.39	1261874.34	707.74	703.92	1	3.82
YGWC-44	11/11/2020	2071219.39	1261874.34	708.61	706.02	1	2.59
YGWC-45	1/10/2018	2070912.60	1261668.95	696.39	696.41	1	-0.02
YGWC-45	3/27/2018	2070912.60	1261668.95	697.09	696.87	1	0.22
YGWC-45	6/5/2018	2070912.60	1261668.95	696.91	697.51	1	-0.60
YGWC-45	8/7/2018	2070912.60	1261668.95	697.11	697.55	1	-0.44
YGWC-45	9/18/2018	2070912.60	1261668.95	696.51	697.32	1	-0.81
YGWC-45	2/26/2019	2070912.60	1261668.95	697.92	699.72	1	-1.80
YGWC-45	3/26/2019	2070912.60	1261668.95	697.63	699.61	1	-1.98
YGWC-45	8/20/2019	2070912.60	1261668.95	696.58	697.74	1	-1.16
YGWC-45	9/24/2019	2070912.60	1261668.95	696.61	696.93	1	-0.32
YGWC-45	10/8/2019	2070912.60	1261668.95	696.51	696.74	1	-0.23
YGWC-45	3/17/2020	2070912.60	1261668.95	698.27	699.80	1	-1.53
YGWC-45	8/29/2020	2070912.60	1261668.95	696.96	698.98	1	-2.02
YGWC-45	9/24/2020	2070912.60	1261668.95	697.01	698.80	1	-1.79
YGWC-45	11/11/2020	2070912.60	1261668.95	697.26	698.74	1	-1.48
YGWC-46	1/10/2018	2071035.31	1261031.45	699.79	699.34	1	0.45
YGWC-46	3/27/2018	2071035.31	1261031.45	699.95	699.72	1	0.23
YGWC-46	6/5/2018	2071035.31	1261031.45	699.77	700.30	1	-0.53
YGWC-46	8/7/2018	2071035.31	1261031.45	699.71	700.41	1	-0.70
YGWC-46	9/18/2018	2071035.31	1261031.45	699.08	700.29	1	-1.21
YGWC-46	2/26/2019	2071035.31	1261031.45	700.74	702.58	1	-1.84
YGWC-46	3/26/2019	2071035.31	1261031.45	700.65	702.63	1	-1.98
YGWC-46	8/20/2019	2071035.31	1261031.45	699.23	701.09	1	-1.86
YGWC-46	9/24/2019	2071035.31	1261031.45	699.19	700.38	1	-1.19
YGWC-46	10/8/2019	2071035.31	1261031.45	699.05	700.18	1	-1.13
YGWC-46	3/17/2020	2071035.31	1261031.45	701.16	702.24	1	-1.08
YGWC-46	11/11/2020	2071035.31	1261031.45	709.55	701.96	1	7.59
PZ-01S	1/10/2018	2070101.23	1256871.97	803.19	803.30	1	-0.11
PZ-01S	3/27/2018	2070101.23	1256871.97	804.39	803.54	1	0.85
PZ-01S	6/5/2018	2070101.23	1256871.97	805.54	804.26	1	1.28
PZ-01S	8/7/2018	2070101.23	1256871.97	805.59	804.41	1	1.18
PZ-01S	9/18/2018	2070101.23	1256871.97	805.16	804.25	1	0.91
PZ-01S	11/11/2020	2070101.23	1256871.97	804.34	807.35	1	-3.01
PZ-03S	1/10/2018	2072021.63	1256410.86	759.31	754.27	1	5.04
PZ-03S	3/27/2018	2072021.63	1256410.86	759.68	754.47	1	5.21
PZ-03S	6/5/2018	2072021.63	1256410.86	760.88	754.96	1	5.92
PZ-03S	8/7/2018	2072021.63	1256410.86	761.36	754.95	1	6.41

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
PZ-03S	9/18/2018	2072021.63	1256410.86	761.23	754.72	1	6.51
PZ-03S	11/11/2020	2072021.63	1256410.86	761.43	755.80	1	5.63
PZ-13I	1/10/2018	2069817.10	1257850.30	766.65	767.61	1	-0.96
PZ-13I	3/27/2018	2069817.10	1257850.30	767.43	767.81	1	-0.38
PZ-13I	6/5/2018	2069817.10	1257850.30	768.48	768.44	1	0.04
PZ-13I	8/7/2018	2069817.10	1257850.30	768.87	768.58	1	0.29
PZ-13I	9/18/2018	2069817.10	1257850.30	768.52	768.46	1	0.06
PZ-13I	11/11/2020	2069817.10	1257850.30	768.39	771.08	1	-2.69
PZ-13S	1/10/2018	2069810.25	1257849.98	769.91	770.47	1	-0.56
PZ-13S	3/27/2018	2069810.25	1257849.98	770.49	770.70	1	-0.21
PZ-13S	6/5/2018	2069810.25	1257849.98	771.35	771.40	1	-0.05
PZ-13S	8/7/2018	2069810.25	1257849.98	771.98	771.53	1	0.45
PZ-13S	9/18/2018	2069810.25	1257849.98	771.93	771.37	1	0.56
PZ-13S	11/11/2020	2069810.25	1257849.98	772.13	774.14	1	-2.01
PZ-14I	1/10/2018	2072542.59	1257826.16	729.33	731.22	1	-1.89
PZ-14I	3/27/2018	2072542.59	1257826.16	730.63	732.11	1	-1.48
PZ-14I	6/5/2018	2072542.59	1257826.16	730.08	732.14	1	-2.06
PZ-14I	8/7/2018	2072542.59	1257826.16	729.94	731.70	1	-1.76
PZ-14I	9/18/2018	2072542.59	1257826.16	729.40	731.23	1	-1.83
PZ-14I	11/11/2020	2072542.59	1257826.16	730.63	730.63	1	0.00
PZ-25I	1/10/2018	2073491.10	1258860.75	729.17	731.90	1	-2.73
PZ-25I	3/27/2018	2073491.10	1258860.75	729.75	732.85	1	-3.10
PZ-25I	6/5/2018	2073491.10	1258860.75	729.46	732.16	1	-2.70
PZ-25I	8/7/2018	2073491.10	1258860.75	729.49	731.57	1	-2.08
PZ-25I	9/18/2018	2073491.10	1258860.75	728.95	731.24	1	-2.29
PZ-25I	11/11/2020	2073491.10	1258860.75	728.99	732.84	1	-3.85
PZ-25S	1/10/2018	2073497.99	1258856.99	730.60	731.83	1	-1.23
PZ-25S	3/27/2018	2073497.99	1258856.99	731.16	732.83	1	-1.67
PZ-25S	6/5/2018	2073497.99	1258856.99	730.96	732.07	1	-1.11
PZ-25S	8/7/2018	2073497.99	1258856.99	730.96	731.44	1	-0.48
PZ-25S	9/18/2018	2073497.99	1258856.99	730.40	731.11	1	-0.71
PZ-25S	11/11/2020	2073497.99	1258856.99	730.52	732.75	1	-2.23
PZ-31S	1/10/2018	2072820.25	1258313.70	722.93	726.36	1	-3.43
PZ-31S	3/27/2018	2072820.25	1258313.70	723.10	727.82	1	-4.72
PZ-31S	6/5/2018	2072820.25	1258313.70	722.74	727.08	1	-4.34
PZ-31S	8/7/2018	2072820.25	1258313.70	722.87	726.32	1	-3.45
PZ-31S	9/18/2018	2072820.25	1258313.70	722.57	725.83	1	-3.26
PZ-31S	11/11/2020	2072820.25	1258313.70	724.13	726.10	1	-1.97
YGWA-14S	1/10/2018	2072537.24	1257828.65	730.21	731.26	1	-1.05
YGWA-14S	3/27/2018	2072537.24	1257828.65	731.75	732.14	1	-0.39
YGWA-14S	6/5/2018	2072537.24	1257828.65	731.21	732.21	1	-1.00
YGWA-14S	8/7/2018	2072537.24	1257828.65	731.12	731.78	1	-0.66
YGWA-14S	9/18/2018	2072537.24	1257828.65	730.43	731.29	1	-0.86
YGWA-14S	11/11/2020	2072537.24	1257828.65	731.37	730.68	1	0.69
YGWA-1D	1/10/2018	2070104.61	1256867.34	784.57	781.63	1	2.94
YGWA-1D	3/27/2018	2070104.61	1256867.34	786.63	781.83	1	4.80
YGWA-1D	6/5/2018	2070104.61	1256867.34	787.53	782.39	1	5.14
YGWA-1D	8/7/2018	2070104.61	1256867.34	788.33	782.52	1	5.81
YGWA-1D	9/18/2018	2070104.61	1256867.34	787.87	782.42	1	5.45
YGWA-1D	11/11/2020	2070104.61	1256867.34	788.54	784.75	1	3.79
YGWA-1I	1/10/2018	2070097.91	1256876.13	797.45	800.87	1	-3.42
YGWA-1I	3/27/2018	2070097.91	1256876.13	798.69	801.10	1	-2.41
YGWA-1I	6/5/2018	2070097.91	1256876.13	800.30	801.81	1	-1.51
YGWA-1I	8/7/2018	2070097.91	1256876.13	800.47	801.96	1	-1.49
YGWA-1I	9/18/2018	2070097.91	1256876.13	799.95	801.82	1	-1.87
YGWA-1I	11/11/2020	2070097.91	1256876.13	799.18	804.86	1	-5.68
YGWA-2I	1/10/2018	2070790.49	1256144.08	819.84	816.43	1	3.41
YGWA-2I	3/27/2018	2070790.49	1256144.08	820.91	816.65	1	4.26
YGWA-2I	6/5/2018	2070790.49	1256144.08	822.05	817.24	1	4.81
YGWA-2I	8/7/2018	2070790.49	1256144.08	822.03	817.38	1	4.65
YGWA-2I	9/18/2018	2070790.49	1256144.08	821.68	817.27	1	4.41
YGWA-2I	11/11/2020	2070790.49	1256144.08	821.61	820.23	1	1.38
YGWA-30I	1/10/2018	2071107.10	1258421.86	725.45	725.34	1	0.11
YGWA-30I	3/27/2018	2071107.10	1258421.86	726.12	726.00	1	0.12
YGWA-30I	6/5/2018	2071107.10	1258421.86	726.20	726.30	1	-0.10
YGWA-30I	8/7/2018	2071107.10	1258421.86	726.05	726.02	1	0.03
YGWA-30I	9/18/2018	2071107.10	1258421.86	725.55	725.58	1	-0.03
YGWA-30I	11/11/2020	2071107.10	1258421.86	718.60	727.70	1	-9.10
YGWA-3D	1/10/2018	2072026.21	1256399.94	763.53	756.53	1	7.00
YGWA-3D	3/27/2018	2072026.21	1256399.94	764.81	757.00	1	7.81
YGWA-3D	6/5/2018	2072026.21	1256399.94	764.93	757.08	1	7.85
YGWA-3D	8/7/2018	2072026.21	1256399.94	765.78	756.89	1	8.89
YGWA-3D	9/18/2018	2072026.21	1256399.94	764.58	756.64	1	7.94
YGWA-3D	11/11/2020	2072026.21	1256399.94	767.87	757.88	1	9.99
YGWA-3I	1/10/2018	2072024.20	1256405.20	743.79	750.60	1	-6.81
YGWA-3I	3/27/2018	2072024.20	1256405.20	743.92	750.81	1	-6.89
YGWA-3I	6/5/2018	2072024.20	1256405.20	743.00	751.05	1	-8.05
YGWA-3I	9/18/2018	2072024.20	1256405.20	742.82	750.90	1	-8.08

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
YGWA-3I	11/11/2020	2072024.20	1256405.20	743.72	751.95	1	-8.23
YGWC-26I	1/10/2018	2070613.56	1259725.79	691.18	695.85	1	-4.67
YGWC-26I	3/27/2018	2070613.56	1259725.79	696.84	696.56	1	0.28
YGWC-26I	6/5/2018	2070613.56	1259725.79	693.01	697.16	1	-4.15
YGWC-26I	8/7/2018	2070613.56	1259725.79	692.46	697.02	1	-4.56
YGWC-26I	9/18/2018	2070613.56	1259725.79	691.04	696.61	1	-5.57
YGWC-26I	11/11/2020	2070613.56	1259725.79	690.25	697.24	1	-6.99
YGWC-26S	1/10/2018	2070615.87	1259734.66	695.22	696.45	1	-1.23
YGWC-26S	3/27/2018	2070615.87	1259734.66	693.22	697.12	1	-3.90
YGWC-26S	6/5/2018	2070615.87	1259734.66	696.67	697.73	1	-1.06
YGWC-26S	8/7/2018	2070615.87	1259734.66	696.70	697.61	1	-0.91
YGWC-26S	9/18/2018	2070615.87	1259734.66	694.97	697.21	1	-2.24
YGWC-26S	3/17/2020	2070615.87	1259734.66	696.57	699.73	1	-3.16
YGWC-26S	9/22/2020	2070615.87	1259734.66	690.99	697.87	1	-6.88
YGWC-26S	11/11/2020	2070615.87	1259734.66	691.33	697.85	1	-6.52
YGWC-27I	1/10/2018	2070460.89	1259423.73	688.17	696.56	1	-8.39
YGWC-27I	3/27/2018	2070460.89	1259423.73	690.63	697.29	1	-6.66
YGWC-27I	6/5/2018	2070460.89	1259423.73	691.23	697.70	1	-6.47
YGWC-27I	8/7/2018	2070460.89	1259423.73	689.90	697.52	1	-7.62
YGWC-27I	9/18/2018	2070460.89	1259423.73	687.69	697.17	1	-9.48
YGWC-27I	3/17/2020	2070460.89	1259423.73	691.96	699.29	1	-7.33
YGWC-27I	9/22/2020	2070460.89	1259423.73	685.82	697.27	1	-11.45
YGWC-27I	11/11/2020	2070460.89	1259423.73	686.82	697.43	1	-10.61
YGWC-27S	1/10/2018	2070454.17	1259417.12	689.17	696.32	1	-7.15
YGWC-27S	3/27/2018	2070454.17	1259417.12	690.38	696.93	1	-6.55
YGWC-27S	6/5/2018	2070454.17	1259417.12	692.02	697.32	1	-5.30
YGWC-27S	8/7/2018	2070454.17	1259417.12	689.62	697.20	1	-7.58
YGWC-27S	9/18/2018	2070454.17	1259417.12	688.69	696.92	1	-8.23
YGWC-27S	3/17/2020	2070454.17	1259417.12	692.50	698.86	1	-6.36
YGWC-27S	9/22/2020	2070454.17	1259417.12	686.31	697.04	1	-10.73
YGWC-27S	11/11/2020	2070454.17	1259417.12	687.09	697.14	1	-10.05
YGWC-28I	1/10/2018	2070328.27	1259226.47	691.01	695.80	1	-4.79
YGWC-28I	3/27/2018	2070328.27	1259226.47	695.69	696.58	1	-0.89
YGWC-28I	6/5/2018	2070328.27	1259226.47	696.27	696.98	1	-0.71
YGWC-28I	8/7/2018	2070328.27	1259226.47	695.43	696.78	1	-1.35
YGWC-28I	9/18/2018	2070328.27	1259226.47	694.69	696.41	1	-1.72
YGWC-28I	3/17/2020	2070328.27	1259226.47	695.56	698.51	1	-2.95
YGWC-28I	9/22/2020	2070328.27	1259226.47	689.60	696.43	1	-6.83
YGWC-28I	11/11/2020	2070328.27	1259226.47	688.55	696.64	1	-8.09
YGWC-28S	1/10/2018	2070322.23	1259218.37	695.24	696.21	1	-0.97
YGWC-28S	3/27/2018	2070322.23	1259218.37	696.27	696.96	1	-0.69
YGWC-28S	6/5/2018	2070322.23	1259218.37	696.69	697.32	1	-0.63
YGWC-28S	8/7/2018	2070322.23	1259218.37	696.04	697.13	1	-1.09
YGWC-28S	9/18/2018	2070322.23	1259218.37	694.87	696.77	1	-1.90
YGWC-28S	3/17/2020	2070322.23	1259218.37	695.81	698.84	1	-3.03
YGWC-28S	9/22/2020	2070322.23	1259218.37	691.23	696.80	1	-5.57
YGWC-28S	11/11/2020	2070322.23	1259218.37	690.16	696.99	1	-6.83
YGWC-29I	1/10/2018	2070203.26	1258974.06	690.50	698.26	1	-7.76
YGWC-29I	3/27/2018	2070203.26	1258974.06	692.16	698.95	1	-6.79
YGWC-29I	6/5/2018	2070203.26	1258974.06	691.93	699.38	1	-7.45
YGWC-29I	8/7/2018	2070203.26	1258974.06	691.41	699.21	1	-7.80
YGWC-29I	9/18/2018	2070203.26	1258974.06	690.22	698.84	1	-8.62
YGWC-29I	3/17/2020	2070203.26	1258974.06	692.75	701.08	1	-8.33
YGWC-29I	9/22/2020	2070203.26	1258974.06	689.78	699.40	1	-9.62
YGWC-29I	11/11/2020	2070203.26	1258974.06	687.69	699.45	1	-11.76
GWA-2	1/10/2018	2073509.98	1261383.11	765.10	762.03	1	3.07
GWA-2	3/27/2018	2073509.98	1261383.11	765.11	762.23	1	2.88
GWA-2	6/5/2018	2073509.98	1261383.11	766.04	762.57	1	3.47
GWA-2	8/7/2018	2073509.98	1261383.11	766.47	762.60	1	3.87
GWA-2	9/18/2018	2073509.98	1261383.11	766.62	762.49	1	4.13
GWA-2	2/26/2019	2073509.98	1261383.11	766.62	763.42	1	3.20
GWA-2	3/20/2019	2073509.98	1261383.11	768.42	763.39	1	5.03
GWA-2	8/20/2019	2073509.98	1261383.11	769.58	762.40	1	7.18
GWA-2	9/24/2019	2073509.98	1261383.11	769.44	761.80	1	7.64
GWA-2	10/8/2019	2073509.98	1261383.11	769.36	761.67	1	7.69
GWA-2	3/18/2020	2073509.98	1261383.11	769.29	763.05	1	6.24
GWA-2	8/27/2020	2073509.98	1261383.11	770.82	763.75	1	7.07
GWA-2	9/22/2020	2073509.98	1261383.11	770.64	763.73	1	6.91
GWA-2	11/11/2020	2073509.98	1261383.11	770.51	763.60	1	6.91
GWC-1R	1/10/2018	2073279.85	1261869.77	746.96	745.94	1	1.02
GWC-1R	3/27/2018	2073279.85	1261869.77	749.22	746.70	1	2.52
GWC-1R	6/5/2018	2073279.85	1261869.77	749.62	747.82	1	1.80
GWC-1R	8/7/2018	2073279.85	1261869.77	749.53	748.23	1	1.30
GWC-1R	9/18/2018	2073279.85	1261869.77	748.92	748.21	1	0.71
GWC-1R	2/26/2019	2073279.85	1261869.77	748.92	752.18	1	-3.26
GWC-1R	3/20/2019	2073279.85	1261869.77	752.70	752.07	1	0.63
GWC-1R	8/20/2019	2073279.85	1261869.77	750.60	749.88	1	0.72
GWC-1R	9/24/2019	2073279.85	1261869.77	749.54	748.83	1	0.71

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
GWC-1R	10/8/2019	2073279.85	1261869.77	749.11	748.55	1	0.56
GWC-1R	3/18/2020	2073279.85	1261869.77	754.88	752.11	1	2.77
GWC-1R	8/27/2020	2073279.85	1261869.77	751.69	752.45	1	-0.76
GWC-1R	9/22/2020	2073279.85	1261869.77	751.36	752.35	1	-0.99
GWC-1R	11/11/2020	2073279.85	1261869.77	751.87	752.20	1	-0.33
GWC-2R	1/10/2018	2072755.91	1261942.15	739.56	737.27	1	2.29
GWC-2R	3/27/2018	2072755.91	1261942.15	740.16	738.03	1	2.13
GWC-2R	6/5/2018	2072755.91	1261942.15	740.57	739.04	1	1.53
GWC-2R	8/7/2018	2072755.91	1261942.15	740.57	739.35	1	1.22
GWC-2R	9/18/2018	2072755.91	1261942.15	740.19	739.25	1	0.94
GWC-2R	2/26/2019	2072755.91	1261942.15	740.19	742.93	1	-2.74
GWC-2R	3/20/2019	2072755.91	1261942.15	742.92	742.82	1	0.10
GWC-2R	8/20/2019	2072755.91	1261942.15	741.06	740.71	1	0.35
GWC-2R	9/24/2019	2072755.91	1261942.15	740.35	739.63	1	0.72
GWC-2R	10/8/2019	2072755.91	1261942.15	740.03	739.34	1	0.69
GWC-2R	3/18/2020	2072755.91	1261942.15	743.43	742.81	1	0.62
GWC-2R	8/27/2020	2072755.91	1261942.15	742.12	743.37	1	-1.25
GWC-2R	9/22/2020	2072755.91	1261942.15	741.80	743.25	1	-1.45
GWC-2R	11/11/2020	2072755.91	1261942.15	741.94	743.00	1	-1.06
GWC-3R	1/10/2018	2072841.28	1261647.10	744.53	742.18	1	2.35
GWC-3R	3/27/2018	2072841.28	1261647.10	745.17	743.06	1	2.11
GWC-3R	6/5/2018	2072841.28	1261647.10	745.63	744.28	1	1.35
GWC-3R	8/7/2018	2072841.28	1261647.10	745.90	744.77	1	1.13
GWC-3R	9/18/2018	2072841.28	1261647.10	745.43	744.80	1	0.63
GWC-3R	2/26/2019	2072841.28	1261647.10	745.43	748.51	1	-3.08
GWC-3R	3/20/2019	2072841.28	1261647.10	747.93	748.42	1	-0.49
GWC-3R	8/20/2019	2072841.28	1261647.10	746.85	746.68	1	0.17
GWC-3R	9/24/2019	2072841.28	1261647.10	746.03	745.67	1	0.36
GWC-3R	10/8/2019	2072841.28	1261647.10	745.69	745.38	1	0.31
GWC-3R	3/18/2020	2072841.28	1261647.10	748.96	748.48	1	0.48
GWC-3R	8/27/2020	2072841.28	1261647.10	749.16	749.36	1	-0.20
GWC-3R	9/22/2020	2072841.28	1261647.10	748.21	749.30	1	-1.09
GWC-3R	11/11/2020	2072841.28	1261647.10	748.08	749.03	1	-0.95
GWC-4R	1/10/2018	2072953.68	1262046.56	739.46	738.24	1	1.22
GWC-4R	3/27/2018	2072953.68	1262046.56	740.54	738.97	1	1.57
GWC-4R	6/5/2018	2072953.68	1262046.56	740.74	739.79	1	0.95
GWC-4R	8/7/2018	2072953.68	1262046.56	740.73	739.95	1	0.78
GWC-4R	9/18/2018	2072953.68	1262046.56	740.03	739.79	1	0.24
GWC-4R	2/26/2019	2072953.68	1262046.56	740.03	743.94	1	-3.91
GWC-4R	3/20/2019	2072953.68	1262046.56	742.56	743.76	1	-1.20
GWC-4R	8/20/2019	2072953.68	1262046.56	740.86	741.00	1	-0.14
GWC-4R	9/24/2019	2072953.68	1262046.56	740.02	739.89	1	0.13
GWC-4R	10/8/2019	2072953.68	1262046.56	739.72	739.63	1	0.09
GWC-4R	3/18/2020	2072953.68	1262046.56	743.37	744.00	1	-0.63
GWC-4R	8/27/2020	2072953.68	1262046.56	742.14	743.55	1	-1.41
GWC-4R	9/22/2020	2072953.68	1262046.56	741.92	743.38	1	-1.46
GWC-4R	11/11/2020	2072953.68	1262046.56	742.13	743.35	1	-1.22
GWC-5R	1/10/2018	2073027.56	1261439.91	750.72	746.72	1	4.00
GWC-5R	3/27/2018	2073027.56	1261439.91	752.05	747.57	1	4.48
GWC-5R	6/5/2018	2073027.56	1261439.91	752.54	748.90	1	3.64
GWC-5R	8/7/2018	2073027.56	1261439.91	752.90	749.50	1	3.40
GWC-5R	9/18/2018	2073027.56	1261439.91	752.53	749.60	1	2.93
GWC-5R	2/26/2019	2073027.56	1261439.91	752.53	753.37	1	-0.84
GWC-5R	3/20/2019	2073027.56	1261439.91	755.46	753.29	1	2.17
GWC-5R	8/20/2019	2073027.56	1261439.91	749.20	751.69	1	-2.49
GWC-5R	9/24/2019	2073027.56	1261439.91	752.63	750.70	1	1.93
GWC-5R	10/8/2019	2073027.56	1261439.91	752.23	750.42	1	1.81
GWC-5R	3/18/2020	2073027.56	1261439.91	756.63	753.35	1	3.28
GWC-5R	8/27/2020	2073027.56	1261439.91	754.58	754.40	1	0.18
GWC-5R	9/22/2020	2073027.56	1261439.91	754.20	754.37	1	-0.17
GWC-5R	11/11/2020	2073027.56	1261439.91	754.48	754.09	1	0.39
GWC-6R	1/10/2018	2073479.40	1261732.91	749.19	751.53	1	-2.34
GWC-6R	3/27/2018	2073479.40	1261732.91	750.18	752.18	1	-2.00
GWC-6R	6/5/2018	2073479.40	1261732.91	751.09	753.28	1	-2.19
GWC-6R	8/7/2018	2073479.40	1261732.91	751.35	753.67	1	-2.32
GWC-6R	9/18/2018	2073479.40	1261732.91	751.17	753.64	1	-2.47
GWC-6R	2/26/2019	2073479.40	1261732.91	751.17	757.17	1	-6.00
GWC-6R	3/20/2019	2073479.40	1261732.91	754.22	757.06	1	-2.84
GWC-6R	8/20/2019	2073479.40	1261732.91	755.03	755.20	1	-0.17
GWC-6R	9/24/2019	2073479.40	1261732.91	753.38	754.20	1	-0.82
GWC-6R	10/8/2019	2073479.40	1261732.91	753.14	753.91	1	-0.77
GWC-6R	3/18/2020	2073479.40	1261732.91	755.19	757.01	1	-1.82
GWC-6R	8/27/2020	2073479.40	1261732.91	755.29	757.78	1	-2.49
GWC-6R	9/22/2020	2073479.40	1261732.91	754.94	757.71	1	-2.77
GWC-6R	11/11/2020	2073479.40	1261732.91	754.87	757.46	1	-2.59
YAMW-6	11/11/2020	2070920.38	1260964.50	695.35	698.86	1	-3.51
YGWC-52	8/28/2020	2071464.36	1262145.22	718.53	711.66	1	6.87
YGWC-52	9/23/2020	2071464.36	1262145.22	718.74	711.57	1	7.17

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
YGWC-52	10/8/2020	2071464.36	1262145.22	718.68	711.49	1	7.19
YGWC-52	11/11/2020	2071464.36	1262145.22	718.20	711.25	1	6.95
YAMW-4	3/17/2020	2073280.71	1256532.64	778.52	777.94	1	0.58
YAMW-4	9/22/2020	2073280.71	1256532.64	774.98	778.24	1	-3.26
YAMW-4	11/11/2020	2073280.71	1256532.64	774.68	777.99	1	-3.31
YAMW-5	3/17/2020	2074486.68	1256140.21	774.58	764.90	1	9.68
YAMW-5	9/22/2020	2074486.68	1256140.21	776.06	764.97	1	11.09
YAMW-5	11/11/2020	2074486.68	1256140.21	775.77	764.83	1	10.94
PZ-51	3/17/2020	2073182.55	1257595.80	738.48	740.77	1	-2.29
PZ-51	9/22/2020	2073182.55	1257595.80	737.36	739.16	1	-1.80
PZ-51	11/11/2020	2073182.55	1257595.80	736.56	738.84	1	-2.28
YAMW-3	3/17/2020	2073345.21	1256915.25	765.87	759.70	1	6.17
YAMW-3	9/22/2020	2073345.21	1256915.25	760.77	759.70	1	1.07
YAMW-3	11/11/2020	2073345.21	1256915.25	760.38	759.58	1	0.80
YAMW-2	3/17/2020	2072924.89	1256780.59	765.44	752.42	1	13.02
YAMW-2	9/22/2020	2072924.89	1256780.59	758.86	751.40	1	7.46
YAMW-2	11/11/2020	2072924.89	1256780.59	759.01	751.15	1	7.86
YGWC-24SA	9/22/2020	2073924.81	1258907.98	736.23	738.81	1	-2.58
YGWC-24SA	11/11/2020	2073924.81	1258907.98	736.55	738.88	1	-2.33
PZ-24IA	9/22/2020	2073930.07	1258910.76	735.20	739.18	1	-3.98
PZ-24IA	11/11/2020	2073930.07	1258910.76	735.56	739.27	1	-3.71
YGWC-46A	8/29/2020	2070970.30	1260994.59	694.74	700.51	1	-5.77
YGWC-46A	9/24/2020	2070970.30	1260994.59	694.88	700.35	1	-5.47
YGWC-46A	10/8/2020	2070970.30	1260994.59	694.76	700.31	1	-5.55
AP2-3	1/4/2018	2070299.02	1259293.75	688.86	688.68	0.5	0.09
AP2-3	2/1/2018	2070299.02	1259293.75	689.49	689.14	0.5	0.17
AP2-3	3/1/2018	2070299.02	1259293.75	690.48	689.79	0.5	0.35
AP2-3	3/29/2018	2070299.02	1259293.75	690.30	689.85	0.5	0.23
AP2-3	4/26/2018	2070299.02	1259293.75	693.39	691.49	0.5	0.95
AP2-3	5/24/2018	2070299.02	1259293.75	691.41	690.59	0.5	0.41
AP2-3	6/21/2018	2070299.02	1259293.75	689.71	689.84	0.5	-0.06
AP2-3	7/19/2018	2070299.02	1259293.75	690.30	690.08	0.5	0.11
AP2-3	8/16/2018	2070299.02	1259293.75	690.04	689.82	0.5	0.11
AP2-3	9/13/2018	2070299.02	1259293.75	688.39	688.87	0.5	-0.24
AP2-3	10/11/2018	2070299.02	1259293.75	688.71	689.04	0.5	-0.17
AP2-3	11/8/2018	2070299.02	1259293.75	689.15	689.53	0.5	-0.19
AP2-3	12/6/2018	2070299.02	1259293.75	692.23	691.33	0.5	0.45
AP2-3	12/20/2018	2070299.02	1259293.75	691.43	691.07	0.5	0.18
AP2-3	1/17/2019	2070299.02	1259293.75	692.61	691.85	0.5	0.38
AP2-3	2/14/2019	2070299.02	1259293.75	691.82	691.59	0.5	0.11
AP2-3	3/14/2019	2070299.02	1259293.75	692.52	692.08	0.5	0.22
AP2-3	4/11/2019	2070299.02	1259293.75	691.71	691.67	0.5	0.02
AP2-3	5/9/2019	2070299.02	1259293.75	690.31	690.72	0.5	-0.20
AP2-3	5/30/2019	2070299.02	1259293.75	689.51	690.13	0.5	-0.31
AP2-3	6/27/2019	2070299.02	1259293.75	689.77	690.00	0.5	-0.12
AP2-3	7/25/2019	2070299.02	1259293.75	689.51	689.60	0.5	-0.05
AP2-3	8/22/2019	2070299.02	1259293.75	688.51	688.83	0.5	-0.16
AP2-3	9/19/2019	2070299.02	1259293.75	688.16	688.37	0.5	-0.11
AP2-3	10/17/2019	2070299.02	1259293.75	687.71	688.03	0.5	-0.16
AP2-3	11/14/2019	2070299.02	1259293.75	688.51	688.43	0.5	0.04
AP2-3	12/10/2019	2070299.02	1259293.75	688.10	688.22	0.5	-0.06
AP2-3	1/9/2020	2070299.02	1259293.75	689.51	689.09	0.5	0.21
AP2-3	2/6/2020	2070299.02	1259293.75	688.91	689.39	0.5	-0.24
AP2-3	3/5/2020	2070299.02	1259293.75	693.43	692.25	0.5	0.59
AP2-3	4/2/2020	2070299.02	1259293.75	691.03	691.61	0.5	-0.29
AP2-3	4/30/2020	2070299.02	1259293.75	690.21	690.88	0.5	-0.33
AP2-3	5/28/2020	2070299.02	1259293.75	689.19	690.04	0.5	-0.43
AP2-3	6/25/2020	2070299.02	1259293.75	688.06	689.15	0.5	-0.55
AP2-3	7/23/2020	2070299.02	1259293.75	687.29	688.58	0.5	-0.65
AP2-3	8/20/2020	2070299.02	1259293.75	686.96	688.28	0.5	-0.66
AP2-3	9/17/2020	2070299.02	1259293.75	686.11	687.71	0.5	-0.80
AP2D-1	1/4/2018	2070344.47	1259231.46	697.34	697.59	0.5	-0.12
AP2D-1	2/1/2018	2070344.47	1259231.46	697.86	697.98	0.5	-0.06
AP2D-1	3/1/2018	2070344.47	1259231.46	698.25	698.31	0.5	-0.03
AP2D-1	3/29/2018	2070344.47	1259231.46	698.25	698.44	0.5	-0.10
AP2D-1	4/26/2018	2070344.47	1259231.46	699.60	699.19	0.5	0.21
AP2D-1	5/24/2018	2070344.47	1259231.46	698.34	698.62	0.5	-0.14
AP2D-1	6/21/2018	2070344.47	1259231.46	697.94	698.48	0.5	-0.27
AP2D-1	7/19/2018	2070344.47	1259231.46	698.09	698.51	0.5	-0.21
AP2D-1	8/16/2018	2070344.47	1259231.46	697.99	698.34	0.5	-0.18
AP2D-1	9/13/2018	2070344.47	1259231.46	697.04	697.75	0.5	-0.35
AP2D-1	10/11/2018	2070344.47	1259231.46	696.94	697.74	0.5	-0.40
AP2D-1	11/8/2018	2070344.47	1259231.46	697.41	698.31	0.5	-0.45
AP2D-1	12/6/2018	2070344.47	1259231.46	697.50	698.69	0.5	-0.60
AP2D-1	12/20/2018	2070344.47	1259231.46	698.60	699.41	0.5	-0.40
AP2D-1	1/17/2019	2070344.47	1259231.46	699.30	699.91	0.5	-0.31
AP2D-1	2/14/2019	2070344.47	1259231.46	698.69	699.62	0.5	-0.47
AP2D-1	3/14/2019	2070344.47	1259231.46	699.07	699.83	0.5	-0.38

**Table A-8**  
**Transient Calibration - Observed and Simulated**  
**Groundwater Elevation**  
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**Newnan, Georgia**



Well ID	Date	Easting State Plane (ft)	Northing State Plane (ft)	Observed Groundwater Elevation (ft msl)	Simulated Groundwater Elevation (ft msl)	Weight	Residual (observed - simulated, ft)
AP2D-1	4/11/2019	2070344.47	1259231.46	698.54	699.48	0.5	-0.47
AP2D-1	5/9/2019	2070344.47	1259231.46	698.18	699.05	0.5	-0.43
AP2D-1	5/30/2019	2070344.47	1259231.46	697.44	698.49	0.5	-0.52
AP2D-1	6/27/2019	2070344.47	1259231.46	697.74	698.38	0.5	-0.32
AP2D-1	7/25/2019	2070344.47	1259231.46	697.24	697.78	0.5	-0.27
AP2D-1	8/22/2019	2070344.47	1259231.46	696.32	696.96	0.5	-0.32
AP2D-1	9/19/2019	2070344.47	1259231.46	696.00	696.44	0.5	-0.22
AP2D-1	10/17/2019	2070344.47	1259231.46	695.04	695.80	0.5	-0.38
AP2D-1	11/14/2019	2070344.47	1259231.46	695.79	696.15	0.5	-0.18
AP2D-1	12/10/2019	2070344.47	1259231.46	695.26	695.87	0.5	-0.30
AP2D-1	1/9/2020	2070344.47	1259231.46	696.64	696.75	0.5	-0.06
AP2D-1	2/6/2020	2070344.47	1259231.46	698.94	698.64	0.5	0.15
AP2D-1	3/5/2020	2070344.47	1259231.46	699.09	699.45	0.5	-0.18
AP2D-1	4/2/2020	2070344.47	1259231.46	696.34	698.77	0.5	-1.21
AP2D-1	4/30/2020	2070344.47	1259231.46	695.64	698.13	0.5	-1.25
AP2D-1	5/28/2020	2070344.47	1259231.46	694.17	697.11	0.5	-1.47
AP2D-1	6/25/2020	2070344.47	1259231.46	692.66	696.07	0.5	-1.70
AP2D-1	7/23/2020	2070344.47	1259231.46	691.39	695.25	0.5	-1.93
AP2D-1	8/20/2020	2070344.47	1259231.46	691.49	695.15	0.5	-1.83
AP2D-1	9/17/2020	2070344.47	1259231.46	688.94	693.72	0.5	-2.39
AP2D-2	1/4/2018	2070344.54	1259256.83	695.09	695.46	0.5	-0.19
AP2D-2	2/1/2018	2070344.54	1259256.83	695.63	695.87	0.5	-0.12
AP2D-2	3/1/2018	2070344.54	1259256.83	696.17	696.28	0.5	-0.05
AP2D-2	3/29/2018	2070344.54	1259256.83	696.04	696.35	0.5	-0.15
AP2D-2	4/26/2018	2070344.54	1259256.83	697.71	697.26	0.5	0.23
AP2D-2	5/24/2018	2070344.54	1259256.83	695.97	696.46	0.5	-0.24
AP2D-2	6/21/2018	2070344.54	1259256.83	695.74	696.41	0.5	-0.34
AP2D-2	7/19/2018	2070344.54	1259256.83	695.93	696.46	0.5	-0.26
AP2D-2	8/16/2018	2070344.54	1259256.83	695.68	696.21	0.5	-0.27
AP2D-2	9/13/2018	2070344.54	1259256.83	694.72	695.61	0.5	-0.45
AP2D-2	10/11/2018	2070344.54	1259256.83	694.91	695.75	0.5	-0.42
AP2D-2	11/8/2018	2070344.54	1259256.83	695.16	696.19	0.5	-0.51
AP2D-2	12/6/2018	2070344.54	1259256.83	694.42	696.14	0.5	-0.86
AP2D-2	12/20/2018	2070344.54	1259256.83	693.77	695.97	0.5	-1.10
AP2D-2	1/17/2019	2070344.54	1259256.83	697.27	697.88	0.5	-0.31
AP2D-2	2/14/2019	2070344.54	1259256.83	696.53	697.55	0.5	-0.51
AP2D-2	3/14/2019	2070344.54	1259256.83	697.12	697.89	0.5	-0.39
AP2D-2	4/11/2019	2070344.54	1259256.83	696.57	697.55	0.5	-0.49
AP2D-2	5/9/2019	2070344.54	1259256.83	695.99	697.01	0.5	-0.51
AP2D-2	5/30/2019	2070344.54	1259256.83	695.27	696.46	0.5	-0.59
AP2D-2	6/27/2019	2070344.54	1259256.83	695.55	696.34	0.5	-0.40
AP2D-2	7/25/2019	2070344.54	1259256.83	695.07	695.78	0.5	-0.35
AP2D-2	8/22/2019	2070344.54	1259256.83	694.17	694.99	0.5	-0.41
AP2D-2	9/19/2019	2070344.54	1259256.83	693.85	694.49	0.5	-0.32
AP2D-2	10/17/2019	2070344.54	1259256.83	693.04	693.93	0.5	-0.44
AP2D-2	11/14/2019	2070344.54	1259256.83	693.81	694.29	0.5	-0.24
AP2D-2	12/10/2019	2070344.54	1259256.83	693.34	694.04	0.5	-0.35
AP2D-2	1/9/2020	2070344.54	1259256.83	693.34	694.23	0.5	-0.44
AP2D-2	2/6/2020	2070344.54	1259256.83	694.02	695.27	0.5	-0.62
AP2D-2	3/5/2020	2070344.54	1259256.83	696.67	697.30	0.5	-0.31
AP2D-2	4/2/2020	2070344.54	1259256.83	694.82	697.04	0.5	-1.11
AP2D-2	4/30/2020	2070344.54	1259256.83	694.27	696.47	0.5	-1.10
AP2D-2	5/28/2020	2070344.54	1259256.83	692.87	695.47	0.5	-1.30
AP2D-2	6/25/2020	2070344.54	1259256.83	691.51	694.50	0.5	-1.49
AP2D-2	7/23/2020	2070344.54	1259256.83	690.37	693.75	0.5	-1.69
AP2D-2	8/20/2020	2070344.54	1259256.83	689.65	693.24	0.5	-1.79
AP2D-2	9/17/2020	2070344.54	1259256.83	688.67	692.60	0.5	-1.96
APB-3	1/4/2018	2075224.62	1258288.40	749.94	748.69	0.5	0.63
APB-3	2/1/2018	2075224.62	1258288.40	750.34	749.10	0.5	0.62
APB-3	3/1/2018	2075224.62	1258288.40	748.78	748.53	0.5	0.12
APB-3	3/29/2018	2075224.62	1258288.40	745.79	747.25	0.5	-0.73
APB-3	4/26/2018	2075224.62	1258288.40	744.54	746.47	0.5	-0.96
APB-3	5/24/2018	2075224.62	1258288.40	743.73	745.86	0.5	-1.07

**NOTES:**

msl = mean sea level

ft = feet

A residual weight of 0.5 was used for dike piezometers due lack of well construction information

(i.e., screened depth) and complex site operation history (i.e., instantaneous dewatering), for which such data was not available

**Table A-9**  
**Calibration Statistics Summary**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



Steady-State Calibration (2017 Conditions)				Transient Calibration (2018-2020 Conditions)							
	Results	Goal	Units		Results	Goal	Units		Results	Goal	Units
number of observations	75		NA	number of observations	843		NA	Nash-Sutcliffe	0.9865	>0.5 - 1	NA
residual mean	-0.05	0.00	ft	residual mean	-0.61	0.00	ft	RSR	0.12	<0.7	NA
residual standard deviation	3.18		ft	residual standard deviation	3.77		ft	PBIAS	-0.08	<+/-25.	%
absolute residual mean	2.30		ft	absolute residual mean	2.83		ft				
residual sum of squares	760		ft <sup>2</sup>	residual sum of squares	12294		ft <sup>2</sup>				
root mean square error	3.18		ft	root mean square error	3.82		ft				
minimum residual	-7.95		ft	minimum residual	-17.74		ft				
maximum residual	10.31		ft	maximum residual	13.02		ft				
range of observations	132.98		ft	range of observations	136.23		ft				
scaled residual standard deviation	2.4%	<10%	%	scaled residual standard deviation	2.8%	<10%	%				
scaled absolute residual mean	1.7%		%	scaled absolute residual mean	2.1%		%				

**Notes:**

NA = Not applicable.

ft = feet

**Table A-10**  
**Post-Closure Flow Model Stress Period Summary**  
**Plant Yates, Georgia Power**  
**Newnan, Georgia**



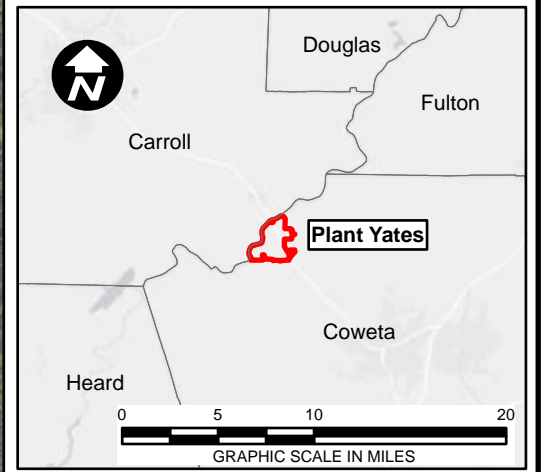
Model Stress Period	Stress Period Type: Flow	Start Date	End Date	Stress Period Length (days)	Cumulative Time (days)	No. of Time Step	Closure Activities
1	Transient	1/1/2021	3/31/2021	90	90	4	DRD Start, Cover Installation for AMA in Progress (0%)
2	Transient	4/1/2021	6/30/2021	91	181	4	DRD in progress, Cover Installation for AMA in Progress (0%)
3	Transient	7/1/2021	9/30/2021	92	273	4	DRD in progress, Cover Installation for AMA in Progress (20%)
4	Transient	10/1/2021	12/31/2021	92	365	4	DRD in progress, Cover Installation for AMA in Progress (20%)
5	Transient	1/1/2022	3/31/2022	90	455	4	DRD Ends, Cover Installation for AMA in Progress (40%)
6	Transient	4/1/2022	6/30/2022	91	546	4	Cover Installation for AMA in Progress (cover 40%)
7	Transient	7/1/2022	9/30/2022	92	638	4	Cover Installation for AMA in Progress (cover 65%)
8	Transient	10/1/2022	12/31/2022	92	730	4	Cover Installation for AMA in Progress (cover 65%)
9	Transient	1/1/2023	3/31/2023	90	820	4	Cover Installation for AMA in Progress (cover 75%)
10	Transient	4/1/2023	6/30/2023	91	911	4	R6 EM Drain Cover, Cover Installation for AMA in Progress (cover 75%)
11	Transient	7/1/2023	9/30/2023	92	1003	4	Cover Installation for AMA in Progress (cover 75%)
12	Transient	10/1/2023	12/31/2023	92	1095	4	Cover Installation for AMA in Progress (cover 90%)
13	Transient	1/1/2024	3/31/2024	91	1186	4	Cover Installation for AMA Completed
14	Transient	4/1/2024	6/30/2024	91	1277	4	
15	Transient	7/1/2024	9/30/2024	92	1369	4	AEM Subsurface Drain Pumping Active
16	Transient	10/1/2024	12/31/2024	92	1461	4	AEM Subsurface Drain Pumping Active
17	Transient	1/1/2025	12/31/2025	365	1826	12	AEM Subsurface Drain Pumping Active
18	Transient	1/1/2026	12/31/2050	10585	12411	45	AEM Subsurface Drain Pumping Active

**Notes:**

DRD = Dyer Road Dewatering  
AEM = Advanced Engineering Measure  
AMA = Ash Management Area

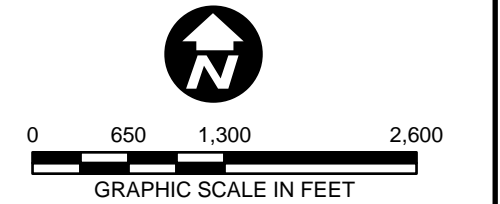
# Figures

Service Layer Credits: World Light Gray Canvas Base, Esri, HERE, Garmin, USGS, EPA, NPS



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - SURFACE WATER DRAINAGE DERIVED FROM PRE-EXISTING TOPO
  - USGS STATION LOCATION

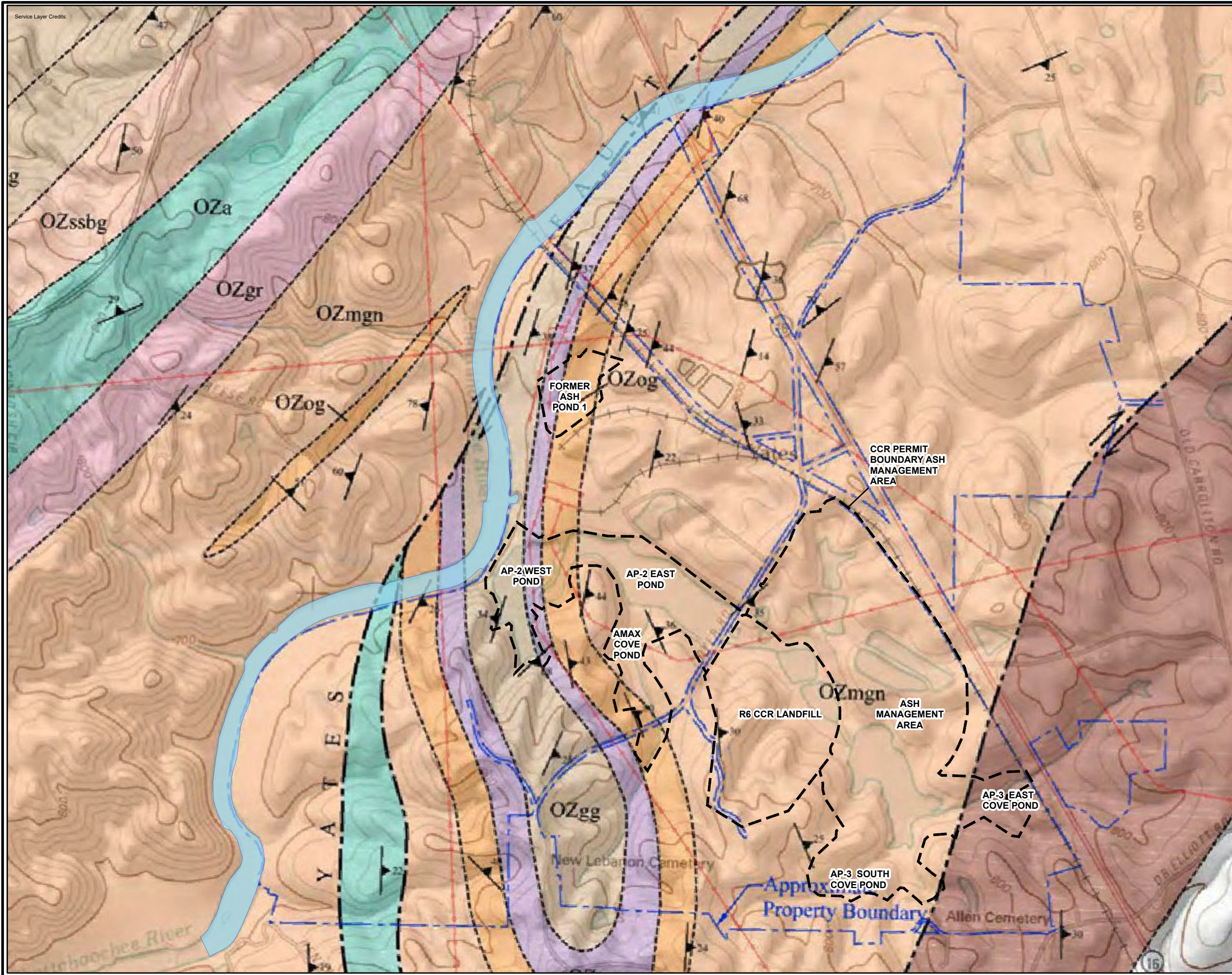
AERIAL IMAGE SOURCES: JANUARY 2, 2025  
IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
NATIONAL AGRICULTURE IMAGERY PROGRAM  
(NAIP) 2023 IMAGERY.



COORDINATE SYSTEM: NAD 1983 STATEPLANE  
GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
PLANT YATES  
NEWNAN, GA  
PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
ADVANCED ENGINEERING METHOD EVALUATION

**SITE HYDROLOGY**

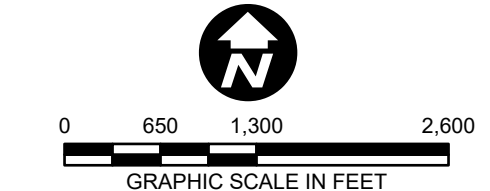


- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - CHATTAHOOCHEE RIVER FEATURE
  - PERMITTED UNIT BOUNDARY

- DESCRIPTION OF MAP UNITS**
- OZbg** *Biotite Gneiss*- garnet (small, minor)-muscovite-biotite-quartz-feldspar gneiss, fine- to medium-grained, schistose in part; interlayered with garnet (small, minor)-biotite-feldspar-quartz-muscovite schist, medium- to coarse-grained; some garnet-rich zones, all layered with concordant and discordant pegmatite pods, lenses, and layers up to 10 feet thick; foliation wraps around pegmatite pods/lenses.
  - OZa** *Amphibolite*- amphibole/hornblende gneiss, thinly laminated, fine- to medium-grained hornblende and plagioclase; and chlorite-actinolite schist, very fine-grained; joints are close-spaced and abundant.
  - OZgg** *Granitic Gneiss*- biotite-quartz-feldspar gneiss, very feldspathic; quartz and feldspar are medium- to coarse-grained; biotite is fine to medium-grained. Muscovite is present where this gneiss is sheared. Shear foliation is commonly developed.
  - OZssbg** *Biotite Gneiss and Sillimanite Schist*- biotite-quartz-feldspar gneiss; interlayered with sillimanite, garnet, quartz, muscovite schist. Shear foliation is commonly developed.
  - OZog** *Orange Gneiss*- well layered, well foliated, moderately jointed, fine- to medium-grained, biotite-quartz-feldspar gneiss; this unit weathers fairly deeply relative to adjacent lithologies, forming a distinctive dark red, vermiculitic soil from weathering of biotite; the gneiss locally contains thin lenses of chlorite-actinolite schist and feldspar-hornblende gneiss/amphibolite, increasing in concentration of these ultramafic and mafic bodies to the southeast.
  - OZgr** *Granite*- generally massive, weakly foliated, poorly jointed, fine- to medium-grained, light-gray, large exfoliation boulders are common.
  - OZmgn** *Migmatitic Gneiss*- highly contorted, well layered, well foliated, poorly jointed, medium-grained muscovite-biotite-quartz-feldspar migmatitic gneiss. Granite is locally interlayered with biotite gneiss and pods/lenses of ultramafic bodies, which occur as relatively fresh, well foliated, unjointed boulders of medium- to coarse-grained actinolite-chlorite schist.
  - OZsgs** *Sillimanite Staurolite Garnet Schist*- sillimanite-staurolite-garnet-biotite-quartz-muscovite schist, medium- to coarse-grained, sheared; staurolite and garnet are porphyroblastic, biotite and quartz content are highly variable, generally poorly weathered.
  - OZagn** *Porphyroclastic Augen Gneiss*- muscovite-biotite-quartz-feldspar gneissic granite, feldspathic; quartz and feldspar are medium- to coarse-grained; feldspar phenocrysts form porphyroclasts, biotite is fine- to medium-grained.

- EXPLANATION OF MAP SYMBOLS**
- Lithologic unit contact- Approximate location
  - Fault (high angle)- Approximate location
  - Fault (strike/slip)- Approximate location
  - Strike and Dip of Foliation

GEOLOGY SOURCE: GOLDER ASSOCIATES, INC. , OCTOBER 2017 GEOLOGIC MAPPING AND LINEAMENT ANALYSIS, GEORGIA POWER PLANT YATES NEWNAN, GEORGIA.

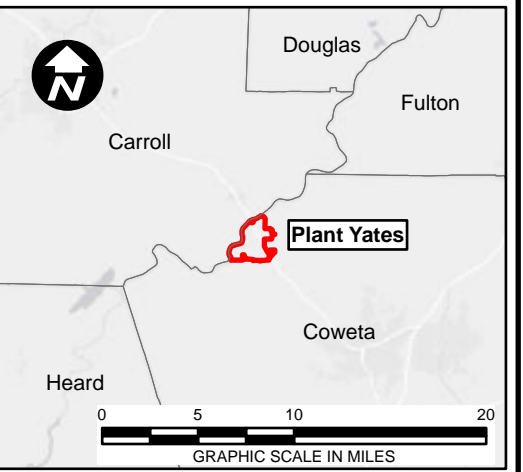
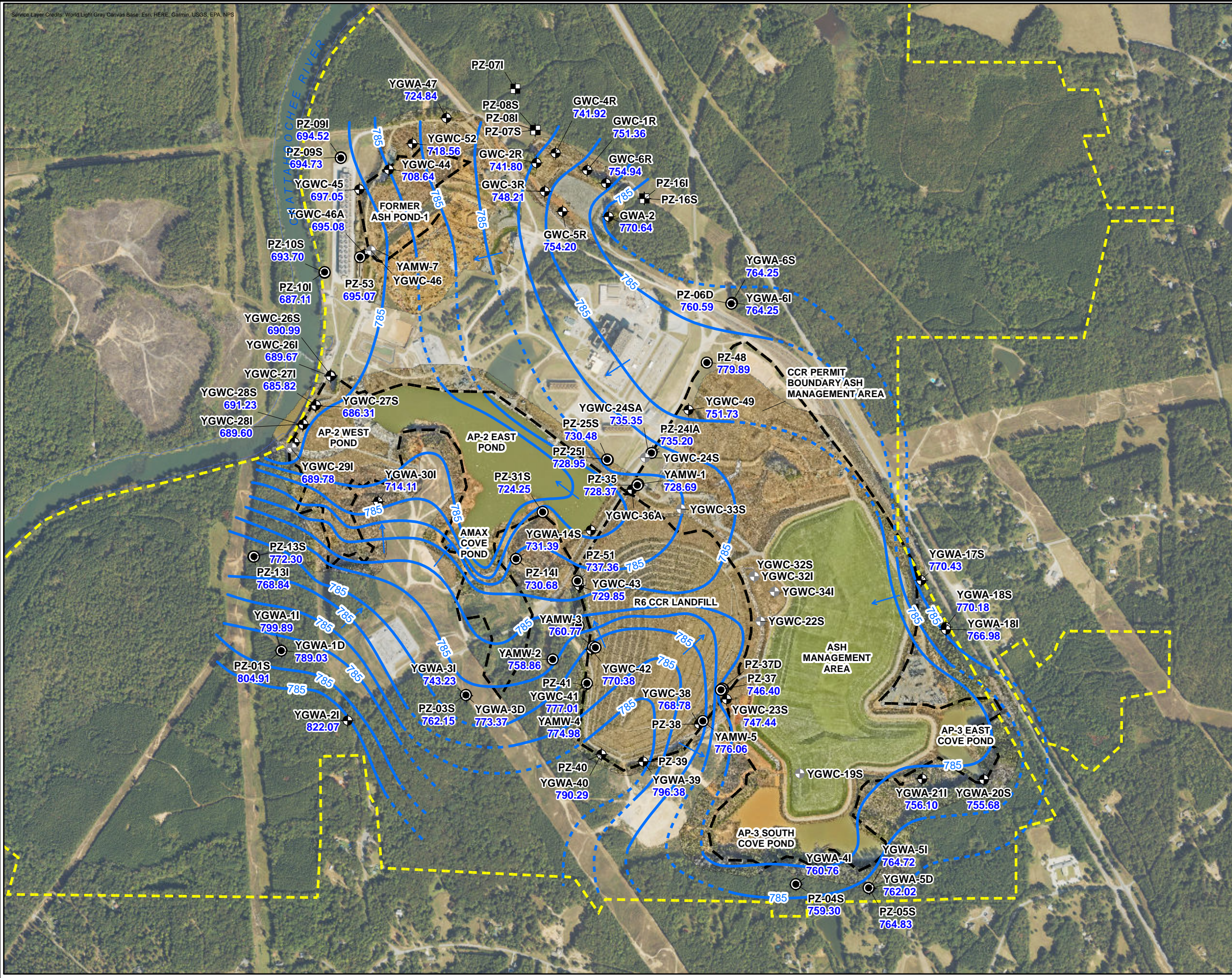


COORDINATE SYSTEM: NAD 1983 STATEPLANE GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA  
 PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

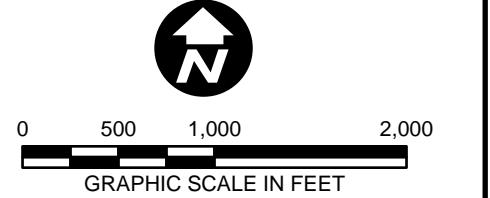
**SITE GEOLOGIC MAP**

Service Layer Credits: World Light Gray Canvas Base: Esri, HERE, Garmin, USGS, EPA, NPS



- LEGEND**
- ACTIVE MONITORING WELL LOCATION
  - PIEZOMETER
  - NON-NETWORK WELL/PIEZOMETER
  - ABANDONED MONITORING WELL LOCATION
  - APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - APPROXIMATE POTENTIOMETRIC CONTOUR (FEET) DASHED WHERE INFERRED
  - GROUNDWATER FLOW DIRECTION
  - 766.98 GROUNDWATER ELEVATION (FEET)

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
NATIONAL AGRICULTURE IMAGERY PROGRAM  
(NAIP) 2023 IMAGERY.



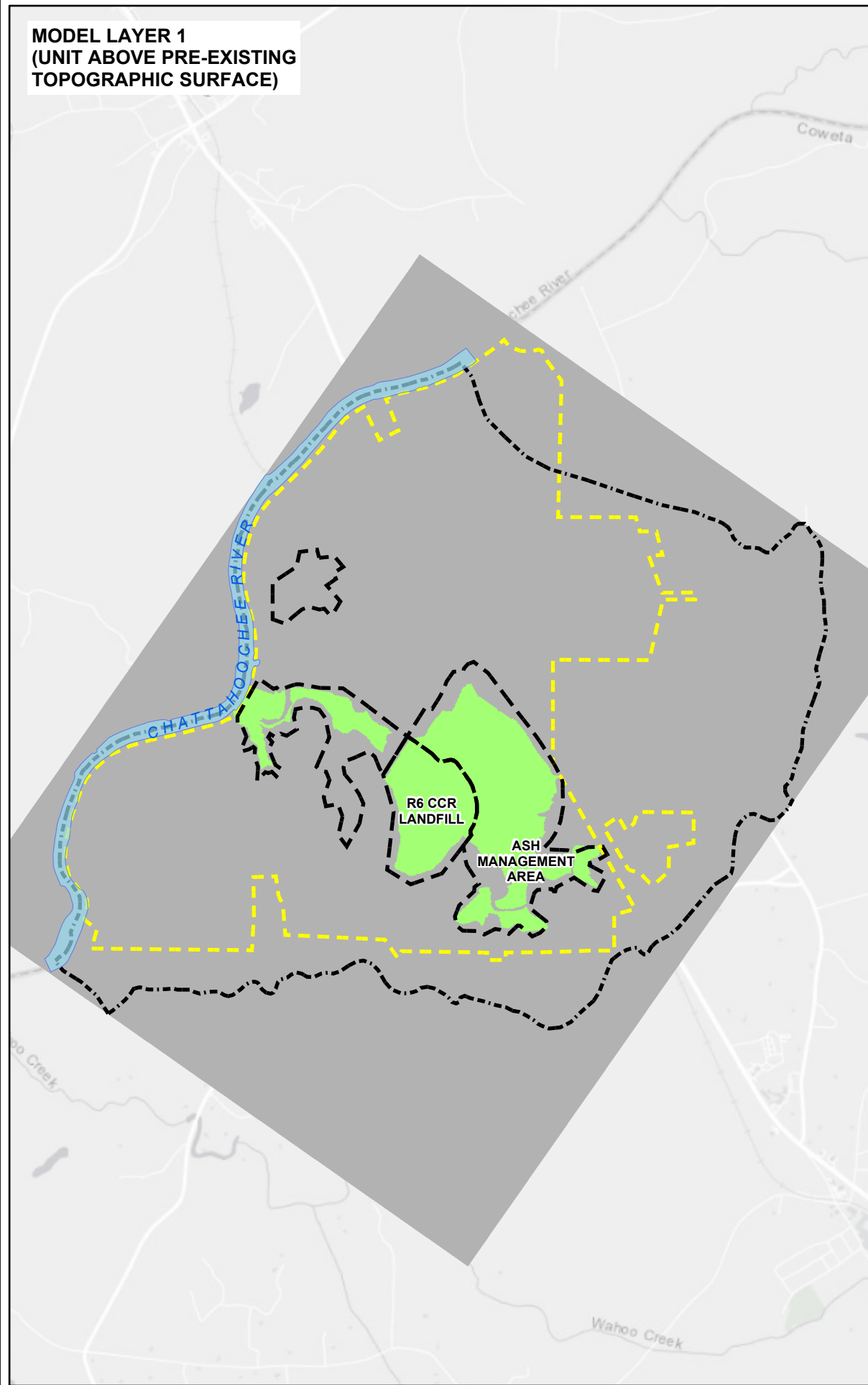
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
PLANT YATES  
NEWNAN, GA

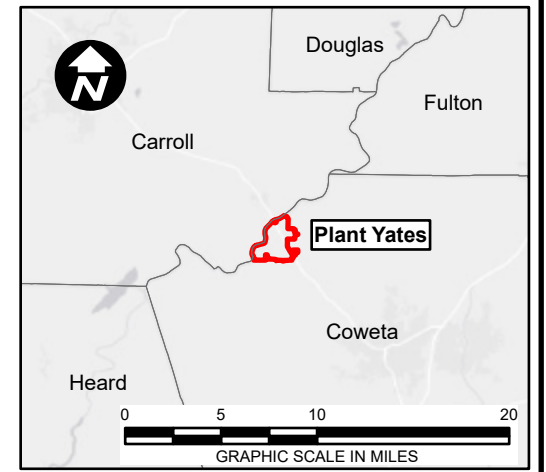
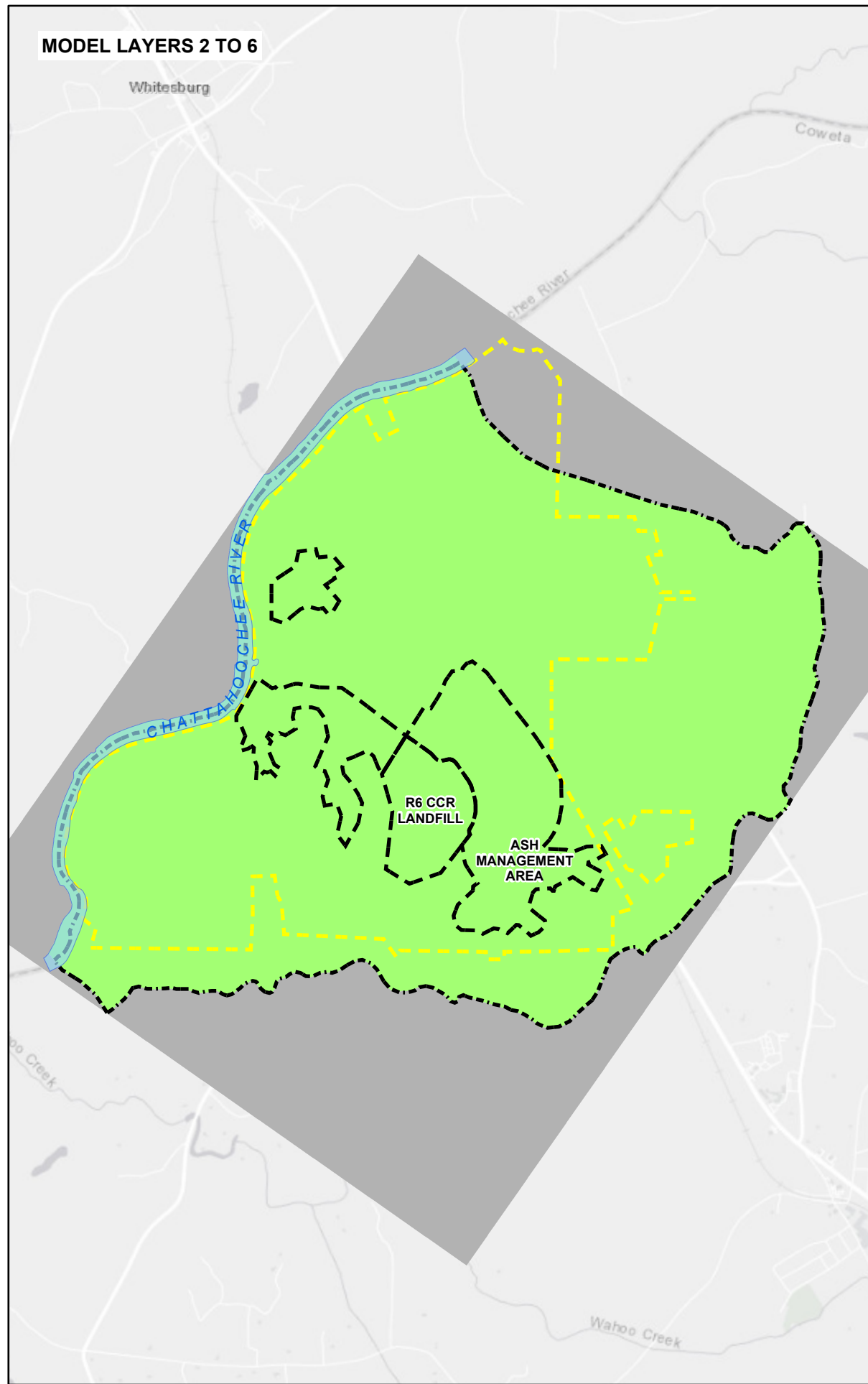
PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
ADVANCED ENGINEERING METHOD EVALUATION

**GROUNDWATER POTENTIOMETRIC  
SURFACE BASED ON SEPTEMBER  
2024 SITE WIDE GAUGING EVENT**

**MODEL LAYER 1  
(UNIT ABOVE PRE-EXISTING  
TOPOGRAPHIC SURFACE)**



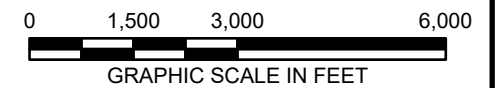
**MODEL LAYERS 2 TO 6**



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- PERMITTED UNIT BOUNDARY
- SIMULATED MODEL BOUNDARY
- MODEL GRID (ACTIVE AREA) - GRID DIMENSION IS 20 FEET X 20 FEET
- INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
- CCR COAL COMBUSTION RESIDUALS

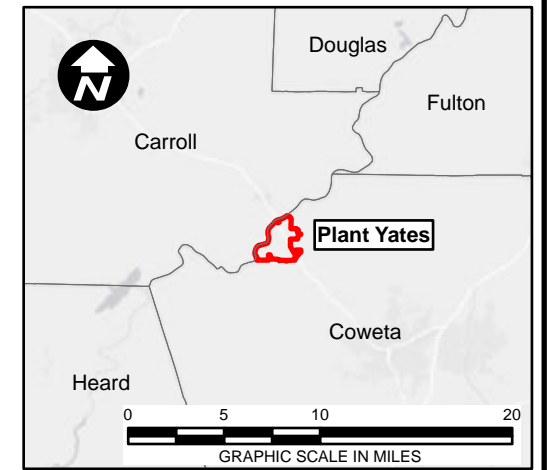
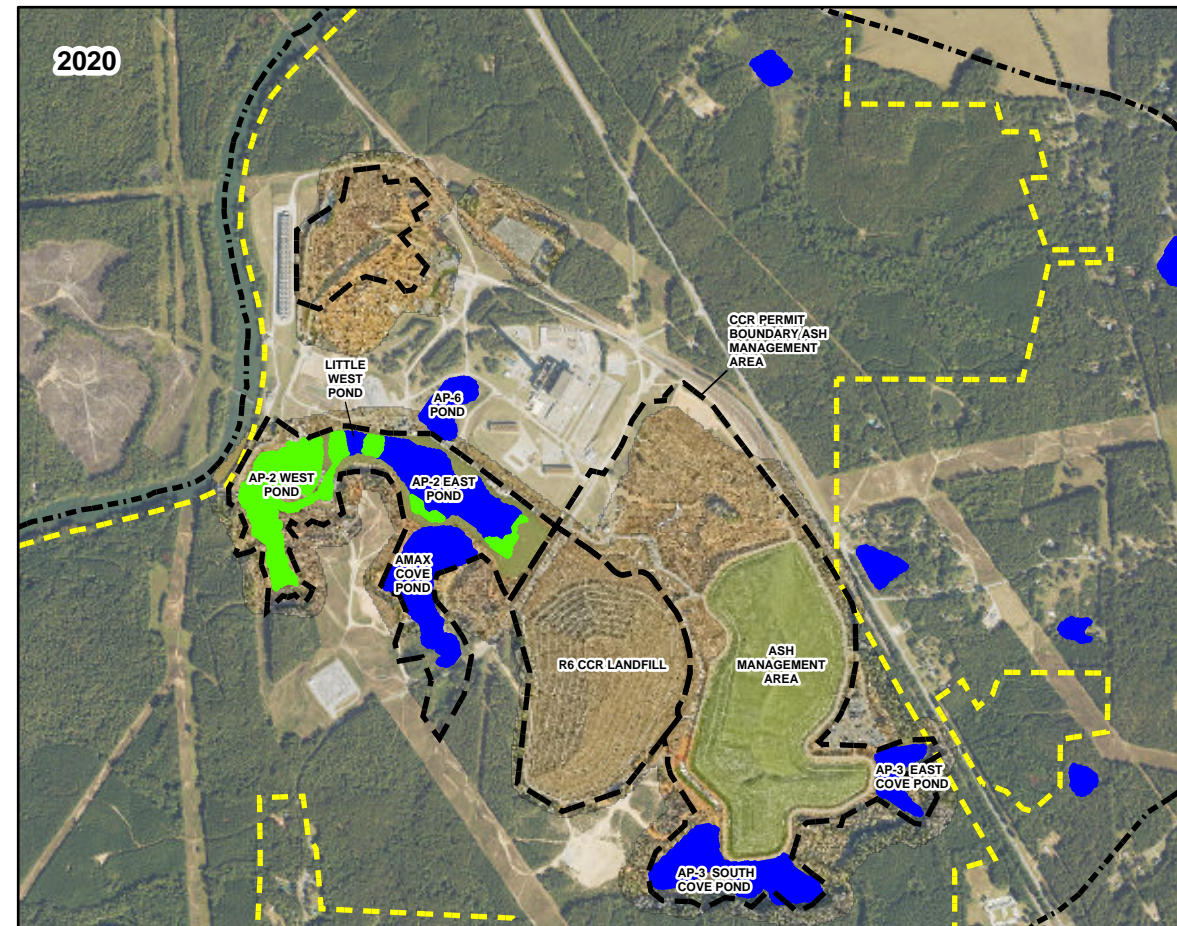
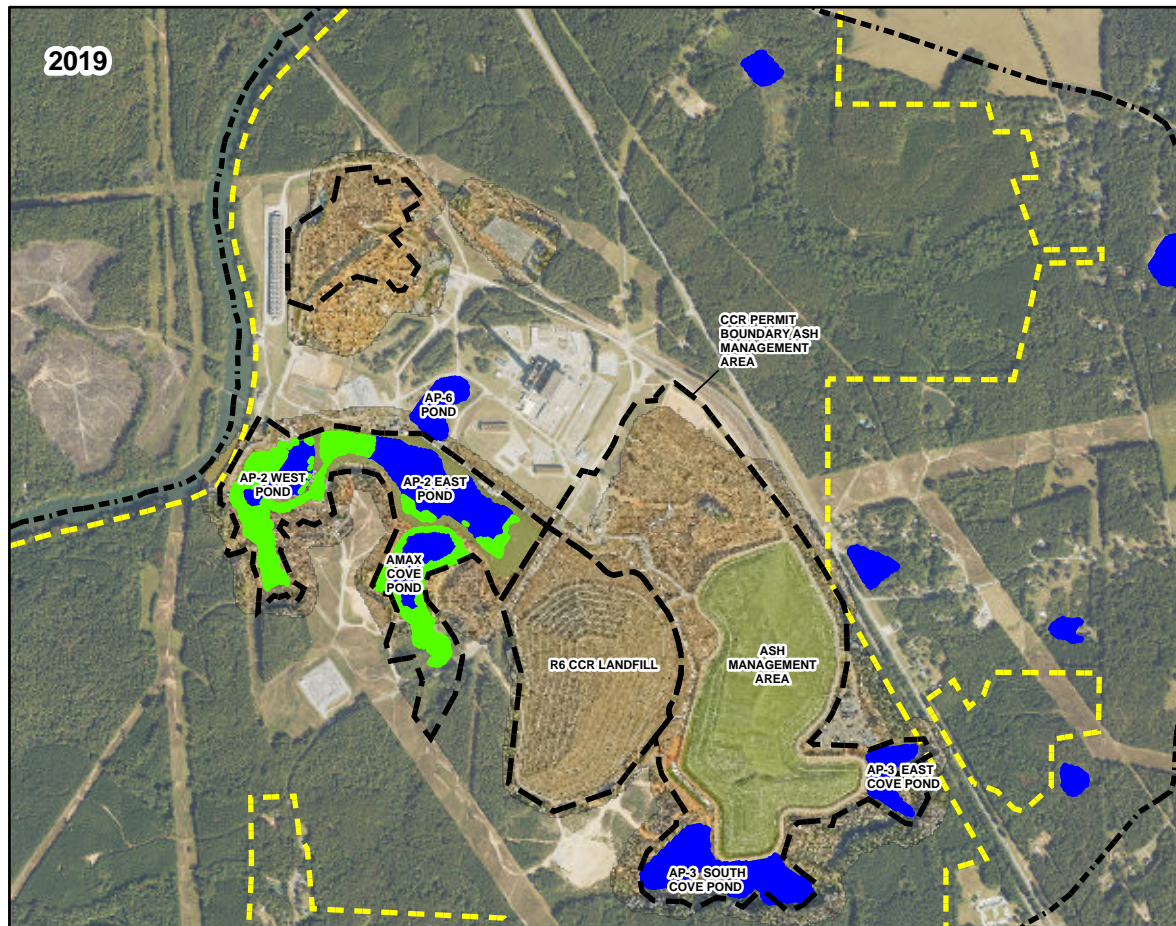
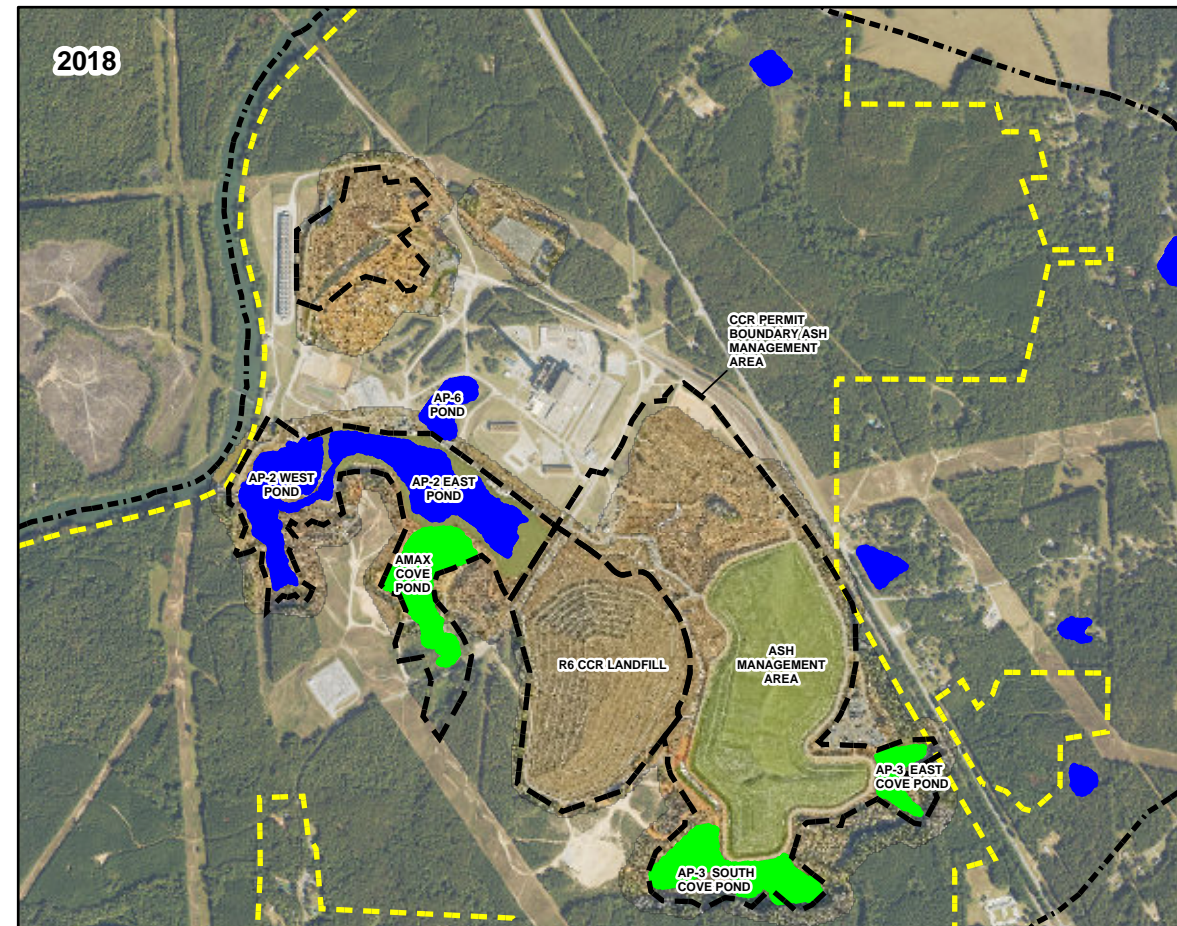
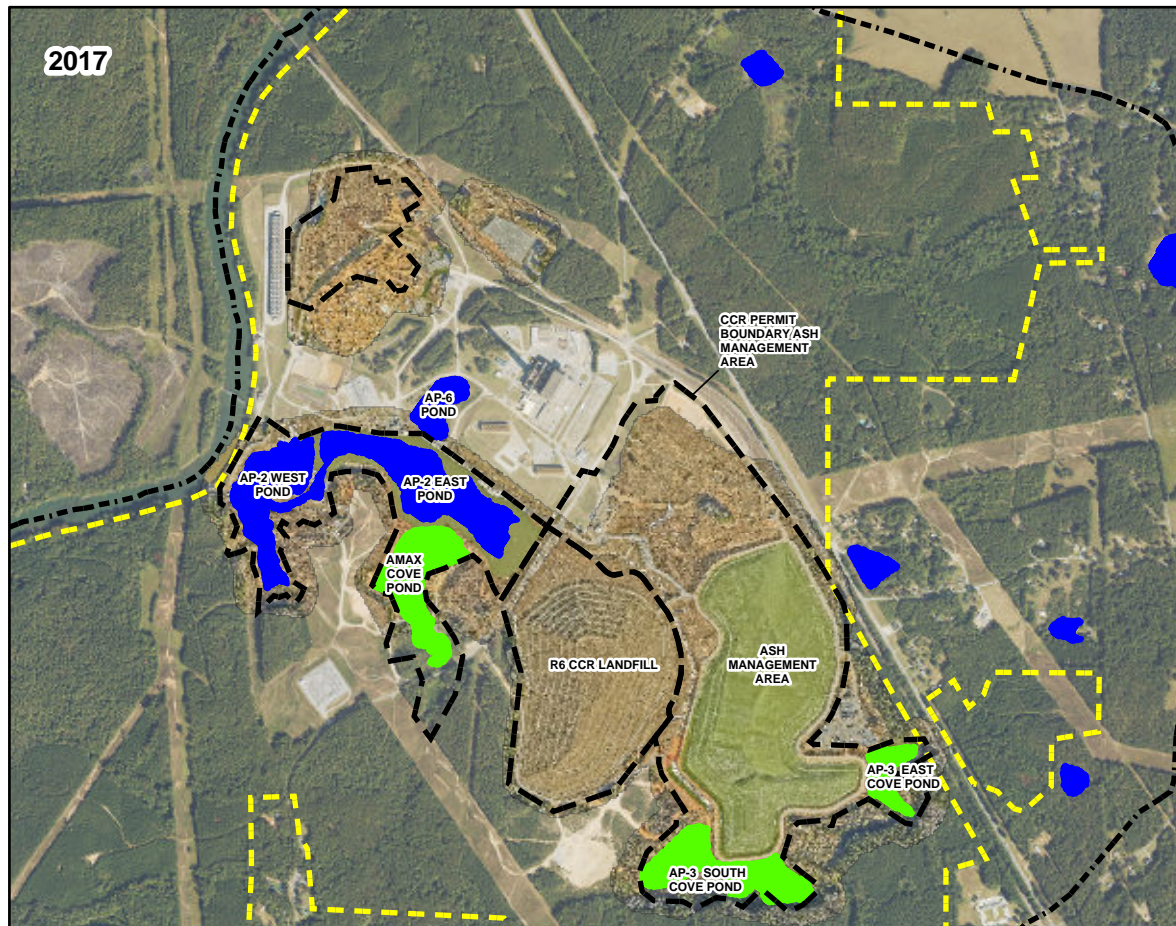
SERVICE LAYER CREDITS: WORLD LIGHT GRAY CANVAS BASE: COUNTY OF COWETA, ESRI, HERE, GARMIN, GEOTECHNOLOGIES, INC., USGS, EPA  
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 WORLD LIGHT GRAY REFERENCE: ESRI, HERE



COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

PLANT YATES  
 NEWNAN, GA  
 PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**MODEL GRID AND EXTENT**



**LEGEND**

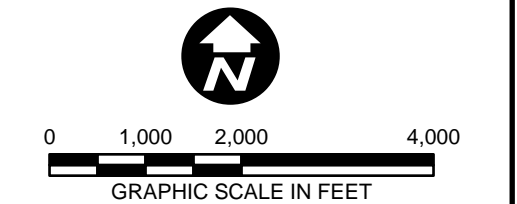
- APPROXIMATE PROPERTY BOUNDARY
- PERMITTED UNIT BOUNDARY
- SIMULATED MODEL BOUNDARY

**SIMULATED POND FEATURES - CONNECTED LINEAR NETWORK PACKAGE**

- ACTIVE
- INACTIVE

CCR COAL COMBUSTION RESIDUALS

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



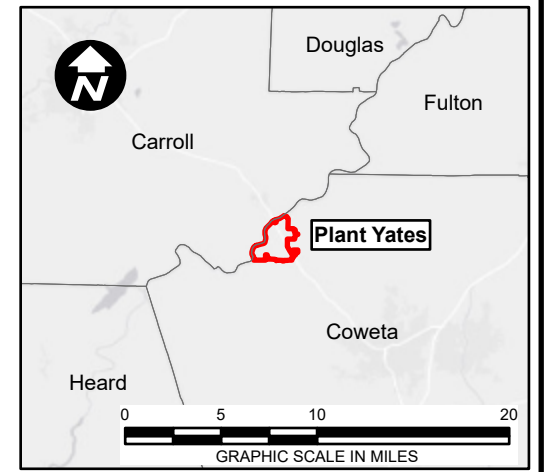
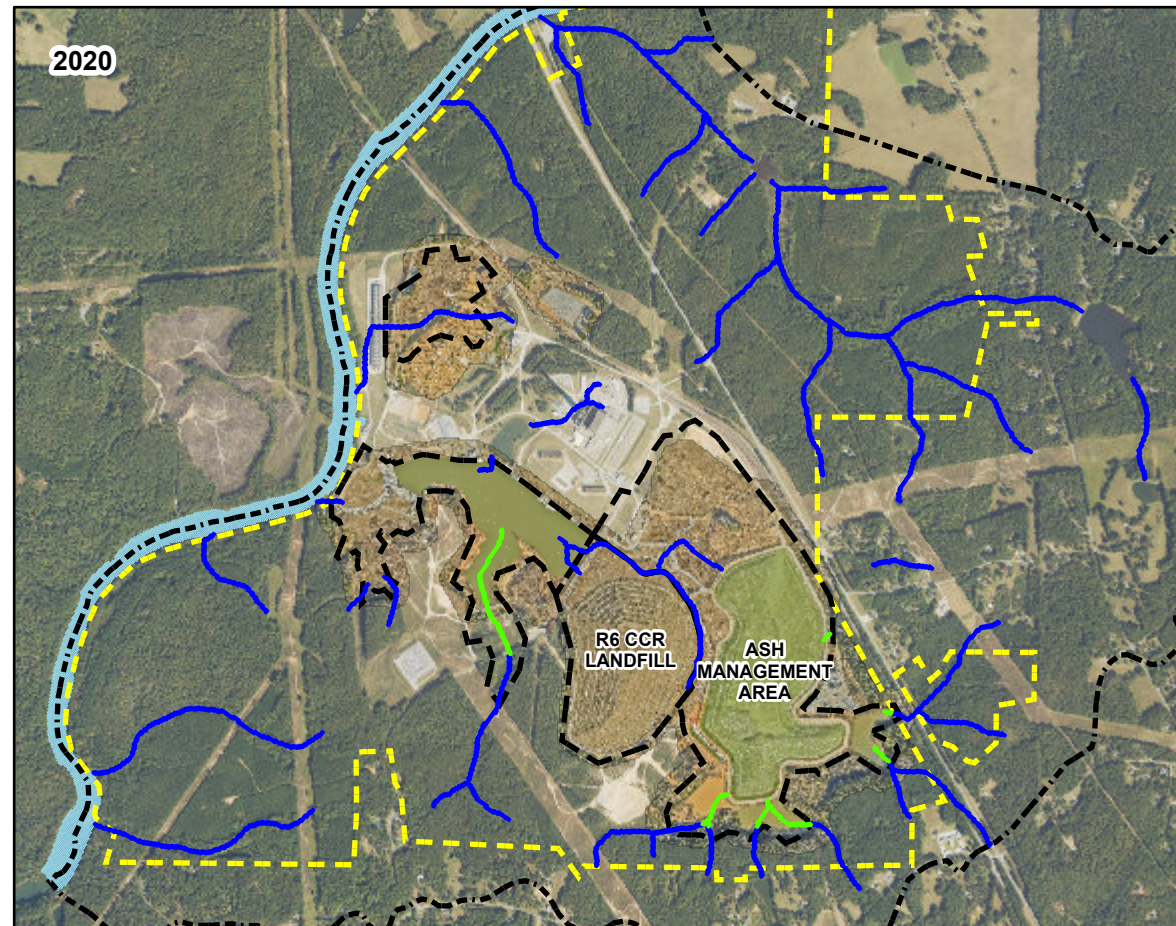
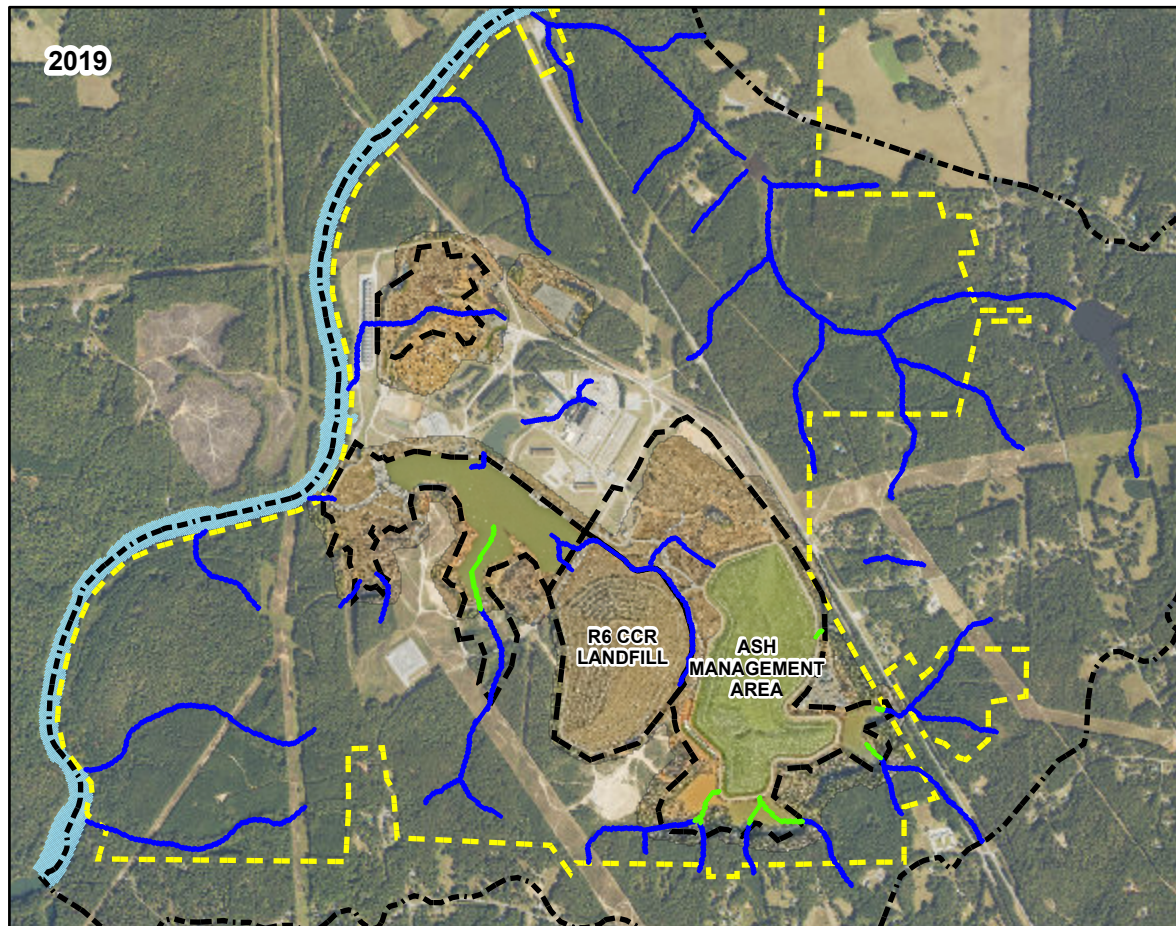
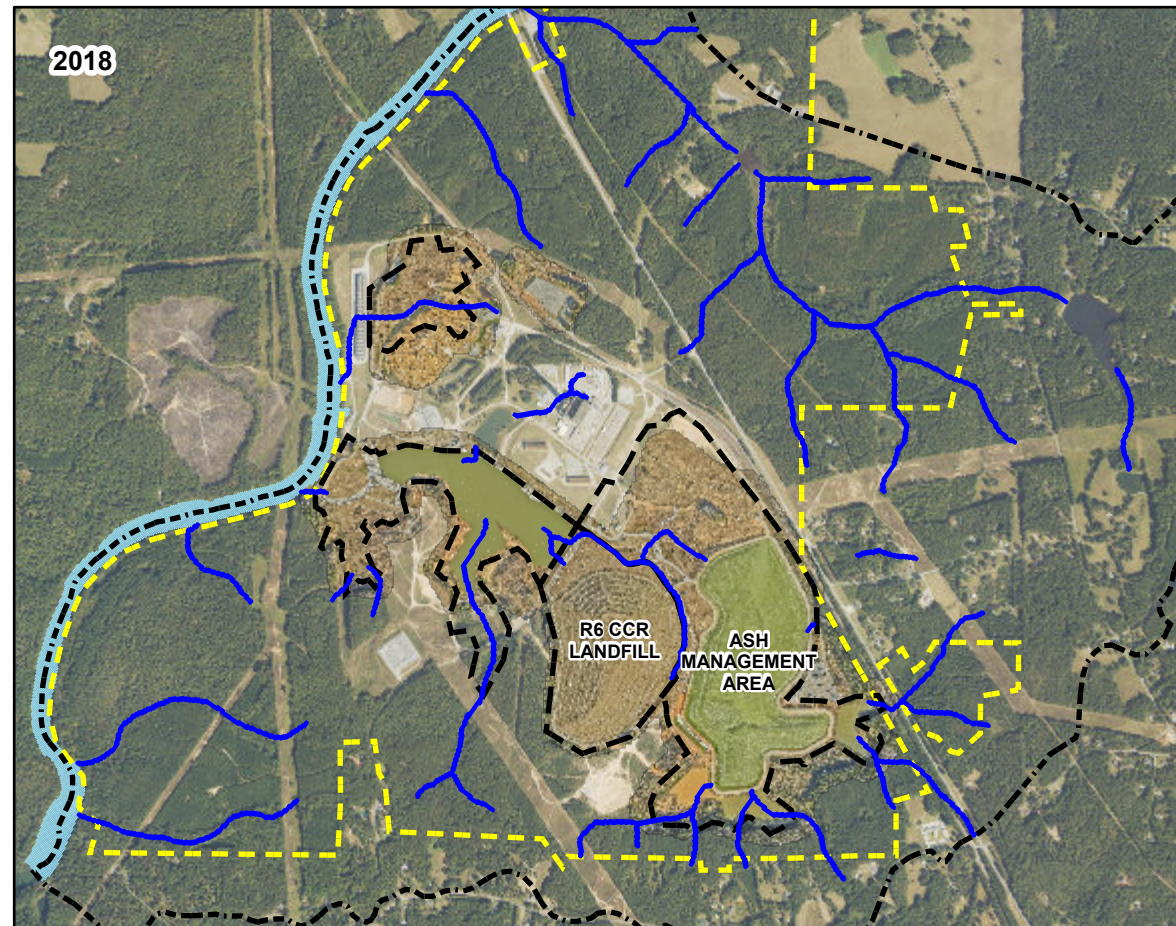
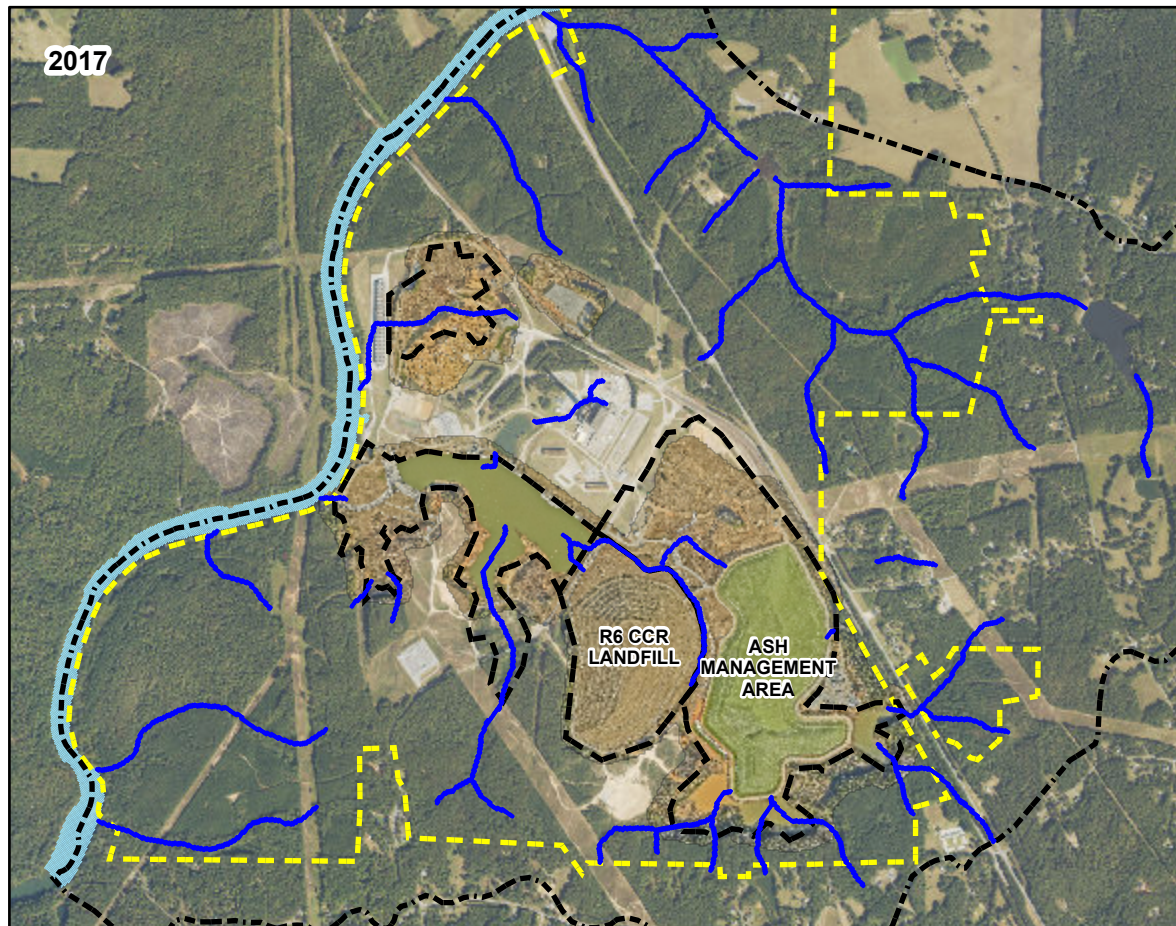
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

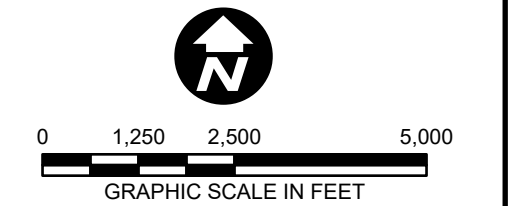
**SIMULATED MODEL BOUNDARY  
 CONDITION - CCR POND FEATURES  
 (CLN PACKAGE) FROM 2017 TO 2020**

**ARCADIS** | **FIGURE A-5**



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - SIMULATED MODEL BOUNDARY
  - SIMULATED INTERMITTENT STREAMS (DRAIN PACKAGE)**
  - ACTIVE
  - INACTIVE
  - SIMULATED CHATTAHOOCHEE RIVER (RIVER PACKAGE)
  - CCR COAL COMBUSTION RESIDUALS

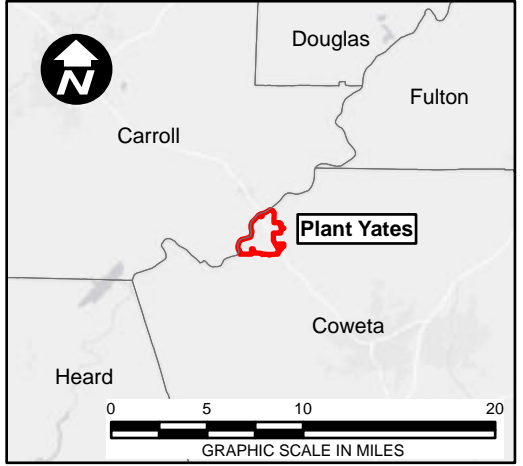
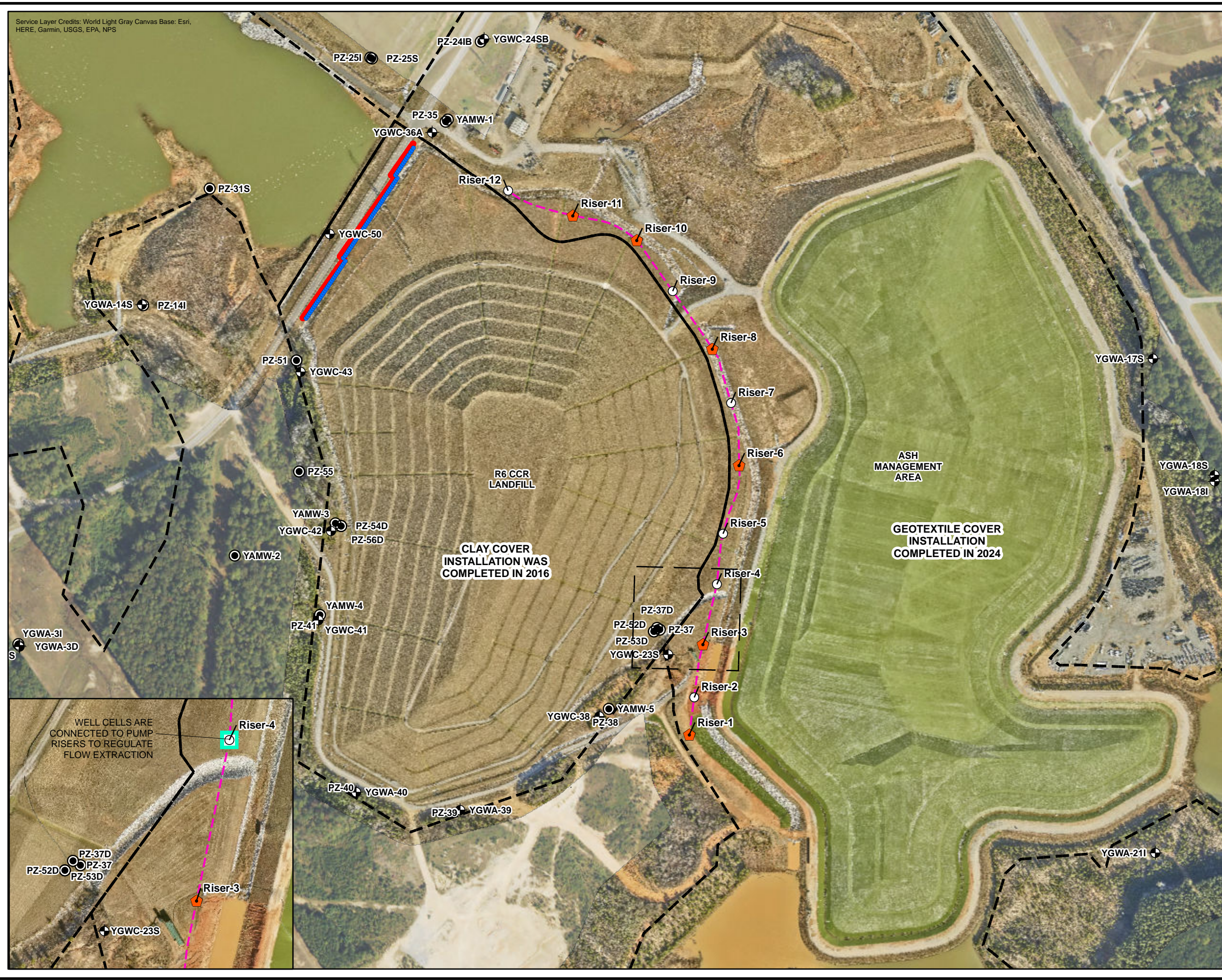
AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

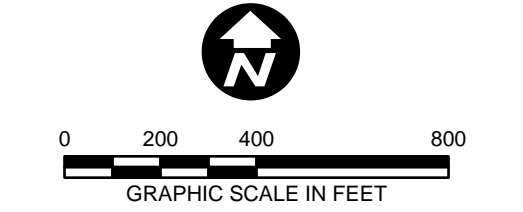
PLANT YATES  
 NEWNAN, GA  
 PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION  
 SIMULATED MODEL BOUNDARY  
 CONDITION – SURFACE WATER FEATURES  
 (DRAIN AND RIVER PACKAGE) FROM 2017 TO 2020

Service Layer Credits: World Light Gray Canvas Base: Esri, HERE, Garmin, USGS, EPA, NPS



- LEGEND**
- DYER ROAD DEWATERING WELL TEMPORARILY RUNNING FROM 2020 TO 2021
  - ◆ INSTALLED CLEANOUT
  - INSTALLED PUMP RISER
  - ⊕ MONITORING WELL LOCATION
  - ⊕ PIEZOMETER
  - NON-NETWORK WELL/PIEZOMETER
  - DYER ROAD BARRIER WALL HORIZONTAL FLOW BARRIER PACKAGE
  - - - ENGINEERING MEASURE DRAIN CONNECTED LINEAR NETWORK PACKAGE
  - - - PERMITTED UNIT BOUNDARY
- CCR COAL COMBUSTION RESIDUALS

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.

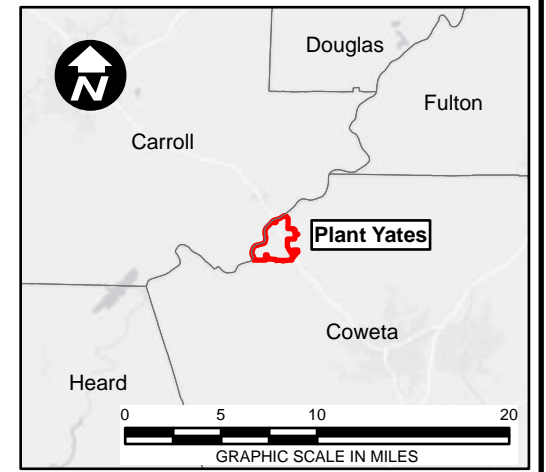
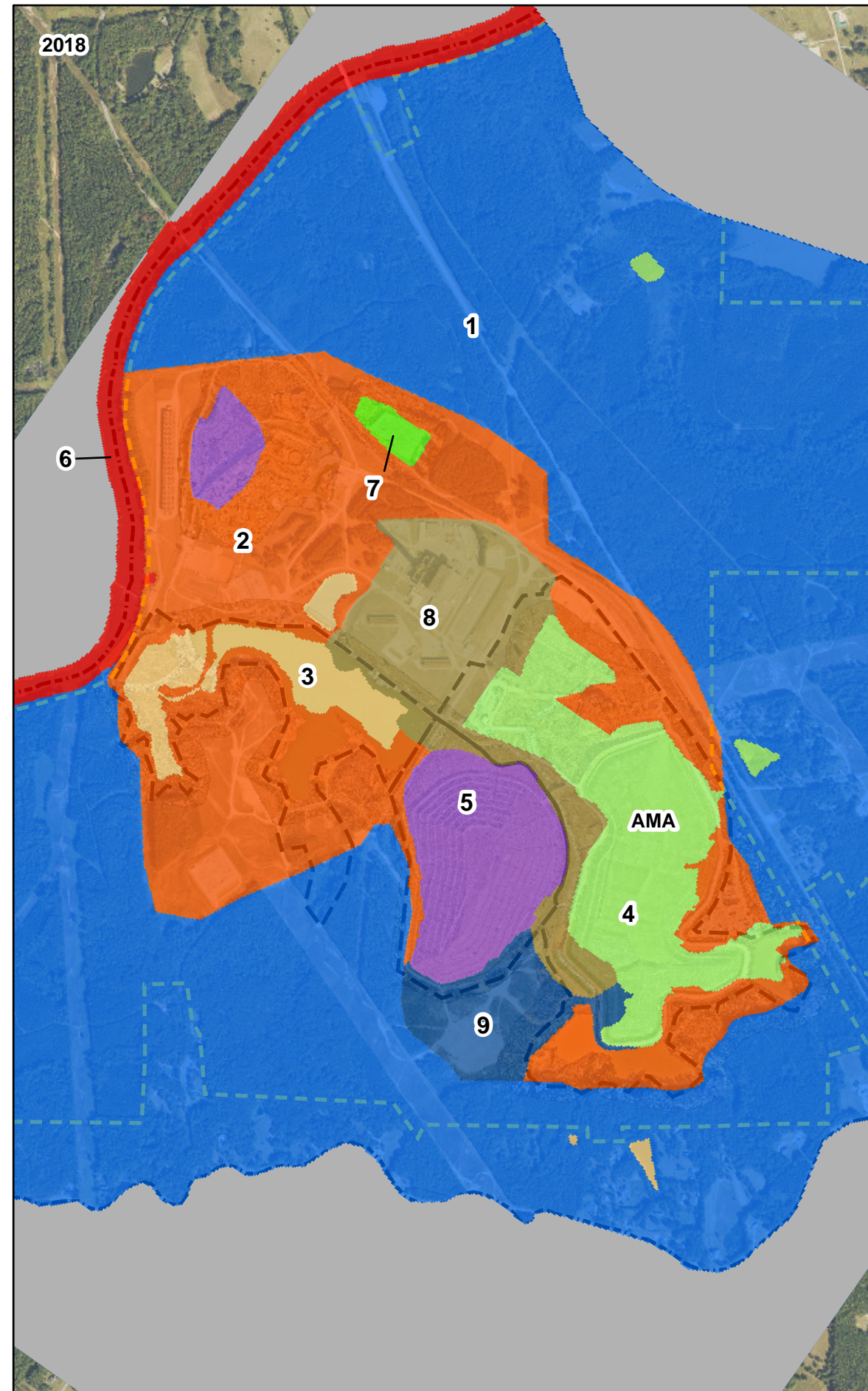
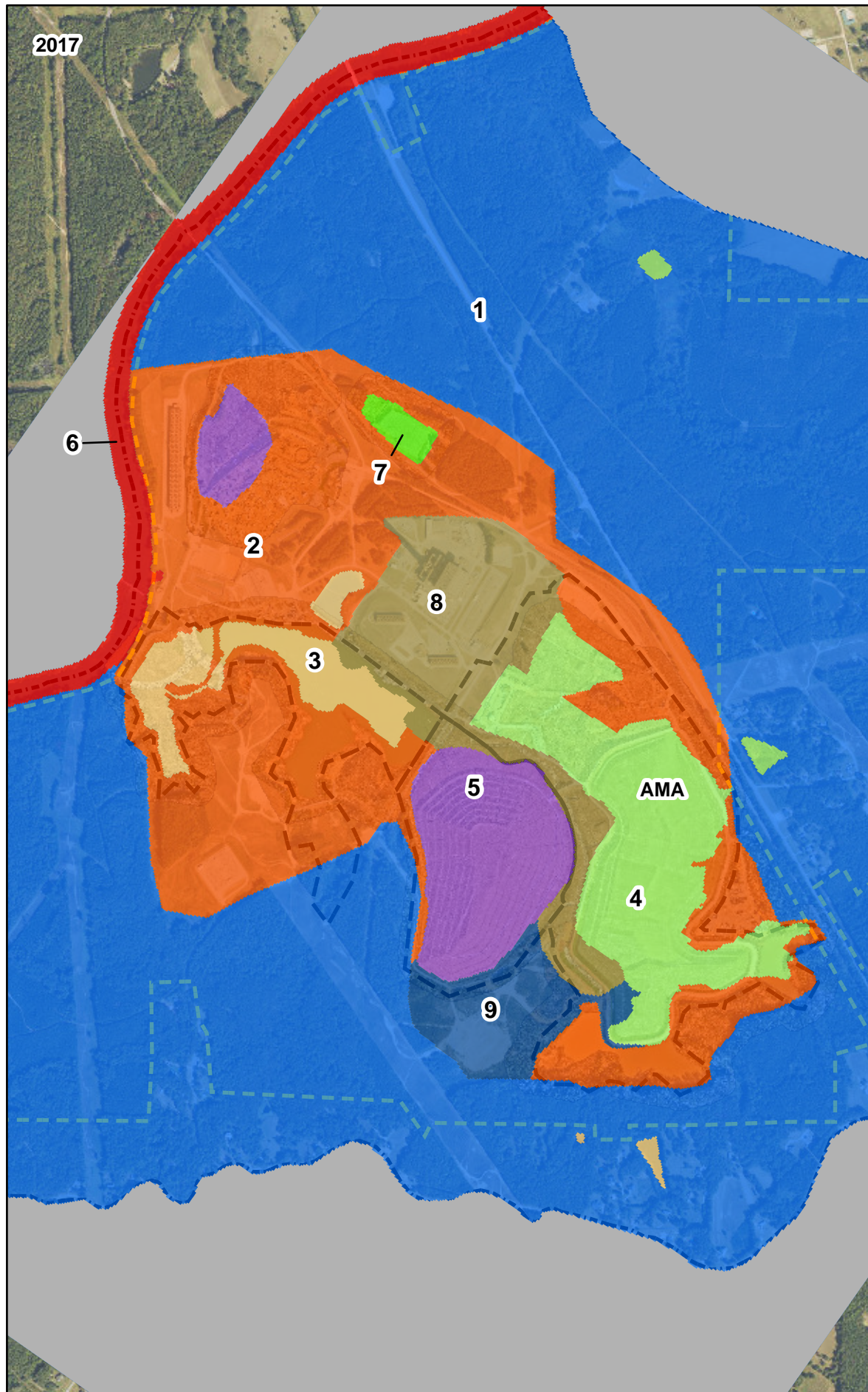


COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA  
 PLANT YATES R6 LANDFILL AND ASH MANAGEMENT AREA  
 AS-BUILT ADVANCED ENGINEERING METHODS EVALUATION

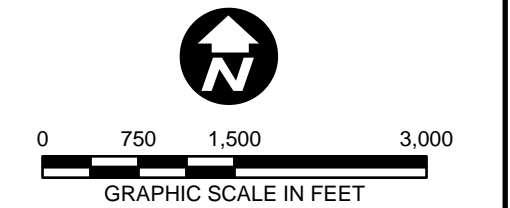
**SIMULATED CLOSURE ACTIVITIES**

**ARCADIS** | FIGURE  
**A-7**



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - SIMULATED MODEL BOUNDARY
  - INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
  - 1** RECHARGE ZONE NUMBER
  - 2** SIMULATED RECHARGE ZONES
  - AMA ASH MANAGEMENT AREA
  - NA NOT APPLICABLE
  - in/yr INCHES PER YEAR

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.

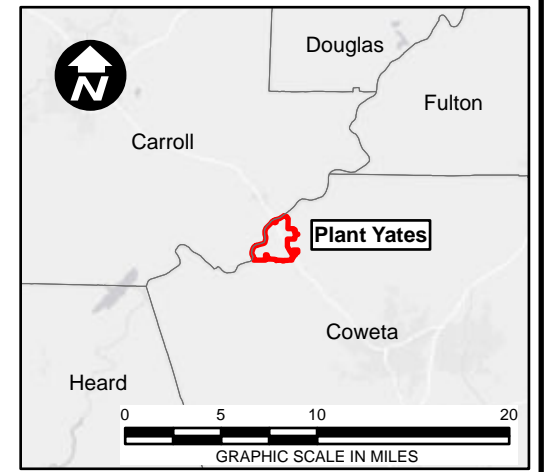
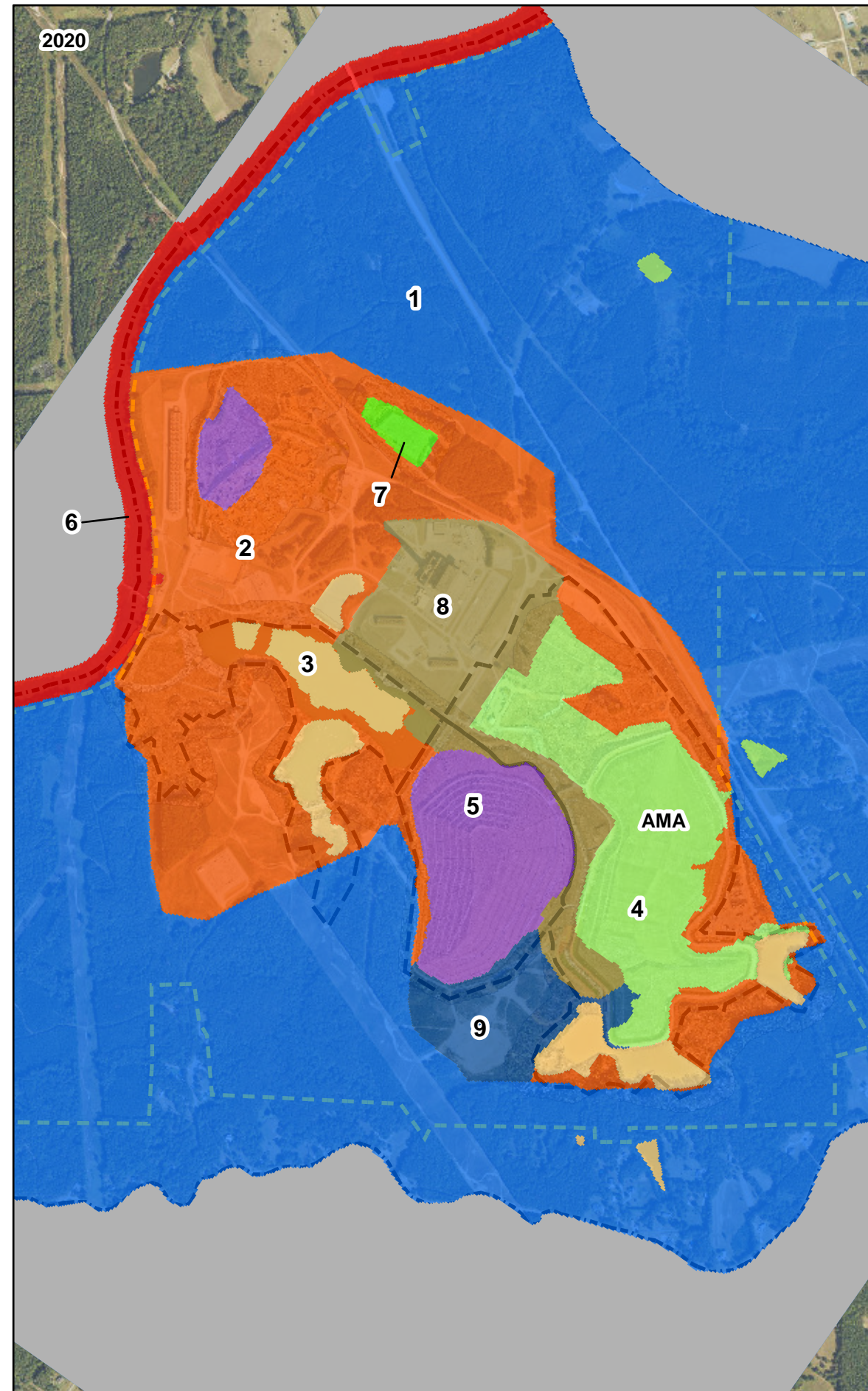
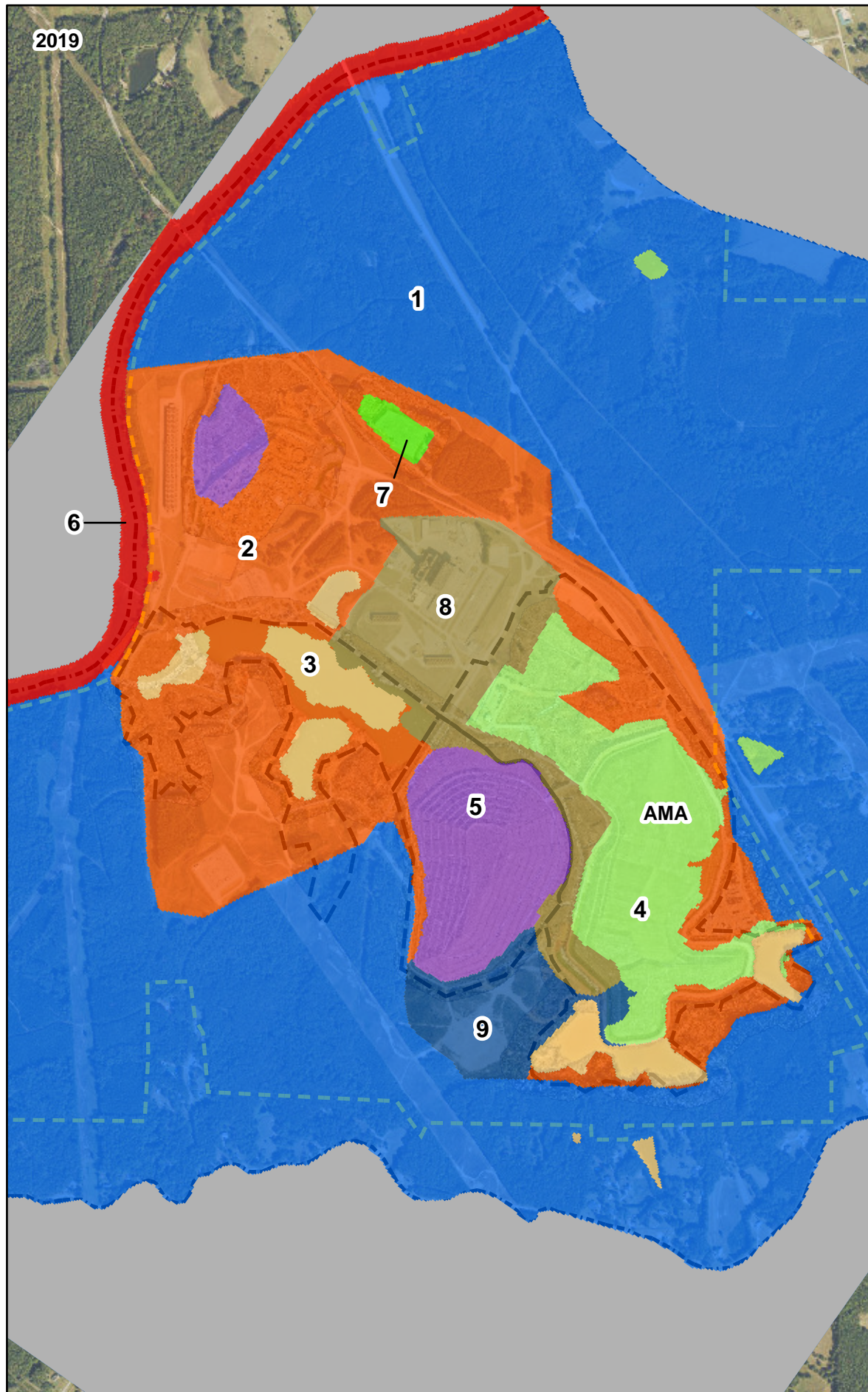


**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**SIMULATED MODEL RECHARGE  
 DISTRIBUTION - 2017 TO 2020**

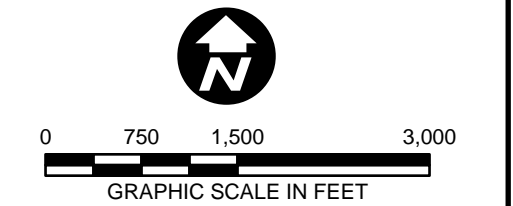
**ARCADIS** | FIGURE  
**A-8a**



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- PERMITTED UNIT BOUNDARY
- SIMULATED MODEL BOUNDARY
- INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
- 1** RECHARGE ZONE NUMBER
- 2** SIMULATED RECHARGE ZONES
- AMA ASH MANAGEMENT AREA
- NA NOT APPLICABLE
- in/yr INCHES PER YEAR

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



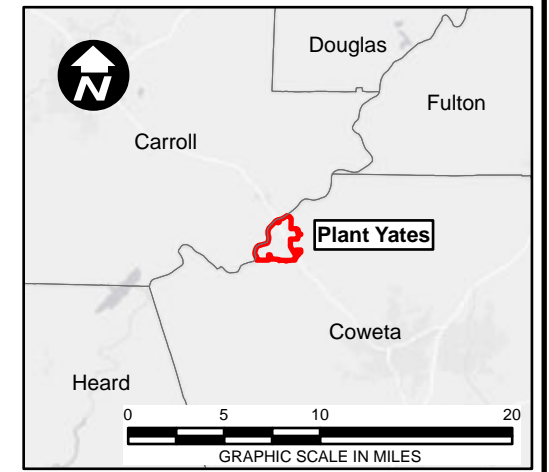
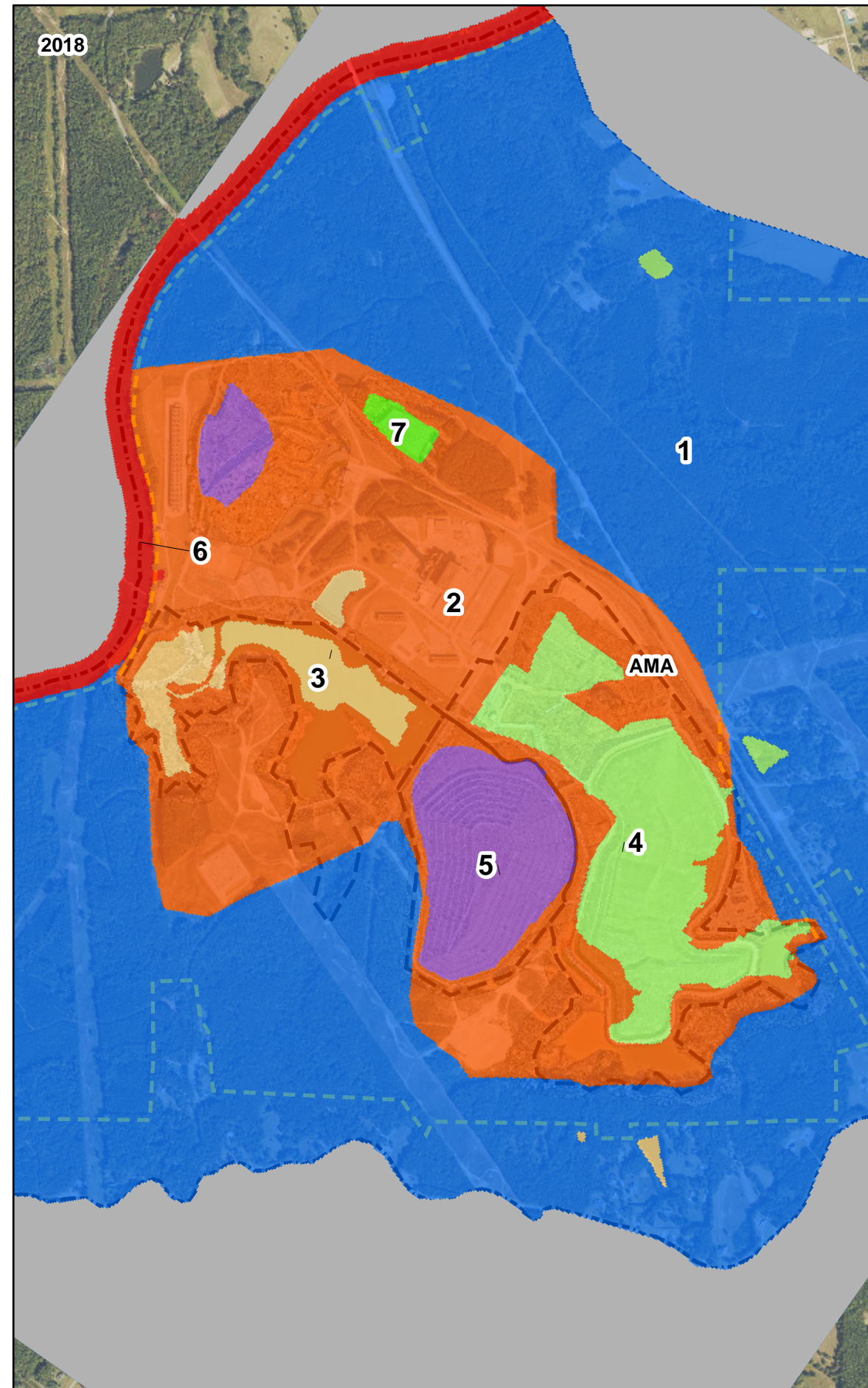
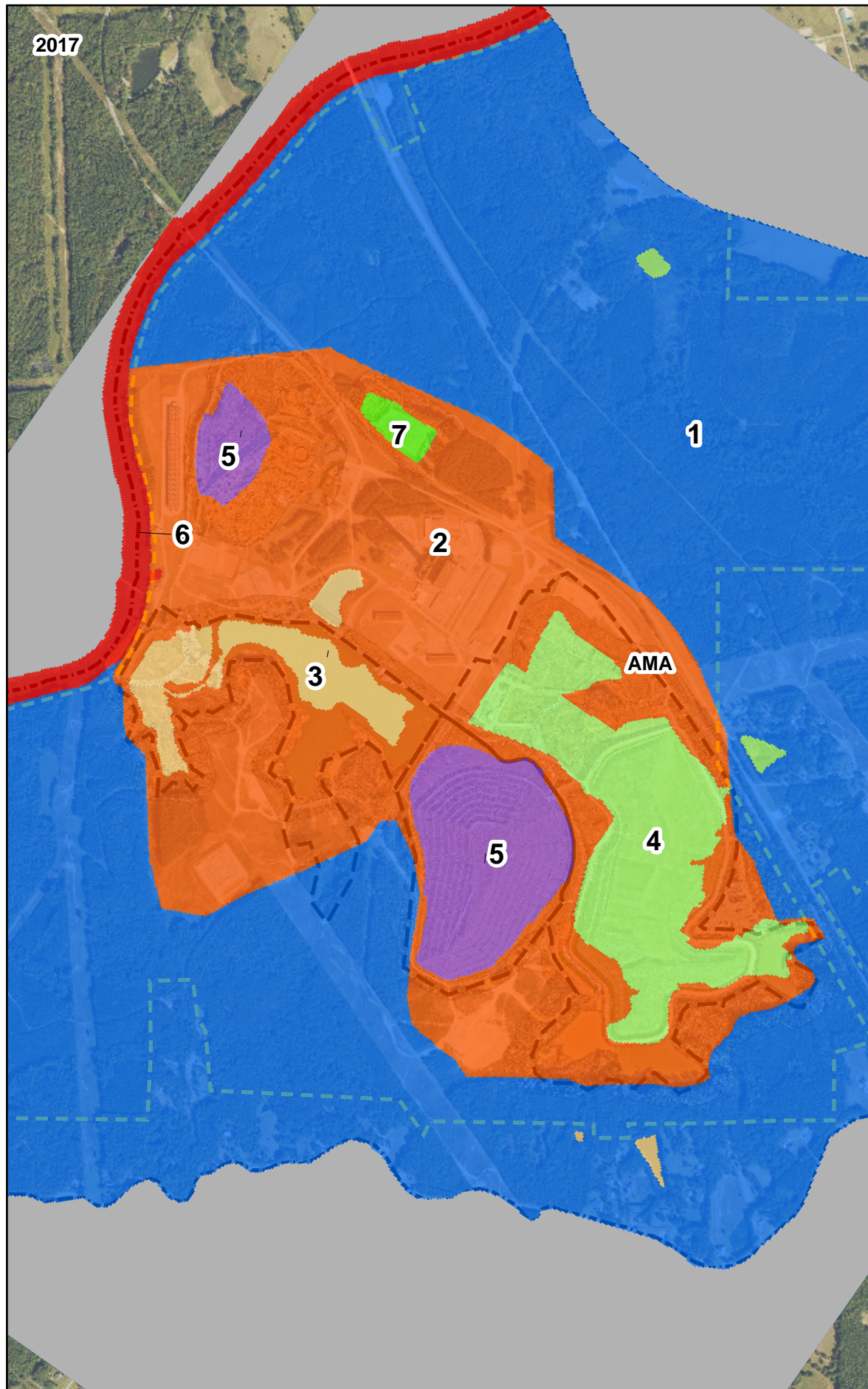
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

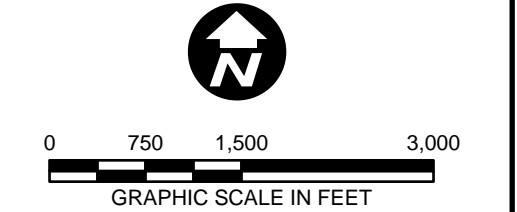
**SIMULATED MODEL RECHARGE  
 DISTRIBUTION - 2017 TO 2020**

**ARCADIS** | FIGURE  
**A-8b**



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - SIMULATED MODEL BOUNDARY
  - INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
  - SIMULATED EVAPOTRANSPIRATION ZONES
  - 1 EVAPOTRANSPIRATION ZONE NUMBER
  - AMA ASH MANAGEMENT AREA
  - ET EVAPOTRANSPIRATION
  - NA NOT APPLICABLE
  - in/yr INCHES PER YEAR

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



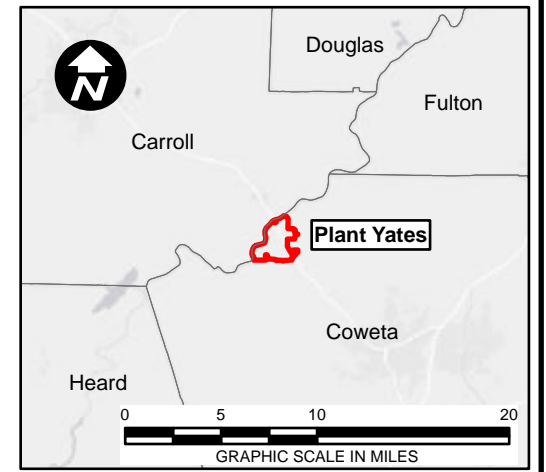
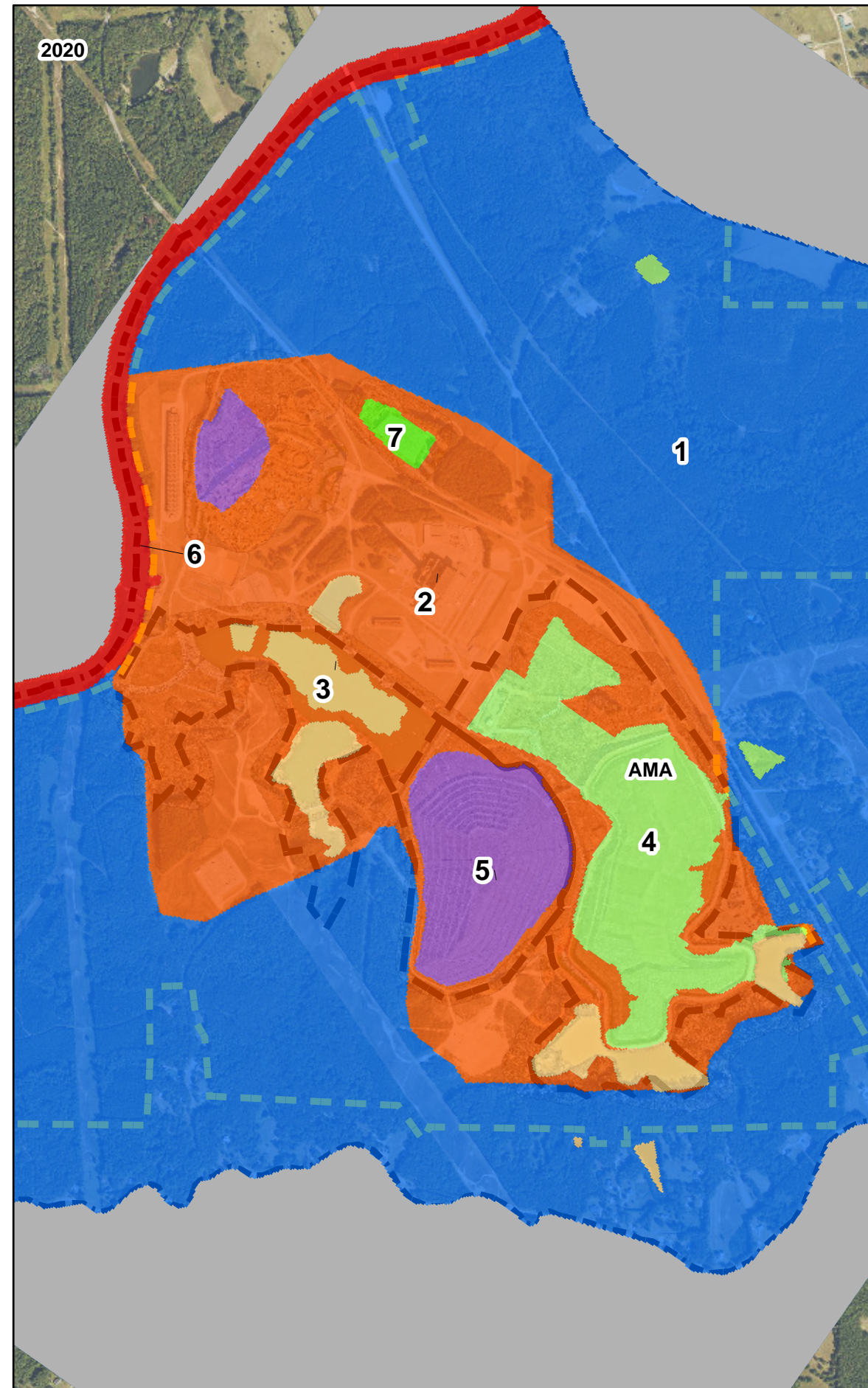
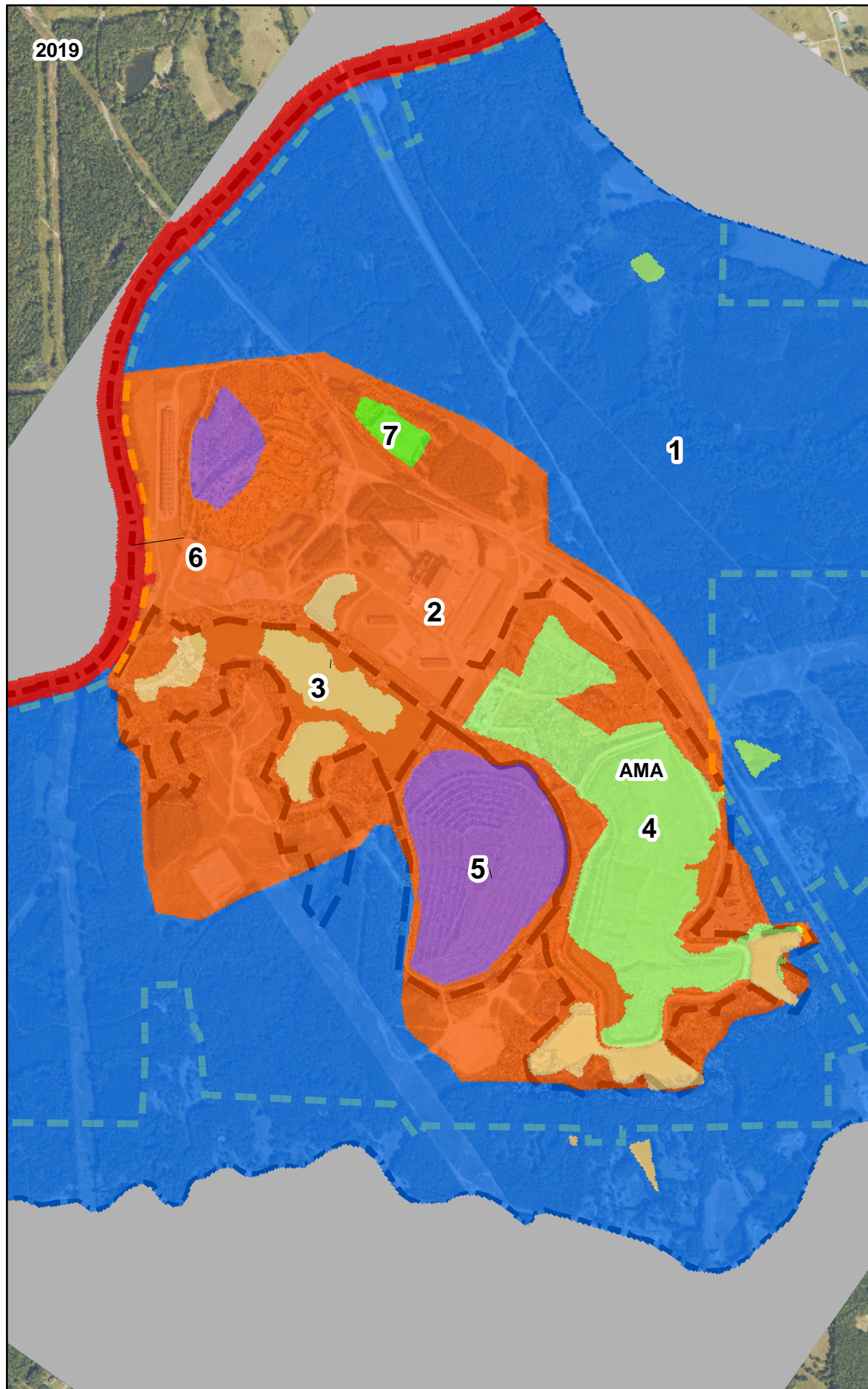
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

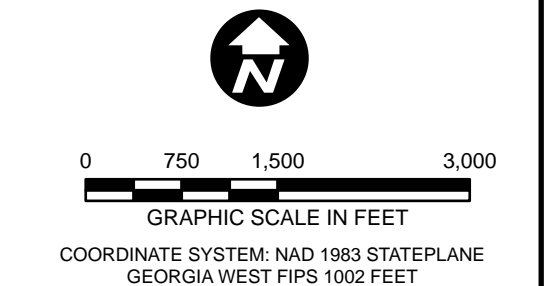
**SIMULATED MODEL  
 EVAPOTRANSPIRATION  
 DISTRIBUTION - 2017 TO 2020**

**ARCADIS** | FIGURE  
**A-9a**



- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - PERMITTED UNIT BOUNDARY
  - SIMULATED MODEL BOUNDARY
  - INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
  - SIMULATED EVAPOTRANSPIRATION ZONES
  - 1 EVAPOTRANSPIRATION ZONE NUMBER
  - AMA ASH MANAGEMENT AREA
  - ET EVAPOTRANSPIRATION
  - NA NOT APPLICABLE
  - in/yr INCHES PER YEAR

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



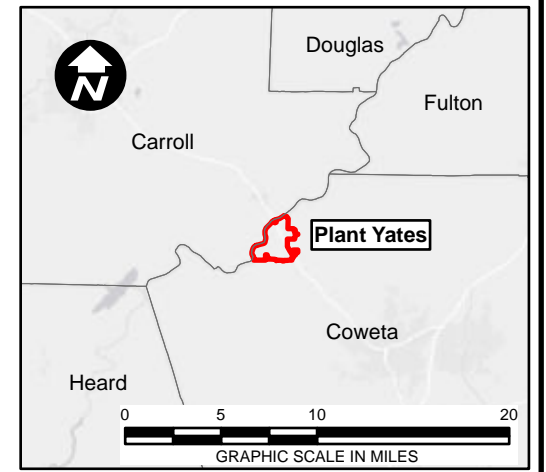
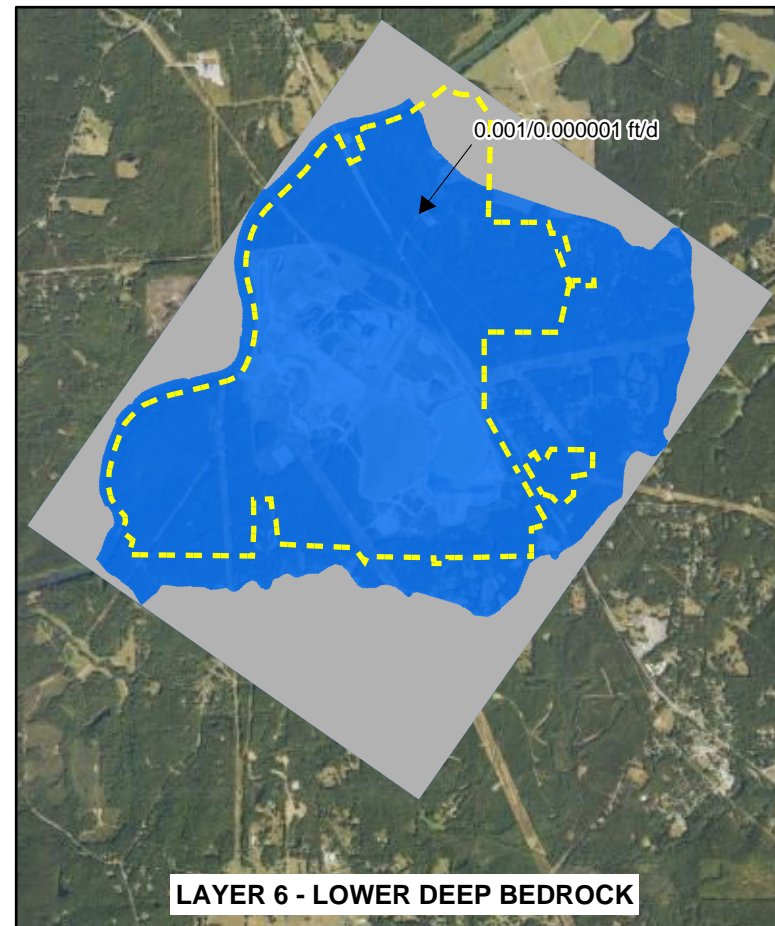
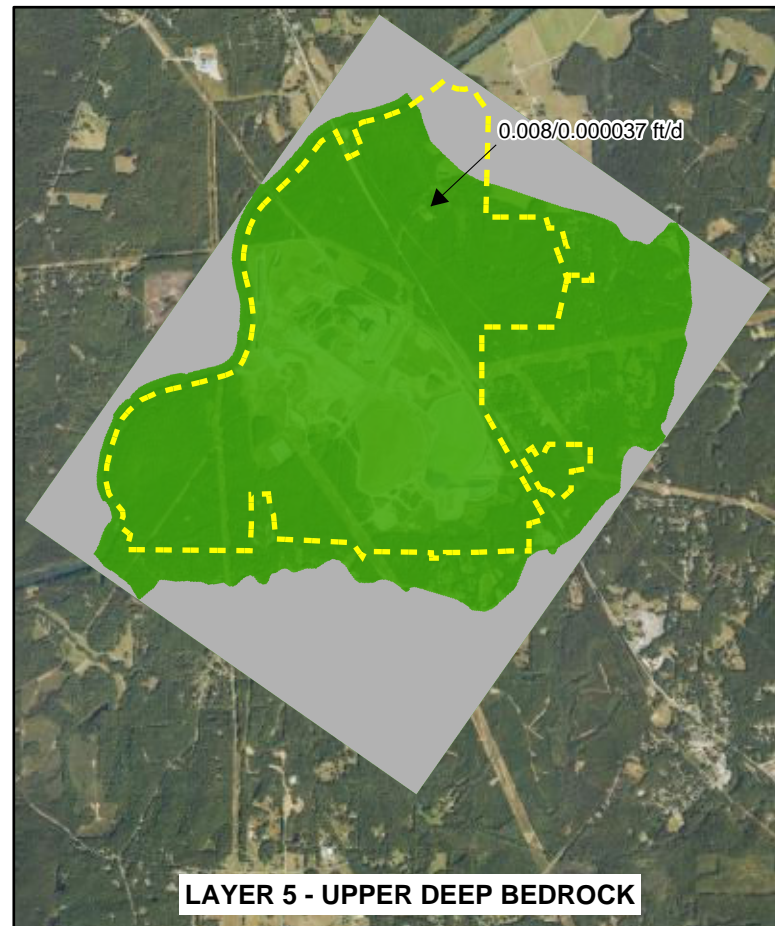
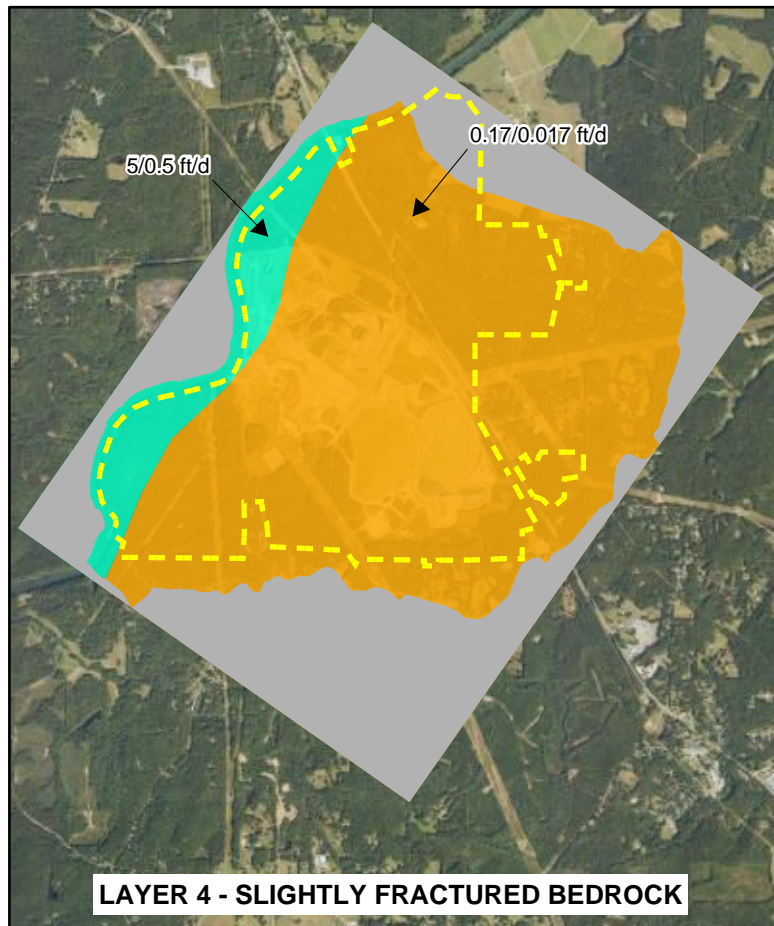
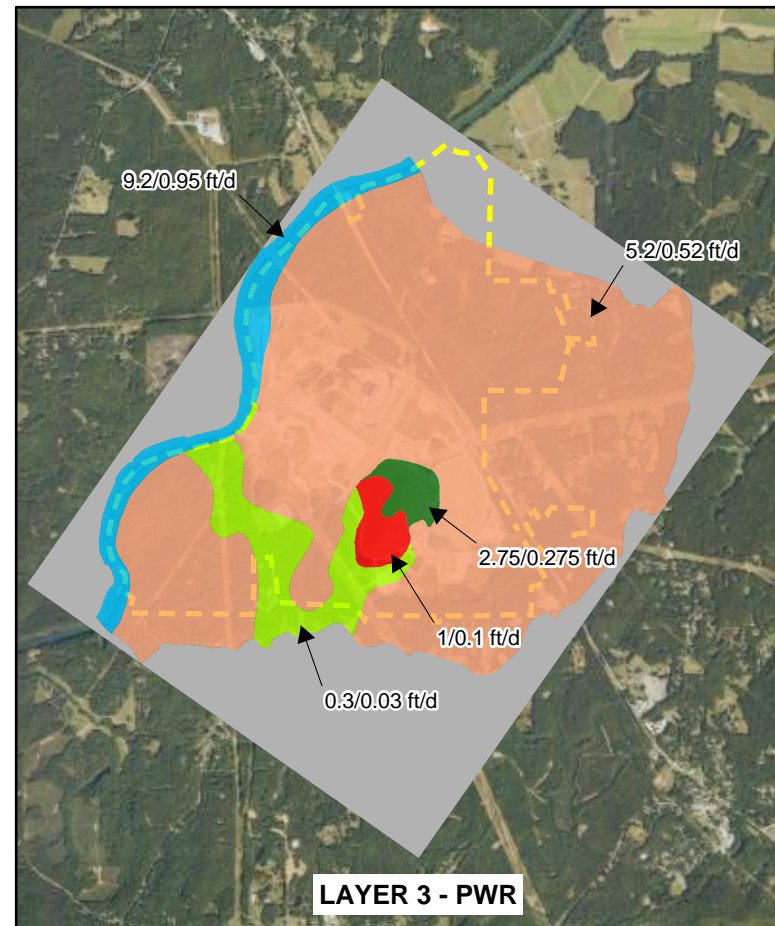
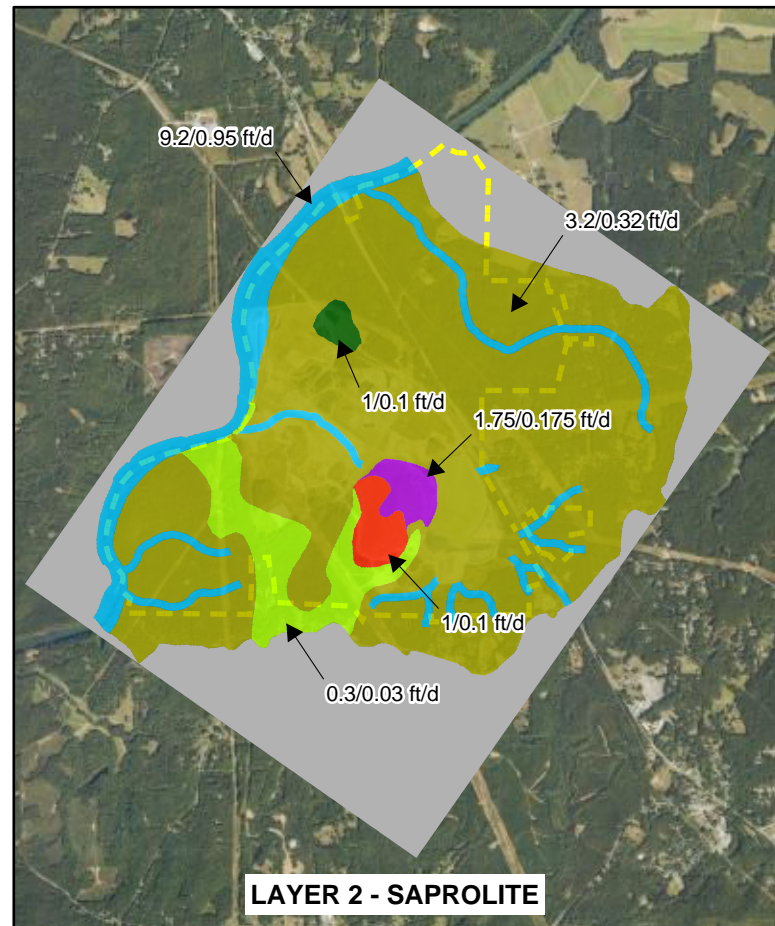
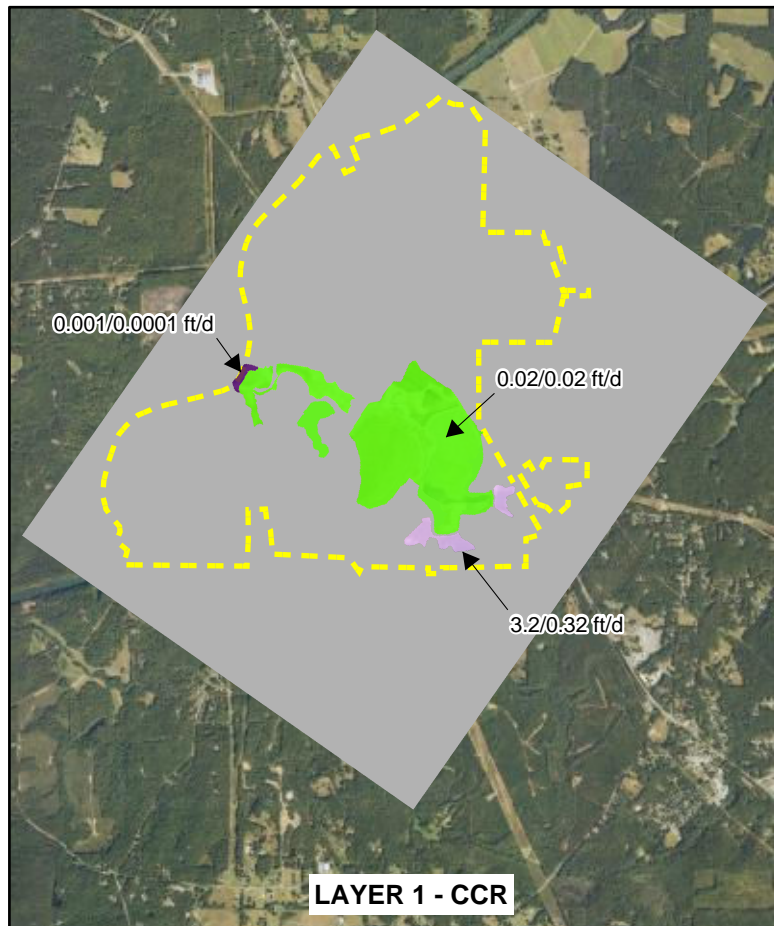
**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**SIMULATED MODEL  
 EVAPOTRANSPIRATION  
 DISTRIBUTION - 2017 TO 2020**

**ARCADIS** | FIGURE  
**A-9b**





**LEGEND**

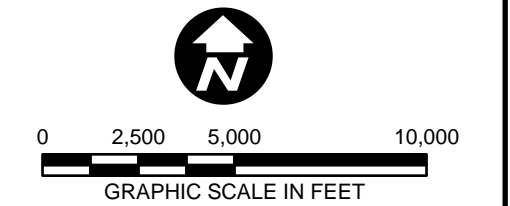
- APPROXIMATE PROPERTY BOUNDARY
- INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
- SIMULATED HYDRAULIC CONDUCTIVITY ZONES

1/0.1 ft/d  
1/0.1 ft/d (Kh/Kv)

Kh - HORIZONTAL HYDRAULIC CONDUCTIVITY  
Kv - VERTICAL HYDRAULIC CONDUCTIVITY

CCR COAL COMBUSTION RESIDUALS  
ft/d FEET PER DAY  
PWR PARTIALLY WEATHERED ROCK

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
NATIONAL AGRICULTURE IMAGERY PROGRAM  
(NAIP) 2023 IMAGERY.



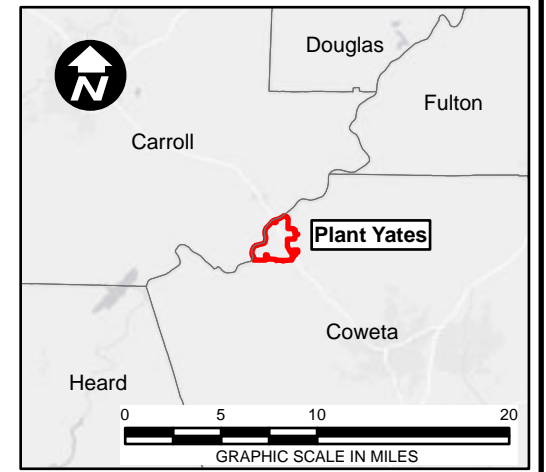
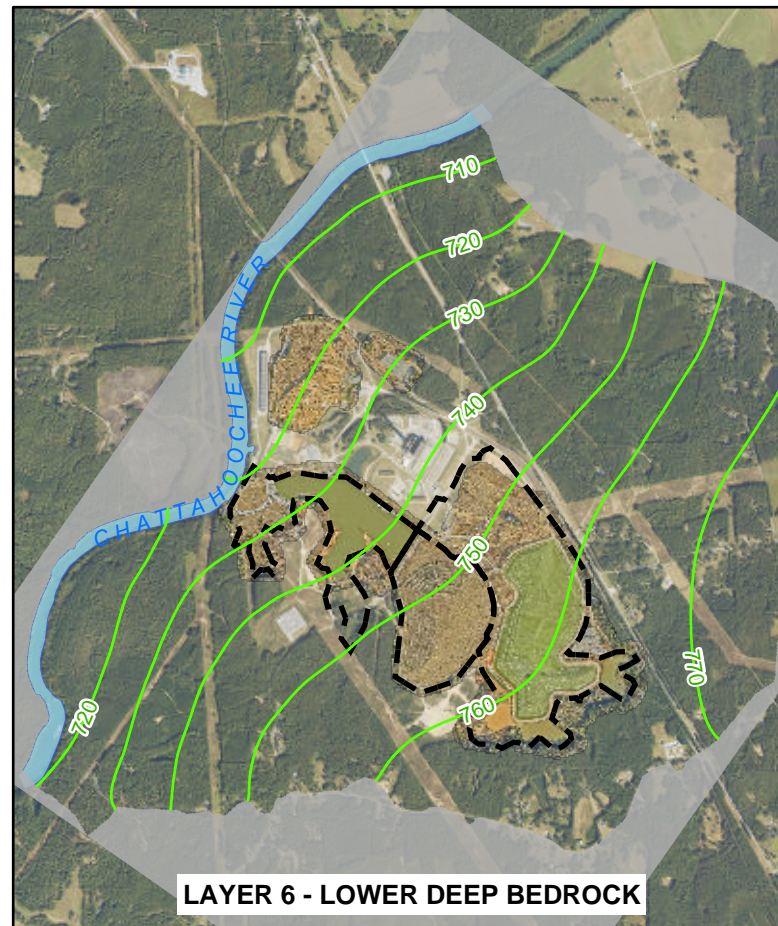
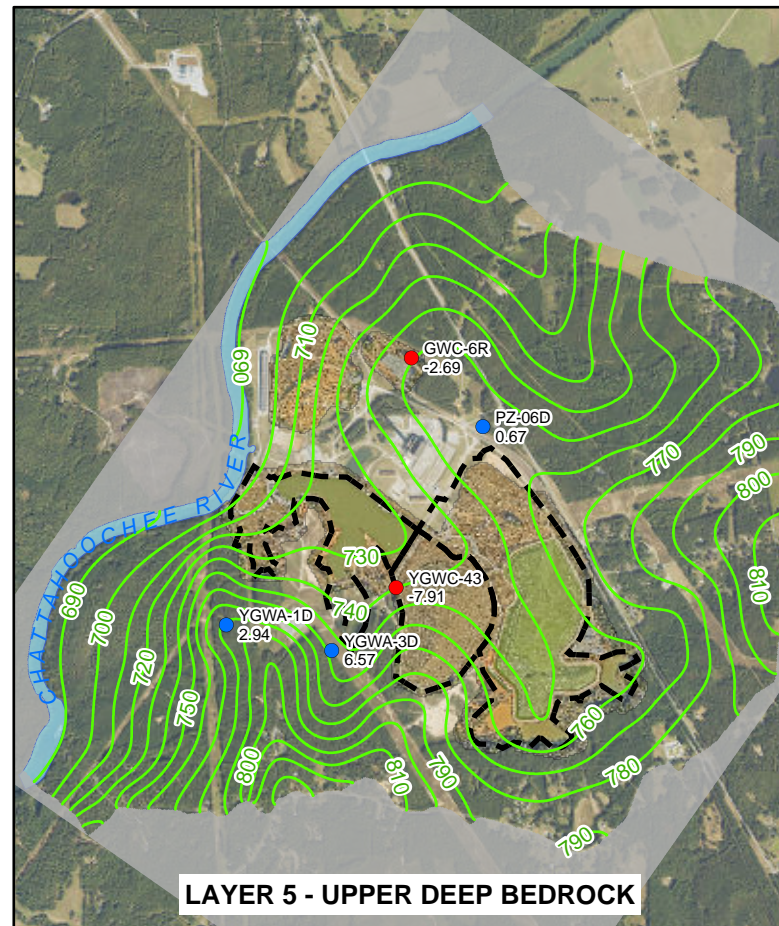
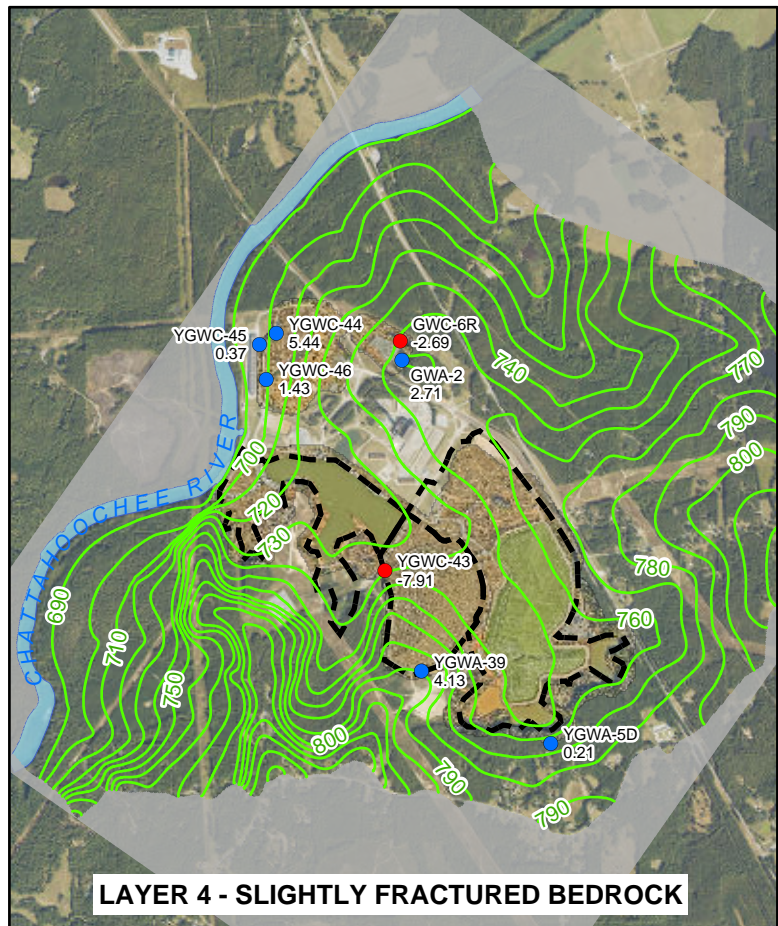
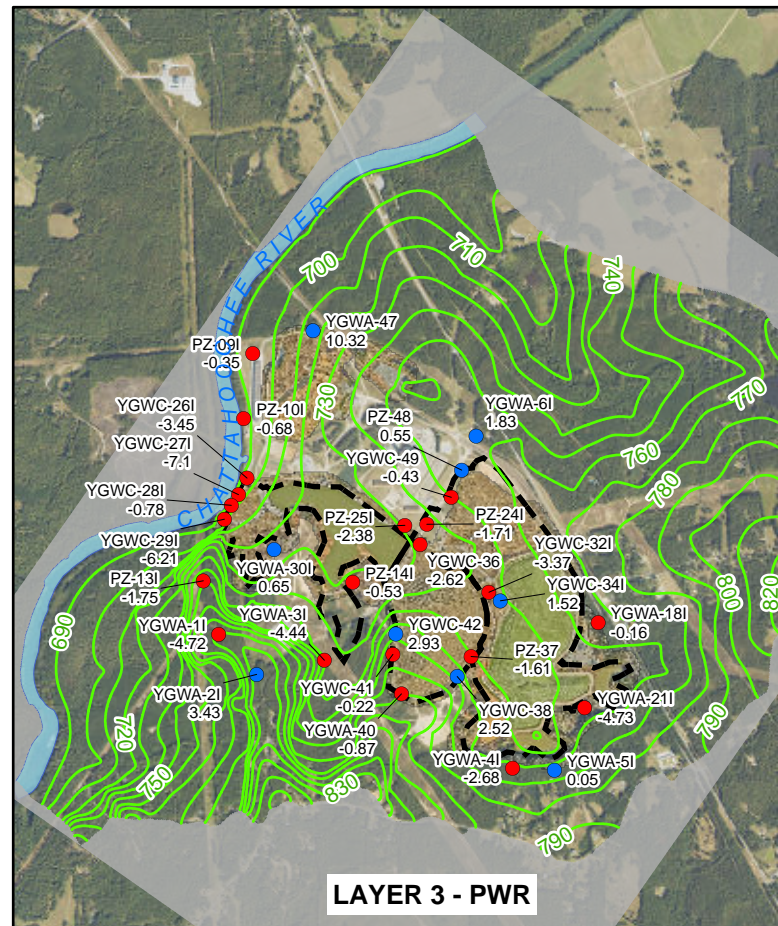
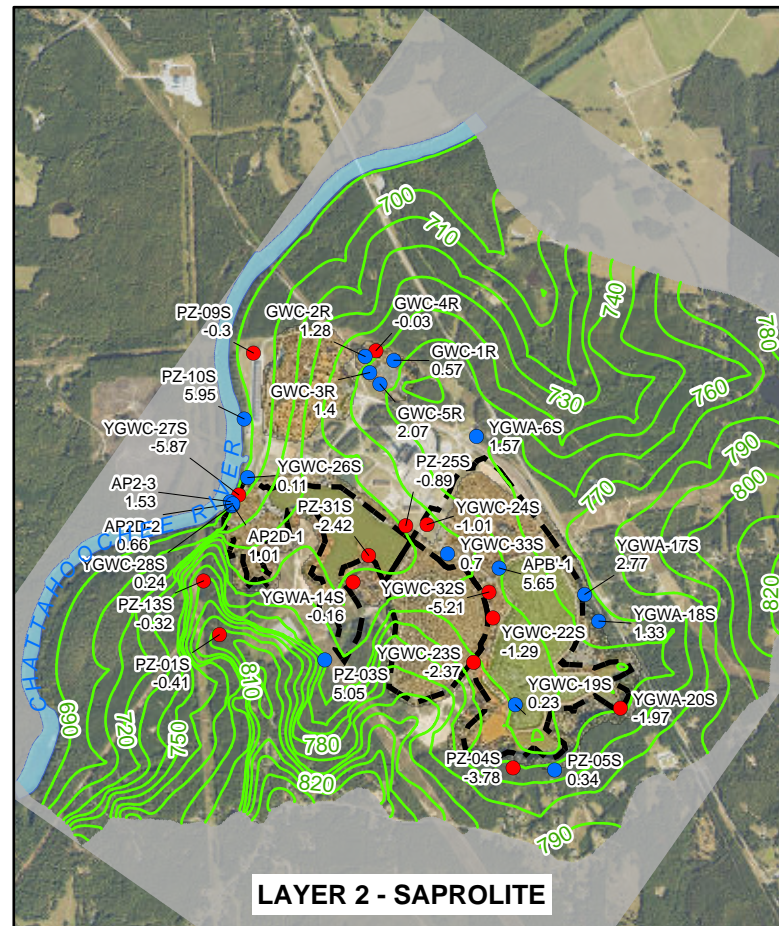
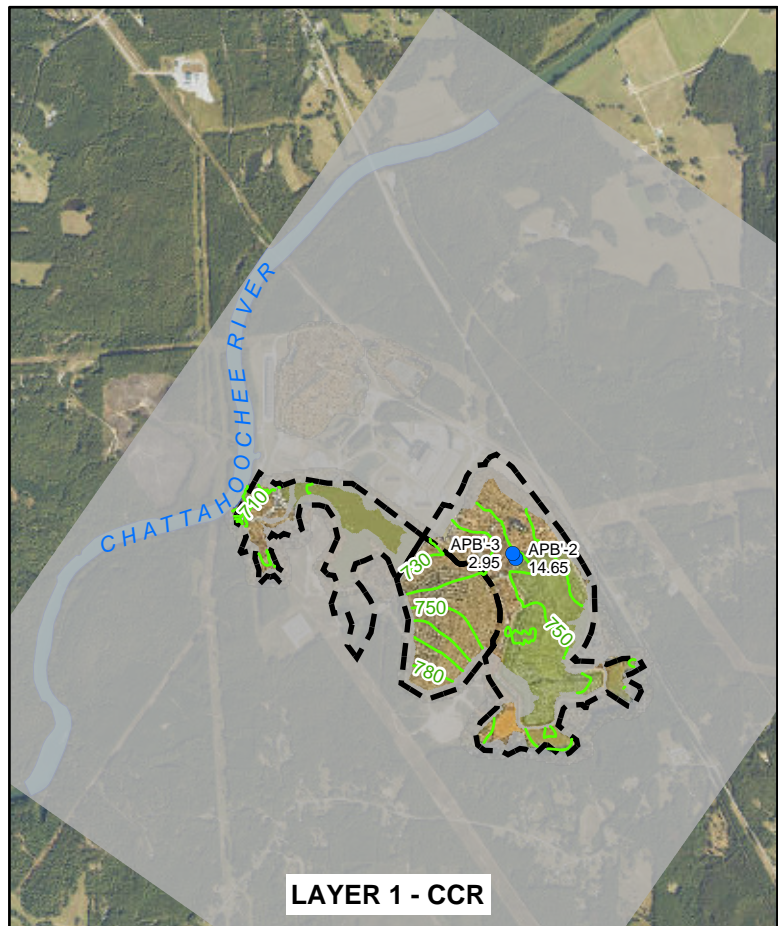
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
PLANT YATES  
NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
ADVANCED ENGINEERING METHOD EVALUATION

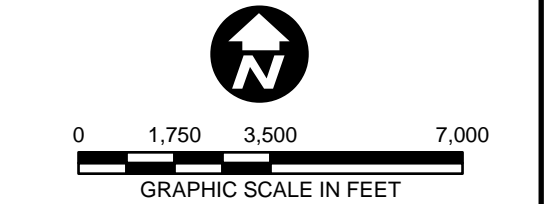
**SIMULATED MODEL HYDRAULIC  
CONDUCTIVITY DISTRIBUTION**

**ARCADIS** | **FIGURE  
A-11**



- LEGEND**
- PERMITTED UNIT BOUNDARY
  - SIMULATED GROUNDWATER ELEVATION CONTOUR (FT MSL) (CONTOUR INTERVAL IS 10 FT)
  - UNDERESTIMATED RESIDUALS [OBSERVED - SIMULATED GROUNDWATER ELEVATIONS (FT)]
  - OVERESTIMATED RESIDUALS [OBSERVED - SIMULATED GROUNDWATER ELEVATIONS (FT)]
  - INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
  - CCR COAL COMBUSTION RESIDUALS
  - FT FEET
  - PWR PARTIALLY WEATHERED ROCK
  - MSL MEAN SEA LEVEL

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.



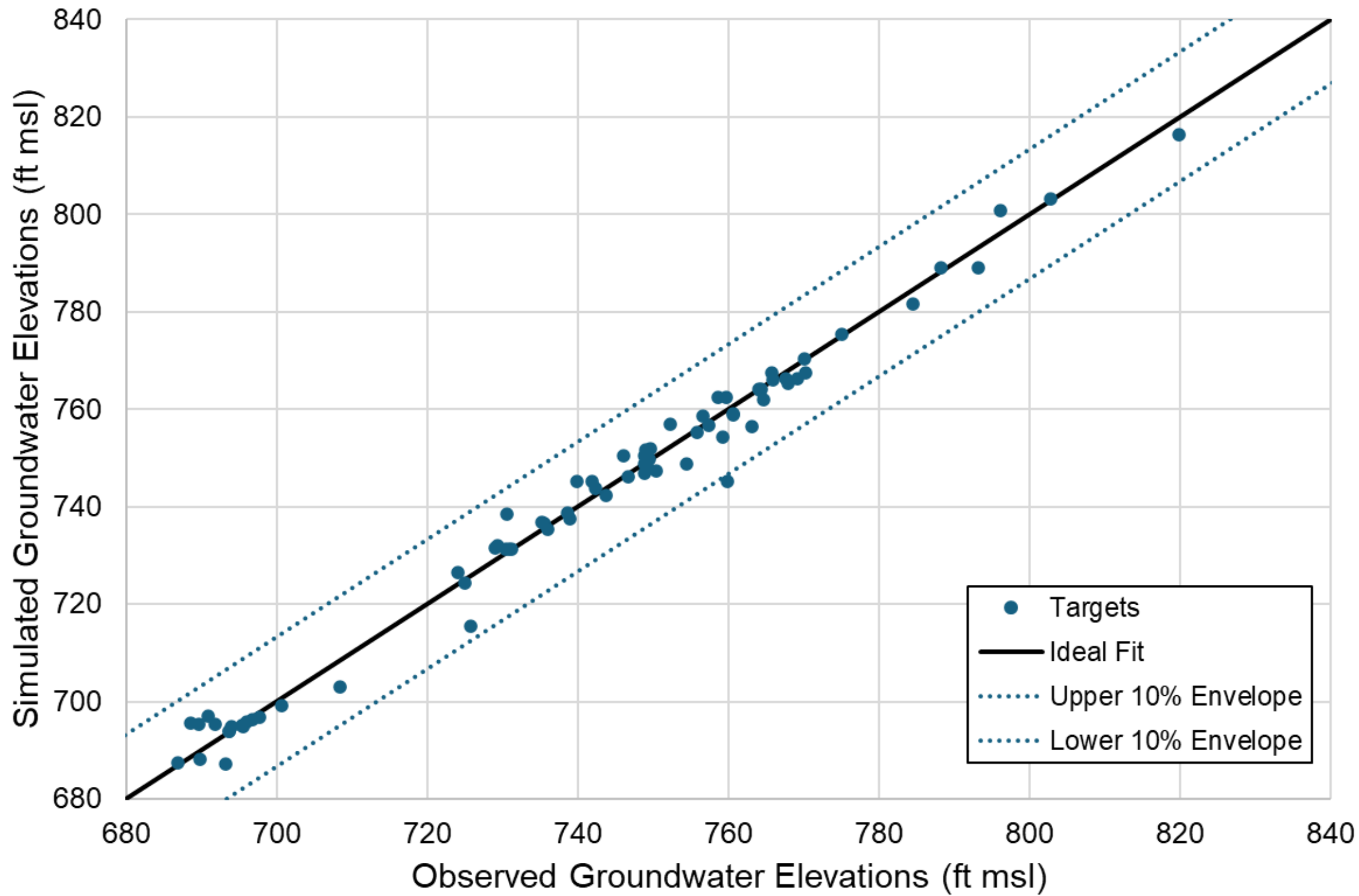
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

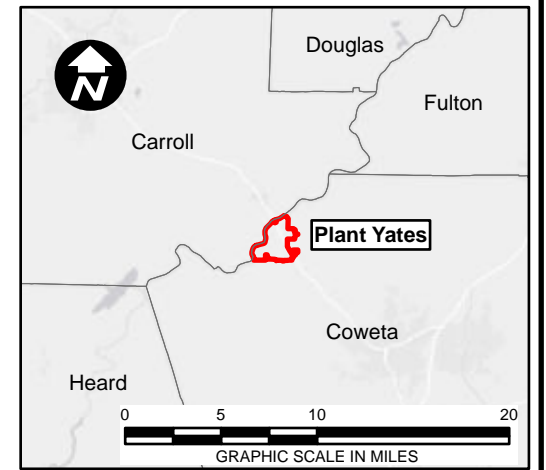
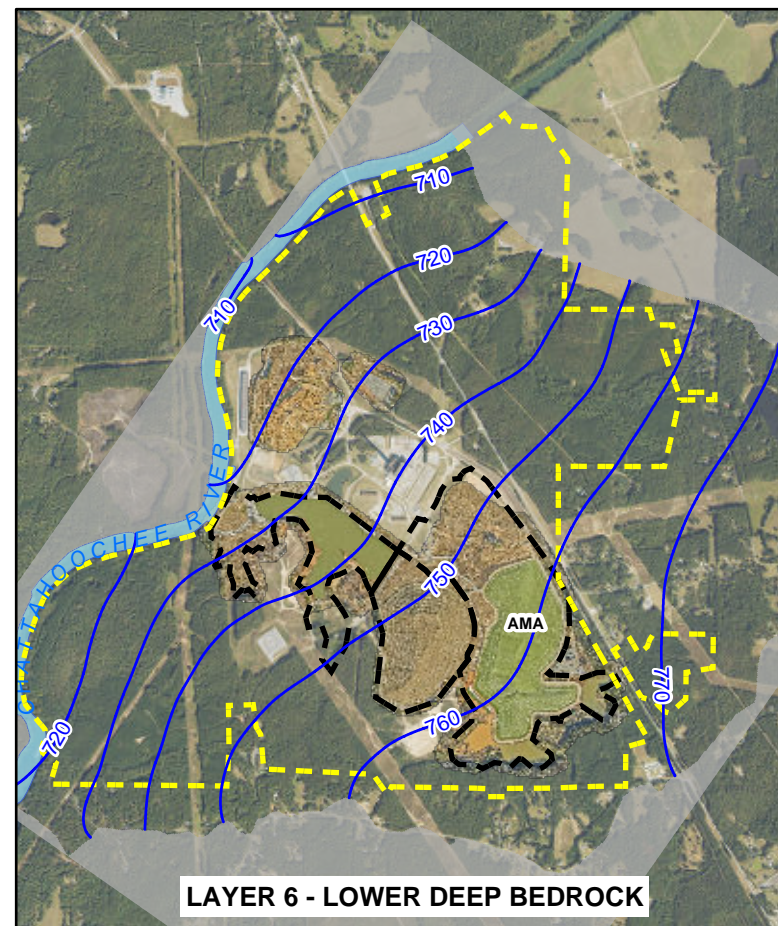
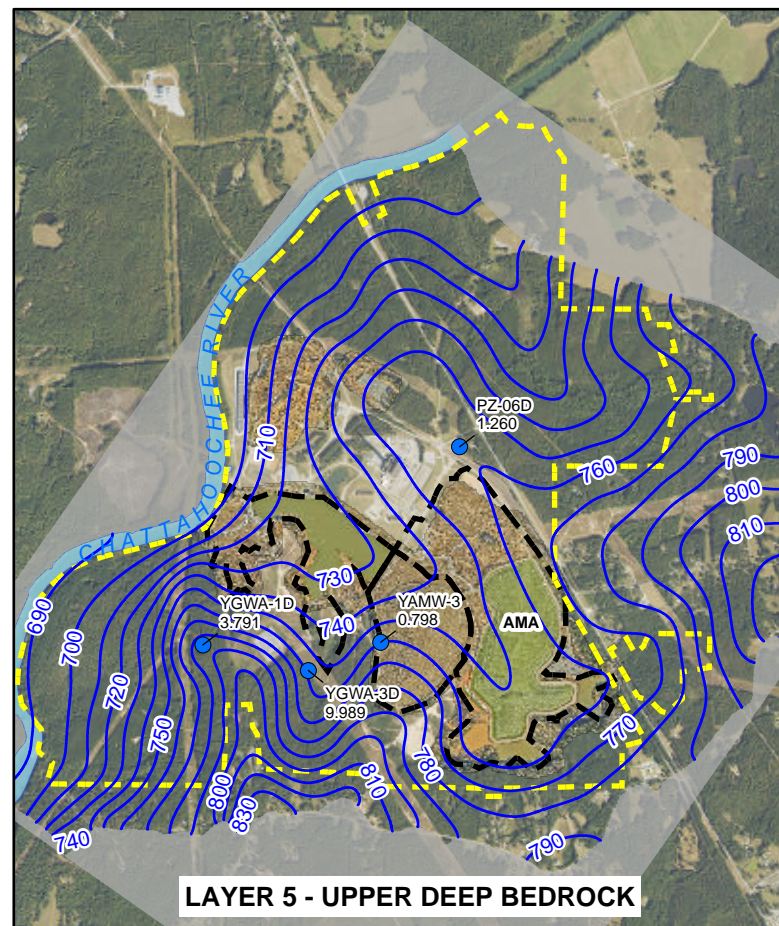
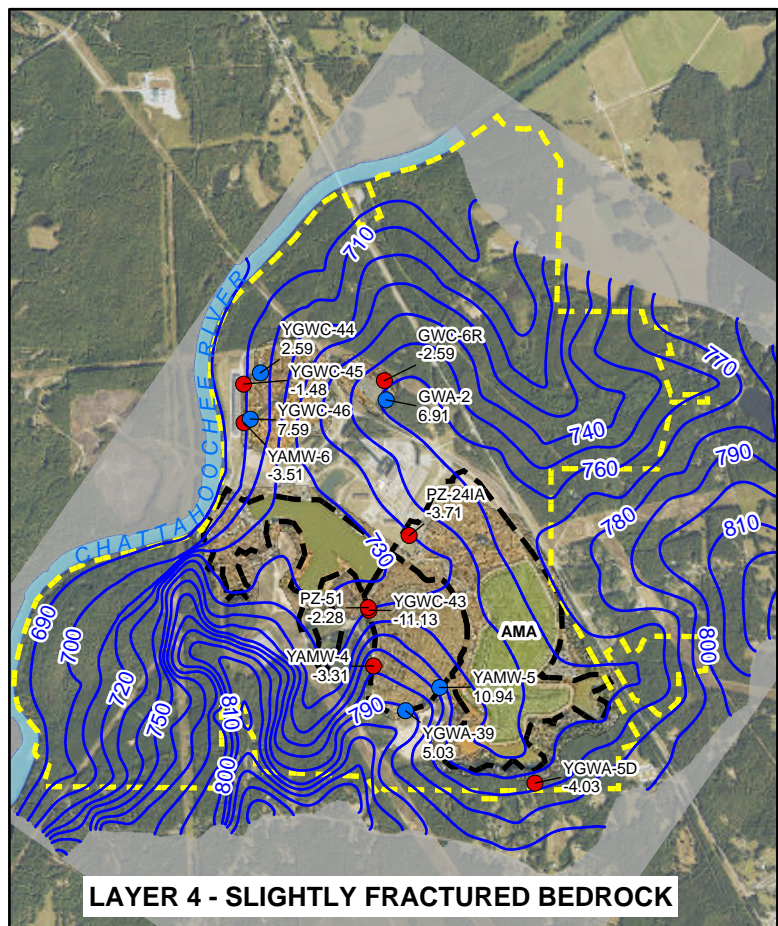
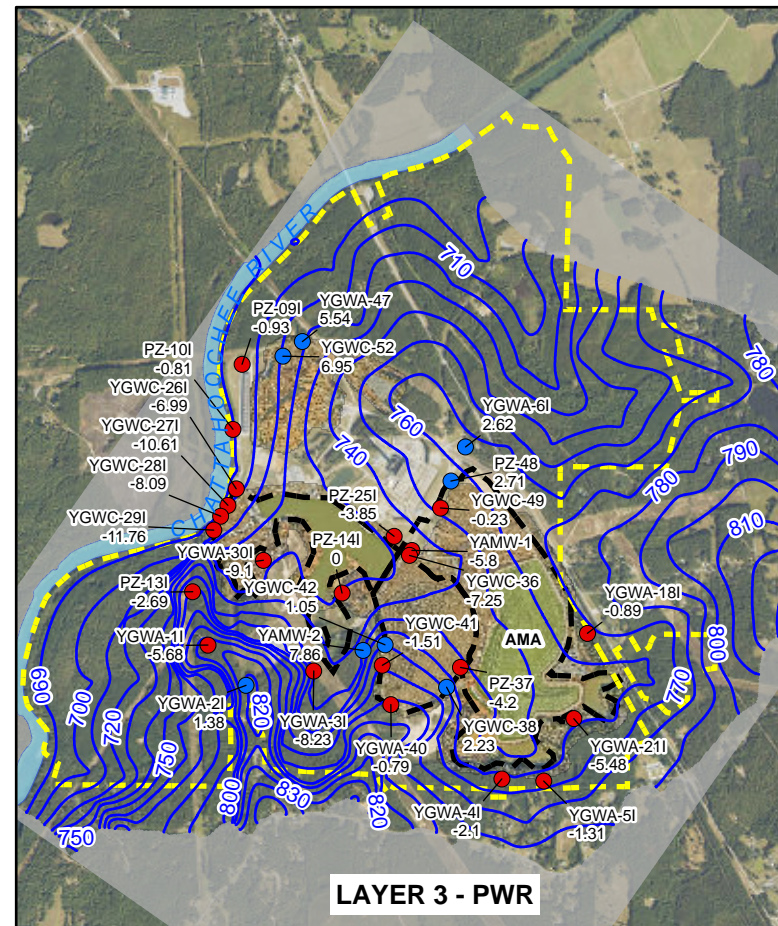
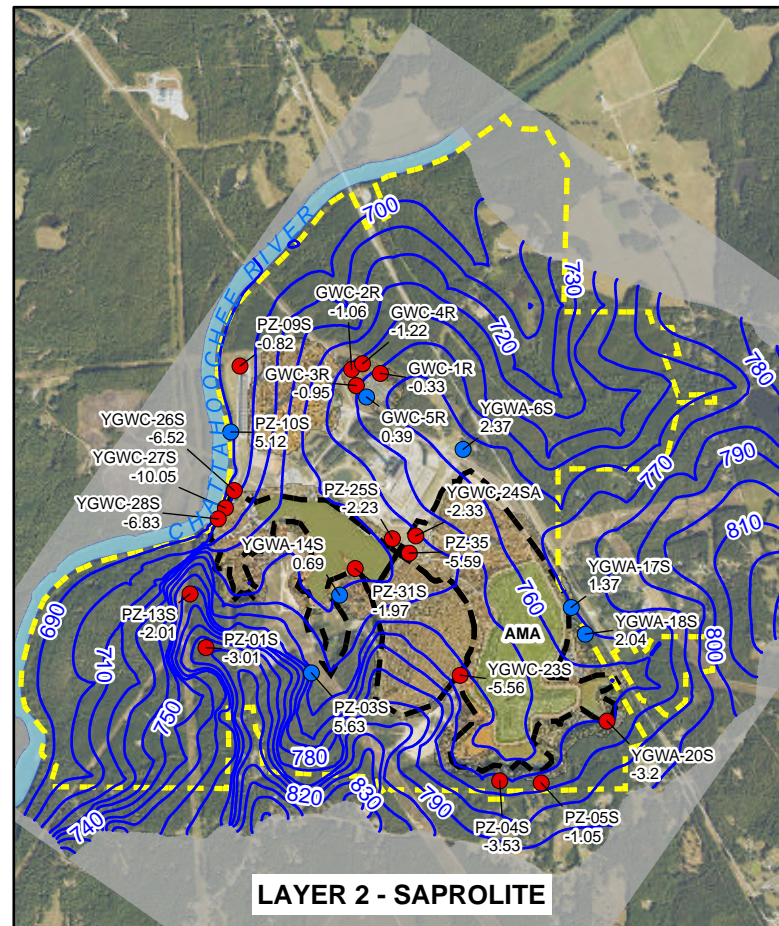
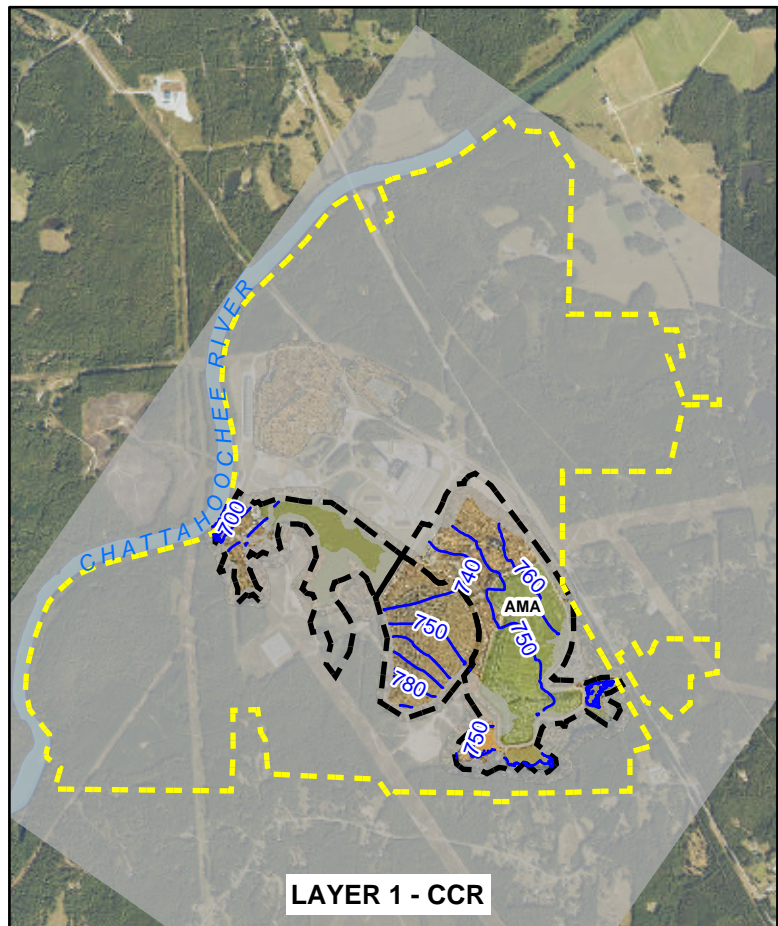
**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**SIMULATED GROUNDWATER  
 ELEVATION CONTOURS AND  
 RESIDUALS – STEADY STATE 2017**

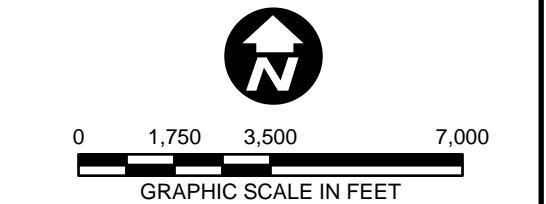
**ARCADIS** | **FIGURE A-12**





- LEGEND**
- PERMITTED UNIT BOUNDARY
  - APPROXIMATE PROPERTY BOUNDARY
  - SIMULATED GROUNDWATER CONTOURS (FT MSL) (CONTOUR INTERVAL IS 10 FT)
  - 0.5 UNDERESTIMATED RESIDUALS [OBSERVED - SIMULATED GROUNDWATER ELEVATIONS (FT)]
  - 0.5 OVERESTIMATED RESIDUALS [OBSERVED - SIMULATED GROUNDWATER ELEVATIONS (FT)]
  - INACTIVE AREA (MODEL NO-FLOW BOUNDARY)
  - AMA ASH MANAGEMENT AREA
  - FT FEET
  - PWR PARTIALLY WEATHERED ROCK
  - MSL MEAN SEA LEVEL

AERIAL IMAGE SOURCES: JANUARY 2, 2025  
 IMAGERY FLOWN AND PROCESSED BY SAM LLC;  
 NATIONAL AGRICULTURE IMAGERY PROGRAM  
 (NAIP) 2023 IMAGERY.

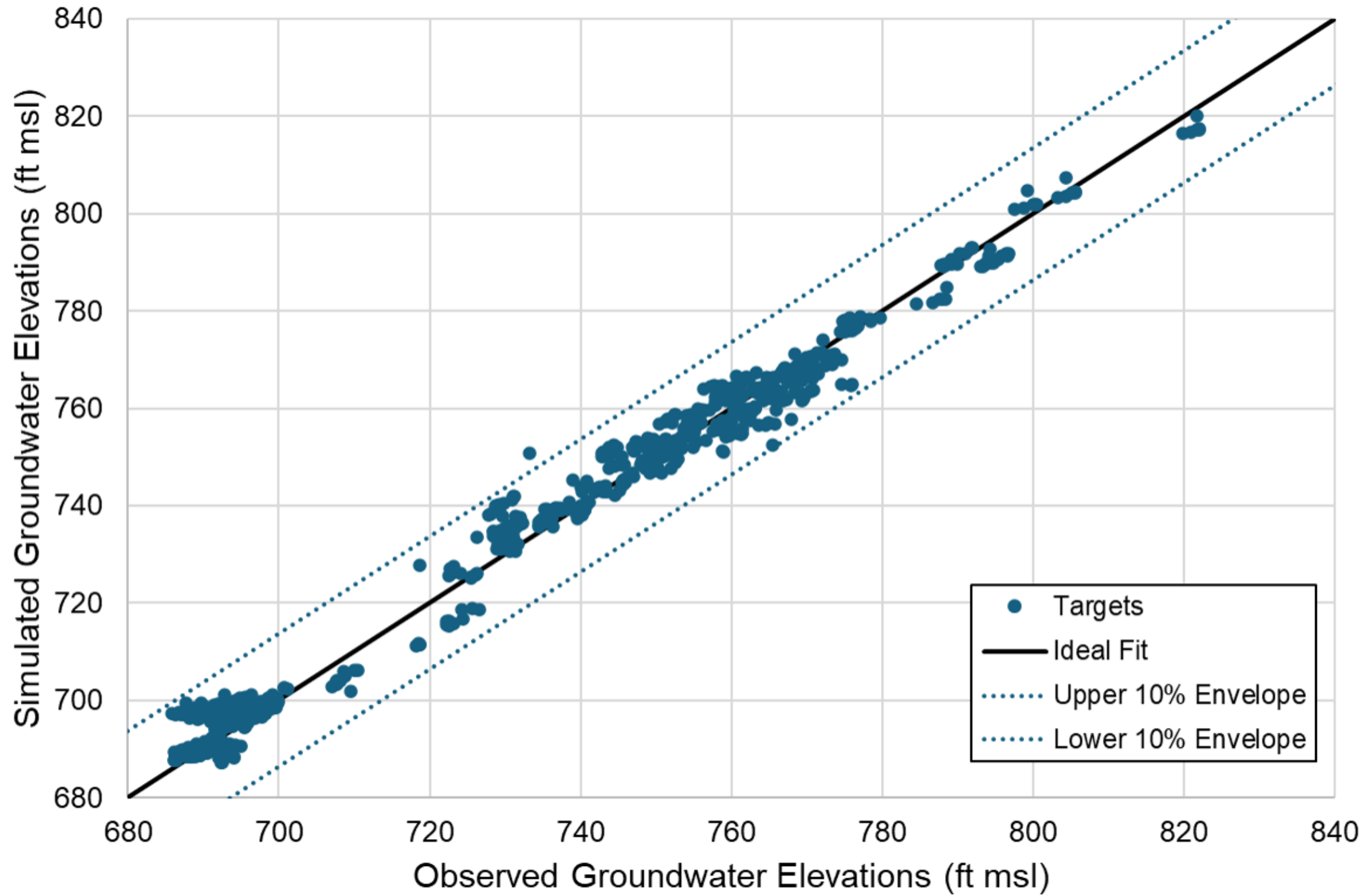


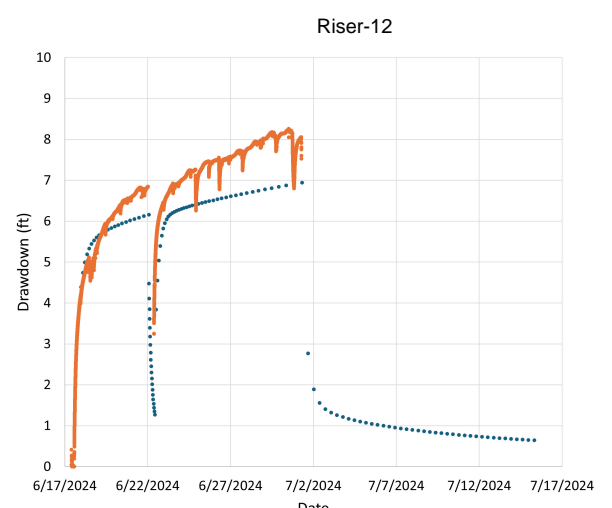
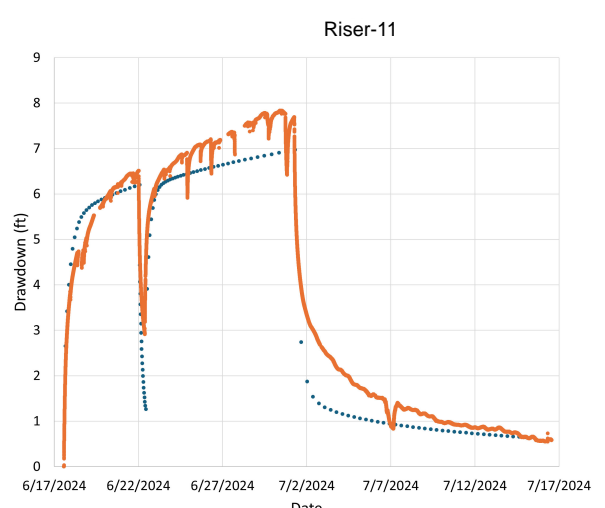
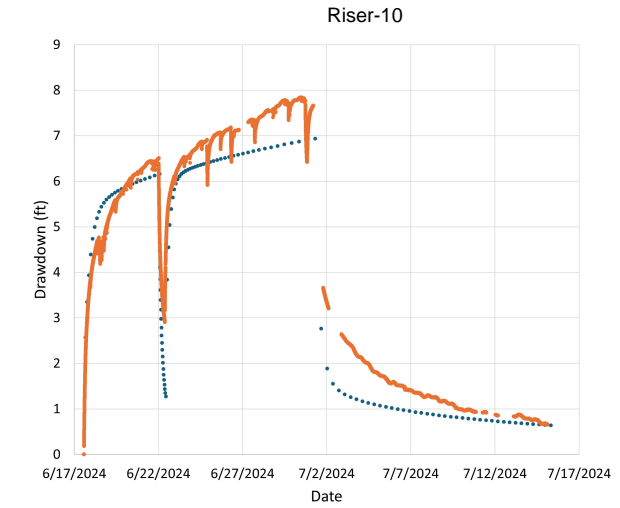
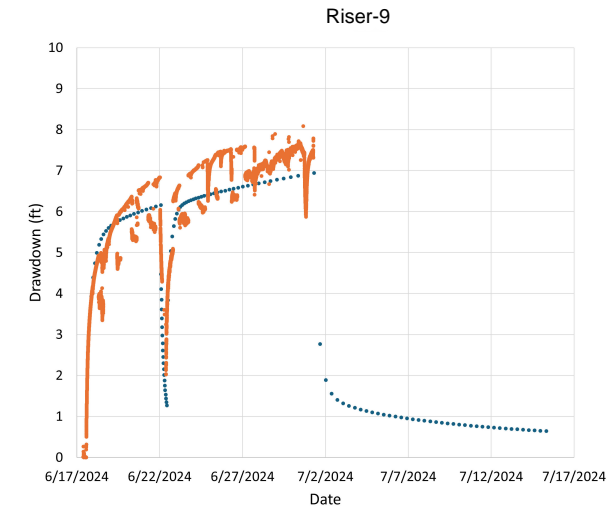
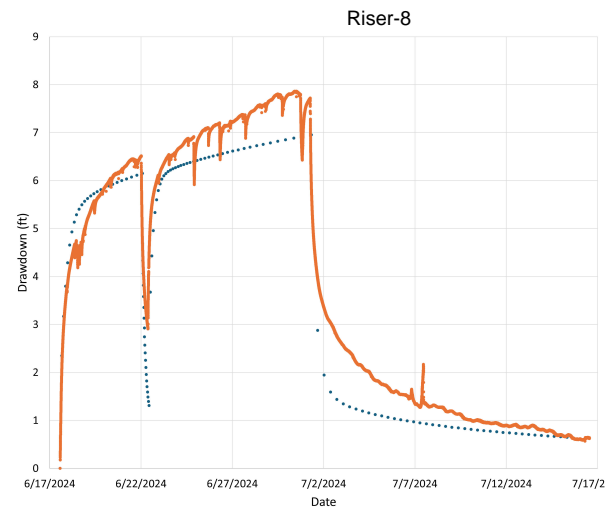
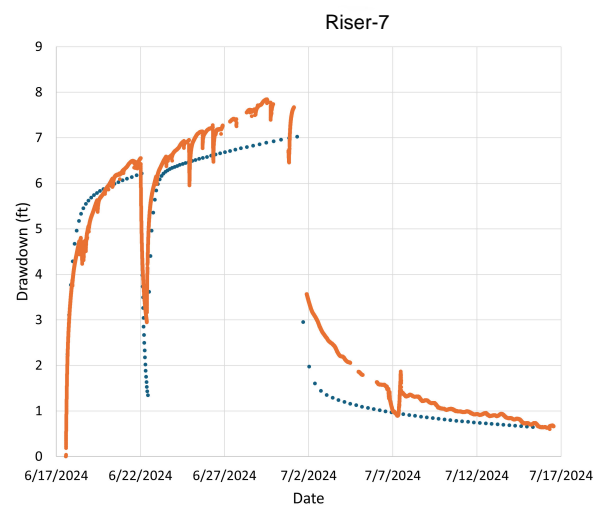
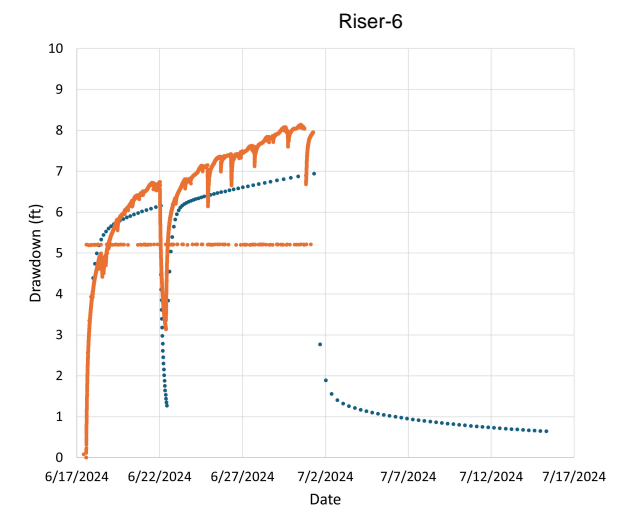
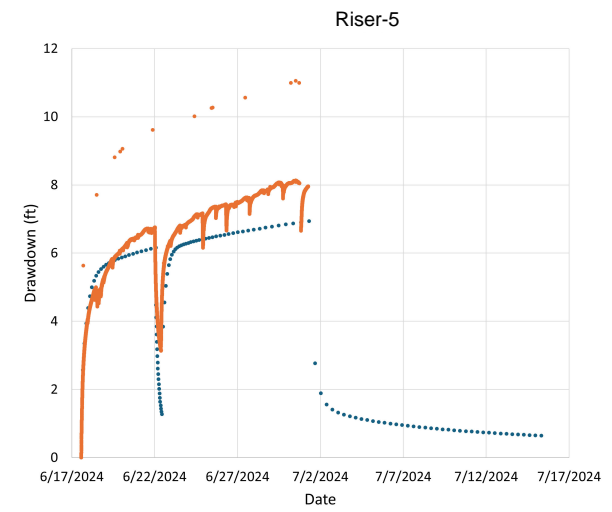
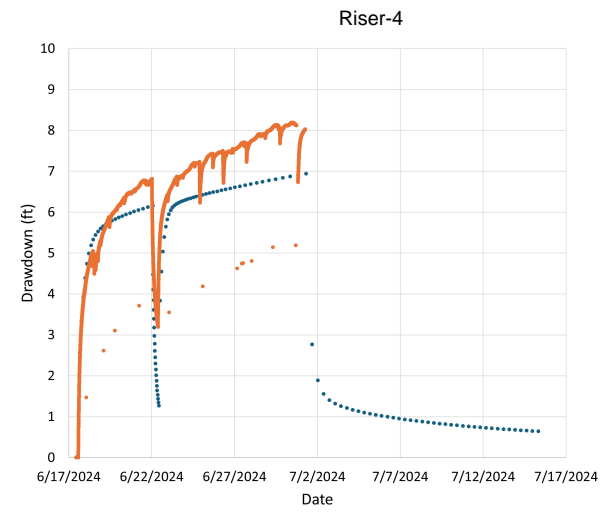
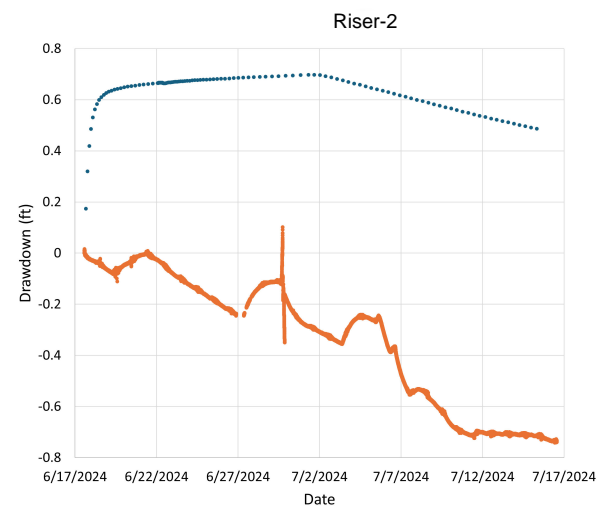
COORDINATE SYSTEM: NAD 1983 STATEPLANE  
 GEORGIA WEST FIPS 1002 FEET

**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA  
 PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**SIMULATED GROUNDWATER ELEVATION  
 CONTOURS AND RESIDUALS – END OF 2020**

**ARCADIS** | **FIGURE A-14**



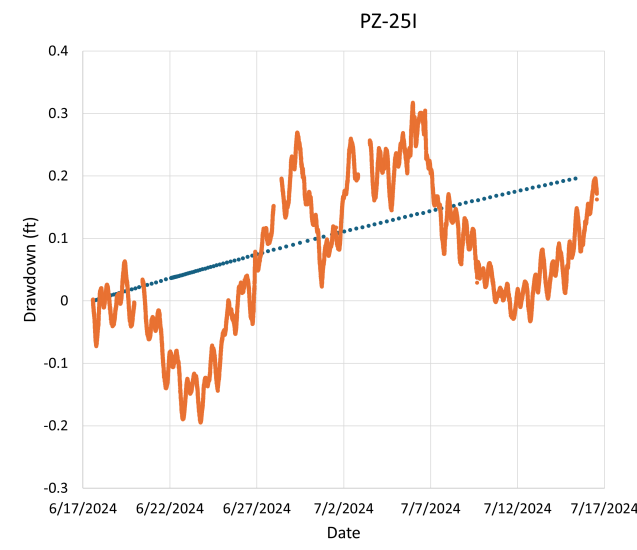
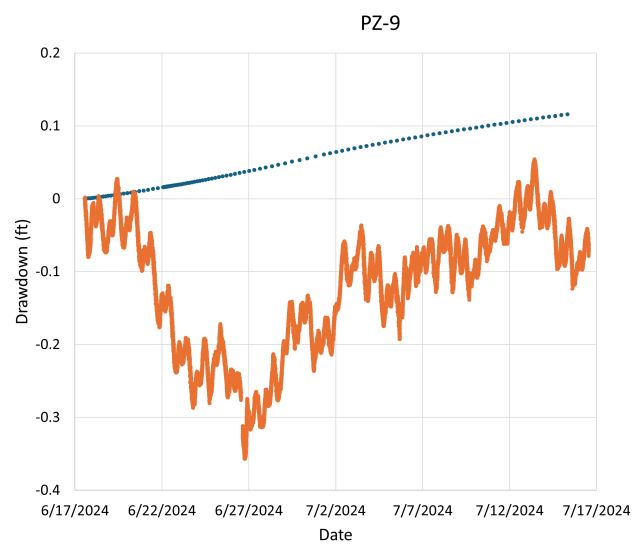
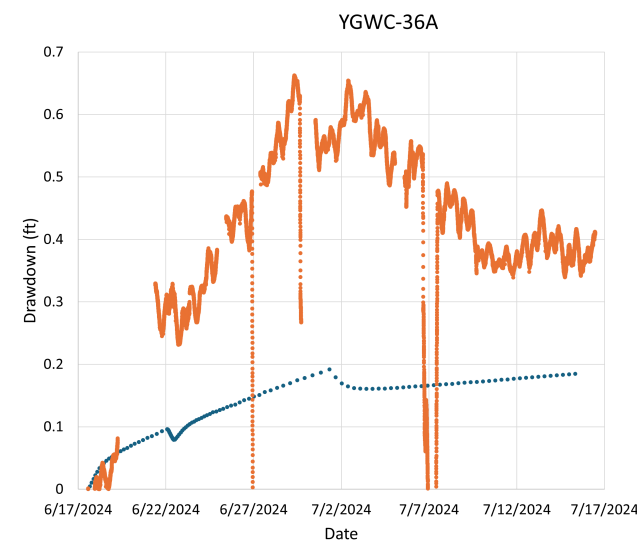
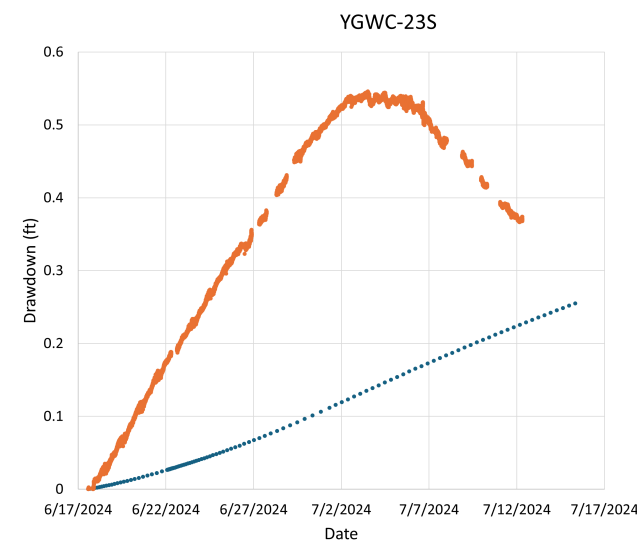
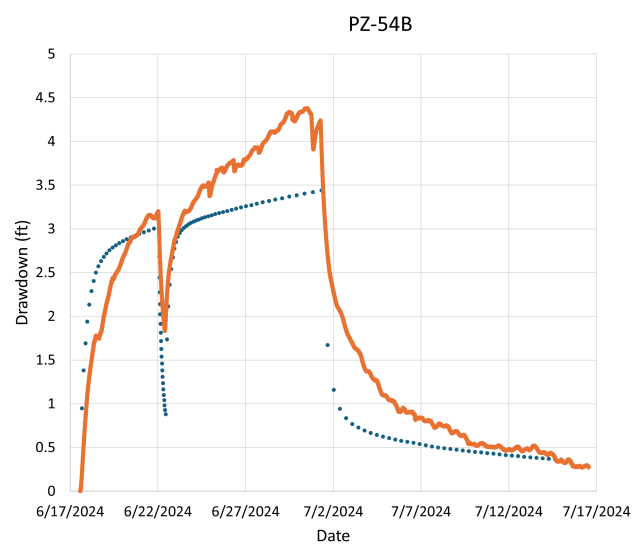
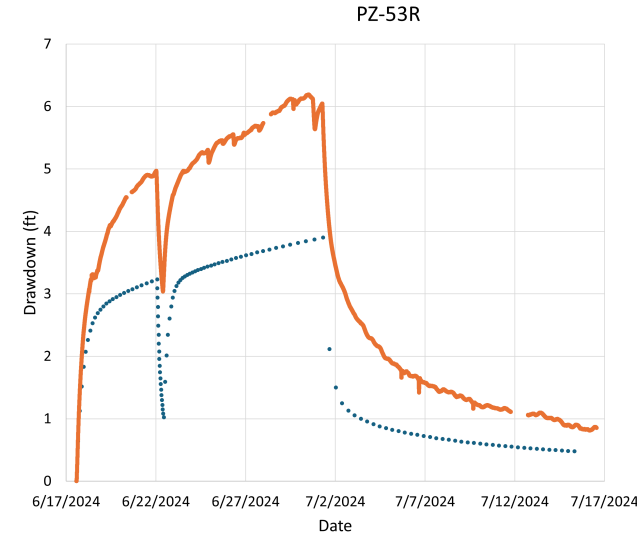
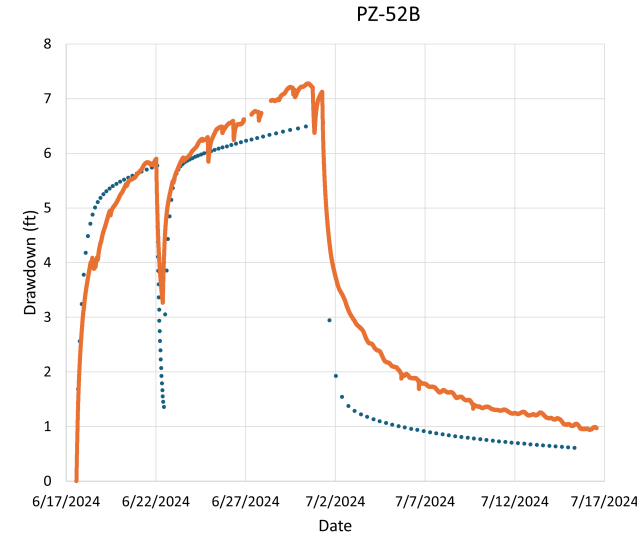
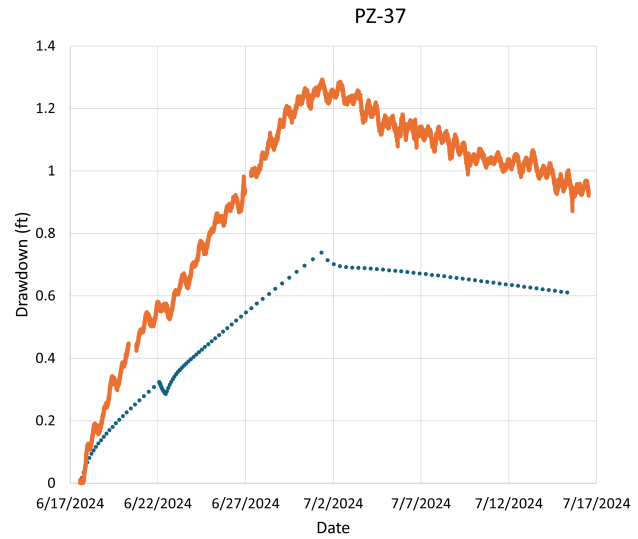


**Georgia Power**  
 PLANT YATES  
 NEWNAN, GA

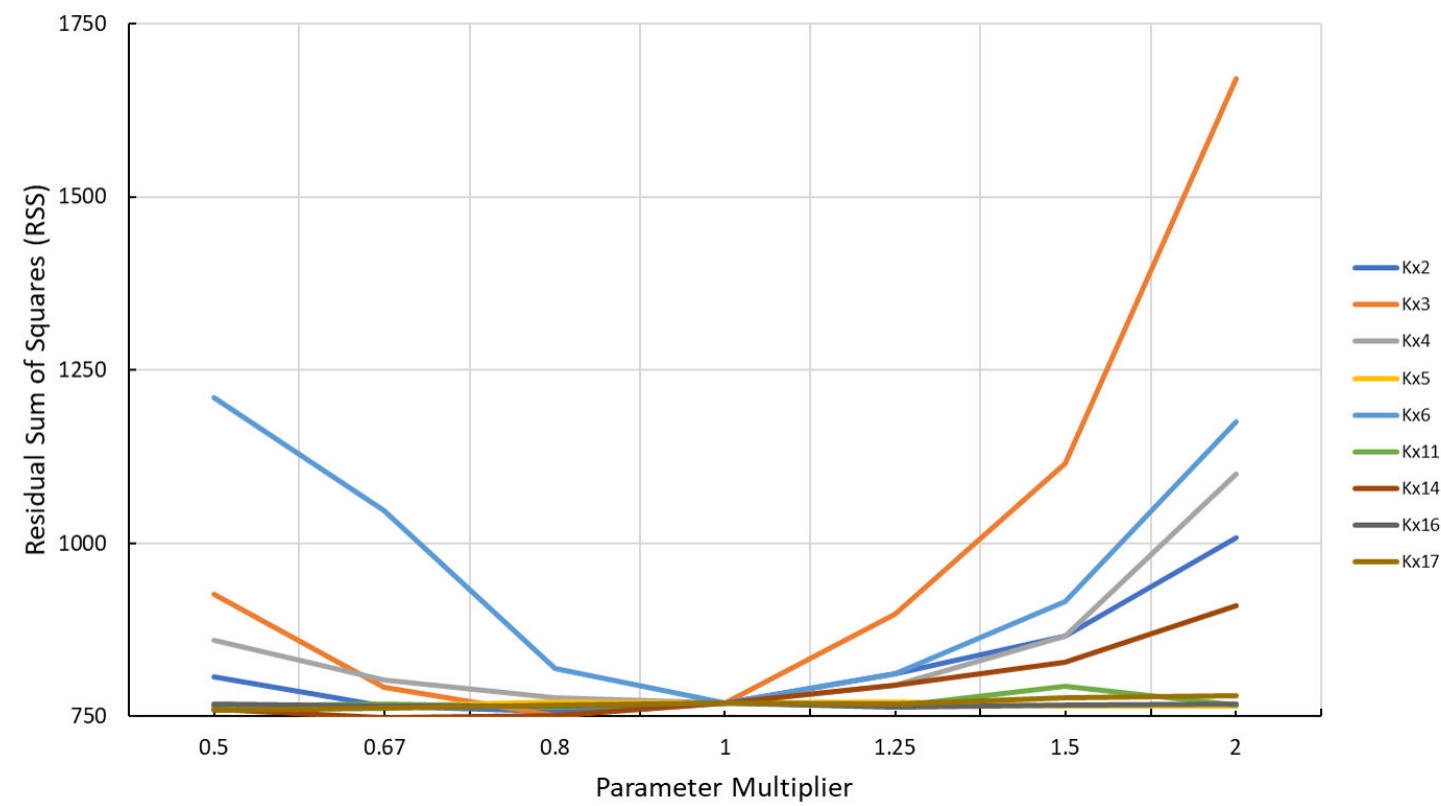
PLANT YATES ASH MANAGEMENT AREA AS-BUILT  
 ADVANCED ENGINEERING METHOD EVALUATION

**COMPARISON BETWEEN OBSERVED  
 AND MODEL COMPUTED DRAWDOWN  
 AT AEM RISER LOCATIONS**

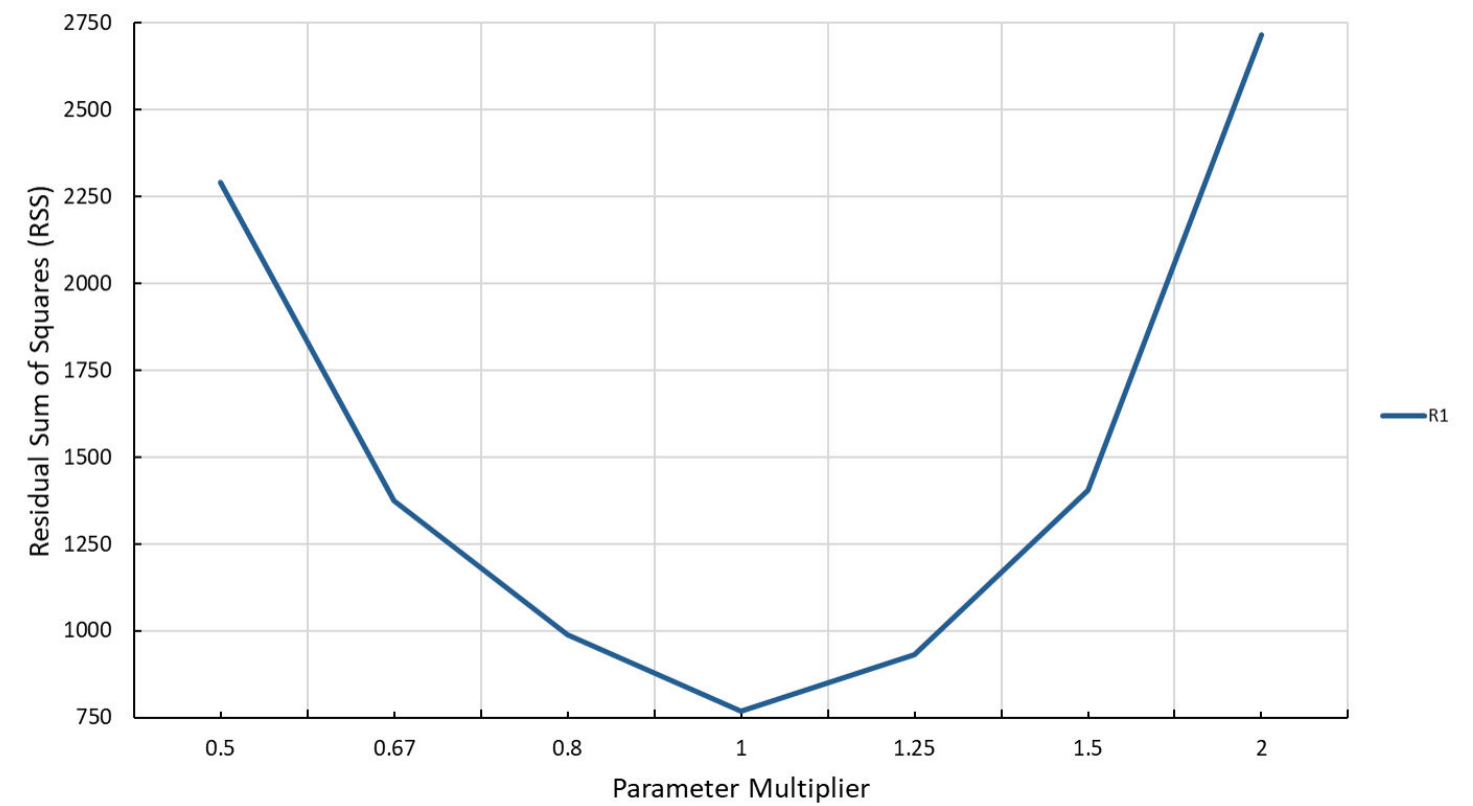
**ARCADIS** | FIGURE  
**A-16**



Sensitivity Analysis of Hydraulic Conductivity



Sensitivity Analysis of Recharge



NOTES:

KX2 = HYDRAULIC CONDUCTIVITY ZONE NUMBER 2

R1 = RECHARGE ZONE NUMBER 1

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