

**PLANT McDONOUGH-ATKINSON
CCR SURFACE IMPOUNDMENT
(CCR UNIT AP-1)
COBB COUNTY, GEORGIA
PART A SECTION 6
GROUNDWATER MONITORING PLAN**

FOR



**Georgia
Power**

March 2023

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Table of Contents

CERTIFICATION	iv
1.0 INTRODUCTION	4
2.0 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS	5
2.1 Site Geology.....	5
2.2 Site Hydrogeology.....	5
2.3 Uppermost Aquifer	6
3.0 SELECTION OF WELL LOCATIONS	7
4.0 MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT & REPORTING	8
4.1 Drilling	8
4.2 Design and Construction.....	8
4.2.1 Well Casings and Screens.....	8
4.2.2 Well Intake Design	9
4.2.3 Filter Pack and Annular Seal	9
4.2.4 Protective Casing and Well Completion	10
4.2.5 Well Development.....	10
4.3 Well Abandonment.....	11
4.4 Documentation	11
5.0 GROUNDWATER MONITORING PARAMETERS AND FREQUENCY	12
6.0 SAMPLE COLLECTION	13
7.0 CHAIN-OF-CUSTODY	14
8.0 FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL	15
9.0 REPORTING RESULTS	15
10.0 STATISTICAL ANALYSES	17
11.0 REFERENCES	17

Table of Contents (continued)

Tables

TABLE 1: SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA

TABLE 2: GROUNDWATER VELOCITY CALCULATIONS – SEPTEMBER 2022

TABLE 3: GROUNDWATER MONITORING PARAMETERS & FREQUENCY

TABLE 4: ANALYTICAL METHODS

TABLE 5: SURFACE WATER MONITORING PARAMETERS AND FREQUENCY

Figures

FIGURE 1: SITE PLAN AND DETECTION MONITORING WELL LOCATION MAP

FIGURE 2: SITE POTENTIOMETRIC MAP – SEPTEMBER 6, 2022

FIGURE 3: SURFACE WATER SAMPLING LOCATION MAP

FIGURE 4: STATISTICAL ANALYSIS PLAN OVERVIEW

FIGURE 5: DECISION LOGIC FOR COMPUTING PREDICTION LIMITS

Appendices

APPENDIX A: MONITORING SYSTEM DETAILS

A1 MONITORING WELL CONSTRUCTION LOGS

A2 PIEZOMETER CONSTRUCTION LOGS

A3 DRILLER BONDS

A4 CERTIFIED WELL SURVEY REPORT

APPENDIX B: GROUNDWATER MONITORING WELL DETAIL

APPENDIX C: GROUNDWATER SAMPLING PROCEDURES

C1 WELL INSPECTION FORM

APPENDIX D: SURFACE WATER SAMPLING PROCEDURES

Certification

This *Groundwater Monitoring Plan* for Georgia Power Company's (Georgia Power) Ash Pond 1 (AP-1) located at Plant McDonough-Atkinson (Plant McDonough) has been prepared by a qualified groundwater scientist with WSP USA Inc. (WSP) to meet the requirements contained in Chapter 391-3-4-.10 of Georgia Environmental Protection Division Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State Rule). References to the appropriate 391-3-4 Rules are incorporated throughout this document.

I certify that I am a qualified groundwater scientist as defined in 391-3-4-.01 who 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 me to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action. I further certify that this Groundwater Monitoring Plan was prepared by myself or by a subordinate working under my direction. The design of the groundwater monitoring system was developed in compliance with Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management, Chapter 391-3-4-.10(6).

WSP USA Inc.



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1.0 INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (EPD) to detect and quantify potential changes in groundwater chemistry. This *Groundwater Monitoring Plan* (plan) describes the groundwater monitoring program for the site. This plan meets the requirements of EPD rules and uses EPD's *Manual for Ground Water Monitoring* dated September 1991 as a guide. Monitoring well and piezometer locations are presented on Figure 1 for Ash Pond Unit 1 (AP-1) at Plant McDonough. Ash Ponds 2 and 3/4 (AP-2 and 3/4) are located east of AP-1 and are referenced here as they relate to site conditions. Information included specific to AP-2 and 3/4 should not be considered for permitting.

Monitoring will occur in accordance with 391-3-4-.10 of the Georgia Solid Waste Management Rules. If the monitoring requirements specified in this plan conflict with EPD rules (391-3-4), the EPD rules will take precedent. Plant McDonough AP-1 entered into assessment monitoring on November 15, 2019. An assessment of corrective measures (ACM) was initiated on July 9, 2020, within 90 days of identifying statistically significant levels above groundwater protection standards (SSLs). A 60-day extension until December 4, 2020 for completion of the ACM was documented on October 7, 2020. Based on the results of the ACM, a final long-term corrective action plan will be developed and implemented pursuant to 40 CFR 257.97-98 and 391-3-4-.10(6).

In accordance with the United States Environmental Protection Agency (US EPA) Coal Combustion Rule (§ 257.90), a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification has been placed in the facility's operating record. The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4.10(6)(g), a minor modification will be submitted to the EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a qualified groundwater scientist.

1.1 Current Site Conditions and Pond Closure

The following sections describe geologic and hydrogeologic information of Ash Pond 1 (AP-1), Ash Pond 2 (AP-2), Ash Pond 3 (AP-3) and Ash Pond 4 (AP-4) at Plant McDonough. AP-3 and AP-4 were historically operated together and are being closed as a Combined Unit AP-3/4, as required by 391-3-4-.10(7)(a).

The selected Advanced Engineering Management (AEM) for AP-1 includes a subsurface vertical barrier wall that surrounds AP-1 in its entirety. At AP-2, closure by removal of ash was completed in September 2016. Closure procedures included excavating all visible ash, over excavating into the subgrade soils, and placement of topsoil and seeding for vegetative cover. AP-3 and adjacent AP-4 are currently being consolidated and closed in place as combined unit AP-3/4 in accordance with § 257.102(d). CCR in the eastern portion of AP-4 has been relocated to the western portion of AP-4 as well as dry stacked on AP-3. During closure, AP-3 and AP-4 are being dewatered as required to facilitate consolidation and closure in place.

The Closure Plan and Amended Closure Plan (Golder, 2018 and 2021) for AP-1 was prepared in accordance with 40 CFR 257, Subpart D and meets the requirements of 40 CFR 257.102(b).

The surface impoundment referred to as AP-1 at Plant McDonough has been closed in place. The closure process included placement of a permanent cover system designed to minimize infiltration and erosion and to meet or exceed the requirements of 257.102(d)(3)(ii). Maintenance will be provided on the final cover system for the required post-closure care period so that the integrity and effectiveness of the final cover system is

maintained. Maintenance activities will include, as needed, repairs to the final cover to correct any effects related to settlement, subsidence, erosion or other events, and will be performed to prevent run-on or run-off from eroding or otherwise damaging the final cover.

2.0 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Geologic conditions for this site are described in detail in the *Hydrogeological Assessment Report (HAR)* prepared by WSP USA Inc. (WSP 2023), submitted as part of this Design and Operations plan set. Key elements of the HAR are summarized below. Monitoring wells and piezometers installed at the site are summarized on Table 1.

2.1 Site Geology

The Piedmont/Blue Ridge geologic province contains some of the oldest rock formations in the southeastern United States. These late Precambrian to late Paleozoic rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. Rock outcrops near the site consist of biotite gneiss, porphyritic gneiss, mica schist, and quartzite.

Based on review of site data, residual soils, primarily clayey/sandy silt, sandy silt with clay, and silty sand, occur as a variably thick blanket overlying bedrock across most of the site. Saprolitic soils and/or saprolitic rock range in thickness across the site but are generally encountered at or near ground surface. Saprolitic rock is also considered to be transitionally weathered rock (TWR) or partially weathered rock (PWR). PWR is defined by Standard Penetration Test (SPT) blow counts that exceed 50 blows/six-inches. Material overlying the top of rock surface, including residual soils, saprolite, and TWR or PWR, is collectively referred to as overburden.

Bedrock beneath the overburden north of the faulted intrusive contact is primarily characterized by Ordovician-age felsic sphene-epidote-biotite-quartz-feldspar gneiss (OZli) with well-developed foliation and an augen texture reflecting historical movement/deformation near fault and shear zones of the inactive Brevard fault zone. Bedrock beneath the overburden south of the faulted intrusive contact is primarily characterized by interlayered Ordovician age phyllonite, button schist with well-developed shear foliation, fine-grained mylonite with poorly developed foliation, and very fine-grained mylonitic biotite gneiss with well-developed shear foliation (OZbs). The contact has had substantial movement as indicated by porphyroclastic-feldspars with sigmoidal-tails.

2.2 Site Hydrogeology

A regional, unconfined aquifer system is present at the site, consisting of regolith, TWR, and shallow bedrock. A bedrock aquifer system also occurs beneath the site, consisting of deeper bedrock that is not well developed or interconnected with the unconfined aquifer system. Preferential groundwater flow is anticipated along lineaments and discontinuities. The regolith is variably comprised of porous and permeable alluvial, residual, and colluvial soils and saprolite, grading downward into a variably weathered, less permeable zone that overlies a less weathered and more permeable transitional weathering zone (Heath, 1984). This unconfined, surficial aquifer system is recharged primarily through precipitation and subsequent infiltration, and flow is generally controlled by topography and surface water drainage and occurs mainly through intergranular pore spaces. Porosity generally ranges from about 20 to 30% and hydraulic conductivity ranges from 1 to 10-feet per day (ft/day). Groundwater is stored in pore spaces in the regolith and then percolates downward to the weathered zone between soil and bedrock and into interconnected bedrock discontinuities. The saturated soils in the regolith function as the principal storage reservoir for groundwater in the bedrock.

Groundwater occurs in a fracture network that is largely dependent on rock type, degree of differential weathering, topography, and area of catchment. Groundwater flow in the underlying bedrock occurs primarily along discontinuities such as compositional layering, foliation, joints, and fractures. Fracture porosity is minimum compared to the regolith, and thus, groundwater flow is determined by how well the fractures are inter-connected. Further, fractures within the bedrock at the site are not well connected and the predominant groundwater flow at the site occurs in the overburden and upper bedrock at the site. Based on site-specific examples and supporting data, as presented in the HAR, fractures within the bedrock are limited and decrease in number and groundwater production with depth. Borings B-103D, B-122D and B-123D were installed to vertically delineate constituents in areas where bedrock was approximately 70 feet below ground surface (bgs) and; therefore, were installed to capture groundwater flow from bedrock fractures. Groundwater monitoring wells were screened across available fractures and did not produce sufficient water for proper development or sampling. Site geophysical logs and groundwater monitoring data at B-123D confirm that the deeper fractures produce less than 0.025 milliliters per minute using a heat pulse flow meter. This flow rate does not constitute “groundwater in an aquifer” but rather “limited” groundwater movement within the deeper bedrock unit.

Several references to published work within the HAR were reviewed and confirm that these observations made at the site are consistent with Piedmont geology.

At the site, the water table aquifer and the upper bedrock aquifer together constitute an unconfined system. Available groundwater level data indicate a high of 836-feet referenced to North American Vertical Datum (NAVD) near the northern area and about 732-feet NAVD near the Chattahoochee River. Groundwater flows toward the onsite streams and the Chattahoochee River. Figure 2 presents the potentiometric surface contours depicting groundwater flow across the site based on water levels from September 6, 2022.

2.3 Uppermost Groundwater Aquifer

The uppermost aquifer occurs within the overburden and upper bedrock at the site. Although the degree of connection between the overburden and underlying bedrock aquifer systems is not well known, the bedrock is generally massive with few joints available to receive groundwater from the overlying overburden. Consequently, groundwater flow within the uppermost aquifer is anticipated to occur primarily along the transitionally weathered rock zone, which is located at the interface between the overburden residual soils and massive bedrock, and upper bedrock.

Groundwater in the uppermost aquifer appears to be supporting base flow of creeks onsite (many groundwater contours cross topographic contours of similar elevation at headwaters of creek). Generally, across the site vertical gradients are assumed to be downward in topographically higher areas and upwards closer to the Chattahoochee River. Recharge to the uppermost aquifer is primarily through precipitation. Groundwater discharge appears to occur within tributary creeks onsite, the ponds, and ultimately into the Chattahoochee River. The potentiometric surface for the uppermost aquifer across AP-1 is west-southwest toward the unnamed tributary and south towards the Chattahoochee River.

2.4 Groundwater Gradient and Flow Velocity

Hydraulic gradient is calculated as the difference in groundwater elevation (in feet) divided by the distance between two piezometers or wells (in feet). Groundwater elevation data recorded in September 2022 from three piezometer and/or well pairings; B-29/DGWC-68A, B-28/DWGC-37, and B-50/DGWC-39, located along the

groundwater flow path and perpendicular to the potentiometric contours were used to calculate hydraulic gradients for AP-1.

Average groundwater flow velocities at the site were calculated using hydraulic gradient data, hydraulic conductivity data generated from slug testing results, and an estimated effective porosity of the screened portion of the uppermost aquifer. Based on slug test data, the average hydraulic conductivity for the overburden is 7.70×10^{-4} centimeters/second (cm/s). An effective porosity of 0.20 was used based on the default values for effective porosity recommended by US EPA for a silty sand-type soil (US EPA, 1989). The hydraulic gradient calculated between well pairs B-29/DGWC-68A, B-28/DGWC-37, and B-50/DGWC-39 for September 2022 were 0.0035, 0.0019 and 0.024, respectively (See Table 2).

The horizontal flow velocities were calculated using the commonly used derivative of Darcy's Law:

$$V = \frac{K * i}{n_e} \quad \text{Where:}$$

V = Groundwater flow velocity $\left(\frac{\text{feet}}{\text{day}} \right)$

K = Average hydraulic conductivity of the aquifer $\left(\frac{\text{feet}}{\text{day}} \right)$

i = Horizontal hydraulic gradient $\left(\frac{\text{feet}}{\text{feet}} \right)$

n_e = Effective porosity

Using this equation, groundwater flow velocities were calculated for AP-1 using September 2022 groundwater elevation data as shown on Table 2.

Calculated (horizontal) flow velocities range from approximately 76 feet per year (ft/yr) to 138 ft/yr in September 2022. These estimated flow velocities are consistent with past results and are also generally consistent with other published velocities for regolith-upper bedrock aquifers of the Piedmont (Heath, R.C., 1984).

3.0 SELECTION OF WELL LOCATIONS

Groundwater monitoring wells are installed to monitor the uppermost aquifer beneath the site. Georgia Power follows the recommendations as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (GA EPD, 1991) to establish well spacings based on site-specific conditions. Locations are selected based on final ash pond closure footprint and site geologic and hydrogeologic considerations. Locations are chosen to serve as upgradient (DGWA), lateral, or downgradient (DGWC) based on groundwater flow direction determined by potentiometric evaluation. As flow conditions change after pumping ceases, well designations will continue to be evaluated during each semi-annual event.

Monitoring wells will generally be located outside of areas with frequent auto traffic; however, wells may be installed in heavily trafficked areas when necessary to meet the groundwater monitoring objectives of the EPD rules.

The current monitoring well network consists of 11 detection monitoring wells and 5 assessment monitoring wells located around AP-1 targeted to capture groundwater flow across AP-1 and serve as the monitoring network in the uppermost aquifer. Table 1 present a tabulated list of individual monitoring wells and piezometers with well

construction details such as location coordinates, top-of-casing elevation, well depths and screened intervals. A map depicting monitoring well locations for monitoring is included as Figure 1. Any modification that involves the addition of or a change to the detection monitoring network will be made by a minor modification to the permit pursuant to 391-3-4-.02(3)(b)6.

4.0 MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT AND REPORTING

The existing monitoring well network for AP-1 is currently in place. Existing monitoring wells were installed following *Region 4 U.S. Environmental Protection Agency (EPA) Science and Ecosystem Support Division (SESD) Operating Procedure for Design and Installation of Monitoring Wells* as a general guide for best practices. Monitoring well logs, for the existing monitoring well network, are also included in Appendix A. The following sections describe the methods used for well drilling, construction, abandonment, and reporting for modifications to the well network at the site. Any additional well installation at the site will be directed by a qualified groundwater scientist.

4.1 Drilling

A variety of well drilling methods are available for installing groundwater wells. Drilling methodology may include, but not be limited to hollow stem augers, direct push, air rotary, mud rotary, or roto sonic techniques. The drilling method shall minimize the disturbance of subsurface materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in site specific geology. Monitoring wells will be installed using the most current version of the Region 4 U.S. Environmental Protection Agency (US EPA) Science and Ecosystem Support Division (SESD) Operating Procedure SESDGUID-101-R2 as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the Region 4 U.S. EPA Laboratory Services and Applied Science Division (LSASD) Operating Procedure for Field Equipment Cleaning and Decontamination as a guide.

Sampling and/or coring may be used to help determine the stratigraphy and geology. Samples will be logged under the oversight of a qualified groundwater scientist. Screen depths will be chosen based on the depth of the uppermost aquifer.

Drilling and well installation activities will be completed under the direction of a qualified groundwater scientist. All drilling for any subsurface hydrologic investigation, installation or abandonment of groundwater monitoring wells will be performed by a driller that has, at the time of installation, a performance bond on file with the Water Well Standards Advisory Council. Copies of the bonds for the existing wells are included in Appendix A.

4.2 Design and Construction

Well construction materials will be sufficiently durable to resist chemical and physical degradation and will not interfere with the quality of groundwater samples.

4.2.1 Well Casings and Screens

American Society for Testing and Materials (ASTM), National Sanitation Foundation (NSF) rated, Schedule 40, 2-inch polyvinyl chloride (PVC) pipe with flush threaded connections will be used for the well riser and screens. Compounds that can cause PVC to deteriorate (e.g., organic compounds) are not expected at this facility. If

conditions warrant, other appropriate materials may be used for construction with prior written approval from the EPD.

4.2.2 Well Intake Design

The design and construction of the intake of the groundwater wells shall: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the well; and (3) ensure sufficient structural integrity to prevent the collapse of the intake structure.

Each groundwater monitoring well will include a well screen designed to limit the amount of formation material passing into the well when it is purged and sampled. Screens with 0.010-inch slots have proven effective for the earth materials at the site and will be used unless geologic conditions discovered at the time of installation dictate a different size. Screen length shall not exceed 10 feet without justification as to why a longer screen is necessary (e.g., significant variation in groundwater level). If the above techniques prove ineffective for developing a well with sufficient yield or acceptable turbidity, further steps will be taken to assure that the well screen is appropriately sized for the formation material. This may include performing sieve analysis of the formation material and determining well screen slot size based on the grain size distribution, if warranted.

Pre-packed dual-wall well screens may be used for well construction. Pre-packed well screens combine a centralized inner well screen, a developed filter sand pack, and an outer conductor screen in one integrated unit composed of inert materials. Pre-packed well screens will be installed following general industry standards and using the latest version of the Region 4 U.S. EPA SESD Procedure for Design and Installation of Monitoring Wells as a general guide.

4.2.3 Filter Pack and Annular Seal

The materials used to construct the filter pack will be clean quartz sand of a size that is appropriate for the screened formation. Fabric filters will not be used as filter pack material. Sufficient filter material will be placed in the borehole and measurements taken to ensure that no bridging occurs. Upon placement of the filter pack, the well may be pumped to assure settlement of the pack. If pumping is performed, the top of filter pack depth will be measured, and additional sand added if necessary. **The filter pack will extend at least two feet above the top of the well screen.**

The materials used to seal the annular space in the boring above the well pack must prevent hydraulic communication between strata and prevent migration from overlying areas into the well screen interval. A minimum of two feet of bentonite (chips, pellets, or slurry) will be placed immediately above the filter pack. The bentonite seal will extend up to the base of any overlying confining zone or the top of the water-bearing zone to prevent cementitious grout from entering the water-bearing or screened zone. If dry bentonite is used, the bentonite must be hydrated with potable water prior to grouting the remaining annulus.

The annulus above the bentonite seal will be grouted with a cement and bentonite mixture (approximately 94 pounds cement / 3 to 5 pounds bentonite / 6.5 gallons of potable water) placed via tremie pipe from the top of the bentonite seal. During grouting, care will be taken to assure that the bentonite seal is not disturbed by locating the base of the tremie pipe approximately two feet above the bentonite seal and injecting grout at low pressure/velocity.

4.2.4 Protective Casing and Well Completion

After allowing the grout to settle, the well will be finished by installing a flush-mount or above-ground protective casing as appropriate, and building a surface cap. The use of flush-mount wells will generally be limited to paved surfaces unless site operations warrant otherwise. The surface cap will extend from the top of the cement grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 3 feet from the edge of the well casing and sloped to drain water away from the well.

Each well will be fitted with a cap that contains a hole or opening to allow the pressure in the well to equalize with atmospheric pressure. In wells with above-ground protection, the space between the well casing and the protective casing may be filled with coarse sand or pea-gravel to within approximately 6 inches of the top of the well casing. A small weep hole will be drilled at the base of the metal casing for the drainage of moisture from the casing. Above ground protective covers will be locked.

Protective bollards may be installed around each above-grade groundwater monitoring well. Well construction in high traffic areas will generally be limited unless site conditions warrant otherwise.

The groundwater monitoring well detail attached in Appendix B, Groundwater Monitoring Well Detail, illustrates the general design and construction details for a monitoring well.

4.2.5 Well Development

Well development will be conducted under direction of a qualified groundwater scientist. After well construction is completed, wells will be developed by alternately purging and surging until relatively clear discharge water with little turbidity is observed. The goal will be to achieve a turbidity of less than 5 nephelometric turbidity units (NTUs); however, formation-specific conditions may not allow this target to be accomplished, and development may be discontinued at a measured turbidity of less than 10 NTUs. Additionally, the stabilization criteria contained in Appendix C, Groundwater Sampling Procedures, should be met. A variety of techniques may be used to develop site groundwater monitoring wells. The method used must create reversals or surges in flow to eliminate bridging of particles around the well screen. These reversals or surges can be created by using surge blocks, bailers, or pumps. The wells will be developed using a pump capable of inducing the stress necessary to achieve the development goals. Development equipment will be decontaminated prior to first use and between wells.

In low yielding wells, potable water may be added to the well to facilitate surging of the well screen interval and removal of fine-grained sediment. If water is added, the volume will be documented and at minimum, an equal volume purged from the well.

Many geologic formations contain clay and silt particles that are small enough to work their way through the wells' filter packs over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, the monitoring wells may have to be redeveloped periodically to remove the silt and clay that has worked its way into the filter pack of the monitoring wells. Each monitoring well should be redeveloped when sample turbidity values have significantly increased since initial development or since prior redevelopment. The redevelopment should be performed as described above. Well development data will be included in the well installation report.

4.2.6 Surveying

The monitoring wells and piezometers were surveyed by Metro Engineering & Surveying Co., Inc, with a horizontal accuracy of 0.5 foot and a vertical accuracy of 0.01 foot referenced to Georgia State Plane Coordinate System (Georgia State Plane, West Zone, NAD83) and vertical datum to the North American Vertical Datum 1988 (NAVD88). The certified surveyor's report is included in Appendix A.

4.3 Well Abandonment

Monitoring wells will be abandoned using industry-accepted practices and using the Manual for Groundwater Monitoring (1991) and Georgia Water Well Standards Act of 1985 [Official Code of Georgia Annotated (O.C.G.A.) 12-5-120, 1985] as guides. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole.

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by EPD. Well abandonment will be directed by a qualified groundwater scientist. A minor modification shall be submitted in accordance with Rule 391-3-4-.02(3)(b)6 prior to the installation or decommissioning of monitoring wells.

4.4 Documentation

The following information documenting the construction and development of each well is provided on the boring logs for the existing monitoring system (Appendix A). Within 60 days of the construction and development or abandonment of each groundwater monitoring well, a well installation/abandonment report will be submitted to the EPD by a qualified groundwater scientist. For installed wells, the following information will be provided:

- Well Identification
- Name of drilling contractor and type of drill rig
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
- Narrative of drilling technique applied, well construction details, and well development procedures, including dates, drilling fluids used (if applicable), well casing and screen materials, screen slot size, and joint type
- Filter pack material/size and volume (placement narrative)
- Seal emplacement method and type/volume of sealant
- Borehole diameter and well casing diameter
- Type of protective well cap and sump dimensions for each well
- Surface seal and volumes/mix of annular seal material
- Screen length and slot size
- Screen materials and design (i.e., interval in feet below ground surface and elevation)
- Well location data given to within an accuracy of 0.5 feet based on survey data recorded from a known datum

- Well elevation data at concrete pad nail given to within an accuracy of 0.01 feet based on survey data recorded from a known datum
- Documentation of ground surface elevation at well location (± 0.01 ft.). Based on survey data recorded from a known datum
- Documentation of top of casing elevation (± 0.01 ft.). Based on survey data recorded from a known datum
- Well depth (± 0.1 ft.)
- Dates of drilling and initial well emplacement
- Drilling method and drilling fluid if used
- Schematic of well with dimensions
- Lithologic logs
- Well casing materials
- Well development date
- Well turbidity following development
- Documentation that water quality field parameters meet well development criteria
- Narrative of well development method - specific well development procedure
- Documentation stating that a Georgia-registered professional surveyor has certified that the horizontal accuracy for the installed monitoring wells is 0.5 foot, and vertical accuracy for elevations to 0.01 foot using a known datum.

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-120), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a professional engineer or professional geologist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, as part of the post closure care plan, the cost estimate based upon current year cost for the well inspections will be provided for as part of the cost calculations for the groundwater monitoring period. **Additionally, as part of the closure and post-closure plan, the cost estimate based upon current year cost for the well inspections must be provided for as part of the cost calculations for the groundwater monitoring period.**

5.0 GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

The following describes groundwater sampling requirements with respect to parameters for analysis, sampling frequency, sample preservation and shipment, and analytical methods. Groundwater samples used to provide compliance monitoring data will not be filtered prior to collection.

Table 3 presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from each groundwater well will be collected and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during the active life of the facility and the post-closure care period. If required, Georgia Power will conduct assessment monitoring in accordance with the Georgia Rules for Solid Waste Management Chapter 391-3-4-.10(6) to also include 40 CFR 257, Subpart D, Appendix IV test parameters. Assessment monitoring was initiated on November 15, 2019, per GA Chapter 391-3-4-.10(6) Rules for Solid Waste Management.

When referenced throughout this plan, Appendix III and Appendix IV parameters refer to the parameters contained in Appendix III and Appendix IV of 40 CFR 257, Subpart D, 80 Fed. Reg. 21468 (April 17, 2015).

As shown on Table 4, the groundwater samples will be analyzed using methods specified in US EPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), US EPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by EPD. The method used will be able to reach a suitable practical quantification limit to detect natural background conditions at the facility. The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Program (NELAP). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

6.0 SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix C, Groundwater Sampling Procedures and Appendix D, Surface Water Sampling Procedures. Sampling procedures were developed using standard industry practice and US EPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for groundwater sample collection. Alternative industry accepted sampling techniques may be used when appropriate with prior EPD approval. The applied groundwater purging, and sampling methodologies will be discussed in the semi-annual monitoring reports submitted to EPD.

For groundwater sampling, positive gas displacement Teflon or stainless-steel bladder pumps will be used for purging. If dedicated bladder pumps are not used, portable bladder pumps or peristaltic pumps (with dedicated or disposable tubing) may be used. When non-dedicated equipment is used, it will be decontaminated prior to use and between wells. Non-dedicated equipment will be decontaminated in accordance with the US EPA LSASDPROC-205-R4 (US EPA, 2020).

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require replacement after two consecutive dry sampling events. Well installation must be directed by a qualified groundwater scientist. A minor modification shall be submitted in accordance with Rule 391-3-4-.02(3)(b) prior to the installation or decommissioning of monitoring wells.

7.0 SURFACE WATER MONITORING PLAN

Following final closure certification of AP-1, surface water is directed through a series of settling ponds one located at the northwest corner of AP-1 and a second pond located at the south end of AP-1. Sample locations SWC-4, SWC-5 and SWC-6 will be added to the monitoring program following final construction certification. During each semi-annual sampling event, if flowing water is present, surface water samples will be collected from each location (see Figure 3). This surface water monitoring is for the Solid Waste Management Program and is not associated with any existing industrial, industrial stormwater, and/or construction stormwater discharge permitting which are regulated by the National Pollutant Discharge Elimination System (NPDES) requirements of Section 402 of the Clean Water Act. In the event that no flowing water is present at the sampling locations at the time of sampling, it will be noted in the field sampling documents associated with that event and no sample will be collected for that event.

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix D. Surface water samples will be collected and handled in accordance with standard industry practice and *US EPA Region 4 LSASD Surface Water Sampling Procedures LSASDPRO-201-R5* as a guide (US EPA, 2021). When possible, the sample should be collected directly into the appropriate sample container provided by the analytical laboratory. If the sample location cannot be physically reached, an intermediate collection device may be used (e.g., a “swing sampler” with a 12-foot handle and a single use container) as presented in the current US EPA field guidance document. When non-dedicated equipment is used, it will be decontaminated prior to use and between surface water sampling locations.

Surface water samples will be analyzed for field parameters, pH, temperature, specific conductance, dissolved oxygen, oxidation reduction potential (ORP), and turbidity and Appendix IV constituents and by the methods as listed in Table 5.

Monitoring results from surface water sampling will be incorporated into semi-annual groundwater monitoring reports. Constituent concentrations from the current monitoring event, as well as each of the historical monitoring events will be provided on a data summary table to assess potential impacts of the facility to adjacent surface waters.

8.0 CHAIN-OF-CUSTODY

Samples will be handled under chain-of-custody (COC) procedures beginning in the field. The COC record will contain the following information:

- Sample identification numbers
- Signature of collector
- Date and time of collection
- Sample type
- Sample point identification
- Number of sample containers
- Signature of person(s) involved in the chain of possession

- Dates and times of possession by each individual
- Notated date(s) and time(s) of sample transfer between individuals

The samples will remain in the custody of assigned personnel, an assigned agent, or the laboratory. If the samples are transferred to other employees for delivery or transport, the sampler or possessor must relinquish possession and the samples must be received by the new owner.

If the samples are being shipped, a hard copy COC will be signed and enclosed within the shipping container.

Samplers must use COC forms provided by the analytical laboratory or use a COC form similarly formatted and containing the information listed above.

9.0 FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

Field quality control samples will be prepared the same as compliance samples with regards to sample volume, containers, and preservation. The following quality control samples will be collected during each sampling event:

Field Equipment Rinsate Blanks - Where sampling equipment is not new or dedicated, an equipment rinsate blank will be collected at a rate of one blank per 20 samples using non-dedicated equipment.

Field Duplicates - Field duplicates are collected by filling additional containers at the same location, and the field duplicate is assigned a unique sample identification number. One blind field duplicate will be collected for every 20 samples.

Field Blanks - Field blanks are collected in the field using the same water source that is used for decontamination. The water is poured directly into the supplied sample containers in the field and submitted to the laboratory for analysis of target constituents. One field blank will be collected for every 20 samples.

Calibration of field instruments will occur daily and follow the recommended (specific) instrument calibration procedures provided by the manufacturer and/or equipment manual specific to each instrument. Daily calibration will be documented on field forms and these field forms will be included in groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and any recalibration steps will be documented on field calibration forms. Calibration of the instruments will also be checked if any readings during sampling activities are suspect. Replacement probes and meters will be obtained as a corrective action in the event that recalibration does not improve instrument function. Calibration field forms will be provided as part of each groundwater report's quality control documentation.

The groundwater samples will be analyzed by licensed and accredited laboratories through NELAP.

10.0 REPORTING RESULTS

A semi-annual groundwater report that documents the results of sampling and analysis will be submitted to EPD. Semi-annual groundwater monitoring reports will be submitted to the EPD within 90 days of receipt and analysis of the groundwater analytical data from the laboratory. At a minimum, semi-annual reports will include:

- 1) A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs
- 2) A record of field sampling conditions including, well signage, well access, sampling and purging equipment condition, and site conditions that may affect sampling will be recorded on a Well Inspection Form (Appendix C). These forms will be included as an appendix to the semi-annual groundwater monitoring reports.
- 3) A brief overview of purging/sampling methodologies
- 4) Discussion of results
- 5) Recommendations for the future monitoring consistent with the Rules
- 6) Potentiometric surface contour map for the aquifer(s) being monitored, signed, and sealed by a Georgia-registered PG. or PE.
- 7) Table of as-built information for groundwater monitoring wells including top of casing elevations, ground elevations, screened elevations, current groundwater elevations and depth to water measurements
- 8) Groundwater flow rate and direction calculations
- 9) Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken
- 10) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels)
- 11) Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL)
- 12) Tabular summary of surface water monitoring results including the current monitoring event as well as each of the historical monitoring events. This will be added after the final closure certification is submitted.
- 13) If applicable, semi-annual assessment monitoring results
- 14) Any alternate source demonstration completed during the previous monitoring period, if applicable
- 15) Laboratory reports
- 16) COC documentation
- 17) Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data
- 18) Documentation of non-functioning wells or dry surface water sampling locations
- 19) Statistical analyses, including trend analyses (if applicable)
- 20) Plume delineation (if applicable)

- 21) Updated potable water well survey (annually, if applicable)
- 22) Certification by a qualified groundwater scientist.

11.0 STATISTICAL ANALYSES

Groundwater quality data from each sampling event will be statistically evaluated to determine if there has been a statistically significant change in groundwater chemistry. Historical background data will be used to determine statistical limits. An interwell statistical method will be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to the groundwater protection standards. These statistical analyses methods are consistent with the *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (US EPA, 2009).

According to EPD rules (391-3-4-.10(6)(a), which incorporate the statistical analysis requirements of 40 CFR 257.93 by reference), the site must specify in the operating record the statistical methods to be used in evaluating groundwater monitoring data for each constituent. The statistical test chosen shall be conducted separately for each constituent in each well. As authorized by the rule, statistical tests that may be used include:

- 1) A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper prediction limit (§257.93(f)(3)).
- 2) A control chart approach that gives control limits for each constituent (§257.93(f)(4)).
- 3) Another statistical test method (such as prediction limits or control charts) that meets the performance standards of §257.93(g). A justification for an alternative method will be placed in the operating record and the Director notified of the use of an alternative test. The justification will demonstrate that the alternative method meets the performance standards of §257.93(g) (§257.93(f)(5)).

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used has been placed in the site's operating record pursuant to 391-3-4-.10(6) (EPD, 2014). Figure 4 includes a flowchart that depicts the process that will be followed to develop the site-specific plan. Figure 5 presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits. Interwell statistical methods may be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to groundwater protection standards.

12.0 REFERENCES

Georgia (GA) Department of Natural Resources Environmental Protection Division, Rules of Solid Waste Management, Chapter 391-3-4-.10(6), Georgia Environmental Protection Division.

Georgia Water Well Standards Act. Official Code of Georgia Annotated (O.C.G.A.) 12-5-120, 1985.

- Golder Associates Inc., Plant McDonough-Atkinson CCR Surface Impoundments (CCR Unit AP-1), Closure Plan, November 2018.
- Golder Associates Inc., Plant McDonough-Atkinson CCR Surface Impoundments CCR Unit Ash Pond 1 (AP-1), Amended Closure Plan – Revision 02, September 2021.
- Golder Associates Inc., Site Acceptability Report, Georgia Power Company Plant McDonough, December 2007.
- GA EPD Manual for Groundwater Monitoring, 1991.
- Heath, R.C., 1984. Basic Ground-Water Hydrology, U.S. Geological Survey, Water-Supply Paper 2220, Ralph C. Heath, 1984.
- Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division, Operating Procedure for Design and Installation of Monitoring Wells, January 16, 2018.
- Region 4 U.S. Environmental Protection Agency, Field Branches Quality System and Technical Procedures, November 11, 2018.
- U.S. Environmental Protection Agency, Interim Final RCRA Facility Investigation (RFI) Guidance Volume II of IV (EPA USEPA 530/SW-89-031), May 1989.
- U.S. Environmental Protection Agency, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, (EPA 530-R-09-007), March 2009.
- U.S. Environmental Protection Agency, Laboratory Services and Applied Science Division, Surface Water Sampling, (SESDPROC-201-R5), December 23, 2021.
- U.S. Environmental Protection Agency, Laboratory Services and Applied Science Division, Field Equipment Cleaning and Decontamination, (LSASDPROC-205-R4), June 22, 2020.
- U.S. Environmental Protection Agency, 40 CFR 257, Subpart D, 80 Fed. Reg. 21468, April 17, 2015.
- U.S. Environmental Protection Agency, Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20)
- U.S. Environmental Protection Agency, Methods for the Chemical Analysis of Water and Wastes (MCAWW).
- WSP USA Inc., Hydrogeologic Assessment Report, Georgia Power Company Plant McDonough-Atkinson Ash Pond 1, WSP USA Inc., **March 2023.**

Tables

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power Company - Plant McDonough
 Atlanta, Georgia

Well-ID	Hydraulic Location	Screened Media	NAD 83 Northing	NAD 83 Easting	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation
ASH POND 1 (AP-1) DETECTION MONITORING WELL NETWORK											
DGWA-53	Upgradient	Upper Bedrock	1393472.8	2201668.8	844.26	841.3	28.9	823.7	813.7	10	9/24/2016
DGWA-70A	Upgradient	Overburden	1390481.4	2200591.6	808.52	805.8	59.3	756.9	746.9	10	5/10/2017
DGWA-71	Upgradient	Overburden	1393963.3	2201714.8	863.84	861.2	43.8	827.8	817.8	10	2/28/2017
DGWC-37	Downgradient	Overburden	1390482.2	2200919.8	766.21	763.7	39.7	734.4	724.4	10	11/28/2012
DGWC-38	Downgradient	Overburden	1390362.7	2201148.6	757.43	754.7	25.0	740.0	730.0	10	11/29/2012
DGWC-39	Downgradient	Overburden	1390303.6	2201540.1	759.89	757.0	21.2	746.2	736.2	10	11/6/2012
DGWC-40	Downgradient	Overburden	1390625.7	2201825.9	779.06	776.2	34.9	751.7	741.7	10	11/5/2012
DGWC-67	Downgradient	Overburden	1390953.8	2200830.7	766.70	767.0	56.3	720.7	710.7	10	3/14/2017
DGWC-68A	Downgradient	Overburden	1391301.2	2200734.9	765.33	765.4	29.8	746.0	736.0	10	4/20/2017
DGWC-69	Downgradient	Overburden	1391585.0	2200657.1	763.75	764.0	24.3	749.7	739.7	10	3/16/2017
DGWC-121	Downgradient	Overburden	1390739.7	2200849.4	764.16	764.5	50.0	724.8	714.8	10	3/22/2022
ASH POND 1 (AP-1) ASSESSMENT MONITORING WELL NETWORK											
B-62	Downgradient	Upper Bedrock	1389828.1	2201811.2	760.08	760.4	39.9	730.7	720.7	10	10/4/2016
B-100	Downgradient	Overburden	1390254.8	2202242.1	777.95	775.3	44.8	740.5	730.5	10	7/8/2020
B-105D	Downgradient	Upper Bedrock	1390634.5	2201831.9	779.01	776.0	70.0	716.0	706.0	10	10/19/2020
B-112D	Downgradient	Upper Bedrock	1391564.2	2200664.1	765.58	766.1	55.0	721.4	711.4	10	3/22/2021
B-113D	Downgradient	Upper Bedrock	1391264.6	2200719.2	758.22	758.8	85.0	684.4	674.4	10	3/30/2021

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ASH POND 2 and ASH PONDS 3/4 (AP-2, 3/4) DETECTION MONITORING WELL NETWORK											
DGWA-53	Upgradient	Upper Bedrock	1393472.8	2201668.8	844.26	841.3	28.9	823.7	813.7	10	9/24/2016
DGWA-70A	Upgradient	Overburden	1390481.4	2200591.6	808.52	805.8	59.3	756.9	746.9	10	5/10/2017
DGWA-71	Upgradient	Overburden	1393963.3	2201714.8	863.84	861.2	43.8	827.8	817.8	10	2/28/2017
DGWC-2	Downgradient	Overburden/Upper Bedrock	1393958.0	2202119.5	850.88	848.3	49.0	809.6	799.6	10	10/2/2012
DGWC-4	Downgradient	Overburden	1394171.5	2202662.4	814.85	812.1	45.0	777.4	767.4	10	10/3/2012
DGWC-5	Downgradient	Overburden/Upper Bedrock	1394306.3	2202965.1	791.75	788.7	30.0	769.0	759.0	10	10/4/2012
DGWC-8	Downgradient	Overburden	1394322.2	2203882.1	826.38	824.1	49.1	785.4	775.4	10	10/10/2012
DGWC-9	Downgradient	Overburden	1394055.9	2204170.0	824.35	821.8	30.0	802.2	792.2	10	10/10/2012
DGWC-10	Downgradient	Overburden	1393818.3	2204201.1	823.55	820.9	45.4	785.9	775.9	10	10/11/2012
DGWC-11	Downgradient	Overburden	1393547.1	2204166.2	800.57	798.1	49.1	759.3	749.3	10	10/15/2012
DGWC-12	Downgradient	Overburden	1393149.4	2204128.3	773.86	771.2	25.1	756.5	746.5	10	10/15/2012
DGWC-13	Downgradient	Overburden	1392881.1	2204084.6	794.10	791.3	43.8	757.9	747.9	10	11/29/2012
DGWC-14	Downgradient	Overburden/Upper Bedrock	1392574.2	2204013.3	792.40	789.8	34.3	765.9	755.9	10	12/18/2012
DGWC-15	Downgradient	Overburden	1392544.1	2203679.0	824.50	821.5	67.1	764.8	754.8	10	11/29/2012
DGWC-17	Downgradient	Overburden	1392645.6	2203051.0	837.05	834.2	44.5	800.0	790.0	10	1/9/2013
DGWC-19	Downgradient	Overburden	1392342.6	2202601.0	825.46	822.9	39.8	793.5	783.5	10	3/12/2013
DGWC-20	Downgradient	Overburden	1392164.5	2202315.6	822.14	819.8	39.7	790.7	780.7	10	3/5/2013
DGWC-21	Downgradient	Overburden/Upper Bedrock	1392067.5	2202063.5	816.28	813.5	69.0	754.9	744.9	10	10/31/2012
DGWC-22	Downgradient	Upper Bedrock	1392126.3	2201791.9	816.59	813.7	60.0	764.0	754.0	10	10/25/2012
DGWC-23	Downgradient	Upper Bedrock	1392239.7	2201582.0	818.37	815.7	60.1	765.9	755.9	10	10/25/2012
DGWC-42	Downgradient	Overburden	1391327.8	2201870.2	804.68	802.0	50.4	762.1	752.1	10	11/12/2012
DGWC-47	Downgradient	Overburden/Upper Bedrock	1391553.8	2202610.5	797.45	794.3	28.8	775.9	765.9	10	6/23/2016
DGWC-48	Downgradient	Overburden/Upper Bedrock	1391314.6	2202290.2	788.33	785.2	30.0	765.6	755.6	10	6/22/2016

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ASH POND 2 and ASH PONDS 3/4 (AP-2, 3/4) ASSESSMENT MONITORING WELL NETWORK											
B-56	Downgradient	Overburden	1393957.9	2204187.8	823.59	821.0	45.0	786.4	776.4	10	10/3/2016
B-62	Downgradient	Upper Bedrock	1389828.1	2201811.2	760.08	760.4	39.9	730.7	720.7	10	10/4/2016
B-63	Downgradient	Overburden	1390999.1	2202978.1	777.10	777.3	46.0	741.8	731.8	10	10/6/2016
B-66	Downgradient	Overburden	1393858.2	2204277.5	815.90	813.3	55.3	768.3	758.3	10	11/16/2016
B-77	Downgradient	Overburden	1390948.7	2202942.0	776.86	777.1	42.0	745.1	735.1	10	9/17/2019
B-82	Downgradient	Overburden	1393750.0	2204258.1	810.07	807.5	45.0	773.0	763.0	10	9/21/2019
B-83	Downgradient	Overburden	1390735.5	2202695.6	776.98	777.1	48.6	738.5	728.5	10	9/30/2019
B-88	Downgradient	Overburden	1394401.1	2203738.3	820.07	817.0	72.0	755.0	745.0	10	11/15/2019
B-92	Downgradient	Overburden	1394392.7	2203026.7	785.08	785.3	24.6	770.7	760.7	10	12/11/2019
B-93	Downgradient	Overburden	1394348.7	2202946.7	789.07	789.2	28.9	770.3	760.3	10	12/12/2019
B-97	Downgradient	Overburden/Upper Bedrock	1394430.0	2203008.3	786.29	786.6	31.0	765.3	755.3	10	2/11/2020
B-98	Downgradient	Overburden	1394392.5	2202934.0	789.67	789.8	19.4	780.8	770.8	10	2/10/2020
B-100	Downgradient	Overburden	1390254.8	2202242.1	777.95	775.3	44.8	740.5	730.5	10	7/8/2020
B-101D	Downgradient	Overburden/Upper Bedrock	1394063.6	2204168.2	824.29	821.2	75.0	756.3	746.3	10	11/12/2020
B-102D	Downgradient	Upper Bedrock	1393828.4	2204200.4	823.42	820.6	85.0	746.2	736.2	10	11/10/2020
B-104D	Downgradient	Upper Bedrock	1391318.3	2202298.5	787.90	785.3	60.0	735.3	725.3	10	10/20/2020
B-106D	Downgradient	Upper Bedrock	1394327.1	2203869.2	826.21	823.5	80.0	754.1	744.1	10	11/13/2020
B-107D	Downgradient	Upper Bedrock	1392334.5	2202596.4	823.38	820.6	85.8	745.5	735.5	10	10/28/2020
B-108D	Downgradient	Upper Bedrock	1392156.1	2202312.5	821.13	818.4	80.0	749.4	739.4	10	10/27/2020
B-109D	Downgradient	Upper Bedrock	1393957.5	2202127.0	850.73	847.8	100.0	758.4	748.4	10	10/31/2020
B-111D	Downgradient	Upper Bedrock	1394303.4	2202956.4	791.87	789.1	85.0	714.9	704.9	10	11/3/2020
B-115D	Downgradient	Upper Bedrock	1391265.3	2202580.7	789.17	786.4	80.0	717.2	707.2	10	3/20/2021
B-120D	Downgradient	Upper Bedrock	1394047.2	2202436.4	836.42	834.0	70.0	775.0	765.0	10	3/6/2021
B-122D	Downgradient	Bedrock	1390992.8	2202975.4	777.03	777.3	85.0	707.5	697.5	10	3/24/2022

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PIEZOMETERS											
B-3	Downgradient	Overburden/Upper Bedrock	1394045.1	2202411.5	837.78	835.0	37.0	808.3	798.3	10	10/3/2012
B-6	Downgradient	Overburden	1394419.5	2203266.5	789.47	786.5	35.4	761.5	751.5	10	10/9/2012
B-7	Downgradient	Overburden	1394374.6	2203596.1	809.16	806.1	25.2	791.3	781.3	10	10/9/2012
B-16	Downgradient	Overburden	1392595.1	2203315.4	826.47	823.6	43.7	790.2	780.2	10	12/19/2012
B-18	Downgradient	Overburden	1392521.0	2202875.5	826.56	823.9	32.6	801.5	791.5	10	1/10/2013
B-24	Downgradient	Upper Bedrock	1392479.9	2201450.0	822.11	819.3	79.1	751.0	741.0	10	10/24/2012
B-25	Downgradient	Upper Bedrock	1392813.3	2201502.7	836.54	833.5	54.8	789.1	779.1	10	10/24/2012
B-26	Downgradient	Upper Bedrock	1393105.6	2201550.4	853.60	850.6	49.3	811.7	801.7	10	10/23/2012
B-28	Downgradient	Overburden/Upper Bedrock	1391967.4	2201679.2	816.08	813.3	69.4	754.3	744.3	10	10/31/2012
B-29	Downgradient	Overburden	1391890.0	2201422.0	816.43	813.5	54.4	769.4	759.4	10	1/11/2013
B-31	Downgradient	Upper Bedrock	1392034.3	2200928.5	797.47	794.9	45.1	760.2	750.2	10	1/22/2013
B-41	Downgradient	Overburden	1390920.8	2201751.9	795.20	792.4	60.0	743.0	733.0	10	11/14/2012
B-50	Downgradient	Overburden	1391657.1	2201841.0	809.67	809.2	36.0	784.4	774.4	10	6/24/2016
B-51	Downgradient	Overburden	1390501.2	2200906.5	765.92	763.3	65.0	708.3	698.3	10	6/27/2016
B-52	Downgradient	Overburden	1392308.3	2201314.8	822.89	820.3	50.0	781.4	771.4	10	9/28/2016
B-54	Downgradient	Overburden/Upper Bedrock	1394423.5	2203140.7	785.46	782.6	34.2	758.8	748.8	10	9/26/2016
B-55	Downgradient	Overburden	1394142.6	2204147.9	825.12	822.9	52.0	781.9	771.9	10	9/22/2016
B-57	Downgradient	Upper Bedrock	1391396.3	2202736.9	789.04	786.0	50.5	746.0	736.0	10	9/24/2016
B-58	Downgradient	Overburden	1391125.7	2202426.5	788.17	785.2	45.0	750.7	740.7	10	9/23/2016
B-59	Downgradient	Overburden/Upper Bedrock	1394349.1	2203001.1	788.00	785.5	30.3	765.3	755.3	10	9/23/2016
B-60	Downgradient	Overburden	1391100.7	2202881.6	782.13	779.2	49.8	739.9	729.9	10	9/29/2016
B-61	Downgradient	Overburden	1390957.8	2202505.8	782.09	779.0	51.9	737.5	727.5	10	9/29/2016
B-64	Downgradient	Overburden	1394381.9	2203031.3	785.83	786.1	30.4	766.1	756.1	10	11/2/2016
B-65	Downgradient	Overburden/Upper Bedrock	1394381.2	2204050.8	821.95	822.3	45.4	787.9	777.9	10	11/15/2016

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power Company - Plant McDonough
 Atlanta, Georgia

Well-ID	Hydraulic Location	Screened Media	NAD 83 Northing	NAD 83 Easting	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation
PIEZOMETERS											
B-68	Downgradient	Overburden	1391298.2	2200714.2	758.68	759.0	18.0	751.0	741.0	10	3/16/2017
B-72	Downgradient	Overburden	1391242.2	2200723.9	758.85	758.09	21.9	746.6	736.6	10	4/19/2017
B-73	Downgradient	Overburden	1391352.4	2200697.5	759.46	758.85	15.8	753.5	743.5	10	4/19/2017
B-74	Downgradient	Overburden	1391279.8	2200665.3	759.44	758.96	16.5	748.2	743.2	5	4/25/2017
B-76	Downgradient	Overburden	1390716.9	2202756.0	760.31	760.54	38.5	732.0	722.0	10	9/18/2019
B-78	Downgradient	Overburden/Upper Bedrock	1394328.2	2202958.2	790.75	788.0	30.0	768.0	758.5	10	9/22/2019
B-79	Downgradient	Overburden	1394458.6	2203223.0	788.66	785.9	34.9	761.0	751.5	10	9/21/2019
B-80	Downgradient	Overburden	1394372.6	2203533.9	804.47	801.8	30.0	782.0	772.5	10	9/20/2019
B-81	Downgradient	Overburden	1394364.9	2203741.1	820.56	817.7	50.0	778.5	768.5	10	9/22/2019
B-84	Downgradient	Overburden	1390411.9	2202241.9	776.24	776.3	49.1	737.5	727.5	10	10/1/2019
B-85	Downgradient	Overburden/Upper Bedrock	1394433.4	2203134.5	782.54	782.7	34.5	758.5	748.5	10	11/18/2019
B-86	Downgradient	Overburden/Upper Bedrock	1394480.0	2203206.6	784.29	784.6	34.1	760.5	750.5	10	11/18/2019
B-87	Downgradient	Overburden	1394401.9	2203531.3	803.37	800.4	42.0	768.7	758.7	10	11/17/2019
B-89	Downgradient	Upper Bedrock	1394398.4	2204049.4	822.36	822.6	49.5	783.1	773.1	10	11/19/2019
B-90	Downgradient	Overburden	1394501.0	2203212.6	784.00	784.2	33.4	760.8	750.8	10	12/10/2019
B-91	Downgradient	Overburden	1394447.1	2203123.9	782.98	783.1	34.6	758.5	748.5	10	12/11/2019
B-94	Downgradient	Overburden	1394402.0	2203513.7	801.74	799.2	45.2	764.6	754.6	10	1/23/2020
B-95	Downgradient	Overburden	1394518.6	2203167.7	784.00	784.3	33.3	761.3	751.3	10	2/11/2020
B-96	Downgradient	Overburden	1394478.7	2203099.3	784.92	785.3	33.1	762.2	752.2	10	2/10/2020
B-99	Downgradient	Overburden	1394524.2	2203084.5	782.39	782.6	12.3	775.3	770.3	5	7/7/2020

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power Company - Plant McDonough
 Atlanta, Georgia

Well-ID	Hydraulic Location	Screened Media	NAD 83 Northing	NAD 83 Easting	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation
PIEZOMETERS											
B-103D	Downgradient	Upper Bedrock	1391543.5	2202614.4	795.96	793.8	70.0	733.8	723.8	10	10/15/2020
B-110D	Downgradient	Upper Bedrock	1391294.4	2200736.0	764.61	764.7	65.0	711.7	701.7	10	11/17/2020
B-116D	Upgradient	Upper Bedrock	1390483.7	2200611.0	807.82	805.3	90.0	726.1	716.1	10	3/8/2021
B-117D	Upgradient	Upper Bedrock	1393963.8	2201727.3	863.82	861.2	75.0	796.5	786.5	10	3/17/2021
B-118	Upgradient	Upper Bedrock	1391219.3	2200449.7	807.70	805.0	75.0	740.2	730.2	10	3/9/2021
B-119D	Upgradient	Upper Bedrock	1391236.4	2200446.6	807.15	804.5	105	709.8	699.8	10	3/16/2021
B-123D	Downgradient	Bedrock	1391234.4	2202608.4	781.80	778.9	160.0	668.9	618.9	50	4/4/2022

Notes:

1. Coordinate System: NAD 1983 State Plane Georgia West (U.S. feet)
2. bgs - Below Ground Surface; NAD - North American Datum; NAVD - North American Vertical Datum
3. Well B-84 abandoned on 4/28/2022.

TABLE 2
GROUNDWATER VELOCITY CALCULATIONS - SEPTEMBER 2022
 Georgia Power Company - Plant McDonough Ash Pond 1
 Atlanta, Georgia

Flow Paths	Groundwater Elevation (feet NAVD 88) ¹	Δh (feet) ²	Δl (feet) ³	Hydraulic Gradient ($\Delta h/\Delta l$) ⁴	Average Hydraulic Conductivity, K (centimeter per second) ⁶	Assumed Effective Porosity (n_e) ⁷	Average Linear Groundwater Velocity	
							(feet per day) ⁵	(feet per year) ⁵
ASH POND 1 (AP-1)								
B-29/DGWC-68A	786.02	31.19	900	0.035	0.00077	0.2	0.38	138
	754.83							
B-28/DGWC-37	784.54	32.31	1700	0.019	0.00077	0.2	0.21	76
	752.23							
B-50/DGWC-39	786.10	33.86	1400	0.024	0.00077	0.2	0.26	96
	752.24							

Notes:

1. Elevation data recorded in feet referenced to the North American Vertical Datum 1988 (NAVD 88)
2. Δh = Change in groundwater elevation
3. Δl = Distance along flow path
4. $i = \Delta h / \Delta l$ gradient in feet
5. Velocity = $(i * K)/n_e$
6. Hydraulic conductivity based on historic aquifer performance tests
7. Assumed effective porosities for overburden was based on the default values recommended by USEPA for a silty sand-type soil (1996). Assumed effective porosity for upper bedrock was derived from Daniel and Dahlen (2002) and Dowd and Marshall (1995).

TABLE 3
GROUNDWATER MONITORING PARAMETERS AND FREQUENCY
 Georgia Power Company - Plant McDonough-Atkinson
 Atlanta, Georgia

MONITORING PARAMETERS		GROUNDWATER MONITORING	
		BACKGROUND	SEMI-ANNUAL EVENTS
FIELD PARAMETERS	Temperature	x	x
	pH	x	x
	Turbidity	x	x
	Specific Conductance	x	x
	Oxidation Reduction Potential	x	x
	Dissolved Oxygen	x	x
Appendix III (Detection Monitoring)	Boron	x	x
	Calcium	x	x
	Chloride	x	x
	Fluoride	x	x
	pH (field)	x	x
	Sulfate	x	x
	Total Dissolved Solids	x	x
Appendix IV (Assesment Monitoring)	Antimony	x	x
	Arsenic	x	x
	Barium	x	x
	Beryllium	x	x
	Cadmium	x	x
	Chromium	x	x
	Cobalt	x	x
	Fluoride	x	x
	Lead	x	x
	Lithium	x	x
	Mercury	x	x
	Molybdenum	x	x
	Selenium	x	x
	Thallium	x	x
Radium 226+228	x	x	

Notes:

1. The water samples will be tested for total metals following the SW-846 EPA Methods or the most current approved EPA Methods.
2. Assessment sampling frequency and parameter list determined in accordance with Georgia Chapter 391-3-4.10(6)



TABLE 4
ANALYTICAL METHODS
 Georgia Power Company - Plant McDonough-Atkinson
 Atlanta, Georgia

PARAMETERS	EPA METHOD NUMBER
APPENDIX III	
Boron	EPA 6010D/6020B
Calcium	EPA 6010D/6020B
Chloride	EPA 300.0/300.1/9250/9251/9253/9056A
Fluoride	EPA 300.0/300.1/9214/9056A
pH	150.1 field
Sulfate	EPA 9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	EPA 160/2540C
APPENDIX IV	
Antimony	EPA 7040/7041/6010D/6020B
Arsenic	EPA 7060A/7061A/6010D/6020B
Barium	EPA 7080A/7081/6010D/6020B
Beryllium	EPA 7090/7091/6010D/6020B
Cadmium	EPA 7130/7131A/6020B
Chromium	EPA 7190/7191/6010D/6020B
Cobalt	EPA 7200/7201/6010D/6020B
Fluoride	EPA 300.0/300.1/9214/9056/9214
Lead	EPA 7420/7421/6010D/6020B
Lithium	EPA 6010D/6020B
Mercury	EPA 7470A
Molybdenum	EPA 6010D/6020B
Selenium	EPA 7740/7741A/6010D/6020B
Thallium	EPA 7840/7841/6010D/6020B
Radium 226 and 228 combined	EPA 903/9320/9315

Notes:

The water Samples will be tested for total metals by following the SW-846, EPA Methods or the most current approved EPA methods.



TABLE 5
SURFACE WATER MONITORING PARAMETERS AND FREQUENCY
 Georgia Power Company - Plant McDonough Atkinson
 Atlanta, Georgia

Analyte	SURFACE WATER SAMPLING LOCATIONS		
	SWC-4	SWC-5	SWC-6
FIELD MONITORING PARAMETERS			
pH	X	X	X
ORP	X	X	X
SPECIFIC CONDUCTANCE	X	X	X
DISSOLVED OXYGEN	X	X	X
TEMPERATURE	X	X	X
TURBIDITY	X	X	X
APPENDIX IV			
ANTIMONY, TOTAL	X	X	X
ARSENIC, TOTAL	X	X	X
BARIUM, TOTAL	X	X	X
BERYLLIUM, TOTAL	X	X	X
CADMIUM, TOTAL	X	X	X
CHROMIUM, TOTAL	X	X	X
COBALT, TOTAL	X	X	X
LEAD, TOTAL	X	X	X
LITHIUM, TOTAL	X	X	X
MERCURY, TOTAL	X	X	X
RADIUM (226 + 228)	X	X	X
SELENIUM, TOTAL	X	X	X
SILVER, TOTAL	X	X	X
THALLIUM, TOTAL	X	X	X

Notes:

1. Surface water sampling will commence following certification of closure construction.
2. Surface water is collected Semi-Annually concurrent with the groundwater sampling event.
3. Any location that is dry at the time of the sampling event will be identified as such.



Figures



LEGEND

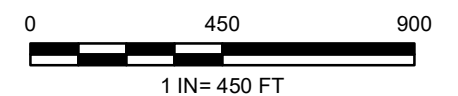
- ◆ AP-1 MONITORING WELL
- ◆ UPGRADIENT WELL
- ▲ ASSESSMENT WELLS
- PIEZOMETER
- FUTURE BARRIER WALL
- PERMIT BOUNDARY
- PROPERTY BOUNDARY
- UNNAMED TRIBUTARY
- PROPOSED SURFACE WATER POINTS

NOTES

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2. SURFACE WATER LOCATIONS SHOWN WILL NOT BE SAMPLED UNTIL CLOSURE OF AP-1 IS COMPLETE.
3. THE FUTURE BARRIER WALL ALIGNMENT SHOWN IS PROPOSED. FOR ACTUAL BARRIER WALL ALIGNMENT REFER TO THE AS-BUILT DOCUMENTS FOLLOWING CONSTRUCTION.

REFERENCE

1. AERIAL IMAGE DATED NOVEMBER 2019 FROM GOOGLE EARTH AND AUGUST 31, 2022 FROM COOPER, BARNETTE & PAGE, INC. (CBP).
2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).
3. MONITORING WELL/PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY METRO ENGINEERING AND SURVEYING COMPANY IN AUGUST 2020 WITH ADDITIONAL SURVEY PROVIDED IN JANUARY 2021 AND MAY 2021.



△	2023/03/15	UPDATED LEGEND & AERIAL	SEB	YCS	DEP	GLH
△	2022/01/06		SEB	SEB	BAS	RNQ
REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RWV

CLIENT
GEORGIA POWER COMPANY
 PLANT MCDONOUGH



PROJECT
 GROUNDWATER MONITORING PLAN
 PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

TITLE
SITE PLAN AND DETECTION MONITORING WELL LOCATION MAP

CONSULTANT	YYYY-MM-DD	2023-03-15
	PREPARED	YCS
	DESIGN	SEB
	REVIEW	BAS
	APPROVED	RPK

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS/B



LEGEND

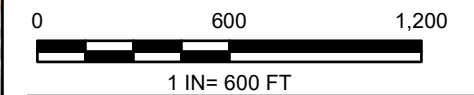
- AP-1 MONITORING WELL
- AP-2,3/4 MONITORING WELL
- UPGRADIENT WELL
- ★ ASSESSMENT MONITORING WELLS
- PIEZOMETER
- TEMPORARY AEM WELL
- APPROXIMATE GROUNDWATER FLOW
- GROUNDWATER SURFACE CONTOUR (FT-NAVD88)
- SURFACE WATER STREAM
- - - PERMIT BOUNDARY
- - - PROPERTY BOUNDARY
- EXISTING TOPOGRAPHY 10-FOOT
- EXISTING TOPOGRAPHY 2-FOOT

NOTES

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
2. GROUNDWATER ELEVATION MEASUREMENTS OBTAINED SEPTEMBER 6, 2022 BY WSP GOLDER.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM (FT NAVD88).
4. WELLS AND PIEZOMETERS THAT CONTAIN A "D" DESIGNATION FOLLOWING THE NUMBER ARE DEEP WELLS AND ELEVATIONS ARE NOT USED FOR CONTOURING.
5. NM = NOT MEASURED.

REFERENCE

1. AERIAL IMAGE DATED NOVEMBER 2019 FROM GOOGLE EARTH AND AUGUST 31, 2022 PROVIDED BY GPC.
2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).
3. MONITORING WELL/PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY METRO ENGINEERING AND SURVEYING COMPANY IN AUGUST 2020 WITH ADDITIONAL SURVEY PROVIDED IN JANUARY 2021 AND MAY 2021.



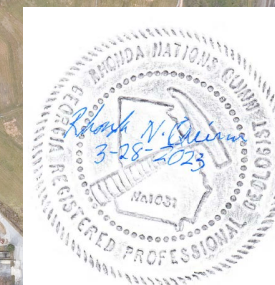
CLIENT
 GEORGIA POWER COMPANY
 PLANT MCDONOUGH



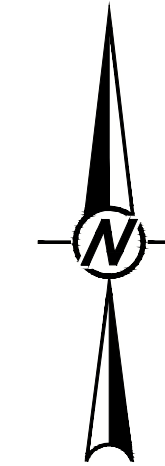
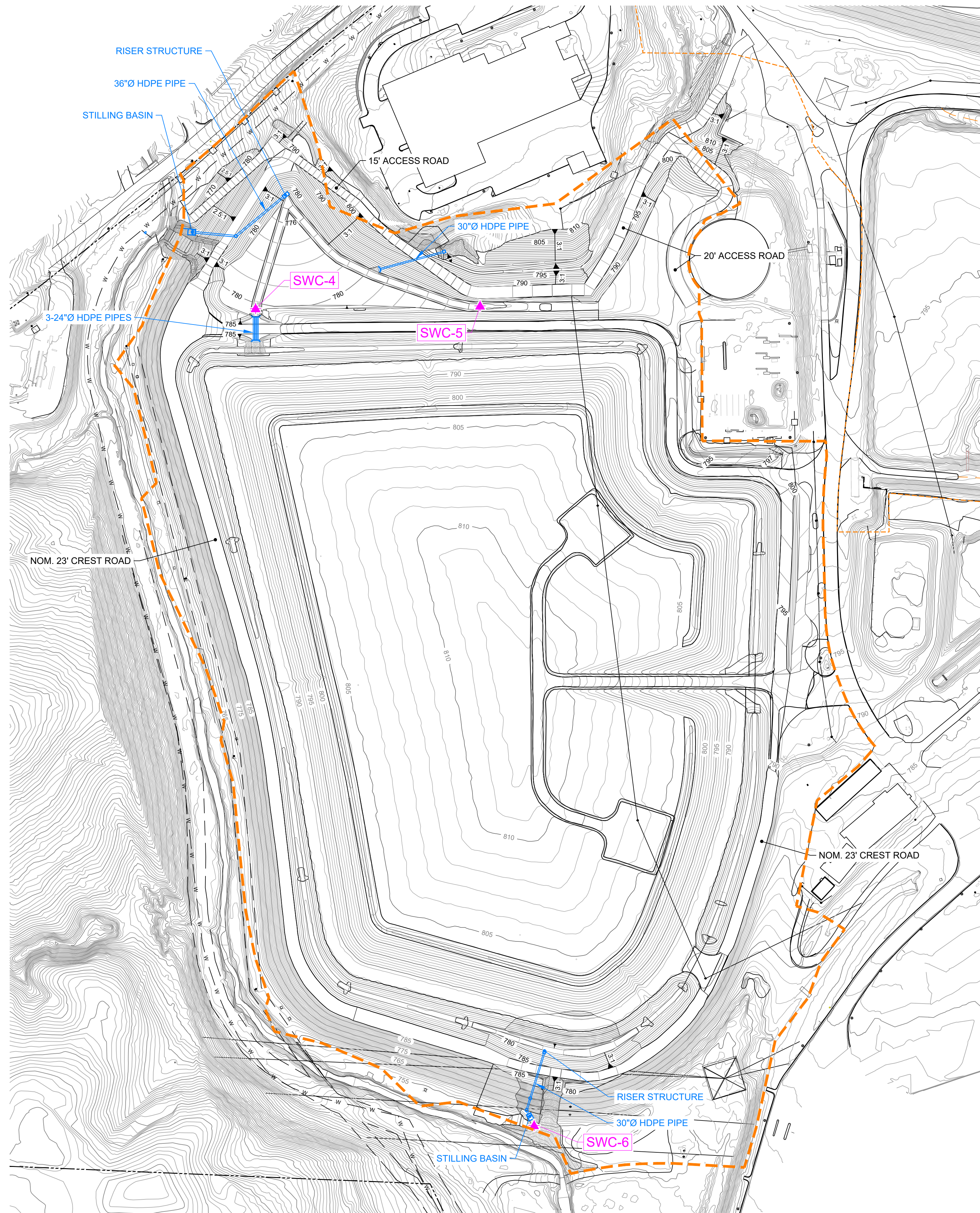
PROJECT
 GROUNDWATER MONITORING PLAN
 PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

TITLE
SITE POTENTIOMETRIC MAP – SEPTEMBER 6, 2022

CONSULTANT	YYYY-MM-DD	2022-10-07
	PREPARED	SEB
	DESIGN	SEB
	CHECKED	DLP
	REVIEWED/APPROVED	RNQ



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS/B



LEGEND

- 780 EXISTING CONTOURS (MARCH 2018)
- PROPERTY BOUNDARY LIMITS
- 810 FINAL CONTOURS
- PERMIT BOUNDARY
- SURFACE WATER SAMPLE LOCATION

REFERENCES

1. APPROXIMATE PROPERTY BOUNDARY PROVIDED BY SOUTHERN COMPANY SERVICES (2017).
2. THE EXISTING TOPOGRAPHY AND CONTOUR ELEVATIONS WERE PROVIDED BY GEORGIA POWER. THE DATE OF THE SURVEY PROVIDED AND SHOWN ON THIS PLAN IS JULY 2021. GEORGIA STATE PLANE WEST SURVEY FEET.

NOTES

1. EXISTING TOPOGRAPHIC CONTOUR INTERVAL = 1 FOOT.

REV	DATE	REVISION DESCRIPTION	DLP	CRP	DLP	RPK
			DES	CADD	CHK	RWV

CLIENT
GEORGIA POWER COMPANY
 PLANT McDONOUGH



PROJECT

GROUNDWATER MONITORING PLAN
 PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

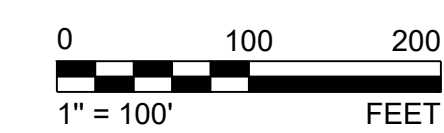
TITLE
SURFACE WATER SAMPLING LOCATION MAP

CONSULTANT	YYYY-MM-DD	2021/09/01
	DESIGNED	DLP
	PREPARED	CRP
	CHECKED	DLP
	REVIEWED / APPROVED	RNQ

PROJECT NO.
 166849621

REV.
 0

FIGURE
 3



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

SITE PERMIT
 Overview of regulatory requirements. Statistical Analysis Plan must meet requirements per the Georgia Department of Natural Resources Environmental Protection Division Chapter 391-3-4 Solid Waste Management and the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015).

Develop site-specific Statistical Analysis Plan. (See Figures 5)

Plan meets Technical & Regulatory requirements?

OPERATING RECORD
 Includes a detailed site-specific Statistical Analysis Plan that meets regulatory requirements. Specifies statistical method, wells, background periods, verification plan and statistical limits.

Update Statistical Limits or Methods
 Periodically evaluate Statistical Analysis Plan (after a minimum of 4 new observations)

CLIENT
 GEORGIA POWER COMPANY
 PLANT MCDONOUGH

PROJECT
 GROUNDWATER MONITORING PLAN
 PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

CONSULTANT



YYYY-MM-DD 2022-02-18

DESIGNED DLP

PREPARED DJC

REVIEWED DLP

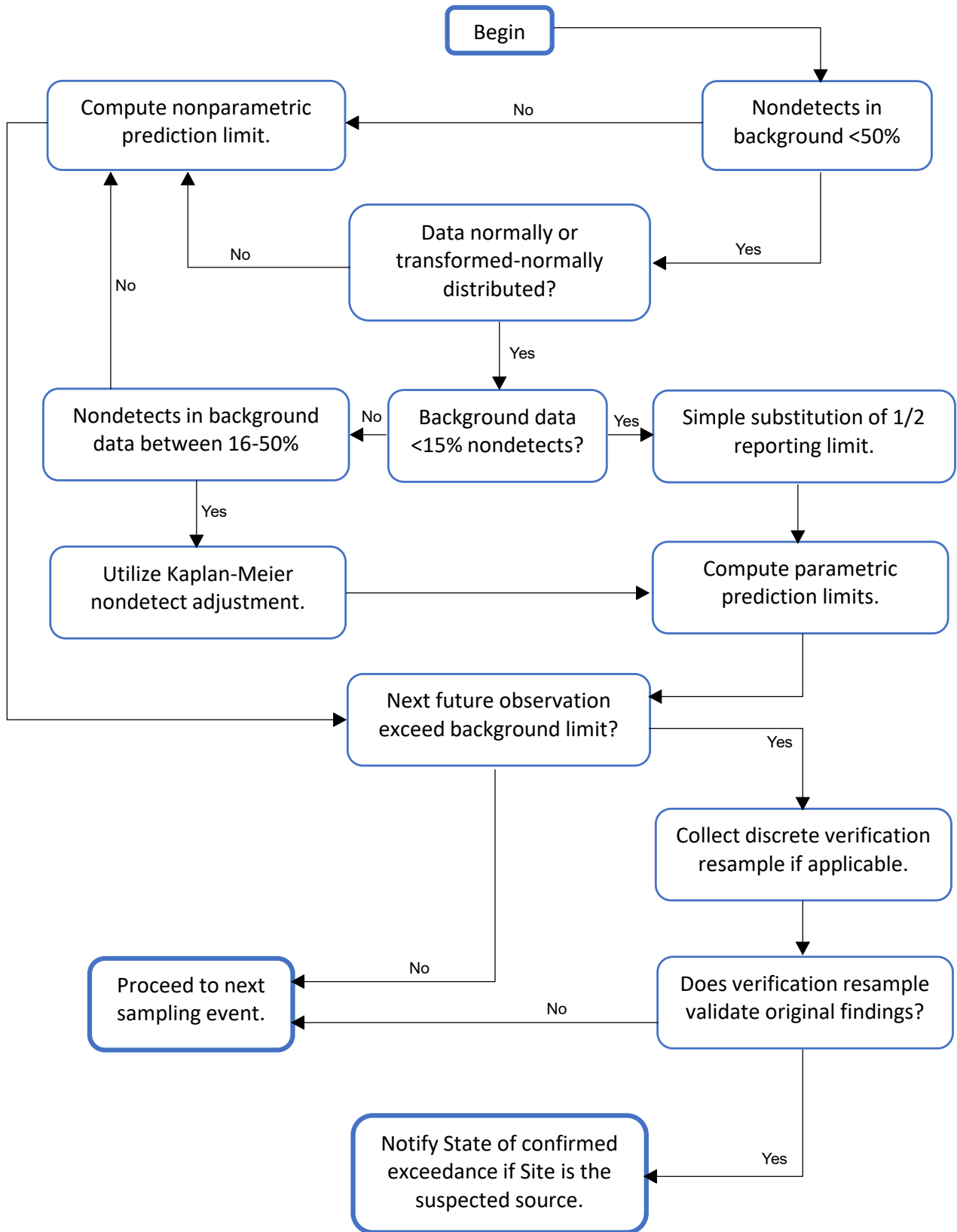
APPROVED RNQ

TITLE

STATISTICAL ANALYSIS PLAN OVERVIEW

PROJECT NO.	CONTROL	REV.	FIGURE
GL166849621	GL166449621B001.mxd	0	4

T.M



CLIENT
 GEORGIA POWER COMPANY
 PLANT MCDONOUGH

PROJECT
 GROUNDWATER MONITORING PLAN
 PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

CONSULTANT



YYYY-MM-DD	2022-02-18
DESIGNED	DLP
PREPARED	DJC
REVIEWED	DLP
APPROVED	RNQ

TITLE

DECISION LOGIC FOR COMPUTING PREDICTION LIMITS

PROJECT NO.	CONTROL	REV.	FIGURE
GL166849621	GL166849621B002.mxd	0	5

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSIA

APPENDIX A

MONITORING SYSTEM DETAILS

APPENDIX A

MONITORING WELL CONSTRUCTION LOGS

RECORD OF BOREHOLE DGWA-53/B-53

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 28.90 ft
 LOCATION: in the middle of the pond of the construction area of AP3

DRILL RIG: CME 55
 DATE STARTED: 9/24/16
 DATE COMPLETED: 9/24/16

NORTHING: 1,393,472.80
 EASTING: 2,201,668.80
 GS ELEVATION: 841.3
 TOC ELEVATION: 844.26 ft

DEPTH W.L.: 10.08
 ELEVATION W.L.: 831.22
 DATE W.L.: 10/6/2016
 TIME W.L.: 1233

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	840	0.00 - 3.50 SM, silt SAND, fine to medium grained, non-plastic, tan, non-cohesive, dry to moist, compact	SM		837.8	1	DO	2-4-6	10	1.50	<p>CETCO puregold grout (70:30) / aluminum casing</p> <p>CETCO puregold grout (70:30)</p> <p>PEL-PLUG 3/8" Bentonite pellets</p> <p>FilterSil</p> <p>0.010" slotted screen</p>	<p>WELL CASING Interval: 0'-17.6' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 17.6'-27.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 12'-28.9' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 8'-12' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-8' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
5	835	3.50 - 12.20 SM, silt SAND, fine to medium grained, non-plastic, tan, non-cohesive, dry to moist, compact to dense (saprolite). Auger Refusal at 12.2	SM		3.50	2	DO	4-6-6	12	1.50		
10	830	12.20 - 29.50 Bedrock; GNEISS; competent, thinly foliated.	BR		12.20	3	DO	5-13-35	48	1.50		
15	825				829.1							
20	820				811.8							
25	815				29.50							
30	810	Boring completed at 28.90 ft										
35	805											
40	800											
45												

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE DGWA-70A/B-70A

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 60.00 ft
 LOCATION: ~400' west of the SW corner of AP-1

DRILL RIG: CME 550
 DATE STARTED: 5/10/17
 DATE COMPLETED: 5/10/17

NORTHING: 1,390,481.40
 EASTING: 2,200,591.60
 GS ELEVATION: 805.8
 TOC ELEVATION: 808.52 ft

DEPTH W.L.: 42.9
 ELEVATION W.L.: 762.9
 DATE W.L.: 5/10/2017
 TIME W.L.: 10:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	805	0.00 - 5.00 CL-CH, low to high plasticity CLAY with trace fine sand; red orange; cohesive, moist	CL-CH		800.8							<p>WELL CASING Interval: 0' - 59.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 48.9' - 58.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 58.9' - 59.3'</p> <p>FILTER PACK Interval: 46.9' - 59.3' Type: FilterSil Gravel Pack</p> <p>FILTER PACK SEAL Interval: 43.4' - 46.9' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0' - 43.4' Type: Pure Gold Grout Mixture</p> <p>WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 4" x 4" x 5' Aluminum</p> <p>DRILLING METHODS Soil Drill: 8.25 Hollow-Stem Auger Rock Drill: N/A</p>
5	800	5.00 - 13.50 ML, SILT, trace fine sand, low plasticity; yellowish brown, contains mica; cohesive, moist, w<PL, soft.	ML		792.3	S1	DO	6-7-7	14	0.83 1.50	Pure Gold Grout Mixture	
10	795											
15	790	13.50 - 28.50 ML, SILT, trace fine to coarse sand, non to low plasticity; yellowish brown to orange brown, iron staining weathered, relic structure (gneissic); cohesive, moist, w<PL, soft.	ML		777.3	S2	DO	5-9-13	22	1.50 1.50		
20	785											
25	780					S3	DO	5-9-10	19	1.50 1.50		
30	775	28.50 - 38.50 ML, SILT, trace sand, low plasticity; medium to dark gray, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft.	ML		767.3	S4	DO	5-8-11	19	1.50 1.50		
35	770											
40	765	38.50 - 53.50 ML, SILT, trace sand, low plasticity; medium to dark gray, saprolite, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft.	ML			S5	DO	5-11-15	26	1.50 1.50		
45												
						S6	DO	4-8-10	18	1.50 1.50		
						S7	DO	20-50/4	50/4	0.75 1.50		

Log continued on next page

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE DGWA-70A/B-70A

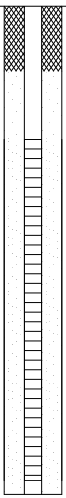
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 60.00 ft
 LOCATION: ~400' west of the SW corner of AP-1

DRILL RIG: CME 550
 DATE STARTED: 5/10/17
 DATE COMPLETED: 5/10/17

NORTHING: 1,390,481.40
 EASTING: 2,200,591.60
 GS ELEVATION: 805.8
 TOC ELEVATION: 808.52 ft

DEPTH W.L.: 42.9
 ELEVATION W.L.: 762.9
 DATE W.L.: 5/10/2017
 TIME W.L.: 10:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45	760	38.50 - 53.50 ML, SILT, trace sand, low plasticity; medium to dark gray, saprolite, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft. (Continued)	ML	[Vertical lines]	752.3	S8	DO	50/4	50/4	0.00 1.50	 <p style="font-size: small;">FilterSil Gravel Pack</p> <p style="font-size: small;">0.010" Slotted Schedule 40 PVC</p>	<p>WELL CASING Interval: 0' - 59.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 48.9' - 58.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 58.9' - 59.3'</p> <p>FILTER PACK Interval: 46.9' - 59.3' Type: FilterSil Gravel Pack</p> <p>FILTER PACK SEAL Interval: 43.4' - 46.9' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0' - 43.4' Type: Pure Gold Grout Mixture</p> <p>WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 4" x 4" x 5' Aluminum</p> <p>DRILLING METHODS Soil Drill: 8.25 Hollow-Stem Auger Rock Drill: N/A</p>
50	755				752.3	S9	DO	50/3	50/3	0.25 1.50		
55	750	53.50 - 60.00 SM, Silty SAND, fine grained, low plasticity; dark gray, contains mica; non-cohesive, moist, w<PL, dense.	PWR	[Blue triangles]	53.50	S10	DO	50/2	50/2	0.17 1.50		
60	745				745.8	Boring completed at 60.00 ft						
65	740											
70	735											
75	730											
80	725											
85	720											
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE DGWA-71/B-71

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 43.80 ft
 LOCATION: NW corner of site, inside cell tower gate.

DRILL RIG: CME 550
 DATE STARTED: 2/28/17
 DATE COMPLETED: 2/28/17

NORTHING: 1,393,963.30
 EASTING: 2,201,714.80
 GS ELEVATION: 861.2
 TOC ELEVATION: 863.84 ft

DEPTH W.L.: 27.1
 ELEVATION W.L.: 834.1
 DATE W.L.: 2/28/17
 TIME W.L.: 1245

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	860	0.00 - 10.50 Hydrovac									<p>WELL CASING Interval: 0'-33.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p>WELL SCREEN Interval: 33.4'-43.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 32.6'-43.8' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 30.6'-32.6' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 1'-30.6' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" x 5' Aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
5	855										
10	850	10.50 - 20.00 Sand with some silt, sands fine, white/black/grey weathered granite/granite gneiss, non plastic, moist, compact.	SP-SM		850.7 10.50	S1	SPT	4-8-10	18	1.50 1.50	
15	845										
20	840	20.00 - 30.00 Silty Sand, sands fine, white/black/grey weathered granite/granite gneiss, non plastic, moist, dense.	SM		841.2 20.00	S2	SPT	2-5-7	12	1.50 1.50	
25	835										
30	830	30.00 - 35.00 Sand with trace to some silt, sands fine to medium, white/black/grey, non plastic, moist, very dense.	SP-SM		831.2 30.00	S3	SPT	4-7-11	18	1.50 1.50	
35	825	35.00 - 43.80 Sand with trace silt and gravel (rock fragments), sands fine to medium, white/black/grey, non plastic, wet, very dense, and some iron staining in samples.	PWR		826.2 35.00	S4	SPT	8-21-50/4	71/10	1.33 1.33	
40	820										
45		Boring completed at 43.80 ft			817.4	S5	SPT	43-50/2	50/2	0.67 0.67	
						S6	SPT	50/3	50/3	0.25 0.25	
						S7	SPT	50/3	50/3	0.25 0.25	

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/28/2012 COMPLETED 11/28/2012 GROUND ELEVATION 763.7 ft COORDINATES N 1390482.2 E 2200919.8

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 41 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \VALTRCFP01\ILAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 - 9.0		- Vacuum excavation fro 0 ft to 9.0 ft						
9.5		Silt (ML) - tan to mottled tan, brown and red, damp, soft, SILT with clay (about 5% clay); micaceous; trace schistose texture (highly weathered)	754.7	SS -1	9.5	1-1-3 (4)		residual soil.
14.5		- yellow tan, medium stiff, SAA		SS -2	14.5	2-2-3 (5)		residual soil.
19.5		- tan, yellow and green banding, soft, SAA; softer; less clay		SS -3	19.5	1-1-2 (3)		residual soil.
24.5				SS	24.5	2-2-4		

(Continued Next Page)

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-37/B-37
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/28/2012	N: 1390482.2 E:2200919.8	

		DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER		-2.5	766.21
2" Threaded Riser Cap			
GROUND SURFACE		0.0	763.7
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
BOTTOM OF GROUT			
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 20 bags cement 10 lbs bentonite			
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
TOP OF SEAL		24.6	739.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.5 buckets PLACEMENT: Poured			
TOP OF FILTER PACK		27.0	736.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6.75 Bags PLACEMENT: Poured w/water			
BOTTOM OF RISER / TOP OF SCREEN		29.3	734.4
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
BOTTOM OF SCREEN		39.3	724.4
BOTTOM OF CASING		39.7	724.0
Flush-threaded end cap			
HOLE DIA: 7 inch			

4 ft x 4 ft concrete pad

Flush-threaded end cap

HOLE DIA: 7 inch



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/28/2012 COMPLETED 11/28/2012 GROUND ELEVATION 754.7 ft COORDINATES N 1390362.7 E 2201148.6

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 24.7 ft.

GROUND WATER DEPTH: DURING 13 ft. COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 9.0		- Vacuum excavation from 0 ft to 9.0 ft						
9.5		Silt (ML) - olive-gray to tan, moist, medium stiff, SILT; micaceous; trace schist gravel; <5% clay	745.7	SS -1	9.5	2-3-4 (7)		residual soil.
14.5		- more tan, wet, very soft, SAA		SS -2	14.5	WH-WH-1 (1)		
19.5		- tan-brown-gray, very moist, stiff, SILT; micaceous; more prevalent schistose gravel		SS -3	19.5	2-4-5 (9)		residual soil.
24.7		- SAA with very fine-grained sand	730.0					

Bottom of borehole at 24.7 feet.

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-38/B-38
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/29/2012	N: 1390362.7 E:2201148.6	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	757.43
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	754.7
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 4 bags cement 6 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	10.4	744.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.25 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	13.4	741.3
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 5.25 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	14.7	740.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	24.7	730.0
Flush-threaded end cap		
BOTTOM OF CASING	25.0	729.7
HOLE DIA: 7 inch		



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/6/2012 COMPLETED 10/6/2012 GROUND ELEVATION 757 ft COORDINATES N 1390303.6 E 2201540.1

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 26 ft.

GROUND WATER DEPTH: DURING 20 ft. COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 - 9.5		- Vacuum excavation from 0 ft to 9.5 ft						water table in hydrovac hole at about 2 ft bgs.
9.5			747.5	UD -1	9.5			
10 - 14.5		Elastic Silt (MH) - tan, wet, medium stiff, medium plasticity, clayey SILT with fine sand						residual soil.
14.5			741.8	SS -1	14.5	1-2-6 (8)		
15 - 19.5		Silt (ML) - tan-brown, wet, medium stiff, sandy SILT; contains schist gravel at base						
19.5				SS -2	19.5	2-2-5 (7)		residual soil/upper saprolite transition.
20 - 24.5		- mottled tan, orange and brown, wet, medium stiff, clayey SILT; micaceous						
24.5			732.5	SS	24.5	3-2-4		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- mottled tan, brown and black, damp, medium stiff, low plasticity, silty CLAY; relict structures observed; highly weathered Lean Clay (CL)(con't)	731.0	-3		(6)		upper saprolite.
		Bottom of borehole at 26.0 feet.						
30								
35								
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-39/B-39
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/6/2012	N: 1390303.6 E:2201540.1	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	759.89
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	757.0
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Bentonite Plug grout AMOUNT: 4 buckets 200 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	4.9	752.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 3.5 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	8.0	749.0
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 11 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	10.8	746.2
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	20.8	736.2
Flush-threaded end cap		
BOTTOM OF CASING	21.2	735.8
HOLE DIA: 7 inch		



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/5/2012 COMPLETED 11/5/2012 GROUND ELEVATION 776.2 ft COORDINATES N 1390625.7 E 2201825.9

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 36 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 - 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Silt (ML) - brown-tan, stiff, clayey, sandy SILT; damp to moist; contains micaceous fragments; manganese staining and nodules	766.7	SS -1	9.5	2-4-5 (9)		residual soil.
14.5		- tan to tan-brown, damp, stiff, sandy SILT; contains highly weathered schist; manganese staining		SS -2	14.5	4-5-6 (11)		upper saprolite.
19.5		- mottled tan, brown, and black, very moist, clayey SILT with sand; highly weathered schist fragments; 10% micaceous sand		SS -3	19.5	4-3-4 (7)		upper saprolite; increased water content.
24.5				SS	24.5	7-11-12		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - white-gray, very moist, very stiff, SILT with clay; trace quartz sand; micaceous in parts; leached zone		-4		(23)		weathered quartz vein or feldspar rich zone.
30		- brown, very moist, very stiff, SILT with clay and trace gravel; trace quartz/feldspar gravel		SS -5	29.5	6-9-10 (19)		upper saprolite.
35		- white-gray brown, very moist, medium stiff, SILT with clay and trace gravel; clay is more plastic		SS -6	34.5	1-1-4 (5)		
			740.2					

Bottom of borehole at 36.0 feet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCM\W LOGS_SURVEY UPDATED.GPJ

40

45

50

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-40/B-40
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/5/2012	N: 1390625.7 E:2201825.9	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	779.06
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	776.2
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 6 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	19.0	757.2
ANNULAR SEAL TYPE: PeiPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	21.4	754.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 6.5 bag hole PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	24.5	751.7
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	34.5	741.7
Flush-threaded end cap		
BOTTOM OF CASING	34.9	741.3
HOLE DIA: 7 inch		

RECORD OF BOREHOLE DGWC-67/B-67

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 56.00 ft
 LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
 DATE STARTED: 3/8/17
 DATE COMPLETED: 3/14/17

NORTHING: 1,390,953.80
 EASTING: 2,200,830.70
 GS ELEVATION: 767.0
 TOC ELEVATION: 766.70 ft

DEPTH W.L.: 9.1
 ELEVATION W.L.: 757.9
 DATE W.L.: 3/14/17
 TIME W.L.: 0850

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	765	0.00 - 10.00 Silt and Clay with some sand and pebbles, brown, highly weathered mica schist, low plastic, cohesive, dry.	ML		757	S1	GRAB			0.50	Flush Mounted Casing CETCO puregold grout (70:30) PEL-PLUG 3/8" Bentonite pellets	WELL CASING Interval: 0'-46.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 46.3'-56.3' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 44.0'-56.7' Type: FilterSil FILTER PACK SEAL Interval: 44.0'-41.8' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-41.8' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Round Flush Mount DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
5	760				757	S2	GRAB			0.50		
10	755	10.00 - 15.00 Sandy Silt, sands fine, brown, highly weathered, micaceous, low plastic, cohesive, dry.	ML		752	S3	SPT	6-7-12	19	1.50 1.50		
15	750	15.00 - 20.00 Sandy Silt, sands fine, brown, highly weathered, micaceous, low plastic, cohesive, moist.			747	S4	SPT	9-25-25	50	1.50 1.50		
20	745	20.00 - 25.00 Sandy silt, sand f-m, brown to tan, highly weathered, micaceous, low-medium plasticity, cohesive, moist, sample spoon wet.	ML		742	S5	SPT	6-10-14	24	1.16 1.50		
25	740	25.00 - 30.00 Saprolite, Sandy silt, sands fine to coarse, brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.			737	S6	SPT	13-20-22	42	1.16 1.50		
30	735	30.00 - 35.00 Saprolite, Sandy silt, sands fine to coarse, trace pebbles, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		732	S7	SPT	7-10-13	23	1.00 1.50		
35	730	35.00 - 40.00 Saprolite, Sandy silt, sands fine to coarse, trace pebbles, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.			727	S8	SPT	7-16-23	39	1.33 1.50		
40	725	40.00 - 45.00 Saprolite, Sandy silt, sands fine to medium, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		722	S9	SPT	12-15-18	33	1.16 1.50		
45		Log continued on next page										

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Ben Hodges
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE DGWC-67/B-67

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 56.00 ft
 LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
 DATE STARTED: 3/8/17
 DATE COMPLETED: 3/14/17

NORTHING: 1,390,953.80
 EASTING: 2,200,830.70
 GS ELEVATION: 767.0
 TOC ELEVATION: 766.70 ft

DEPTH W.L.: 9.1
 ELEVATION W.L.: 757.9
 DATE W.L.: 3/14/17
 TIME W.L.: 0850

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
					DEPTH (ft)							
45		45.00 - 50.00 Saprolite, silt and sand, sands fine to coarse, grey to brown, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		45.00						FilterSil -	<p>WELL CASING Interval: 0'-46.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 46.3'-56.3' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 44.0'-56.7' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 44.0'-41.8' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-41.8' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
720	S10				spt	50/4	50/4	0.33	0.33			
50		50.00 - 55.00 Saprolite, silt and sand, sands fine to coarse, trace pebbles, grey to dark brown, highly weathered, micaceous, non plastic, noncohesive, moist, sample spoon wet.	PWR		717						.010" Slotted Schedule 40 - PVC	
715	S11				spt	50/2	50/2	0.16	0.16			
55		55.00 - 56.00 Auger Refusal	PWR		712							
710	Boring completed at 56.00 ft				55.00	711						

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT_GDT_8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Ben Hodges
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE DGWC-68A/B-68A

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 30.00 ft
 LOCATION: ~15' East of B-68

DRILL RIG: Geoprobe 7822DT
 DATE STARTED: 4/19/17
 DATE COMPLETED: 4/20/17

NORTHING: 1,391,301.20
 EASTING: 2,200,734.90
 GS ELEVATION: 765.4
 TOC ELEVATION: 765.33 ft

DEPTH W.L.: 18.8
 ELEVATION W.L.: 746.6
 DATE W.L.: 4/20/2017
 TIME W.L.: 08:48

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	765	0.00 - 8.50 SM, Silty SAND, fine to coarse, moderate plasticity; red-orange to orange-brown, fill; non-cohesive, moist, w~PL, loose.	SM								8" Diameter Round Flush Mount Pure Gold Grout Mixture Pel-Plug 3/8" Bentonite Pellets Pre-pack 0.010" Slotted Schedule 40 PVC FilterSil gravel pack	WELL CASING Interval: 0' - 29.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 19.4' - 29.4' Material: Schedule 40 PVC pre-pack Diameter: 2" Slot Size: 0.010" End Cap: 29.4' - 29.8' FILTER PACK Interval: 17.0' - 29.8' Type: FilterSil gravel pack FILTER PACK SEAL Interval: 15.0' - 17.0' Type: Pel-Plug 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0' - 15.0' Type: Pure Gold Grout Mixture WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount DRILLING METHODS Soil Drill: 4.25-inch ID HSA Rock Drill: N/A
5	760											
10	755	8.50 - 13.50 CL, CLAY, with trace sand, moderate plasticity; red-orange brown, fill; cohesive, moist, w<PL, soft to firm.	CL		756.9 8.50	S1	DO	13-18-9	27	$\frac{1.50}{1.50}$		
15	750	13.50 - 28.50 ML, SILT, low plasticity; brown to silver, relict structure; cohesive, moist to wet, w<PL, very soft.			751.9 13.50	S2	DO	WOH-WOH-3	3	$\frac{1.50}{1.50}$		
20	745					S3	DO	4-6-16	22	$\frac{1.33}{1.50}$		
25	740					S4	DO	WOH-16-24	40	$\frac{1.50}{1.50}$		
30	735	28.50 - 30.00 SM, Silty SAND, fine to coarse, non-plastic to low plasticity; gray to white to silver, weathered saprolite, gneiss; cohesive, wet, w<PL, firm. Boring completed at 30.00 ft	SM		736.9 28.50 735.4	S5	DO	13-50/5	50/5	$\frac{0.75}{0.92}$		
35	730											
40	725											
45												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE DGWC-69/B-69

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 44.30 ft
 LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
 DATE STARTED: 3/15/17
 DATE COMPLETED: 3/16/17

NORTHING: 1,391,585.00
 EASTING: 2,200,657.10
 GS ELEVATION: 764.0
 TOC ELEVATION: 763.75 ft

DEPTH W.L.: 6.0
 ELEVATION W.L.: 758
 DATE W.L.: 3/17/17
 TIME W.L.: 0840

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	760	0.00 - 10.00 Hydrovac									Flush Mount Casing	WELL CASING Interval: 0'-14.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 14.3'-24.3' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 12.0'-24.7' Type: FilterSil FILTER PACK SEAL Interval: 10.0'-12.0' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-10.0' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Round Flush DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell
10	754	10.00 - 24.90 Silty Sand, fine to coarse, banded grey and brown, heighly weathered, noncohesive, moist, very dense, sample spoon wet	SM		754							
15	750				S1	SPT	26-36-48	84	1.58 1.50			
20	745				S2	SPT	3-23-17	40	1.00 1.50			
25	740	24.90 - 44.30 Slightly weathered to fresh, moderate to strongly foliated, light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).	BR		739.1							
25	739.1				S3	SPT	50/6	50/6	0.50 0.50			
45	720	Boring completed at 44.30 ft			719.7							

BOREHOLE RECORD: MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: Sean Denty

GA INSPECTOR: Ben Hodges
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



APPENDIX A

PIEZOMETER CONSTRUCTION LOGS



BORING LOG

BORING B-03
Page 1 of 2

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/2/2012 COMPLETED 10/3/2012 GROUND ELEVATION 835 ft COORDINATES N 1394045.1 E 2202411.5

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY R. Tinsley CHECKED BY _____ BORING DEPTH 42 ft.

GROUND WATER DEPTH: DURING 23 ft. COMP. _____ DELAYED 22.5 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:43 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
5		Silt (ML) - Grass - brownish yellow, dry, SILT		SS -1	4.5	3-2-3 (5)		upper saprolite.
10		- brownish yellow, dry, medium stiff, SILT saprolite with relic bedding.		SS -2	9.5	2-3-3 (6)		10YR; powdery; Upper Saprolite.
15		- SAA		SS -3	14.5	2-3-4 (7)		upper saprolite.
20		- mottled deep red and gray, damp, stiff, SILT; with coarse grains of angular quartz; gneiss saprolite.		SS -4	19.5	1-6-5 (11)		upper saprolite.
25		Silt (ML)	810.5	SS	24.5	6-6-8		

(Continued Next Page)

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-3
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/3/2012	N: 1394045.1 E:2202411.5	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.78	837.78
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	835.0
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 9 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	20.0	815.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2.25 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	24.2	810.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags PLACEMENT: Poured		
BOTTOM OF RISER / TOP OF SCREEN	26.7	808.4
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	36.7	798.4
Flush-threaded end cap		
BOTTOM OF CASING	37.0	798.0
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)		



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/9/2012 COMPLETED 10/9/2012 GROUND ELEVATION 786.5 ft COORDINATES N 1394419.5 E 2203266.5

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 35.8 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 7 ft. after 3 hrs.

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Clayey Sand (SC) - red-brown, damp, very loose, silty, clayey SAND; approximately 50% fine-grained sand, 20% clay, 20% silt, 10% organics. Organic rich horizon.	783.0					
5		Silt (ML) - red-tan, damp, clayey SILT with fine-grained sand - gray to brownish yellow, stiff, clayey SILT to silty CLAY; 60% silt, 30% clay; 10% sand/gravel; contains small (1 to 2 mm) quartz feldspar gravel		SS -1	4.5	4-4-8 (12)		A horizon of residual soil.
10		- tan-brown w/orange and gray, very moist, very soft, clayey SILT, micaceous; 70% silt, 25% clay, 5% fine-grained sand		SS -2	9.5	1-1-1 (2)		B horizon of residual soil.
15		- tan-brown, very moist, very soft, clayey SILT to silty CLAY; 55% clay, 40% silt, approximately 5% fine-grained sand		SS -3	14.5	1-1-1 (2)		B horizon of residual soil.
20		- olive gray to tan-brown, dry, stiff, clayey SILT, weathered with some relic structure; 60% silt, 35% clay, 5% fine-grained sand		SS -4	19.5	3-5-6 (11)		Top of upper saprolite zone.
25				SS	24.5	12-32-46		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - tan-brown, very hard, clayey SILT with sand and gravel; contains highly weathered schist fragments; micaceous; 50% silt, 30% clay, 20% sand/gravel		-5		(78)		mid-lower saprolite.
30		- tan-brown, damp, very hard, sandy, gravelly, clayey SILT; 50% clayey silt, 50% sandy gravel; gravels are 1 mm to 10 mm in size, angular and gneissic in origin; highly weathered; contains some white leached quartz		SS -6	29.5	50 (0)		lower saprolite.
35		- brown, damp, very hard, clayey SILT; 40% clay, 60% silt; micaceous, contains relic structures		SS -7	34.5	27-50 (50)		lower saprolite.
		Bottom of borehole at 35.8 feet.						
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFPP01\1LAPARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL
Hydrogeologic Investigation		DRILLER: S. Denty		NAME
LOCATION: Ash Pond		RIG TYPE: CME550		B-6
LOGGER: Greg Dyer		DRILLING METHODS: HS Auger		
DATE CONSTRUCTED: 10/9/2012		N: 1394419.5 E: 2203266.5		
			DEPTH	ELEVATION
			FEET	FT, MSL
TOP OF RISER			-3.0	789.47
2" Threaded Riser Cap				
GROUND SURFACE			0.0	786.5
<p>PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum</p>				
BOTTOM OF GROUT				
<p>BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 7.5 lbs bentonite</p> <p>RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded</p>				
TOP OF SEAL			16.8	769.7
<p>ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2 buckets PLACEMENT: Tremie</p>				
TOP OF FILTER PACK			21.7	764.8
<p>FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6 Bags PLACEMENT: Tremie</p>				
BOTTOM OF RISER / TOP OF SCREEN			25.0	761.5
<p>SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch</p>				
BOTTOM OF SCREEN			35.0	751.5
BOTTOM OF CASING			35.4	751.1
<p>Flush-threaded end cap</p> <p>HOLE DIA: 7 inch</p>				



BORING LOG

BORING B-07
Page 1 of 2

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/9/2012 COMPLETED 10/9/2012 GROUND ELEVATION 806.1 ft COORDINATES N 1394374.6 E 2203596.1

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 26 ft.

GROUND WATER DEPTH: DURING 18.5 ft. COMP. _____ DELAYED 3.8 ft. after 18 hrs.

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - brown to red-brown, damp, very soft, clayey SILT with trace sand; organic rich - red to red-tan, damp, soft, clayey SILT						O Horizon.
5		Fat Clay (CH) - tan, brown and orange, damp, medium stiff, silty CLAY; micaceous; relic foliations; 60% clay, 40% silt	801.6	SS -1	4.5	3-3-3 (6)		A-B Horizon / residual soils. becomes very moist at 8.5'.
10		Silt (ML) - red-tan, very moist, soft, clayey SILT with trace fine sand; slightly micaceous; contains manganese	796.6	SS -2	9.5	1-1-2 (3)		residual soil.
15		- brown-red, very moist, soft, clayey SILT to silty CLAY with trace gravel; micaceous; prevalent manganese staining		SS -3	14.5	1-1-3 (4)		residual soil.
20		- olive gray (greenish), wet, medium stiff, clayey SILT; micaceous; contains relic schist fragments		SS -4	19.5	1-1-5 (6)		saturated from 18.5 to 19.5'. residual soil.
25		- olive gray to tan-brown, wet, stiff, clayey, gravelly SILT; contains manganese and moderately		SS	24.5	7-7-8		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		weathered gneissic fragments; relic structures preserved in some instances Silt (ML)(cont')	780.1	-5		(15)		upper saprolite.
Bottom of borehole at 26.0 feet.								
30								
35								
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\IAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-7
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/9/2012	N: 1394374.6 E: 2203596.1	

		DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER		-3.1	809.16
2" Threaded Riser Cap			
GROUND SURFACE		0.0	806.1
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
BOTTOM OF GROUT			
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 3 bags cement 1.75 lbs bentonite			
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
TOP OF SEAL		7.6	798.5
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.75 buckets PLACEMENT: Poured			
TOP OF FILTER PACK		12.7	793.4
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured			
BOTTOM OF RISER / TOP OF SCREEN		14.8	791.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
BOTTOM OF SCREEN		24.8	781.3
BOTTOM OF CASING		25.2	780.9

HOLE DIA: 7 inch



BORING LOG

BORING B-16
Page 1 of 2

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 12/19/2012 COMPLETED 12/19/2012 GROUND ELEVATION 823.6 ft COORDINATES N 1392595.1 E 2203315.4

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY T. Milam LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEO TECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \VALTRCFP01\ILAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 9		- Vacuum excavation from 0 ft to 9 ft						
9.5		Silt (ML) - tan and brown, dry, stiff, SILT; slightly micaceous; trace manganese oxides	814.6	SS -1	9.5	3-4-5 (9)		residual soil.
14.5		- tan, brown and orange, dry, medium stiff, sandy SILT; sand is fine to very fine-grained; slightly micaceous; trace schistosity		SS -2	14.5	3-3-5 (8)		residual soil.
19.5		- light tan to brown, dry, medium stiff, SILT with clay (about 10%); clay is slightly plastic; slightly micaceous; trace schitose gravel; trace manganese oxide		SS -3	19.5	3-3-3 (6)		residual soil.
24.5				SS	24.5	2-3-3		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - medium stiff, SAA; silt more elastic		-4		(6)		
30		- mottled tan, brown and black, moist, stiff, SILT; saprolite like relict structures; micaceous; weathered schistose foliations; trace gravel; trace manganese oxides		SS -5	29.5	7-5-6 (11)		upper saprolite.
35		- wet, stiff, SAA		SS -6	34.5	6-5-5 (10)		
40		- wet, stiff, SAA; more schist gravel and slightly less weathered		SS -7	39.5	5-6-5 (11)		
45		- wet, very stiff, SAA; slightly less weathered trend		SS -8	44.5	5-9-8 (17)		
			777.6					
		Bottom of borehole at 46.0 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL
Hydrogeologic Investigation		DRILLER: T. Milam		NAME
LOCATION: Ash Pond		RIG TYPE: CME550		B-16
LOGGER: Greg Dyer		DRILLING METHODS: HS Auger		
DATE CONSTRUCTED: 12/19/2012		N: 1392595.1 E: 2203315.4		
		DEPTH FEET	ELEVATION FT, MSL	
	TOP OF RISER	-2.9	826.47	
	2" Threaded Riser Cap			
4 ft x 4 ft concrete pad	GROUND SURFACE	0.0	823.6	
	PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
	BOTTOM OF GROUT			
	BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5.5 bags cement 8 lbs bentonite			
	RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
	TOP OF SEAL	26.5	797.1	
	ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.75 bucket PLACEMENT: Poured			
	TOP OF FILTER PACK	29.2	794.4	
	FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 4.5 Bag PLACEMENT: Poured w/water			
	BOTTOM OF RISER / TOP OF SCREEN	33.4	790.2	
	SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
	BOTTOM OF SCREEN	43.4	780.2	
Flush-threaded end cap	BOTTOM OF CASING	43.7	779.9	
	HOLE DIA: 7 inch			



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/9/2012 COMPLETED 1/9/2012 GROUND ELEVATION 823.9 ft COORDINATES N 1392521 E 2202875.5

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY G. Dyer CHECKED BY _____ BORING DEPTH 31 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 11 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 18.0		- Vacuum excavation from 0 ft to 18.0 ft						
18.0 to 20.0		Silt (ML) - tan-orange, wet, medium stiff, SILT with clay; trace quartz gravel; mica flakes; trace relict structures but highly weathered	805.9	SS -1	19.5	2-3-5 (8)		residual soil-upper saprolite transition.
20.0 to 25.0				SS	24.5	3-5-6		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - mottled tan, green, gray and black, very moist, stiff, SILT; highly weathered relict structures; prevalent manganese oxides; trace gravel and clay		-2		(11)		residual soil-upper saprolite transition.
30		- more tan-gray, soft, SAA	792.9	SS -3	29.5	1-2-2 (4)		

Bottom of borehole at 31.0 feet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

35								
40								
45								
50								

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL
Hydrogeologic Investigation		DRILLER: S. Denty		NAME
LOCATION: Ash Pond		RIG TYPE: CME550		B-18
LOGGER: Greg Dyer		DRILLING METHODS: HS Auger		
DATE CONSTRUCTED: 1/9-10/2013		N: 1392521 E:2202875.5		
		DEPTH FEET	ELEVATION FT, MSL	
	TOP OF RISER	-2.7	826.56	
	2" Threaded Riser Cap			
4 ft x 4 ft concrete pad	GROUND SURFACE	0.0	823.9	
	PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
	BOTTOM OF GROUT			
	BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 28 bags cement 42 lbs bentonite			
	RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
	TOP OF SEAL	18.0	805.9	
	ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured			
	TOP OF FILTER PACK	19.2	804.7	
	FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 5.5 bags hole PLACEMENT: Poured w/water			
	BOTTOM OF RISER / TOP OF SCREEN	22.4	801.5	
	SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
	BOTTOM OF SCREEN	32.4	791.5	
Flush-threaded end cap	BOTTOM OF CASING	32.6	791.3	
	HOLE DIA: 7 inch			



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/24/2012 COMPLETED 10/24/2012 GROUND ELEVATION 819.3 ft COORDINATES N 1392479.9 E 2201450

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY C. Sellers CHECKED BY _____ BORING DEPTH 79.1 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Silt (ML) - light gray, very soft, SILT with very fine to fine-grained sand	809.8	SS -1	9.5	WH-1-1 (2)		
14.5		- stiff, SAA; very micaceous		SS -2	14.5	3-4-6 (10)		
19.5		- light tan to brown, medium stiff, SILT; very fine to fine-grained; micaceous; 2" quartz		SS -3	19.5	5-4-4 (8)		
24.5				SS	24.5	19-37-50		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - wet, very hard, SILT; saprolite (weathered gneiss); banding		-4		(87)		
30				SS -5	29.5	50 (0)		
35		- SAA		SS -6	34.5	50 (0)		
40				SS -7	39.5	50 (0)		
45				SS -8	44.5	50 (0)		
50		- SAA; contains gneiss fragments		SS -9	49.5	50 (0)		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		Silt (ML)(con't) - SAA		SS -10	54.5	50 (0)		
60		Gneiss - light gray to orange, highly weathered, GNEISS; highly fractured, vertical and horizontal	760.2	RC -1	59.1			
65		- light gray with red staining, SAA		RC -2	64.1			
70		- SAA		RC -3	69.1			
75				RC -4	74.1			
80		Bottom of borehole at 79.1 feet.	740.2					

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL
Hydrogeologic Investigation		DRILLER: S. Denty		NAME
LOCATION: Ash Pond		RIG TYPE: CME550		B-24
LOGGER: Cale Sellers		DRILLING METHODS: HS Auger/HQ Rock Core		
DATE CONSTRUCTED: 10/24/2012		N: 1392479.9 E:2201450.0		
		DEPTH FEET	ELEVATION FT, MSL	
	TOP OF RISER	-2.8	822.11	
	2" Threaded Riser Cap			
4 ft x 4 ft concrete pad	GROUND SURFACE	0.0	819.3	
	PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
	BOTTOM OF GROUT			
	BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 21 bags cement 30 lbs bentonite			
	RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
	TOP OF SEAL	60.8	758.5	
	ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Poured			
	TOP OF FILTER PACK	65.9	753.4	
	FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags PLACEMENT: Poured w/water			
	BOTTOM OF RISER / TOP OF SCREEN	68.3	751.0	
	SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
	BOTTOM OF SCREEN	78.3	741.0	
Flush-threaded end cap	BOTTOM OF CASING	79.1	740.2	
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)				



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/23/2012 COMPLETED 10/24/2012 GROUND ELEVATION 833.5 ft COORDINATES N 1392813.3 E 2201502.7

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY B. Gallagher CHECKED BY _____ BORING DEPTH 54.8 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Silt (ML)	824.0	SS -1	9.5	1-2-2 (4)		no recovery.
14.8		- tan, dry, very hard, saprolite; micaceous, sandy with 1 inch lense of white feldspar at 14.8 ft.		SS -2	14.5	22-50 (50)		
19.5		- black and white, very hard, SAA; weathered gneiss saprolite		SS -3	19.5	18-36-50 (86)		
24.5				SS	24.5	25		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - VALTRCFP01\LAPARKER\DESKTOP\GPCMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - black and white, dry, weathered gneiss		4		(0)		
		Gneiss - black and white, medium hard to hard, slightly weathered - two 1/2" augens and weathered joints at 28.5 ft	806.5	RC -1	27.0			
30		- soft, weathered and broken from 29.1 to 30.2 ft - joint filled with secondary minerals from 30.2 to 30.7 ft - slightly weathered joints at 31.0, 31.3, and 31.6 ft		RC -2	29.8			
35		- 1/4" augen with four slightly weathered joints across foliation from 32.3 to 33.0 ft - 3 inch weathered soft zone @ 34.5 ft		RC -3	34.8			
40		- 2" quartzite at 42 ft; very little staining; vertical fractures from 40ft to 42ft		RC -4	39.8			
45		- SAA		RC -5	44.8			
50		- weathered; staining in and around fractures		RC -6	49.8			

(Continued Next Page)



BORING LOG

BORING B-25
Page 3 of 3

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55	/ \		778.7					
		Bottom of borehole at 54.8 feet.						
60								
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\LAPARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-25
LOGGER: B. Gallagher	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/24/2012	N: 1392813.3 E:2201502.7	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	836.54
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	833.5
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 10 bags cement 14 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	40.1	793.4
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	42.4	791.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1 Bag; 50 lbs/bag PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	44.4	789.1
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	54.4	779.1
Flush-threaded end cap		
BOTTOM OF CASING	54.8	778.7
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)		



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/16/2012 COMPLETED 10/23/2012 GROUND ELEVATION 850.6 ft COORDINATES N 1393105.6 E 2201550.4

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY Sellers/Byrd/Gallager CHECKED BY _____ BORING DEPTH 49.3 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 - 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Silt (ML) - tan with white, pink and dark brown layering, stiff, sandy SILT; heavily weathered; micaceous; fine-grained	841.1	SS -1	9.5	4-4-6 (10)		
14.5		- stiff, SAA; heavily weathered gneiss		SS -2	14.5	3-5-9 (14)		
19.5		- dry, very hard, SAA; more compact with better foliation than previous samples; less sand		SS -3	19.5	17-24-27 (51)		
24.5				SS	24.5	50		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - dry, very hard, SAA; powdered rock	824.6	RC -4	26.0	(0)		
		Gneiss - black and white, fine grain, medium hard to hard, slightly to moderately weathered, banded, GNEISS - from 27.0' to 27.3' - soft, weathered, leached of biotite, stained below; 1.4" thick augen - 1/2" thick augen with remnant, healed fractures across foliation at 28'; slight staining on joint across foliation from 28.6' to 28.7' - stain on joints, one joint on foliation and one joint across foliation at 29.3' to 29.7'		RC -1 RC -2	26.0 28.9			
30		- 3 stained and leached, weathered joints from 31.4' to 32.2'; augen - 3 stained joints across foliation from 32.7' to 33.0', including a soil coated joint at 33' - slightly stained joints on foliation at 33.1', 33.6', and 34.1' to 34.7'		RC -3	33.9			
35		- stained, leached, weathered zone with many 1/4" quartz phenocysts from 35.8' to 36.6'		RC -4	39.0			
40		- soft weathered zone with staining from 39.0' to 39.7'		RC -5	44.1			
45		- heavily stained, soft joints across foliation at 41.3' - 1/2" augen at 42.0' - weathered broken zone from 43.6' to 44.1' - below 44.1' heavily stained with many quartz phenocysts - stained joint across foliation at 45.5'						
			801.3					
50		Bottom of borehole at 49.3 feet.						

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-26
LOGGER: Ben Gallagher	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/23/2012	N: 1393105.6 E:2201550.4	

		DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER		-3.0	853.6
2" Threaded Riser Cap			
GROUND SURFACE		0.0	850.6
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum			
BOTTOM OF GROUT			
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 7 bags cement 10 lbs bentonite			
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
TOP OF SEAL		30.5	820.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Tremie			
TOP OF FILTER PACK		34.8	815.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 0.5 bag hole PLACEMENT: Tremie			
BOTTOM OF RISER / TOP OF SCREEN		38.9	811.7
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch			
BOTTOM OF SCREEN		48.9	801.7
BOTTOM OF CASING		49.3	801.3
Flush-threaded end cap			
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)			



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/30/2012 COMPLETED 10/30/2012 GROUND ELEVATION 813.3 ft COORDINATES N 1391967.4 E 2201679.2

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY D. Brooks CHECKED BY _____ BORING DEPTH 94.3 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GFCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 - 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Gneiss - no recovery; encountered boulder	803.8	SS -1	9.5			
10 - 14.5		Silty Sand (SM) - green and black, saprolite; relict structure present	802.3	SS -2	14.5			
19.5		- brown and tan, damp, silty SAND; micaceous; fine-grained		SS -3	19.5			
24.5				SS	24.5	4-5-7		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
30		Silty Sand (SM) (con't) - SC-SM: tan, orange, and black, damp, medium dense, silty, clayey SAND; fine to very fine-grained		4		(12)		
35		- medium dense, SAA; micaceous; clay content increases	778.8	SS-5	29.5	7-7-7 (14)		
40		Silt (ML) - green and black, damp, hard, sandy SILT; relict structure present		SS-6	34.5	5-16-23 (39)		
45		- tan, orange, and black, stiff, sandy SILT; micaceous; some relict structure		SS-7	39.5	5-5-6 (11)		
50		- hard, SAA		SS-8	44.5	7-16-20 (36)		
		- very hard, SAA		SS-9	49.5	20-20 (20)		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		Silt (ML)(con't) - very hard, minimal recovery; partially weathered rock		SS -10	54.5	50 (0)		
60		Gneiss - black and gray, mylonite GNEISS (schistic zone); weathering noted along small joints and along foliations (saprock), otherwise fresh; no staining seen	754.1	RC -1	59.2			
65		- black and gray, hard, mylonite GNEISS; fresh		RC -2	64.3			
70		- SAA		RC -3	69.3			
75		- SAA		RC -4	74.3			
80		- SAA with small iron-stained joint at 83'		RC -5	79.3			

(Continued Next Page)



BORING LOG

BORING B-28
Page 4 of 4

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
85		Gneiss (cont')		RC-6	84.3			
90		- black and gray, hard, GNEISS; fresh		RC-7	89.3			
95		Bottom of borehole at 94.3 feet.						
100								
105								
110								

719.0

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-28
LOGGER: Dustin Brooks	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/31/2012	N: 1391967.4 E: 2201679.2	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	816.08
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	813.3
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 14 bags cement 19 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	53.0	760.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	55.6	757.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 0.5 bag hole PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	59.0	754.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	69.0	744.3
Flush-threaded end cap		
BOTTOM OF CASING	69.4	743.9
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)		



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/10/2012 **COMPLETED** 1/11/2012 **GROUND ELEVATION** 813.5 ft **COORDINATES** N 1391890 E 2201422

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 55.7 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1APARKER\DESKTOP\GPCMMW LOGS_SURVEY_UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 10		- Vacuum excavation from 0 ft to 10 ft						
10			803.5					
10 to 12		Silt (ML) - tan-red, damp, medium stiff, clayey SILT, no structures or staining		SS -1	12.0	2-2-4 (6)		residual soil.
12 to 15		- tan, brown, and orange-red, damp, stiff, SILT with clay; vertical manganese oxide bands; highly weathered relict structure; slightly micaceous		SS -2	14.5	2-5-6 (11)		residual soil - upper saprolite.
15 to 19.5		- tan, brown, and orange-red, damp, stiff, SILT with clay; vertical manganese oxide bands; highly weathered relict structure; slightly micaceous		SS -3	19.5	9-28-29 (57)		lower saprolite.
19.5 to 24.5		- red, green and gray, very hard, sandy SILT; highly weathered schist fragments; relict structure intact; moderately to well cemented; trace partially weathered rock fragments		SS	24.5	2-11-14		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - green-gray and tan, dry, very stiff, sandy SILT; moderately to well cemented; structure intact; lacks rock fragments; micaceous; trace quartz sand		-4		(25)		lower saprolite.
30		- green-gray, moist, very hard, GRAVEL and SILT; moderately weathered schist fragments		SS -5	29.5	28-50 (50)		lower saprolite/transitioning to saprock.
35		- very damp, very hard, SAA		SS -6	34.5	24-50 (50)		spoon moist to wet.
40		- dry, very hard, SAA		SS -7	39.5	50 (0)		saprock transition.
50		- green-gray, wet, very hard, fine SILT with gravel; noticeably softer than previous runs; isolated schist fragments near base; little to no structure		SS -8	49.5	11-29-50 (79)		noticeable sound of water flowing.

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

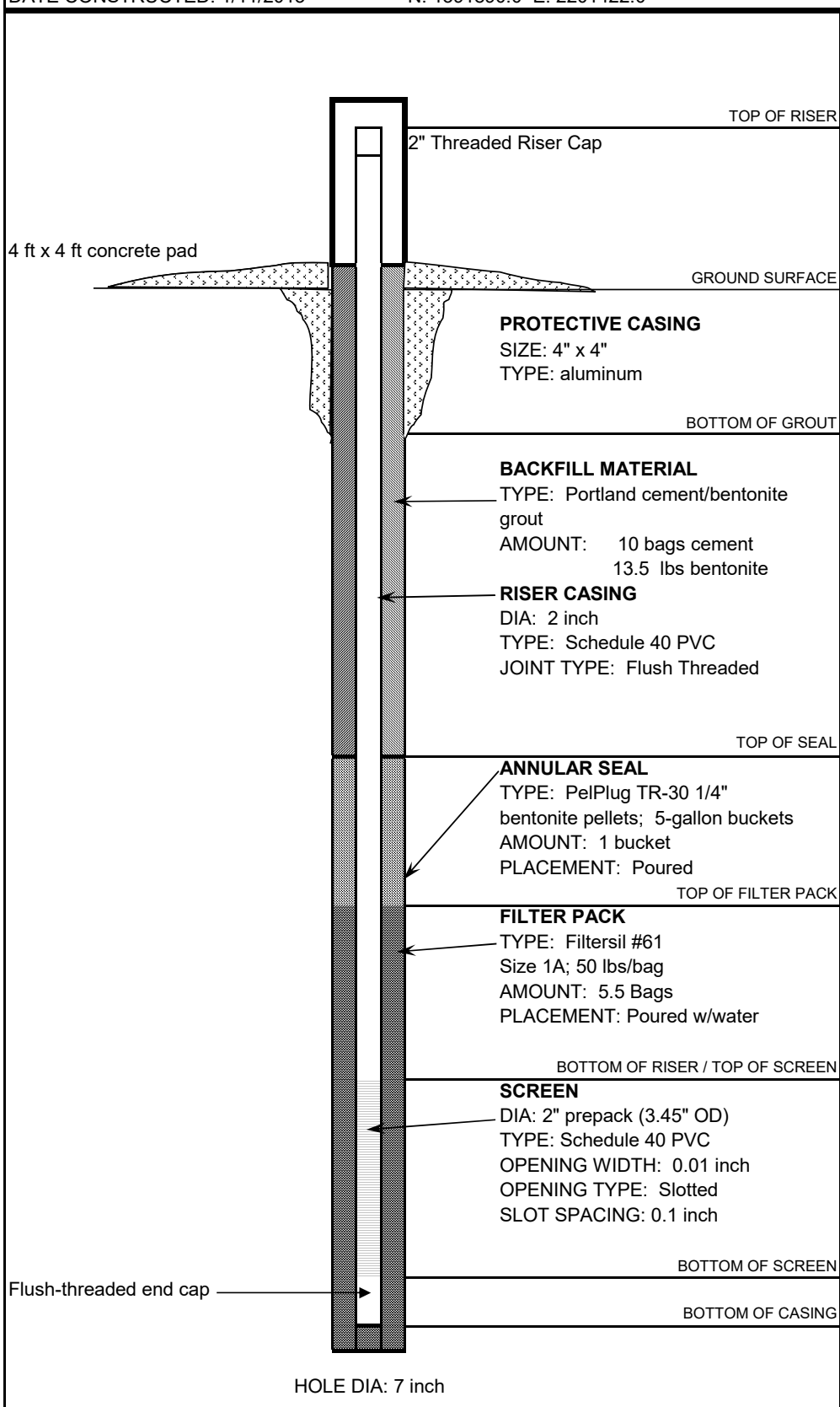
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		- very hard, SAPROCK; schist fragments Silt (ML)(con't)	757.8	SS-9	54.5	50 (0)		
Bottom of borehole at 55.7 feet.								
60								
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL NAME	
Hydrogeologic Investigation		DRILLER: S. Denty		B-29	
LOCATION: Ash Pond		RIG TYPE: CME550			
LOGGER: Greg Dyer		DRILLING METHODS: HS Auger			
DATE CONSTRUCTED: 1/11/2013		N: 1391890.0 E: 2201422.0			
			DEPTH FEET	ELEVATION FT, MSL	
TOP OF RISER			-2.9	816.43	
2" Threaded Riser Cap					
GROUND SURFACE			0.0	813.5	
 <p>PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum</p> <p>BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 10 bags cement 13.5 lbs bentonite</p> <p>RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded</p> <p>ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured</p> <p>FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 5.5 Bags PLACEMENT: Poured w/water</p> <p>SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch</p> <p>4 ft x 4 ft concrete pad</p> <p>Flush-threaded end cap</p> <p>HOLE DIA: 7 inch</p>					
BOTTOM OF GROUT					
TOP OF SEAL			40.0	773.5	
TOP OF FILTER PACK			42.0	771.5	
BOTTOM OF RISER / TOP OF SCREEN			44.1	769.4	
BOTTOM OF SCREEN			54.1	759.4	
BOTTOM OF CASING			54.4	759.1	



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/22/2013 COMPLETED 1/22/2013 GROUND ELEVATION 794.9 ft COORDINATES N 1392034.3 E 2200928.5

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY B. Gallagher CHECKED BY _____ BORING DEPTH 45.1 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED _____

NOTES Drilled near North Abutment of Ash Pond 1 dike Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
5		Silt (ML)						
10		- white and tan, moist, foliated; saprolite		SS -1	10.0	8-7-6 (13)		Vacuum excavation from 0 ft to 10 ft.
15				SS -2	14.5	7-8-17 (25)		
20		- tan, damp, stained below 20.5 ft		SS -3	19.5	7-17-12 (29)		
25				SS	24.5	3-6-12		

(Continued Next Page)

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough		DRILLING CO.: SCS Field Services		WELL NAME	
Hydrogeologic Investigation		DRILLER: S. Denty		B-31	
LOCATION: Ash Pond 1		RIG TYPE: CME550			
LOGGER: B. Gallagher		DRILLING METHODS: HS Auger/HQ Rock Core			
DATE CONSTRUCTED: 1/22/2013		N: 1392034.3 E:2200928.5			
			DEPTH FEET	ELEVATION FT, MSL	
TOP OF RISER			-2.6	797.47	
2" Threaded Riser Cap					
GROUND SURFACE			0.0	794.9	
4 ft x 4 ft concrete pad 					
BOTTOM OF GROUT					
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum					
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 8 lbs bentonite					
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded					
TOP OF SEAL			25.7	769.2	
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1/4 bucket PLACEMENT: Poured					
TOP OF FILTER PACK			29.1	765.8	
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1/2 Bags PLACEMENT: Tremie					
BOTTOM OF RISER / TOP OF SCREEN			34.7	760.2	
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch					
BOTTOM OF SCREEN			44.7	750.2	
Flush-threaded end cap					
BOTTOM OF CASING			45.1	749.8	
HOLE DIA: 7 inch (auger) 3.8 inch (HQ core)					



BORING LOG

BORING B-41
Page 1 of 3

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/13/2012 COMPLETED 11/14/2012 GROUND ELEVATION 792.4 ft COORDINATES N 1390920.8 E 2201751.9

CONTRACTOR SCS Field Services METHOD 4.25" Hollow Stem Auger w/pilot bit EQUIPMENT CME 550

DRILLED BY S. Denty LOGGED BY C. Sellers CHECKED BY _____ BORING DEPTH 61 ft.

GROUND WATER DEPTH: DURING 35 ft. COMP. _____ DELAYED _____

NOTES Well installed. Refer to well data sheet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE: GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
0 to 9.5		- Vacuum excavation from 0 ft to 9.5 ft						
9.5		Lean Clay (CL) - light tan/orange, very soft, silty CLAY (fill for parking lot)	782.9	SS -1	9.5	WH-WH-1 (1)		
14.5		Silt (ML) - no recovery - medium stiff	777.9	SS -2	14.5	3-2-4 (6)		
19.5		- brownish orange, dry, stiff, clayey SILT with mica		SS -3	19.5	4-4-5 (9)		
24.5				SS	24.5			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS_SURVEY UPDATED.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)(con't) - light tan, SILT; micaceous		4				
30		- stiff, SAA; with very fine-grained sand		SS-5	29.5	2-4-9 (13)		
35	▽	- wet, medium stiff, SAA		SS-6	34.5	2-2-3 (5)		
40		- brown, wet, stiff, SILT with fine to very fine sand		SS-7	39.5	2-3-6 (9)		
45		- stiff, SAA		SS-8	44.5	2-5-7 (12)		
50		- light tan, damp, hard, sandy SILT (saprolite); fine to very fine-grained sand		SS-9	49.5	11-18-23 (41)		

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		Silt (ML)(con't) - light tan, damp, hard, SILT; contains fine to very fine-grained sand and angular quartz gravel		SS -10	54.5	10-17-26 (43)		
60		- light tan, damp, saprolite; contains fine to medium-grained sand	731.4	SS -11	59.5	11-24-50 (74)		
Bottom of borehole at 61.0 feet.								
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\VALTRCFP01\1LAPARKER\DESKTOP\GPCMMW LOGS - SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME B-41
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/14/2012	N: 1390920.8 E:2201751.9	

	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	795.2
2" Threaded Riser Cap		
4 ft x 4 ft concrete pad		
GROUND SURFACE	0.0	792.4
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 7 bags cement 10 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	45.2	747.2
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.25 buckets PLACEMENT: Tremie		
TOP OF FILTER PACK	47.3	745.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	49.4	743.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	59.4	733.0
Flush-threaded end cap		
BOTTOM OF CASING	60.0	732.4
HOLE DIA: 7 inch		

RECORD OF BOREHOLE B-50

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 36.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
 DATE STARTED: 6/24/16
 DATE COMPLETED: 6/24/16

NORTHING: 1,391,657.10
 EASTING: 2,201,841.00
 GS ELEVATION: 809.2
 TOC ELEVATION: 809.67 ft

DEPTH W.L.: 20.8
 ELEVATION W.L.: 788.4
 DATE W.L.: 6/24/2016
 TIME W.L.: 10:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 12.00 SILT; grayish brown, dry, soft (fill)	ML					Portland Type I/Protective Casing	<p>WELL CASING Interval: 0'-35.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush threaded with O-ring</p> <p>WELL SCREEN Interval: 24.8'-34.8' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 21.8'-36' Type: Filtersil std61</p> <p>FILTER PACK SEAL Interval: 15.9'-21.8' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 3'-15.9' Type: Portland Type I/Type II/Bentonite Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>	
805										
800								Portland Type I/Type II/Bentonite Gel mix	<p>3/8" Bentonite Pellets</p> <p>Filtersil std #61</p>	
10										
12.00		12.00 - 29.50 SILT; organish gray, some fine to coarse sand, micaceous, moist to wet, soft to firm (saprolite)	ML		797.2			0.010" slot screen	<p>Sump</p>	
15										
17.50										
19										
20										
25										
29.50		29.50 - 36.00 SILTY SAND; brownish gray, fine sand, wet, very soft	SM		779.7					
30										
35										
36.00		Boring completed at 36.00 ft			773.2					

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Bill Lindsey

GA INSPECTOR: K. Jurinko, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-51

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 66.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
 DATE STARTED: 6/27/16
 DATE COMPLETED: 6/27/16

NORTHING: 1,390,501.20
 EASTING: 2,200,906.50
 GS ELEVATION: 763.3
 TOC ELEVATION: 765.92 ft

DEPTH W.L.: 8.85
 ELEVATION W.L.: 754.45
 DATE W.L.: 6/28/2016
 TIME W.L.: 13:22

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 3.00 SILT; brown, some fine to coarse sand, dry, soft, micaceous (topsoil)	ML		760.3 3.00			Portland Type I/ Aluminum Casing	WELL CASING Interval: 0'-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush threaded with O-ring WELL SCREEN Interval: 55'-65' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 53'-65.4' Type: Filtersil std61 FILTER PACK SEAL Interval: 47.5'-53' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 3'-47.5' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
760		3.00 - 15.00 SILT; red to reddish brown, some fine to coarse gravel, black, subrounded, some clayey silt, orangish white and balck, dry, soft, micaceous (saprolite)							
755			ML						
10									
750									
15		15.00 - 58.00 SILT and SAND; orangish brown, brown, and grey, fine to medium sand, some laminations and black mottling, micaceous, some biotite schist gravel, fine to coarse, dry to wet, very soft to very stiff			748.3 15.00			Portland Type I/ Type II/ Bentonite Gel mix	
745									
20									
740									
25									
735									
30			SP-SM						
730									
35									
725									
40									
720									
45									

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Scotty Vermillion

GA INSPECTOR: K. Jurinko, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-51

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 66.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
 DATE STARTED: 6/27/16
 DATE COMPLETED: 6/27/16

NORTHING: 1,390,501.20
 EASTING: 2,200,906.50
 GS ELEVATION: 763.3
 TOC ELEVATION: 765.92 ft

DEPTH W.L.: 8.85
 ELEVATION W.L.: 754.45
 DATE W.L.: 6/28/2016
 TIME W.L.: 13:22

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
45		15.00 - 58.00 SILT and SAND; orangish brown, brown, and grey, fine to medium sand, some laminations and black mottling, micaceous, some biotite schist gravel, fine to coarse, dry to wet, very soft to very stiff (Continued)	SP-SM	[Graphic Log: Dotted pattern]				<p style="font-size: small;">3/8" Bentonite Pellets Filtersil std #61 0.010" slot screen Sump</p>	<p>WELL CASING Interval: 0'-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush threaded with O-ring</p> <p>WELL SCREEN Interval: 55'-65' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 53'-65.4' Type: Filtersil std#61</p> <p>FILTER PACK SEAL Interval: 47.5'-53' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 3'-47.5' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
715									
50									
710									
55									
705		58.00 - 66.00 biotite SCHIST; some clayey silt and sand to gravel, coarse-grained, gray, orange staining, micaceous, dry to wet, very stiff (saprock)	PWR	[Graphic Log: Wavy pattern]	705.3 58.00				
60									
700									
65									
		Boring completed at 66.00 ft			697.3				
695									
70									
690									
75									
685									
80									
680									
85									
675									
90									

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Scotty Vermillion

GA INSPECTOR: K. Jurinko, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-52

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.00 ft
 LOCATION: Northside of the Lab Parking lot

DRILL RIG: CME 55
 DATE STARTED: 9/27/16
 DATE COMPLETED: 9/28/16

NORTHING: 1,392,308.30
 EASTING: 2,201,314.80
 GS ELEVATION: 820.3
 TOC ELEVATION: 822.89 ft

DEPTH W.L.: 25.72
 ELEVATION W.L.: 794.58
 DATE W.L.: 10/6/2016
 TIME W.L.: 1330

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	820	0.00 - 10.00 Top 10' were Hydrovac for utilities.									CETCO puregold grout (70:30) / aluminum casing CETCO puregold grout (70:30)	WELL CASING Interval: 0'-38.9' Material: Schedule 40 PVC Diameter: 2' Joint Type: FLUSH/SCREW WELL SCREEN Interval: 38.9'-48.9' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 35.7-50' Type: FilterSil FILTER PACK SEAL Interval: 31.0-35.7' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0-31' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
5	815											
10	810	10.00 - 15.00 SM, silty SAND, fine to medium grained, non to low plasticity, tan, non-cohesive, dry, W<PL, loose	SM		810.3 10.00							
15	805	15.00 - 33.50 ML, SILT with some SAND, fine to coarse, non to moderate plasticity, orange-brown to white to silver, slightly weathered, highly micaceous, cohesive, dry to wet (increasing with depth), W<PL, firm to stiff, PWR.			805.3 15.00	1	DO	8-8-4	12	1.50 1.50		
20	800					2	DO	7-9-8	17	1.50 1.50	CETCO puregold grout (70:30)	
25	795		ML			3	DO	7-13-11	24	1.50 1.50		
30	790					4	DO	18-50/3	68/9	0.75 1.50		
35	785	33.50 - 50.00 SM, silty SAND, fine to coarse, non to moderate plasticity, trace rock fragments, yellow-orange, non-cohesive, dry to moist, W<PL, compact to very dense, PWR			786.8 33.50	5	DO	17-20-50/4	70/10	1.50 1.50	PEL-PLUG 3/8" Bentonite pellets	
40	780		SM			6	DO	50/5	50/5	0.41 0.41		
45						7	DO	50/2	50/2	0.16 0.16	FilterSil -	

Log continued on next page

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: Shawn Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-52

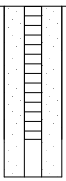
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.00 ft
 LOCATION: Northside of the Lab Parking lot

DRILL RIG: CME 55
 DATE STARTED: 9/27/16
 DATE COMPLETED: 9/28/16

NORTHING: 1,392,308.30
 EASTING: 2,201,314.80
 GS ELEVATION: 820.3
 TOC ELEVATION: 822.89 ft

DEPTH W.L.: 25.72
 ELEVATION W.L.: 794.58
 DATE W.L.: 10/6/2016
 TIME W.L.: 1330

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45	775	33.50 - 50.00 SM, silty SAND, fine to coarse, non to moderate plasticity, trace rock fragments, yellow-orange, non-cohesive, dry to moist, W<PL, compact to very dense, PWR (Continued)	SM		770.3	8	DO	50/3	50/3	0.25 0.25		<p>WELL CASING Interval: 0'-38.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: FLUSH/SCREW</p> <p>WELL SCREEN Interval: 38.9'-48.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 35.7'-50' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 31.0-35.7' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0-31' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
50	770	Boring completed at 50.00 ft										
55	765											
60	760											
65	755											
70	750											
75	745											
80	740											
85	735											
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: Shawn Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-54

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 34.20 ft
 LOCATION: Eastside of the stream north of AP4

DRILL RIG: CME 55
 DATE STARTED: 9/26/16
 DATE COMPLETED: 9/26/16

NORTHING: 1,394,423.50
 EASTING: 2,203,140.70
 GS ELEVATION: 782.6
 TOC ELEVATION: 785.46 ft

DEPTH W.L.: 4.56
 ELEVATION W.L.: 778.04
 DATE W.L.: 10/6/2016
 TIME W.L.: 839

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	780	0.00 - 13.50 Top 10' were Hydrovac for utilities.									<p>WELL CASING Interval: 0'-23.8' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 23.8'-33.8' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 21.9'-34.2' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 17.8'-21.9' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0-17.8' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
15	765	13.50 - 28.50 SM, silty SAND, fine to coarse, non to low plasticity; white to gray, weathered, well foliated gneissic saprolite; cohesive, moist, w<PL, stiff.	SM		1	DO	6-7-6	13	0.83 1.50		
20	760				2	DO	5-9-8	17	1.33 1.50	PEL-PLUG 3/8" Bentonite pellets	
25	755				3	DO	4-5-11	15	0.00 1.50	FilterSil	
30	750	28.50 - 29.00 GPS, poorly-graded sandy GRAVEL, fine to coarse, non plastic, some silt; white to tan to pink, K-spar and Quartz; non-cohesive, wet, w<PL, dense., PWR. Auger Refusal at 29.0	GP-GM		4	DO	21-50/1	71/7	0.50 0.58	0.010 Slotted Screen	
35	745	29.00 - 34.20 Bedrock; AUGEN GNEISS; fresh to slightly weathered, well foliated, gray, fine grained, medium strong to strong, (locally contains pegamitite zones). Boring completed at 34.20 ft	BR								

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Terracon
 DRILLER: Shep Becker

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-55

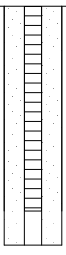
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 52.00 ft
 LOCATION: West of the cement plant

DRILL RIG: CME 55
 DATE STARTED: 9/21/16
 DATE COMPLETED: 9/22/16

NORTHING: 1,394,142.60
 EASTING: 2,204,147.90
 GS ELEVATION: 822.9
 TOC ELEVATION: 825.12 ft

DEPTH W.L.: 12.05'
 ELEVATION W.L.: 810.85
 DATE W.L.: 10/6/2016
 TIME W.L.: 850

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE		
45		23.50 - 52.00 ML, SILT, some sand, non plastic; light brown to tan to silverish gray, schist saprolite; cohesive, moist to wet (increases with depth), w<PL, soft to firm. <i>(Continued)</i>	ML							0.010 Slotted Screen 	<p>WELL CASING Interval: 0' - 41' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 41' - 51' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 39'-52' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 32'-39' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-32' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
775											
50		Boring completed at 52.00 ft									
770					770.9						
55											
765											
60											
760											
65											
755											
70											
750											
75											
745											
80											
740											
85											
735											
90											

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Terracon
 DRILLER: Shep Becker

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-56

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.00 ft
 LOCATION: SW of the cement plant

DRILL RIG: CME 55
 DATE STARTED: 10/3/16
 DATE COMPLETED: 10/3/16

NORTHING: 1,393,957.90
 EASTING: 2,204,187.80
 GS ELEVATION: 821.0
 TOC ELEVATION: 823.59 ft

DEPTH W.L.: 16.39
 ELEVATION W.L.: 804.61
 DATE W.L.: 10/6/2016
 TIME W.L.: 900

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE	REC
0	820	0.00 - 13.50 ML, SILT, trace fine sand, non to low plasticity; brownish red, micaceous, fill; cohesive, dry to moist, w<PL, firm.	ML			1	DO	2-5-5	10	$\frac{1.08}{1.50}$	CETCO puregold grout (70:30) / aluminum casing	WELL CASING Interval: 0'-34.6' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw WELL SCREEN Interval: 34.6'-44.6' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 31.8' - 45' Type: FilterSil FILTER PACK SEAL Interval: 26.7'-31.8' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-26.7' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
5	815											
10	810											
15	805	13.50 - 23.50 ML, SILT, trace fine to coarse sand, non to low plasticity; red to brown to black to silver, micaceous, schist/schistose gneiss saprolite; cohesive, moist to wet, soft to stiff.	ML		807.5 13.50	3	DO	3-5-11	16	$\frac{1.50}{1.50}$	CETCO puregold grout (70:30)	
20	800											
25	795	23.50 - 45.00 ML, SILT, trace fine to coarse sand, non to low plasticity; brown to silvery brown, deeply weathered, micaceous, schist saprolite; cohesive, wet, w<PL, soft to firm. (locally contains pegmatite veins)	ML		797.5 23.50	5	DO	7-8-14	22	$\frac{1.33}{1.50}$	PEL-PLUG 3/8" Bentonite pellets	
30	790											
35	785											
40	780											
45		Boring completed at 45.00 ft			776	9	DO	7-12-33	42	$\frac{1.25}{1.50}$	FilterSil - 0.010" slotted screen	

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-57

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.50 ft
 LOCATION: North of the 4-wide construction trailer

DRILL RIG: CME 55
 DATE STARTED: 9/24/16
 DATE COMPLETED: 9/24/16

NORTHING: 1,391,396.30
 EASTING: 2,202,736.90
 GS ELEVATION: 786.0
 TOC ELEVATION: 789.04 ft

DEPTH W.L.: 21.49
 ELEVATION W.L.: 764.51
 DATE W.L.: 10/6/2016
 TIME W.L.: 920

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	785	0.00 - 10.00 Boring was hydrovac'd to 10' bgs (material appears to be SM-ML)	SM-ML		776						Portland Type I/Type II/Gel Mix / aluminum casing	WELL CASING Interval: 0'-40' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw WELL SCREEN Interval: 40'-50' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 34.6'-50.5' Type: FilterSil FILTER PACK SEAL Interval: 29'-34.6' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-29' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell
5	780											
10	775	10.00 - 30.00 ML- Sandy Clayey SILT, fine to coarse sand, some fine gravel; reddish-brown to brown, dense, dry; micaceous, PWR	ML		776						Portland Type I/Type II/Gel Mix	
15	770						1	DO	4-10-14	24		1.00 / 1.50
20	765						2	DO	11-24-50/5	74/11		1.00 / 1.50
25	760						3	DO	4-8-14	22		1.33 / 1.50
30	755	30.00 - 34.50 CL- Silty CLAY, SOME fine to medium SAND, trace gravel: brown; loose, W<PL; micaceous, PWR. Auger Refusal at 34.5	CL		756						PEL-PLUG 3/8" Bentonite pellets	
35	750						4	DO	4-4-8	12		1.33 / 1.50
34.50	751.5				5	DO	50/3	50/3	0.00 / 0.25			
35	750	34.50 - 50.50 Bedrock; SCHIST; strong to very strong, light to dark gray with white and black laminations, sub-parallel; slightly weathered top with red oxidation on fractured surfaces to fresh and unfractured at the bottom.	BR								FilterSil - 0.010 Slotted Screen	
40	745											
45		Log continued on next page										

BOREHOLE RECORD: MCDONOUGH MASTER LIST_BACKUP_SURVEY_UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Terracon
 DRILLER: Shep Becker

GA INSPECTOR: Aubrey Ellis
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-57

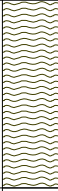

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.50 ft
 LOCATION: North of the 4-wide construction trailer

DRILL RIG: CME 55
 DATE STARTED: 9/24/16
 DATE COMPLETED: 9/24/16

NORTHING: 1,391,396.30
 EASTING: 2,202,736.90
 GS ELEVATION: 786.0
 TOC ELEVATION: 789.04 ft

DEPTH W.L.: 21.49
 ELEVATION W.L.: 764.51
 DATE W.L.: 10/6/2016
 TIME W.L.: 920

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE	REC
45	740	34.50 - 50.50 Bedrock; SCHIST; strong to very strong, light to dark gray with white and black laminations, sub-parallel; slightly weathered top with red oxidation on fractured surfaces to fresh and unfractured at the bottom. <i>(Continued)</i>	BR		735.5							<p>WELL CASING Interval: 0'-40' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 40'-50' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 34.6'-50.5' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 29'-34.6' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-29' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
50	735	Boring completed at 50.50 ft										
55	730											
60	725											
65	720											
70	715											
75	710											
80	705											
85	700											
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Terracon
 DRILLER: Shep Becker

GA INSPECTOR: Aubrey Ellis
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-58


SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.00 ft
 LOCATION: SW corner of the new overflow parking lot of the NEW admin building

DRILL RIG: CME 55
 DATE STARTED: 9/22/16
 DATE COMPLETED: 9/23/16

NORTHING: 1,391,125.70
 EASTING: 2,202,426.50
 GS ELEVATION: 785.2
 TOC ELEVATION: 788.17 ft

DEPTH W.L.: 22.30
 ELEVATION W.L.: 762.9
 DATE W.L.: 10/6/2016
 TIME W.L.: 940

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	785	0.00 - 13.50 Top 10' were Hydrovac for utilities.									<p>WELL CASING Interval: 0'-34.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 34.5'-44.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 31.7'-45.1' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 24.1'-31.7' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-24.1' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
13.50	770	13.50 - 18.50 SC-SM, silty SAND/ clayly SAND, fine to coarse, low plasticity; red to red orange, fill; cohesive, moist, w<PL, soft to firm.	SC-SM		771.7 13.50	1	DO	5-6-7	13	1.50 1.50	
18.50	765	18.50 - 23.50 ML, SILT, trace sand, low to moderate plasticity; red orange, micaceous, fill; cohesive, moist, w<PL, soft to firm.	ML		766.7 18.50	2	DO	2-1-2	3	1.50 1.50	
23.50	760	23.50 - 28.50 ML, SILT, some fine sand, low plasticity; tan to white; cohesive, wet, w<PL (over saturated), soft.	ML		761.7 23.50	3	DO	2-3-3	6	1.50 1.50	
28.50	755	28.50 - 33.50 ML, SILT, non plastic; brown to silver, slight to deeply weathered, schistose gneiss saprolite; cohesive, wet, w<PL, firm to stiff.	ML		756.7 28.50	4	DO	4-7-9	16	1.50 1.50	
33.50	750	33.50 - 45.00 ML, SILT, trace to some sand, low to moderate plasticity; brown to dark brown, micaceous, schistose gneiss/schist saprolite; cohesive, moist to wet, w<PL, soft to stiff.	ML		751.7 33.50	5	DO	1-4-7	11	1.50 1.50	
45.00	745	45.00 - 45.00 Borehole completed at 45.00 ft	ML		740.2	7	DO	3-7-12	19	1.50 1.50	

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-58

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.00 ft
 LOCATION: SW corner of the new overflow parking lot of the NEW admin building

DRILL RIG: CME 55
 DATE STARTED: 9/22/16
 DATE COMPLETED: 9/23/16

NORTHING: 1,391,125.70
 EASTING: 2,202,426.50
 GS ELEVATION: 785.2
 TOC ELEVATION: 788.17 ft

DEPTH W.L.: 22.30
 ELEVATION W.L.: 762.9
 DATE W.L.: 10/6/2016
 TIME W.L.: 940

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45	740											<p>WELL CASING Interval: 0'-34.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 34.5'-44.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 31.7'-45.' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 24.1'-31.7' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-24.1' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
50	735											
55	730											
60	725											
65	720											
70	715											
75	710											
80	705											
85	700											
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT_8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-59


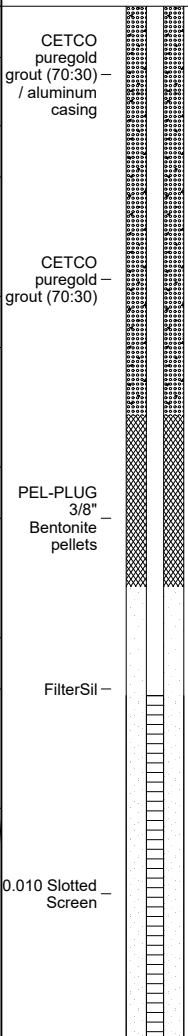

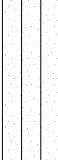


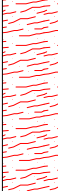
SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 30.25 ft
 LOCATION: westside of the stream north of AP4

DRILL RIG: CME 55
 DATE STARTED: 9/23/16
 DATE COMPLETED: 9/23/16

NORTHING: 1,394,349.10
 EASTING: 2,203,001.10
 GS ELEVATION: 785.5
 TOC ELEVATION: 788.00 ft

DEPTH W.L.: 5.56
 ELEVATION W.L.: 779.94
 DATE W.L.: 10/6/2016
 TIME W.L.: 828

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	785	0.00 - 3.50 SC, clayey SAND, fine to coarse, non plastic; red, micaceous, fill; cohesive, dry, w<PL, stiff.	SC		782	1	DO	3-5-7	12	1.16 1.50	 <p>CETCO puregold grout (70:30) / aluminum casing</p> <p>CETCO puregold grout (70:30)</p> <p>PEL-PLUG 3/8" Bentonite pellets</p> <p>FilterSil</p> <p>0.010 Slotted Screen</p>	<p>WELL CASING Interval: 0'-20.2' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 20.2'-30.2' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 17'-30.2' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 12'-17' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-12' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
5	780	3.50 - 9.00 CH, CLAY, moderate to high plasticity; aark brown to red brown, fill; cohesive, moist, w>PL, soft.	CH		776.5	2	DO	2-1-1	2	0.75 1.50		
10	775	9.00 - 14.00 SM, SAND and SILT, fine, trace organics, non to low plasticity; gray; cohesive, wet, w<PL, very soft.	SM		771.5	3	DO	WOH-1-1	2	1.50 1.50		
15	770	14.00 - 19.00 SP-SW, moderate- graded SAND, fine to coarse, non plastic; tan to white; non-cohesive, wet, w<PL, loose.	SP-SW		766.5	4	DO	4-5-7	12	1.50 1.50		
20	765	19.00 - 24.50 SM, silty SAND, low plasticity; gray to black, deeply weathered, gneissic saprolite; cohesive, moist to wet, w<PL, firm to very stiff, PWR. Auger Refusal at 24.3	SM		761	5	DO	5-4-5	9	1.00 1.50		
25	760	24.50 - 30.25 Bedrock; AUGEN GNEISS; slightly weathered, foliated, gray to dark gray, fine to medium grained, medium strong.	BR		755.25	6	DO	50/4	50/4	0.66 0.33		
30	755	Boring completed at 30.25 ft										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-60

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 49.80 ft
 LOCATION: Almost due south of B-58 ~ 300 to 400 feet

DRILL RIG: CME 55
 DATE STARTED: 9/29/16
 DATE COMPLETED: 9/29/16

NORTHING: 1,391,100.70
 EASTING: 2,202,881.60
 GS ELEVATION: 779.2
 TOC ELEVATION: 782.13 ft

DEPTH W.L.: 33.35
 ELEVATION W.L.: 745.85
 DATE W.L.: 10/6/2016
 TIME W.L.: 955

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 13.50 Top 10' were Hydrovac for utilities.									CETCO puregold grout (70:30) / aluminum casing CETCO puregold grout (70:30) PEL-PLUG 3/8" Bentonite pellets FilterSil	WELL CASING Interval: 0'-39.3' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw WELL SCREEN Interval: 39.3' - 49.3' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 36.9'-50' Type: FilterSil FILTER PACK SEAL Interval: 30.2'-36.9' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-30.2' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
775												
770												
765	765.7	13.50 - 23.50 SC-SM, clayey SAND - silty SAND; brown to red brown; non-cohesive, moist, loose.	SC-SM		1	DO	4-3-4	7	0.66 1.50			
760					2	DO	3-2-3	5	1.33 1.50			
755	755.7	23.50 - 28.50 CL, silty CLAY, low plasticity; contains mica; moist, W<PL.	CL		3	DO	1-3-5	8	1.50 1.50			
750	750.7	28.50 - 33.50 SC-SM, clayey SAND - silty SAND, fine grained, low to non-plastic; brown to gray; non-cohesive, moist, compact.	SC-SM		4	DO	2-8-10	18	1.50 1.50			
745	745.7	33.50 - 48.50 SM, silty SAND; brown to red brown, saprolite; non-cohesive, moist to wet (increases with depth), dense, PWR.	SM		5	DO	50/4	50/4	0.33 0.33			
740					6	DO	50/4	50/4	0.33 0.33			
735					7	DO	50/4	50/4	0.25 0.33			
45		Log continued on next page										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT_GDT_8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-60

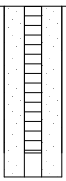
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 49.80 ft
 LOCATION: Almost due south of B-58 ~ 300 to 400 feet

DRILL RIG: CME 55
 DATE STARTED: 9/29/16
 DATE COMPLETED: 9/29/16

NORTHING: 1,391,100.70
 EASTING: 2,202,881.60
 GS ELEVATION: 779.2
 TOC ELEVATION: 782.13 ft

DEPTH W.L.: 33.35
 ELEVATION W.L.: 745.85
 DATE W.L.: 10/6/2016
 TIME W.L.: 955

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45		33.50 - 48.50 SM, silty SAND; brown to red brown, saprolite; non-cohesive, moist to wet (increases with depth), dense, PWR. (Continued)	SM		730.7							<p>WELL CASING Interval: 0'-39.3' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 39.3' - 49.3' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 36.9'-50' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 30.2'-36.9' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-30.2' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
730		48.50 - 49.80 SM, silty SAND; gray to brown, saprolite, contains mica; non-cohesive, moist to wet (increases with depth), dense, PWR Boring completed at 49.80 ft	SM		48.50 729.4	8	DO	50/3	50/3	0.16 0.25		
50												
55												
725												
60												
720												
65												
715												
70												
710												
75												
705												
80												
700												
85												
695												
90												
690												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-61

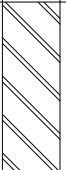



SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 52.40 ft
 LOCATION: SSW of B-57. on the NE corner of the switch yard

DRILL RIG: CME 55
 DATE STARTED: 9/28/16
 DATE COMPLETED: 9/29/16

NORTHING: 1,390,957.80
 EASTING: 2,202,505.80
 GS ELEVATION: 779.0
 TOC ELEVATION: 782.09 ft

DEPTH W.L.: 22.25
 ELEVATION W.L.: 756.75
 DATE W.L.: 10/6/2016
 TIME W.L.: 950

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 13.50 Top 10' were Hydrovac for utilities.									CETCO puregold grout (70:30) / aluminum casing	WELL CASING Interval: 0'-41.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw WELL SCREEN Interval: 41.5'-51.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 39.5'-51.9' Type: FilterSil FILTER PACK SEAL Interval: 35'-39.5' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0'-35' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
775												
770												
765		13.50 - 18.50 CL-CH, CLAY, trace sand and silt, fine to coarse, moderate plasticity; dark red brown, fill; cohesive, moist, w<PL, soft.	CL-CH		765.5 13.50	1	DO	3-4-6	10	1.50 1.50		
760		18.50 - 23.50 SM, silty SAND, fine, non to low plasticity, trace organics (tree root); dark gray to black; cohesive, dry to moist, w<PL, firm	SM		760.5 18.50	2	DO	5-8-13	21	1.50 1.50		
755		23.50 - 38.50 ML, SILT, trace fine to coarse sand, non to low plasticity; red-brown to gray to black; cohesive, dry to moist, w<PL, firm.	ML		755.5 23.50	3	DO	6-8-13	21	1.16 1.50		
750						4	DO	3-2-5	7	1.16 1.50		
745						5	DO	3-3-5	8	1.00 1.50		
740		38.50 - 52.40 SM, silty SAND, fine to coarse, non to low plasticity; dark brown to gray to black, deeply weathered, schistose gneiss / schist saprolite; non-cohesive to cohesive, moist, w<PL, compact to dense / firm to stiff, PWR.	SM		740.5 38.50	6	DO	7-10-23	33	1.33 1.50		
735						7	DO	6-19-50/3	69/9	1.25 0.75		
45		Log continued on next page										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-61

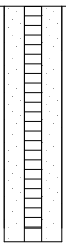
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 52.40 ft
 LOCATION: SSW of B-57. on the NE corner of the switch yard

DRILL RIG: CME 55
 DATE STARTED: 9/28/16
 DATE COMPLETED: 9/29/16

NORTHING: 1,390,957.80
 EASTING: 2,202,505.80
 GS ELEVATION: 779.0
 TOC ELEVATION: 782.09 ft

DEPTH W.L.: 22.25
 ELEVATION W.L.: 756.75
 DATE W.L.: 10/6/2016
 TIME W.L.: 950

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
45		38.50 - 52.40 SM, silty SAND, fine to coarse, non to low plasticity; dark brown to gray to black, deeply weathered, schistose gneiss / schist saprolite; non-cohesive to cohesive, moist, w<PL, compact to dense / firm to stiff, PWR. (Continued)	SM									<p>WELL CASING Interval: 0'-41.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 41.5'-51.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 39.5'-51.9' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 35'-39.5' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-35' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
730						8	DO	14-9-14	23	1.50 1.50		
50		Boring completed at 52.40 ft										
725					726.6							
55												
720												
60												
715												
65												
710												
70												
705												
75												
700												
80												
695												
85												
690												
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-62

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 39.90 ft
 LOCATION: South of the Main road.

DRILL RIG: CME 55
 DATE STARTED: 10/4/16
 DATE COMPLETED: 10/4/16

NORTHING: 1,389,828.10
 EASTING: 2,201,811.20
 GS ELEVATION: 760.4
 TOC ELEVATION: 760.08 ft

DEPTH W.L.: 21.57
 ELEVATION W.L.: 738.83
 DATE W.L.: 10/6/2016
 TIME W.L.: 1000

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	760	0.00 - 13.50 Top 10' were Hydrovac for utilities.									<p>WELL CASING Interval: 0'-30' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 29.7'-39.7' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 25.5'-40.1' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 19.6'-25.5' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-19.6' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
13.50	746.9	13.50 - 18.50 SM, silty SAND, fine, low to moderate plasticity; red-brown; cohesive, wet, w~PL, very soft to soft.	SM		1	DO	3-1-3	4	1.00 1.50	CETCO puregold grout (70:30)	
18.50	741.9	18.50 - 23.50 CL, CLAY, trace silt and fine sand, moderate plasticity; red-brown; cohesive, moist to wet, w~PL, soft to firm.	CL		2	DO	1-1-1	2	1.50 1.50		
23.50	736.9	23.50 - 24.60 SP, poorly-graded SAND, fine to coarse, non plastic; gray to black; non-cohesive, wet, w<PL, very dense, PWR. Auger Refusal at 24.2	SP		3	DO	50/4	50/4	0.16 0.33	PEL-PLUG 3/8" Bentonite pellets	
24.60	735.8	24.60 - 39.90 Bedrock; SCHIST fresh to slightly weathered, foliated, dark green to black, fine to medium grained.	BR								
39.90	720.5	Boring completed at 39.90 ft								FilterSil - 0.010 Slotted Screen	

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-63

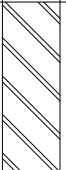



SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 46.00 ft
 LOCATION: Due south of B-61. Flush mounted in the roadway.

DRILL RIG: CME 55
 DATE STARTED: 10/6/16
 DATE COMPLETED: 10/6/16

NORTHING: 1,390,999.10
 EASTING: 2,202,978.10
 GS ELEVATION: 777.3
 TOC ELEVATION: 777.10 ft

DEPTH W.L.: 34.2
 ELEVATION W.L.: 743.1
 DATE W.L.: 10/6/2016
 TIME W.L.: 1745

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	775	0.00 - 13.50 Top 12' were Hydrovac for utilities.									CETCO puregold grout (70:30) / aluminum casing CETCO puregold grout (70:30) PEL-PLUG 3/8" Bentonite pellets FilterSil 0.010 Slotted Screen	WELL CASING Interval: 0' - 35.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw WELL SCREEN Interval: 35.5'-45.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 33'- 45.9' Type: FilterSil FILTER PACK SEAL Interval: 27.6'-33' Type: PEL-PLUG 3/8" Bentonite pellets ANNULUS SEAL Interval: 0' - 27.6' Type: CETCO puregold grout (70:30) WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Flush Mount DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A
13.50	763.8	13.50 - 18.50 CL-CH, CLAY, trace to some fine to coarse sand, moderate plasticity; reddish brown, fill; cohesive, moist, w<PL, firm	CL-CH		763.8 13.50	1	DO	3-2-2	4	0.75 1.50		
18.50	758.8	18.50 - 24.50 ML, SILT, trace clay and sand, low plasticity; reddish brown; cohesive, moist, w<PL, firm.	ML		758.8 18.50	2	DO	1-1-2	3	1.50 1.50		
24.50	752.8	24.50 - 25.00 SM, silty SAND, fine to coarse, non-plastic, trace silt; dark gray to black; non-cohesive, moist, w<PL, loose.	SM		752.8 752.3	3	DO	8-20-10	30	1.50 1.50		
25.00	750	25.00 - 38.50 No samples were collected, due to the hole traveling on the driller.										
38.50	738.8	38.50 - 46.00 SM, silty SAND, fine to coarse, non-plastic, trace gravel; dark gray; non-cohesive, wet, w<PL, very loose, PWR.	SM		738.8 38.50	6	DO	8-9-16	25	0.66 1.50		
46.00	735					7	DO	50/1	50/1	0.08 0.08		

Log continued on next page

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17



RECORD OF BOREHOLE B-63


SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 46.00 ft
 LOCATION: Due south of B-61. Flush mounted in the roadway.

DRILL RIG: CME 55
 DATE STARTED: 10/6/16
 DATE COMPLETED: 10/6/16

NORTHING: 1,390,999.10
 EASTING: 2,202,978.10
 GS ELEVATION: 777.3
 TOC ELEVATION: 777.10 ft

DEPTH W.L.: 34.2
 ELEVATION W.L.: 743.1
 DATE W.L.: 10/6/2016
 TIME W.L.: 1745

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45		Boring completed at 46.00 ft	SM		731.3							<p>WELL CASING Interval: 0' - 35.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 35.5'-45.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 33' - 45.9' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 27.6'-33' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0' - 27.6' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: N/A</p>
730												
50												
725												
55												
720												
60												
715												
65												
710												
70												
705												
75												
700												
80												
695												
85												
690												
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT_8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 12/22/17





DRILLING LOG GEOLOGICAL SERVICES

Hole No. **B-64**

Sheet 1 of 2

SITE Plant McDonough		HOLE DEPTH 31'	SURFELEV 786.10
LOCATION North of AP-4, near property line at Atkinson Rd	COORDINATES 33.832856	-84.474746	
ANGLE _____ BEARING _____	CONTRACTOR SCS	DRILL NO. _____	
DRILLING METHOD HSA	NO. SAMPLES _____	NO. U.D. SAMPLES 0	
CASING SIZE 2"	LENGTH 10'	CORE SIZE _____	TOTAL % REC. _____
WATER TABLE DEPTH 4.9' BLS	ELEV. 781.20' NAVD88	TIME AFTER COMP. 24 hr	DATE TAKEN 11/3/2016
TYPE GROUT Bentonite	QUANTITY _____	MIX _____	DRILLING START DATE 11/2/2016
DRILLER Milam	RECORDER Abraham	APPROVED _____	DRILLING COMP. DATE 11/2/2016

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test			Comments	% Rec	RQD
				From To	Blows	N			
0	786.10								
1	785.10								
2	784.10								
3	783.10								
4	782.10								
5	781.10	HYDRO-EXCAVATION Hydrovac from land surface to 20-feet below land. No samples							
6	780.10								
7	779.10								
8	778.10								
9	777.10								
10	776.10								
11	775.10								
12	774.10								
13	773.10								
14	772.10								
15	771.10								
16	770.10								
17	769.10								
18	768.10								
19	767.10								
20	766.10								
21	765.10								
22	764.10	SANDY SILT SAPROLITE							
23	763.10	Light gray sandy silt saprolite; minor quartz & feldspar grains, micaceous; oxidation along relict foliations; Fe stains; 2.5Y/6/1; SM.	S-1	23.5 - 25	1-1-2		85		
24	762.10								

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME
North of AP-4, at Atkinson Rd	DRILLER: Milam	
LOCATION: 33.832856 / -84.474746	RIG TYPE: CME550	B-64
LOGGER: Abraham	DRILLING METHODS: HSA	
DATE CONSTRUCTED: 11/2/2016		

	DEPTH FEET	ELEVATION FT, MSL
4 ft x 4 ft x 4" concrete pad		
GROUND SURFACE	0.0	786.10
PROTECTIVE CASING Flushmounted		
BOTTOM OF GROUT	3.0	783.10
BACKFILL MATERIAL TYPE: Bentonite Grout mix AMOUNT: 1 x 50lbs		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	8.10	778.00
ANNULAR SEAL TYPE: 1/4" coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	16.50	769.60
FILTER PACK TYPE: DSI Sand - 1A (20/40) Drillers Services, Inc. AMOUNT: 6 Bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	20.00	766.10
SCREEN DIA: 2" TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.25 inch SLOT LENGTH: 1.5 inch		
BOTTOM OF SCREEN	30.00	756.10
BOTTOM OF WELL	30.40	755.70
HOLE DIA: 9 inch		

▼ 781.20



DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-65**

Sheet 1 of 2

SITE Plant McDonough		HOLE DEPTH 50'	SURFELEV 822.30
LOCATION North of AP-4, near property line, NW end of parking lot	COORDINATES 33.832862	-84.471389	
ANGLE _____ BEARING _____	CONTRACTOR SCS	DRILL NO. _____	
DRILLING METHOD HSA	NO. SAMPLES _____	NO. U.D. SAMPLES 0	
CASING SIZE 2" LENGTH 10'	CORE SIZE _____	TOTAL % REC. _____	
WATER TABLE DEPTH 10.5' BLS	ELEV. 811.80 NAVD88	TIME AFTER COMP. 24 HR	DATE TAKEN 11/16/2016
TYPE GROUT _____	QUANTITY _____	MIX _____	DRILLING START DATE 11/15/2016
DRILLER Milam	RECORDER Abraham	APPROVED _____	DRILLING COMP. DATE 11/15/2016

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test			Comments	% Rec	RQD
				From To	Blows	N			
0	822.30								
1	821.30								
2	820.30								
3	819.30								
4	818.30								
5	817.30	HYDRO-EXCAVATION Hydrovac from land surface to 10-feet below land. No samples							
6	816.30								
7	815.30								
8	814.30								
9	813.30								
10	812.30								
11	811.30								
12	810.30								
13	809.30								
14	808.30	SILTY SAND SAPROLITE Light brown silty sand with minor clay; weathered schist fragments; minor oxidation bands; minor quartz fragments	S-1	13.5-15	13-50/3		90		
15	807.30	10YR/3/2; SM; At 15-ft, large rock fragments brownish black color; damp.							
16	806.30								
17	805.30								
18	804.30								
19	803.30	SILTY SAND SAPROLITE Blackish brown silty sand saprolite; large micas with a greenish tinge; highly oxidized with FeO parallel to foliations; 10YR/3/2; SM; damp to moist.	S-2	18.5-20	24-30-31	61	90		
20	802.30								
21	801.30								
22	800.30	CLAYEY SILT Dark gray to reddish brown silty sand saprolite; micas abundant; softer than interval above; few gravel-size rock fragments; FeO bands with minor MnO streaks; 2.5Y/3/2; SM; moist to saturated.	S-3	23.5 - 25	2-16-50/2		90		
23	799.30								
24	798.30								

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-65**

Sheet 2 of 2

SITE Plant McDonough TOTAL DEPTH 50' SURF.ELEV. 822.30

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test			Comments	% Rec	RQD
				From To	Blows	N			
25	797.30	SILTY SAND SAPROLITE	S-4	28.5-30	50/2		90		
26	796.30								
27	795.30								
28	794.30	Dark gray to reddish brown silty sand with minor clay; few structures; 2.5Y/3/2; SM; saturated.	S-4	28.5-30	50/2		90		
29	793.30								
30	792.30	SILTY SAND SAPROLITE	S-5	33.5 - 35	50/2		90		
31	791.30								
32	790.30								
33	789.30	Dark gray to reddish brown silty sand with minor gravel; damp to saturated; 2.5Y/3/2	S-5	33.5 - 35	50/2		90		
34	788.30								
35	787.30	SILTY SAND SAPROLITE	S-6	38.5 - 40	6-9-32		90		
36	786.30								
37	785.30								
38	784.30	Dark gray to reddish brown silty sand with minor clay; saprolite; saturated; 2.5YR/3/2	S-6	38.5 - 40	6-9-32		90		
39	783.30								
40	782.30	Top of Rock - 42-ft	S-7	40 - 42	50/2		90		
41	781.30								
42	780.30	MUSCOVITE-BIOTITE SCHIST; minor chlorite; 2 horizontal fractures, non-water bearing, 44' 1 sub-vertical fracture, water-bearing, 46' - 50'		42 - 49.9			95		
43	779.30								
44	778.30								
45	777.30	BACKFILLED & SET REGOLITH WELL							
46	776.30								
47	775.30								
48	774.30	END OF BORING - 49.9-FT							
49	773.30								
50	772.30								
51	771.30								
52	770.30								
53	769.30								
54	768.30								
55	767.30								
56	766.30								

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME B-65
NE of AP-4 at Argos, near N corner parking lot	DRILLER: Milam	
LOCATION: 33.832862 / -84.471389	RIG TYPE: CME550	
LOGGER: Abraham	DRILLING METHODS: HSA	
DATE CONSTRUCTED: 11/15/2016		

	DEPTH FEET	ELEVATION FT, MSL
6 ft x 6 ft x 4" concrete pad		
GROUND SURFACE	0.00	822.30
PROTECTIVE CASING Flushmounted		
BOTTOM OF GROUT	3.00	819.30
BACKFILL MATERIAL TYPE: Bentonite Grout mix AMOUNT: 3 x 50lbs (1.5 bag bentonite; 1.5 bag grout)		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	26.80	795.50
ANNULAR SEAL TYPE: 1/4" coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	31.80	790.50
FILTER PACK TYPE: DSI Sand - 1A (20/40) Drillers Services, Inc. AMOUNT: 5 Bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	34.40	787.90
SCREEN DIA: 2" TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.25 inch SLOT LENGTH: 1.5 inch		
BOTTOM OF SCREEN	44.40	777.90
BOTTOM OF WELL	45.40	776.90
HOLE DIA: 9 inch		
TYPE: 1/4" coated bentonite pellets between 45.4' and 49.9'		
	49.90	772.40

▼ 811.77



DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-66**

Sheet 1 of 2

SITE Plant McDonough		HOLE DEPTH 55.5'	SURFELEV 813.30
LOCATION North of AP-4, near property line concrete pile	COORDINATES 33.831427	-84.470638	
ANGLE _____ BEARING _____	CONTRACTOR SCS	DRILL NO. _____	
DRILLING METHOD HSA	NO. SAMPLES _____	NO. U.D. SAMPLES 0	
CASING SIZE 2" LENGTH 10'	CORE SIZE _____	TOTAL % REC. _____	
WATER TABLE DEPTH 14.8' BLS	ELEV. 798.50' NAVD88	TIME AFTER COMP. _____	DATE TAKEN _____
TYPE GROUT _____	QUANTITY _____	MIX _____	DRILLING START DATE 11/16/2016
DRILLER Milam	RECORDER Abraham	APPROVED _____	DRILLING COMP. DATE 11/16/2016

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test			Comments	% Rec	RQD
				From To	Blows	N			
0	813.30								
1	812.30								
2	811.30								
3	810.30								
4	809.30								
5	808.30	HYDRO-EXCAVATION Hydrovac from land surface to 10-feet below land. No samples							
6	807.30								
7	806.30								
8	805.30								
9	804.30								
10	803.30								
11	802.30								
12	801.30								
13	800.30								
14	799.30	CLAYEY SILT Light Brown to reddish brown clayey silt; 10R/5/6; damp; FeO along fracture traces & relict foliations; organics absent.	S-1	13.5-15	2-1-1	2		85	
15	798.30								
16	797.30								
17	796.30								
18	795.30								
19	794.30	CLAYEY SILT Light Brown to reddish brown clayey silt; 10R/5/6; damp; FeO along fracture traces & relict foliations;	S-2	18.5-20	2-1-5	6		90	
20	793.30								
21	792.30								
22	791.30	CLAYEY SILT Brownish gray with reddish streaks clayey silt grading to brownsh gray saprolite; 10YR/6/3; moist; FeO bands with minor MnO streaks along fracutre traces; distinct MnO layer at 25-ft parallel to foliation; fractures increase at 25-ft.	S-3	3-4-9	3-4-9	14		90	
23	790.30								
24	789.30								

SITE **Plant McDonough** TOTAL DEPTH **55.5'** SURF.ELEV. **813.30**

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test			Comments	% Rec	RQD
				From To	Blows	N			
25	788.30	SILTY SAND	S-4	4-5-10	15	80			
26	787.30								
27	786.30								
28	785.30	Medium to dark gray silty sand with minor clay; 2.5Y/5/2; few brownish-black weathered minerals; micaceous texture; MnO bands along fracture & foliations; saprolite between 28 and 30 feet.	S-4	4-5-10	15	80			
29	784.30								
30	783.30								
31	782.30								
32	781.30	SILTY SAND SAPROLITE	S-5	7-9-16	25	90			
33	780.30								
34	779.30								
35	778.30	Light to dark gray SILTY SAND; 5Y/5/3; moist to wet saprolite; gravel-size rock frags; weathered feldspars & quartz; increasing biotite & MnO at 35-feet.	S-5	7-9-16	25	90			
36	777.30								
37	776.30								
38	775.30								
39	774.30	Grayish brown - brownish-black SILTY SAND with minor clay; 5Y/3/2; fewer rock fragments than above; moist to wet.	S-6	6-8-10	18	90			
40	773.30								
41	772.30								
42	771.30								
43	770.30	SILTY SAPROLITE	S-7	5-6-9	16	90			
44	769.30								
45	768.30								
46	767.30	Yellowish brown silt with minor clay saprolite; 2.5Y/6/3; lighter than above; abundant MnO streaks; wet but not saturated.	S-7	5-6-9	16	90			
47	766.30								
48	765.30								
49	764.30								
50	763.30	SILTY SAND SAPROLITE	S-8	6-7-17	24	90			
51	762.30								
52	761.30								
53	760.30	Yellowish to blackish brown SILTY SAND saprolite; 2.5Y/6/3; minor rock fragments; saturated	S-8	6-7-17	24	90			
54	759.30								
55	758.30								
56	757.30								
56	757.30	END OF BORING; REGOLITH WELL							

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME
NE of AP-4 at Argos, nr concrete pile, ~250' NE of DGWC-10	DRILLER: Wideman	
LOCATION: 33.831427 / -84.470638	RIG TYPE: CME 550	
LOGGER: Abraham	DRILLING METHODS: HSA	B-66
DATE CONSTRUCTED: 3/7/2016		

	DEPTH FEET	ELEVATION FT, MSL	
	TOP OF RISER	-1.89	815.19
	GROUND SURFACE	0.00	813.30
	BOTTOM OF PROTECTIVE CASING		
	TOP OF SEAL	37.60	775.70
	TOP OF FILTER PACK	41.70	771.60
	BOTTOM OF RISER / TOP OF SCREEN	45.00	768.3
	BOTTOM OF SCREEN	55.00	758.30
	BOTTOM OF WELL	55.30	758.00

HOLE DIA: 9"

RECORD OF BOREHOLE DGWC-68/B-68

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 40.40 ft
 LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
 DATE STARTED: 3/16/17
 DATE COMPLETED: 3/16/17

NORTHING: 1,391,298.20
 EASTING: 2,200,714.20
 GS ELEVATION: 759.0
 TOC ELEVATION: 758.68 ft

DEPTH W.L.: 3.5
 ELEVATION W.L.: 755.06
 DATE W.L.: 3/16/17
 TIME W.L.: 1700

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 10.00 Hydrovac									<p>Flush Mounted Casing CETCO puregold grout (70:30) PEL-PLUG 3/8" Bentonite pellets FilterSil .010" Slotted Schedule 40 PVC FilterSil PEL-PLUG 3/8" Bentonite pellets</p>	<p>WELL CASING Interval: 0'-8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p>WELL SCREEN Interval: 8.0'-18.0' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 6.1'-18.4' Type: FilterSil</p> <p>FILTER PACK SEAL Interval: 4.1'-6.1' Type: PEL-PLUG 3/8" Bentonite pellets</p> <p>ANNULUS SEAL Interval: 0'-4.1' Type: CETCO puregold grout (70:30)</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell</p>
7.55												
10		10.00 - 15.00 Sandy Silt, fine to medium sand, dark brown, highly weathered, micaceous, cohesive, moist, firm, sample spoon wet	ML									
10				749								
15		15.00 - 18.80 Silty Sand, fine to coarse, trace gravel, greenish grey, weathered, thinly bedded, noncohesive, very dense, (weathered gneiss)	PWR									
15				744	S1	SPT	5-6-5	11	1.08 1.50			
15				740.2								
20		19.20 - 22.80 Slightly weathered to fresh, weakly foliated, light gray to white, fine to very fine grained, medium strong to strong, MYLONITE (White Mylonite).	BR									
20				736.2								
25		22.80 - 24.10 Slight to moderately weathered, weakly foliated, dary gray to black, fine to very fine grained, medium strong, MYLONITE (Black Mylonite).	BR									
25				734.9								
25		24.10 - 28.90 Slightly weathered to fresh, weakly foliated, interlayered with vein quartz (~1"), light grey to white, fine to very fine grained, medium strong to strong, MYLONITE (White Mylonite).	BR									
25				730.1								
30		28.90 - 38.00 Slightly weathered to fresh, moderate to strongly foliated, interlayered with Black Mylonite (~1") and pegmatites (~1 to 2"), light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).	BR									
30				721								
40		38.00 - 39.20 Slight to moderately weathered, weakly foliated, dary gray to black, fine to very fine grained, medium strong, MYLONITE (Black Mylonite).	BR									
40				719.8								
40		39.20 - 40.40 Slightly weathered to fresh, moderate to strongly foliated, light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).	BR									
40				718.6								
45		Boring completed at 40.40 ft										

BOREHOLE RECORD: MCDONOUGH MASTER LIST_BACKUP_SURVEY_UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: Sean Denty

GA INSPECTOR: Ben Hodges
 CHECKED BY: Timothy Richards, PG
 DATE: 1/16/18



RECORD OF BOREHOLE B-72

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
 PROJECT NUMBER: 1779172
 DRILLED DEPTH: 21.90 ft
 LOCATION: ~50' SSE of B-68

DRILL RIG: Geoprobe 7822DT
 DATE STARTED: 4/19/17
 DATE COMPLETED: 4/19/17

NORTHING: 1,391,242.15
 EASTING: 220,723.92
 GS ELEVATION: 758.09
 TOC ELEVATION: 758.85 ft

DEPTH W.L.: 2.90
 DATE W.L.: 5/2/2017
 TIME W.L.: 09:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE	REC
0		0.00 - 5.00 ML, SILT, with trace fine sand and gravels (rock fragments), low plasticity; brown; cohesive, moist, w<PL, soft.	ML							<p>8" Diameter Round Flush Mount</p> <p>Pure Gold Grout Mixture</p> <p>Pel-Plug 3/8" Bentonite Pellets</p> <p>FilterSil gravel pack</p> <p>Pre-pack 0.010" Slotted Schedule PVC</p>	<p>WELL CASING Interval: 0' - 21.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>SURFACE CASING Interval: Material: Diameter:</p> <p>WELL SCREEN Interval: 11.5' - 21.5' Material: Schedule 40 PVC Pre-Pack Diameter: 2" Slot Size: 0.010" End Cap: 21.5' - 21.9'</p> <p>FILTER PACK Interval: 9.8' - 21.9' Type: FilterSil gravel pack</p> <p>FILTER PACK SEAL Interval: 7.7' - 9.8' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0' - 7.7' Type: Pure Gold Grout Mixture</p> <p>WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID HSA Rock Drill: N/A</p> <p>NOTES</p>	
5		5.00 - 13.50 SP-SM, Poorly-graded SAND with Silt, fine, low plasticity; red-orange brown, relic structure, highly micaceous; cohesive, wet, w<PL, very soft.	SP-SM									
15		13.50 - 18.50 SM, Silty SAND with trace fine gravels, non-plastic to low plasticity; dark brown to dark gray, highly micaceous; non-cohesive, dry to moist, w<PL, compact.	SM			S1	OD	25-50/3	50/3			0.75 1.50
20		18.50 - 21.50 ML, SILT, with trace sand and large gravels, low plasticity; brown to dark gray black, saprolitic, highly micaceous, gneiss; cohesive, wet, w<PL, soft to firm.	ML			S2	OD	17-34-8	42			1.50 1.50
21.90		Boring completed at 21.90 ft										

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/17/17



RECORD OF BOREHOLE B-73

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
 PROJECT NUMBER: 1779172
 DRILLED DEPTH: 15.80 ft
 LOCATION: ~50' NNW of B-68

DRILL RIG: Geoprobe 7822DT
 DATE STARTED: 4/19/17
 DATE COMPLETED: 4/19/17

NORTHING: 1,391,352.40
 EASTING: 2,200,697.45
 GS ELEVATION: 758.85
 TOC ELEVATION: 759.46 ft

DEPTH W.L.: 4.11
 DATE W.L.: 4/26/2017
 TIME W.L.: 12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	758.85	0.00 - 8.50 SP-SM, Poorly-graded SAND with Silt, non-plastic; red-orange brown; non-chesive, dry to moist, w<PL, loose.	SP-SM	[Graphic Log: Dotted pattern]						8" Diameter Round Flush Mount Pure Gold Grout Mixture Pel-Plug 3/8" Bentonite Pellets	WELL CASING Interval: 0' - 15.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 5.4' - 15.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 15.4' - 15.8' FILTER PACK Interval: 3.2' - 15.8' Type: FilterSil FILTER PACK SEAL Interval: 0.5' - 3.2' Type: Pel-Plug 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0 - 0.5' Type: Pure Gold Grout Mixture WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount DRILLING METHODS Soil Drill: 4.25-inch ID HSA Rock Drill: N/A NOTES
755	755										
750	750.35	8.50 - 9.50 CL, CLAY, with some silt, low plasticity; red brown; cohesive, moist, w<PL, soft.	CL	[Graphic Log: Diagonal lines]	S1	OD	1-8-15	23	1.50	Pre-pack 0.010" Slotted Schedule PVC	
749	749.35										
745	743.35	9.50 - 15.50 SP-SM, Poorly-graded SAND with Silt, non-plastic to low plasticity; white to dark gray, Saprolitic; non-chesive, dry to moist, w<PL, compact to dense.	SP-SM	[Graphic Log: Dotted pattern]	S2	OD	12-29-35	64	1.50	FilterSil gravel pack	
15.80	15.50	Boring completed at 15.80 ft									

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/17/17



RECORD OF BOREHOLE B-74

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
 PROJECT NUMBER: 1779172
 DRILLED DEPTH: 16.50 ft
 LOCATION: ~50' West of B-68

DRILL RIG: Geoprobe 7822DT
 DATE STARTED: 4/24/17
 DATE COMPLETED: 4/25/17

NORTHING: 1,391,279.82
 EASTING: 2,200,665.34
 GS ELEVATION: 758.96
 TOC ELEVATION: 759.44 ft

DEPTH W.L.: 3.3'
 DATE W.L.: 4/25/2017
 TIME W.L.: 09:37

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 4.00 CL, CLAY, with some silt, low plasticity; red brown, fill; cohesive, moist, w<PL, soft.	CL		754.96 4.00							WELL CASING Interval: 0' - 16.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw SURFACE CASING Interval: Material: Diameter:
5		4.00 - 13.50 SP-SM, Poorly-graded SAND with Silt and trace gravel, fine to coarse, non-plastic; white to tan, deeply weathered, granitic; non-cohesive, moist, w<PL, loose/soft.	SP-SM			S1	OD	3-18-20	38	0.75 1.50		WELL SCREEN Interval: 10.8' - 15.8' Material: Pre-pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 15.8' - 16.2' FILTER PACK Interval: 9.0' - 16.5' Type: FilterSil gravel pack FILTER PACK SEAL Interval: 4.8' - 9.0' Type: Pel-Plug 3/8" Bentonite Pellets
15		13.50 - 16.50 SM, Silty SAND, non-plastic; white to light gray; non-cohesive, dry to moist, w<PL, dense.	SM		745.46 13.50	S2	OD	50/3	50/3	0.25 1.50		ANNULUS SEAL Interval: 0' - 4.8' Type: Pure Gold Grout Mixture WELL COMPLETION Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount DRILLING METHODS Soil Drill: 4.25-inch ID HSA Rock Drill: N/A NOTES N/A
		Boring completed at 16.50 ft			742.46							
20												
25												
30												
35												
40												

BOREHOLE RECORD: 1779172.GPJ_PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/17/17



RECORD OF BOREHOLE B-76

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496-01
 DRILLED DEPTH: 37.50 ft
 LOCATION: South by river, SE of B-83

DRILL RIG: Rotasonic 1159
 DATE STARTED: 9/16/19
 DATE COMPLETED: 9/16/19

NORTHING: 1,390,716.87
 EASTING: 2,202,755.99
 GS ELEVATION: 760.54
 TOC ELEVATION: 760.31 ft

DEPTH W.L.: 38.5
 DATE W.L.: 9/17/2019
 TIME W.L.: 1300
 GW ELEVATION:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	760	0.00 - 11.00 Hydrovac, no soil recovery due to Hydrovac								<p>WELL CASING Interval: 0'-28.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 28.5'-38.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 26.5'-38.5' Type: Filter Media</p> <p>FILTER PACK SEAL Interval: 17.0'-26.5' Type: PEL-PLUG 3/8"</p> <p>ANNULUS SEAL Interval: 0'-17.0' Type: AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: Protective Casing: 4" Stainless Steel</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
5	755									
10	750				749.54 11.00					
15	745	11.00 - 19.00 Gravelly SILT, trace clay and sand, cohesive, low plasticity, moist to wet, w<PL, stiff.	ML	(Graphic Log: Silt with sand)		S1	ROTO SONIC	3.60 8.00		
20	740	19.00 - 30.00 Gravelly CLAY, some fine sand, trace silt, cohesive, medium to high plasticity, wet, w> PL, soft, brown.			741.54 19.00					
25	735		CL-CH	(Graphic Log: Clay with sand)		S2	ROTO SONIC	7.30 11.00		
30	730	30.00 - 37.50 Silty CLAY, trace weathered rock, cohesive, moderate plasticity, w~PL, wet, soft to firm, brown. PWR from 37.5 to 38			730.54 30.00					
35	725		CL-ML	(Graphic Log: Clay)		S3	ROTO SONIC	7.00 7.50		
40	720	Boring completed at 37.50 ft			723.04					

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/12/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: D. Thomas
 CHECKED BY: Brian Steele, PG
 DATE: 2/10/20



RECORD OF BOREHOLE B-77

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 42.00 ft
 LOCATION: South by river, SW of B-63

DRILL RIG: Rotosonic 1159
 DATE STARTED: 9/17/19
 DATE COMPLETED: 9/17/19

NORTHING: 1,390,948.70
 EASTING: 2,202,942.00
 GS ELEVATION: 777.1
 TOC ELEVATION: 776.86 ft

DEPTH W.L.: 28.50
 ELEVATION W.L.: 748.6
 DATE W.L.: 1/13/2020
 TIME W.L.: 14:39

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	775	0.00 - 8.00 Hydrovac, no soil recovery due to Hydrovac							AquaGuard Bentonite - Grout	WELL CASING Interval: 0'-32' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 32'-42' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 30'-42' Type: Filter Media FILTER PACK SEAL Interval: 22'-30' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-22' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" Stainless Steel DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
		8.00 - 10.00 Fill		769.1 8.00	S1	ROTO SONIC	0.17 0.17			
5	770									
10	765	10.00 - 20.00 Sandy SILT, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive	MLS	767.1 10.00	S2	ROTO SONIC	0.67 0.83			
15	760									
20	755	20.00 - 30.00 Sandy SILT, micaceous, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive	MLS	757.1 20.00	S3	ROTO SONIC	0.38 0.83			
25	750							PEL-PLUG 3/8" Bentonite Pellets		
30	745	30.00 - 40.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, moist to wet, soft to firm, cohesive,	CL-ML	747.1 30.00	S4	ROTO SONIC	0.52 0.83	#2 FilterSil -		
35	740							0.010" Slotted Schedule 40 PVC		
40	735	40.00 - 42.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, soft to firm, moist to wet, transition to PWR, cohesive Boring completed at 42.00 ft	CL-ML	737.1 40.00 735.1	S5	ROTO SONIC	0.17 0.17			

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: D. Thomas
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-78

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 30.00 ft
 LOCATION: South of road on north side of plant property

DRILL RIG: Rotasonic 1159
 DATE STARTED: 9/22/19
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,328.20
 EASTING: 2,202,958.20
 GS ELEVATION: 788.0
 TOC ELEVATION: 790.75 ft

DEPTH W.L.: 9.05
 ELEVATION W.L.: 778.95
 DATE W.L.: 1/13/2020
 TIME W.L.: 13:44

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 8.70 Hydrovac				0		0.00 0.73	Concrete Surface Completion	WELL CASING Interval: 0.0 - 20.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 20.0-29.5' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 17.5 - 30.0 Type: 20/40 FilterSil FILTER PACK SEAL Interval: 9.0 - 17.5' Type: Pel-Plug 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0.4 - 9.0' Type: Baroid 3/8" Bentonite Chips (Holeplug) WELL COMPLETION Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic ~250 gallons of water used while drilling
785									Baroid 3/8" Bentonite Chips (Holeplug)	
5										
780		8.70 - 11.20 (MLS) sandy SILT, low plasticity fines, fine to medium sub-angular sand, trace organics (roots); light brown (5YR 5/6) to Pale Brown (5YR 2/2), residual soil with frequent micaceous minerals present; cohesive, w-PL, soft	MLS	8.70	1	ROTO SONIC	0.94 0.94			
10		11.20 - 17.00 (MLS) sandy SILT, non to low plasticity fines, fine sub-angular sand, trace soft (crumbles with pressure from fingers) gravels with relic foliations; pale yellowish brown (10YR 6/2) with light gray (N7) and dark yellowish brown (10YR 4/2) foliations, high	MLS	11.20					Pel-Plug 3/8" Bentonite Pellets	
775										
15										
770		17.00 - 25.10 (SM) SILTY SAND, fine sub-angular to sub-rounded sand, non-plastic fines, trace fine angular soft (crumbles with pressure from fingers) with relic foliations; pale yellowish brown (10YR 6/2) with very pale orange (10YR 8/2) and dark yellowish brown (10YR	SM	17.00	2	ROTO SONIC	0.18 0.42		20/40 FilterSil Sandpack	
20										
765										
25		25.10 - 30.00 BEDROCK, GNEISS, slightly to moderately weathered (W2 - W3), medium dark gray (N4), with light bluish gray (5B 5/1) and light gray (N7) foliations, fine to medium grained, medium strong rock (R3)	GNEISS	25.10	3	ROTO SONIC	0.31 0.42		2"ID, 4"OD 0.010 Slot SCH 40 PVC U-Pack Screen	
760										
30		Boring completed at 30.00 ft		758					PVC Cap	
755										
35										
750										
40										
745										
45										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram
 CHECKED BY: Timothy Richards, PG
 DATE: 2/12/20



RECORD OF BOREHOLE B-80

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 30.00 ft
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159
 DATE STARTED: 9/20/19
 DATE COMPLETED: 9/20/19

NORTHING: 1,394,372.60
 EASTING: 2,203,533.90
 GS ELEVATION: 801.8
 TOC ELEVATION: 804.47 ft

DEPTH W.L.: 16.48
 ELEVATION W.L.: 785.32
 DATE W.L.: 1/13/2020
 TIME W.L.: 14:46

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	800	0.00 - 8.70 Hydrovac				0		0.00 0.73	<p>Concrete Surface Completion</p> <p>High Solids Bentonite (Aquagaurd)</p> <p>Pel-Plug 3/8" Bentonite Pellets</p> <p>20/40 FilterSil Sandpack</p> <p>2"ID, 4"OD 0.010 Slot SCH 40 PVC U-Pack Screen</p> <p>PVC Cap</p>	<p>WELL CASING Interval: 0.0 - 19.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 19.8-29.3' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 17.5 - 30.0' Type: 20/40 FilterSil</p> <p>FILTER PACK SEAL Interval: 9.0 - 17.5' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0.4 - 9.0' Type: High Solids Bentonite (Aquagaurd)</p> <p>WELL COMPLETION Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p> <p>~150 gallons of water used while drilling</p>
			NA							
		8.70 - 10.00 (ML) sandy SILT, non-plastic to low plasticity fines, fine to medium sub-rounded sand, trace organics (roots); moderate brown (5YR 4/4) to pale yellowish brown (10YR 6/2); non-cohesive, dry, loose	ML		793.1 8.70 791.8 10.00	1 2	ROTO SONIC	0.11 0.11 0.81 0.83		
		10.00 - 13.20 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) with some moderate reddish brown (10R 4/6) layers, some laminated layers (relic foliations), SAPROLITE; non-cohesive, moist, loose	ML & SP		788.6 13.20					
		13.20 - 25.90 (SM) SILTY SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) and pale yellowish brown (10YR 6/2) with trace very pale orange (10YR 8/1) grains, SAPROLITE; non-cohesive, wet, loose	SM							
		20.00: SAA, with frequent weathered micaceous minerals	SM			3	ROTO SONIC	0.83 0.83		
		25.90 - 30.00 (SM-SP) SAND, fine to medium sub-rounded sand, some non-plastic fines, trace angular fine to coarse soft (crumbles with pressure from fingers) gravels; very pale orange (10YR 8/2) with pale yellowish brown (10YR 6/2) mottling, PWR; non-cohesive, moist to wet, compact	SP-SM		775.9 25.90					
		Boring completed at 30.00 ft			771.8					

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram
 CHECKED BY: Timothy Richards, PG
 DATE: 2/12/20



RECORD OF BOREHOLE B-81

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.00 ft
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotasonic 1159
 DATE STARTED: 9/20/19
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,364.90
 EASTING: 2,203,741.10
 GS ELEVATION: 817.7
 TOC ELEVATION: 820.56 ft

DEPTH W.L.: 31.39
 ELEVATION W.L.: 786.31
 DATE W.L.: 1/13/2020
 TIME W.L.: 15:06

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	815	0.00 - 9.00 Hydrovac	NA	[Blank]	808.7	0	ROTO SONIC	0.00 0.75	Concrete Surface Completion	WELL CASING Interval: 0.0 - 39.17' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 39.17 - 49.17' Material: 39.17 - 49.17' Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 37.0 - 50.0' Type: 20/40 FilterSil FILTER PACK SEAL Interval: 17.0 - 37.0' Type: Pel-Plug 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0.4 - 17.0' Type: High Solids Bentonite (Aqua-guard) WELL COMPLETION Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic ~150 gallons of water used while drilling
10	805	9.00 - 13.10 (SM) SILTY SAND, fine to medium sub-rounded sand, non-plastic fines, trace organics (roots); light brown (5YR 5/6) and moderate reddish brown (10R 4/6), SAPROLITE; non-cohesive, dry, compact	SM	[Blank]	9.00	1	ROTO SONIC	0.91 0.92		
15	800	13.10 - 17.90 (SM) SILTY SAND, fine sub-rounded sand, non-plastic fines; very pale orange (10YR 8/2) to grayish orange (10YR 7/6), PWR with frequent micaceous mineralization; non-cohesive, dry, loose	SM	[Blank]	13.10				Cave in prior to installing Aqua-guard due to sampling requirements	
20	795	17.90 - 19.00 (ML and SP) SILT and SAND, non-plastic fine, fine to medium sub-rounded sand; light brown (5YR 5/6), PWR; non-cohesive, dry, compact.	ML & SP	[Blank]	17.90 19.00					Pel-Plug 3/8" Bentonite Pellets
25	790	19.00 - 23.50 (SP-SM) SAND, fine to medium sub-rounded sand, some non-plastic fines; grayish orange (10YR 7/4) with light brown (5YR 5/6) and dark yellowish brown (10YR 2/2) grains, PWR; non-cohesive, dry, compact 20.00: SAA with some pale reddish brown (10R 5/6) coloration	SP-SM SP-SM	[Blank]	799.8 798.7 19.00	2	ROTO SONIC	0.83 0.83		
30	785	23.50 - 33.60 (ML) sandy SILT, non-plastic to low plasticity fines, fine sub-angular sand; pale yellowish brown (10YR 6/2) to light brown (5YR 5/6), PWR; non-cohesive, moist, loose	ML	[Blank]	23.50				Backfill	
35	780	30.00: SAA with some greenish gray (5G 6/1) layers, trace fine soft angular gravels (crumble with finger pressure).	ML	[Blank]	794.2	3	ROTO SONIC	0.83 0.83		
40	775	33.60 - 40.00 (SM and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-rounded sand, trace sub-angular soft (crumbles with finger pressure) gravels; yellowish gray (5YR 8/1) to pale pink (5RP 8/2) to greenish gray (5G 6/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP	[Blank]	784.1 33.60				20/40 FilterSil Sandpack	
45	770	40.00 - 41.30 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine to medium sub-rounded sand; grayish orange (10YR 7/6) to light olive gray (5Y 5/2), highly weathered with some relic foliation layers, PWR; non-cohesive, moist, compact 41.30 - 45.40 (SP and ML) SAND and SILT, fine sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP SP & ML	[Blank]	777.7 40.00 776.4 41.30	4	ROTO SONIC	0.83 0.83		2"ID, 4"OD 0.010 Slot

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram
 CHECKED BY: Timothy Richards, PG
 DATE: 2/12/20



RECORD OF BOREHOLE B-81

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.00 ft
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159
 DATE STARTED: 9/20/19
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,364.90
 EASTING: 2,203,741.10
 GS ELEVATION: 817.7
 TOC ELEVATION: 820.56 ft

DEPTH W.L.: 31.39
 ELEVATION W.L.: 786.31
 DATE W.L.: 1/13/2020
 TIME W.L.: 15:06

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
45		45.40 - 47.50 (SM) SILTY SAND, fine sub-angular sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	SM	[Graphic Log: Dotted pattern]	772.3 45.40				<p>WELL CASING Interval: 0.0 - 39.17' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 39.17 - 49.17' Material: 39.17 - 49.17' Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 37.0 - 50.0' Type: 20/40 FilterSil</p> <p>FILTER PACK SEAL Interval: 17.0 - 37.0' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0.4 - 17.0' Type: High Solids Bentonite (Aquagaurd)</p> <p>WELL COMPLETION Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p> <p>~150 gallons of water used while drilling</p>
770		47.50 - 50.00 (SM) SILTY SAND, fine to medium sand, non-plastic fines, some weakly cemented some weakly cemented soft (crumbles with finger pressure) gravels; moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), PWR; non-cohesive, moist, loose	SM	[Graphic Log: Dotted pattern]	770.2 47.50				
50		Boring completed at 50.00 ft							
765									
55									
760									
60									
755									
65									
750									
70									
745									
75									
740									
80									
735									
85									
730									
90									

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram
 CHECKED BY: Timothy Richards, PG
 DATE: 2/12/20



RECORD OF BOREHOLE B-82

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.00 ft
 LOCATION: East of CCR Unit south of concrete plant

DRILL RIG: Rotosonic 1159
 DATE STARTED: 9/21/19
 DATE COMPLETED: 9/21/19

NORTHING: 1,393,750.00
 EASTING: 2,204,258.10
 GS ELEVATION: 807.5
 TOC ELEVATION: 810.07 ft

DEPTH W.L.: 8.90
 ELEVATION W.L.: 798.6
 DATE W.L.: 1/13/2020
 TIME W.L.: 15:59

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	805	0.00 - 8.70 Hydrovac	NA		798.8	0	ROTO SONIC	0.00 0.73	Concrete Surface Completion	WELL CASING Interval: 0.0 - 35.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 35.0 - 44.5' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC FILTER PACK Interval: 32.5 - 45.0' Type: 20/40 FilterSil FILTER PACK SEAL Interval: 26.5 - 32.5' Type: Pel-Plug 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0.4 - 26.5' Type: High Solids Bentonite (Aquagaurd) WELL COMPLETION Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic ~200 gallons of water used while drilling
10	795	8.70 - 10.70 (ML) sandy SILT, non-plastic fines, fine sand; dark yellowish brown (10YR 4/2); non-cohesive, dry, loose	ML		8.70	1	ROTO SONIC	0.94 0.94		
15	790	10.70 - 31.70 (SM) sandy SILT, fine to medium angular sand, non-plastic to low plasticity fines, some soft (crumble under finger pressure) fine angular gravel; dark yellowish brown (10YR 4/2) to pale yellowish brown (10YR 6/2), very micaceous, SAPROLITE; non-cohesive, dry, loose. Moist and compact starting at 20 feet bgs.	ML		10.70	2	ROTO SONIC	0.83 0.83	High Solids Bentonite - (Aquagaurd)	
20	785		ML		775.8	3	ROTO SONIC	0.83 0.83		
25	780	31.70 - 35.50 (SP and ML) SAND and SILT, fine sub-angular sand, non-plastic to low plasticity fines; dark yellowish brown (10YR 4/2), highly micaceous, SAPROLITE; non-cohesive, wet, compact	SP & ML		31.70	4	ROTO SONIC	0.42 0.42	Pel-Plug 3/8" Bentonite Pellets	
30	775		ML		772	3	ROTO SONIC	0.83 0.83		
35	770	35.50 - 38.50 (CL) sandy SILTY CLAY, low to moderate plasticity fines, fine sand; moderate yellowish brown (10YR 4/2) to light brown (5YR 5/6), some relic foliations, highly micaceous, SAPROLITE; cohesive, w>PL, soft.	CL		35.50	4	ROTO SONIC	0.42 0.42	20/40 FilterSil Sandpack	
40	765	38.50 - 40.00 (SC) CLAYEY SAND, fine angular sand, low to moderate plasticity fines; light brown (5YR 5/6) to moderate yellowish brown (10YR 5/4), iron oxide staining, very micaceous, some relic foliations, SAPROLITE; non-cohesive, wet, compact	SC		38.50	4	ROTO SONIC	0.42 0.42		
45	762.5	40.00 - 45.00 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sand; dark yellowish brown (10YR 4/2) with frequent relic foliations, very micaceous, SAPROLITE; non-cohesive, wet to moist, compact	ML & SP		40.00	4	ROTO SONIC	0.42 0.42	PVC Cap	
		Boring completed at 45.00 ft			762.5					

BOREHOLE RECORD_MCDONOUGH_MASTER_LIST_BACKUP_SURVEY_UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram
 CHECKED BY: Timothy Richards, PG
 DATE: 2/12/20



RECORD OF BOREHOLE B-83

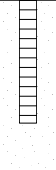
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 50.00 ft
 LOCATION: South by river, NW of B-76

DRILL RIG: CME550X
 DATE STARTED: 9/30/19
 DATE COMPLETED: 9/30/09

NORTHING: 1,390,735.50
 EASTING: 2,202,695.60
 GS ELEVATION: 777.1
 TOC ELEVATION: 776.98 ft

DEPTH W.L.: 28.75
 ELEVATION W.L.: 748.35
 DATE W.L.: 1/13/2020
 TIME W.L.: 14:52

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
45	730	43.50 - 49.00 CL, silty CLAY, brown with orange, moist to wet, W<PL, very soft to firm (<i>Continued</i>)	CL-ML	[Hatched Box]	728.1						Schedule 40 PVC 	WELL CASING Interval: 0'-38.6' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 38.6'-48.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 36.6'-50' Type: Filter Media FILTER PACK SEAL Interval: 30.7'-36.6' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-30.7' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow-Stem Auger Rock Drill: N/A
50		49.00 - 50.00 SM, silty SAND, PWR, black-brown mica schist Boring completed at 50.00 ft	SM	[Dotted Box]	49.00 727.1	S7	SS	8-15-18	33	1.50 1.50		
55												
60												
65												
70												
75												
80												
85												
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-84

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496-01
 DRILLED DEPTH: 50.00 ft
 LOCATION: NE of security gate, along road

DRILL RIG: CME550X
 DATE STARTED: 10/1/19
 DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.65
 EASTING: 2,202,242.51
 GS ELEVATION: 776.27
 TOC ELEVATION: 776.24 ft

DEPTH W.L.: 24.10
 DATE W.L.: 10/1/2019
 TIME W.L.: 1140
 GW ELEVATION:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	775	0.00 - 14.50 Hydrovac to 14.5' for utilities									AquaGuard Bentonite Grout #2 FilterSil PEL-PLUG 3/8" Bentonite Pellets 0.010" Slotted	WELL CASING Interval: 0'-39.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 39.1'-49.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 36.0'-49.5' Type: Filter Media FILTER PACK SEAL Interval: 30.6'-36.0' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-30.6' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
14.50	760	14.50 - 20.00 ML-CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft	CL-ML		761.77 14.50	S1	SS	3-1-2	3	0.75 1.50		
20.00	755	20.00 - 25.00 ML, sandy SILT with some gravel, brown-black, dry, W<PL, very soft	ML		753.27 20.00	S2	SS	3-2-3	5	0.75 1.50		
25.00	750	25.00 - 30.00 CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft to soft	CL		751.27 25.00	S3	SS	1-2-3	5	1.50 1.50		
30.00	745	30.00 - 35.00 CL, silty CLAY with some sand, brown-black with tan, W-PL, moist	CL		746.27 30.00	S4	SS	2-2-3	5	1.50 1.50		
35.00	740	35.00 - 39.00 CL, silty CLAY, brown-black, W-PL, wet to moist	CL		741.27 35.00	S5	SS	15-18-11	29	1.50 1.50		
39.00	735	39.00 - 40.00 SM, silty SAND with gravel, black-grey, moist, compact	SM		737.27 39.00	S6	SS	7-7-8	17	1.50 1.50		
40.00		40.00 - 44.00 CL, silty CLAY, brown-black, W-PL, moist, very soft to soft	CL		736.27 40.00							
44.00	45	44.00 - 45.00 ML, gravelly SILT with some sand, Log continued on next page	ML		732.27 44.00 731.27							

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/11/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara
 CHECKED BY: Brian Steele, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-84

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496-01
 DRILLED DEPTH: 50.00 ft
 LOCATION: NE of security gate, along road

DRILL RIG: CME550X
 DATE STARTED: 10/1/19
 DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.65
 EASTING: 2,202,242.51
 GS ELEVATION: 776.27
 TOC ELEVATION: 776.24 ft

DEPTH W.L.: 24.10
 DATE W.L.: 10/1/2019
 TIME W.L.: 1140
 GW ELEVATION:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
45	730	brown-black, micaceous, PWR, moist 45.00 - 50.00 ML, sandy SILT with gravel, brown-black, PWR, W<PL, wet to moist, PWR, very dense	ML		45.00						Schedule 40 PVC 	<p>WELL CASING Interval: 0'-39.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 39.1'-49.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 36.0'-49.5' Type: Filter Media</p> <p>FILTER PACK SEAL Interval: 30.6'-36.0' Type: PEL-PLUG 3/8"</p> <p>ANNULUS SEAL Interval: 0'-30.6' Type: AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
50		Boring completed at 50.00 ft			726.27	S7	SS	25-33-24	57	1.50 1.50		
55	725											
60	720											
65	715											
70	710											
75	705											
80	700											
85	695											
90	690											

Abandoned 4/28/2022

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/11/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara
 CHECKED BY: Brian Steele, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-87

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 42.00 ft
 LOCATION: North of site along fence, ~25 feet north of B-80

DRILL RIG: CME 550
 DATE STARTED: 11/17/19
 DATE COMPLETED: 11/17/19

NORTHING: 1,394,401.90
 EASTING: 2,203,531.30
 GS ELEVATION: 800.4
 TOC ELEVATION: 803.37 ft

DEPTH W.L.: 15.56
 ELEVATION W.L.: 784.84
 DATE W.L.: 1/13/2020
 TIME W.L.: 14:54

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	800	0.00 - 10.00 Hydrovac to 10.00' to for utilities									AquaGuard Bentonite - Grout #2 FilterSil - PEL-PLUG 3/8" Bentonite Pellets 0.010" Slotted Schedule 40 PVC	WELL CASING Interval: 0'-42' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 31.7'-41.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 29.2'-42.1' Type: Filter Media FILTER PACK SEAL Interval: 24'-29.2' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-24' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
5	795											
10	790	10.00 - 15.00 ML, clayey SILT with trace sand, light orange brown, W<PL, firm, cohesive	ML		790.4 10.00	1	SS	3-4-5	9	1.50 1.50		
15	785	15.00 - 20.00 ML, clayey SILT with some sand, orange brown, saprolite, W<PL, soft to firm, cohesive	ML		785.4 15.00	2	SS	2-2-9	11	1.50 1.50		
20	780	20.00 - 25.00 MLS, sandy SILT with trace gravel, dark brown, saprolite, non-cohesive, moist, very dense	MLS		780.4 20.00	3	SS	9-14-44	>50	1.00 1.50		
25	775	25.00 - 28.90 SM, silty SAND with some gravel, fine to coarse sand, dark grey, saprolite, moist to wet, very dense	SM		775.4 25.00	4	SS	50/5	>50	0.40 0.40		
30	770	28.90 - 33.80 SM, silty SAND, dark grey, saprolite, moist to wet, very dense	SM		771.5 28.90	5	SS	50/4	>50	0.30 0.30		
35	765	33.80 - 38.80 SM, silty SAND with gravel, white and grey, augen gneiss, moist to wet, very dense	SM		766.6 33.80	6	SS	50/4	750	0.30 0.30		
40	760	Boring completed at 42.00 ft										

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-88

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 72.40 ft
 LOCATION: North end of site along fence

DRILL RIG: CME 550
 DATE STARTED: 11/15/19
 DATE COMPLETED: 11/15/19

NORTHING: 1,394,401.10
 EASTING: 2,203,738.30
 GS ELEVATION: 817.0
 TOC ELEVATION: 820.07 ft

DEPTH W.L.: 31.47
 ELEVATION W.L.: 785.53
 DATE W.L.: 1/13/2020
 TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	815	0.00 - 10.00 Hydrovac to 10.00' to for utilities									AquaGuard Bentonite - Grout	WELL CASING Interval: 0'-72' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 62'-72' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 60'-72' Type: Filter Media FILTER PACK SEAL Interval: 55'-60' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-55' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
10	805	10.00 - 15.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM	[Vertical lines]	807 10.00							
15	800	15.00 - 19.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM	[Vertical lines]	802 15.00	1	SS	6-5-2	7	1.50 1.50		
20	795	19.00 - 20.00 CL-ML, silt CLAY with some sand, brown, W<PL, firm	CL-ML	[Diagonal lines]	798 19.00	2	SS	7-5-2	7	1.50 1.50		
20	795	20.00 - 25.00 SM, silty SAND with some clay, fine to medium sand, orange and tan, low to no plasticity, W<PL, firm, cohesive	SM	[Vertical lines]	797 20.00							
25	790	25.00 - 30.00 SM, silty SAND with some clay, fine to medium sand, orange and tan with white, saprolite, low to no plasticity, W<PL, firm, cohesive	SM	[Vertical lines]	792 25.00	3	SS	2-5-3	8	1.50 1.50		
30	785	30.00 - 34.00 SM, silty SAND with some clay, fine to medium sand, orange to tan with brown, saprolite, low to no plasticity, W<PL, firm, cohesive	SM	[Vertical lines]	787 30.00	4	SS	2-2-5	7	1.50 1.50		
35	780	34.00 - 35.00 SM, silty SAND with some clay, fine sand, white, gneissic saprolite, non-cohesive, dense, dry	SM	[Vertical lines]	783 34.00	5	SS	5-13-20	33	1.50 1.50		
35	780	35.00 - 40.00 SM, silty SAND, white and grey, fine to medium sand, saprolite, dry, dense	SM	[Vertical lines]	782 35.00							
40	775	40.00 - 44.40 ML, clayey SILT with trace sand and gravel, grey and brown some orange, saprolite, W<PL, very dense	ML	[Green diagonal lines]	777 40.00	6	SS	13-25-26	51	1.00 1.50		
45		Log continued on next page	SP	[Vertical lines]	772.6 44.40	7	SS	13-50/4	<50	0.90 0.90		

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-88

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 72.40 ft
 LOCATION: North end of site along fence

DRILL RIG: CME 550
 DATE STARTED: 11/15/19
 DATE COMPLETED: 11/15/19

NORTHING: 1,394,401.10
 EASTING: 2,203,738.30
 GS ELEVATION: 817.0
 TOC ELEVATION: 820.07 ft

DEPTH W.L.: 31.47
 ELEVATION W.L.: 785.53
 DATE W.L.: 1/13/2020
 TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45	770	44.40 - 48.80 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense. PWR at 48.50 feet bgs. (Continued)	SP		768.2	8	S	50/4	<50	0.30	<p>0.010" Slotted Schedule 40 PVC</p>	<p>WELL CASING Interval: 0'-72' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p>WELL SCREEN Interval: 62'-72' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 60'-72' Type: Filter Media</p> <p>FILTER PACK SEAL Interval: 55'-60' Type: PEL-PLUG 3/8"</p> <p>ANNULUS SEAL Interval: 0'-55' Type: AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
50	765	48.80 - 54.40 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense	SP		48.80	9	S	33-50/3	<50	0.90		
55	760	54.40 - 59.40 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense	SP-SM		762.6	10	S	23-50/4	<50	0.90		
60	755	59.40 - 63.80 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense	SP-SM		757.6	11	S	50/3	<50	0.30		
65	750	63.80 - 69.00 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, wet, very dense	SP-SM		753.2	12	S	38-50/1	<50	0.50		
70	745	Boring completed at 72.40 ft			748					0.50		

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-89

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 49.50 ft
 LOCATION: North of site in cement plant lot, next to retaining wall

DRILL RIG: CME 550
 DATE STARTED: 11/19/19
 DATE COMPLETED: 11/19/19

NORTHING: 1,394,398.40
 EASTING: 2,204,049.40
 GS ELEVATION: 822.6
 TOC ELEVATION: 822.36 ft

DEPTH W.L.: 21.78
 ELEVATION W.L.: 800.82
 DATE W.L.: 1/13/2020
 TIME W.L.: 16:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	820	0.00 - 10.00 Hydrovac to 10.00' to for utilities									AquaGuard Bentonite - Grout #2 FilterSil - PEL-PLUG 3/8" Bentonite Pellets 0.010" Slotted	WELL CASING Interval: 0'-49.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 39.5'-49.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 33.5'-49.5' Type: Filter Media FILTER PACK SEAL Interval: 28.5'-33.5' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-28.5' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
10	810	10.00 - 14.80 CL, clayey SILT with some sand and trace gravel, grey brown, cohesive, low to no plasticity, W<PL, firm to stiff	ML		812.6 10.00	1	SS	9-21-50/4	>50	1.20 1.30		
15	805	14.80 - 20.00 MLS, sandy SILT with some gravel, brown and dark grey, compact, dry, non cohesive	MLS		807.8 14.80	2	SS	5-10-19	29	1.30 1.50		
20	800	20.00 - 25.00 CL, clayey SILT with some sand, grey and brown, saprolite, cohesive, W<PL, firm	ML		802.6 20.00	3	SS	9-17-18	35	1.30 1.50		
25	795	25.00 - 29.00 CL, clayey SILT with some sand and trace gravel, grey and brown, highly weathered, saprolite, cohesive, W<PL, firm	ML		797.6 25.00	4	SS	10-19-23	42	1.50 1.50		
30	790	29.00 - 32.50 SP, gravelly SAND with some silt, grey to brown, PWR, non-cohesive, dense, dry	SP		793.6 29.00	5	CORE			2.50 2.50		
35	785	32.50 - 35.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong			790.1 32.50							
40	780	35.00 - 40.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong			787.6 35.00							
45		40.00 - 44.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong			782.6 40.00							
		Log continued on next page			778.6 44.00							

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-89


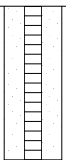
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 49.50 ft
 LOCATION: North of site in cement plant lot, next to retaining wall

DRILL RIG: CME 550
 DATE STARTED: 11/19/19
 DATE COMPLETED: 11/19/19

NORTHING: 1,394,398.40
 EASTING: 2,204,049.40
 GS ELEVATION: 822.6
 TOC ELEVATION: 822.36 ft

DEPTH W.L.: 21.78
 ELEVATION W.L.: 800.82
 DATE W.L.: 1/13/2020
 TIME W.L.: 16:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45		44.00 - 49.50 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong (Continued)									Schedule 40 PVC 	WELL CASING Interval: 0'-49.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 39.5'-49.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 33.5'-49.5' Type: Filter Media FILTER PACK SEAL Interval: 28.5'-33.5' Type: PEL-PLUG 3/8" ANNULUS SEAL Interval: 0'-28.5' Type: AquaGuard Bentonite Grout WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
775			773.1									
50		Boring completed at 49.50 ft										
770												
770												
55												
765												
60												
760												
65												
755												
70												
750												
75												
745												
80												
740												
85												
735												
90												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT_8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-90

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 33.40 ft
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
 DATE STARTED: 12/10/19
 DATE COMPLETED: 12/10/19

NORTHING: 1,394,501.00
 EASTING: 2,203,212.60
 GS ELEVATION: 784.2
 TOC ELEVATION: 784.00 ft

DEPTH W.L.: 0.88
 ELEVATION W.L.: 783.32
 DATE W.L.: 1/14/2020
 TIME W.L.: 12:32

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 6.00 CL, sandy CLAY, some gravel; gray to dark gray, cohesive, w > PL, wet	CLS		778.2				<p>WELL CASING Interval: 0'-33.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p>WELL SCREEN Interval: 23.4'-33.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 21.4'-33.4' Type: #2 FilterSil</p> <p>FILTER PACK SEAL Interval: 15.4'-21.4' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-15.4' Type: AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
5	780	6.00 - 10.00 ML, sandy SILT, medium to coarse sand, some clay, trace gravel; light brown, cohesive, w ~ PL, wet	MLS		775				
10	775	10.00 - 15.00 CL, sandy CLAY, medium to coarse sand; light brown, w ~ PL	CLS		770				
15	770	15.00 - 23.00 SM, silty SAND, medium to coarse, some clay; light brown, wet	SM		765				
20	765	23.00 - 33.00 SM, silty SAND, medium to coarse, some clay, some subround to subangular gravel as feldspar and quartz; light brown to brown, wet, flowing	SM		750				
35	750	Boring completed at 33.40 ft			751.2	33.00			

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-91

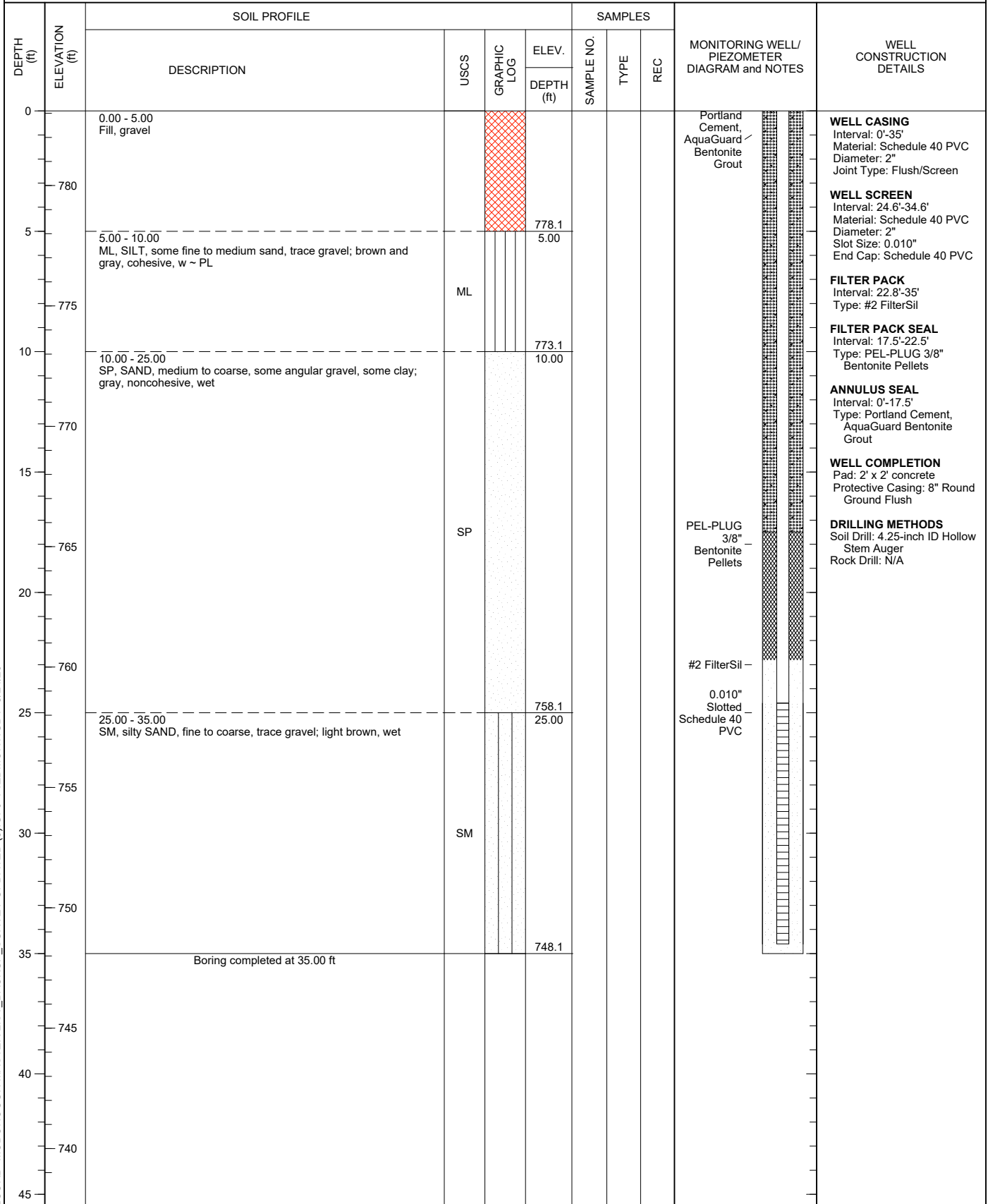
SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 35.00 ft
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
 DATE STARTED: 12/11/19
 DATE COMPLETED: 12/11/19

NORTHING: 1,394,447.10
 EASTING: 2,203,123.90
 GS ELEVATION: 783.1
 TOC ELEVATION: 782.98 ft

DEPTH W.L.: 2.90
 ELEVATION W.L.: 780.2
 DATE W.L.: 1/14/2020
 TIME W.L.: 12:34



BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT_GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-92

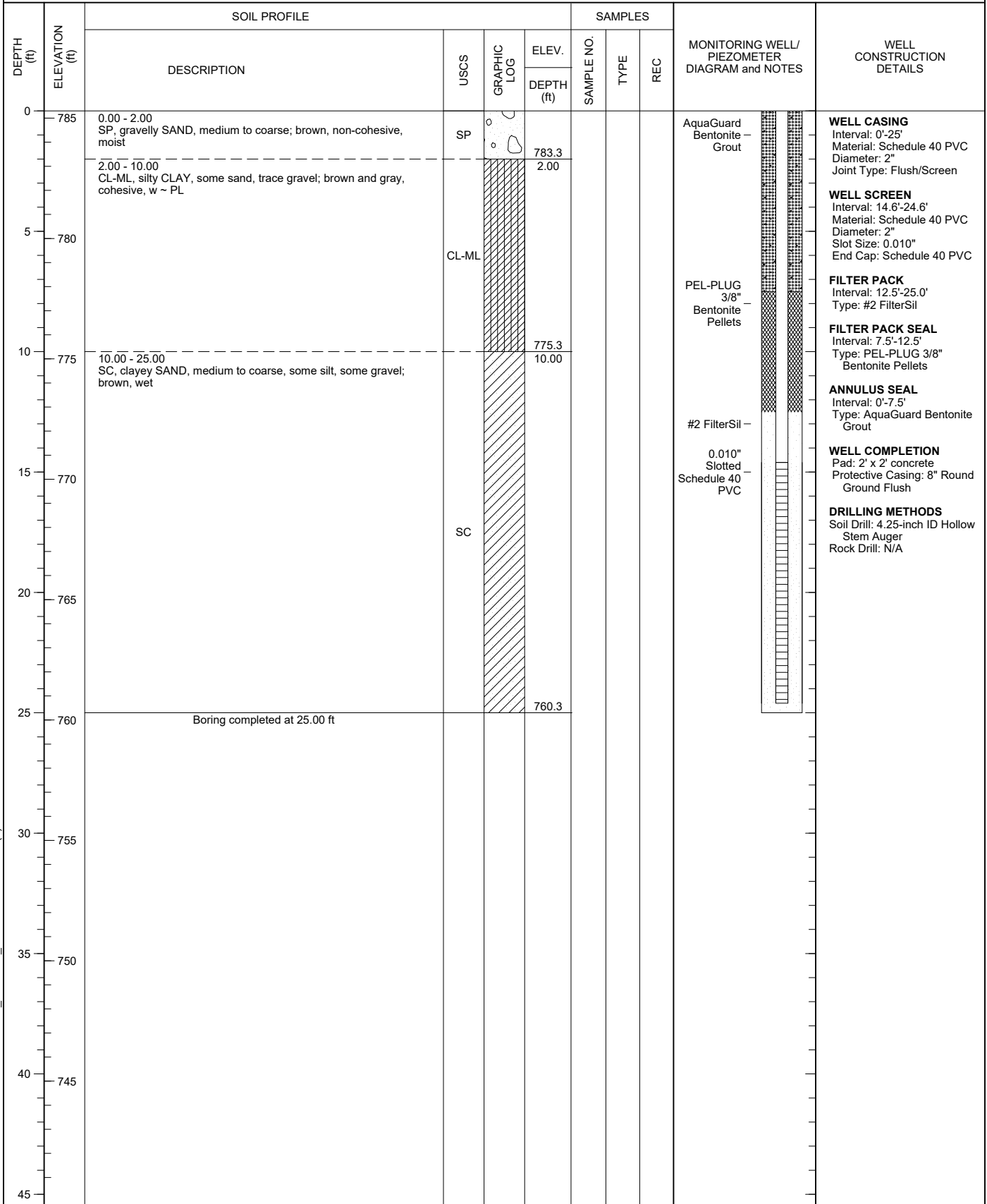
SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 25.00 ft
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
 DATE STARTED: 12/11/19
 DATE COMPLETED: 12/11/19

NORTHING: 1,394,392.70
 EASTING: 2,203,026.70
 GS ELEVATION: 785.3
 TOC ELEVATION: 785.08 ft

DEPTH W.L.: 3.88
 ELEVATION W.L.: 781.42
 DATE W.L.: 1/14/2020
 TIME W.L.: 12:36



BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-93

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 29.20 ft
 LOCATION: West of site on site along Plant Atkinson Road

DRILL RIG: CME 550
 DATE STARTED: 12/12/19
 DATE COMPLETED: 12/12/19

NORTHING: 1,394,348.70
 EASTING: 2,202,946.70
 GS ELEVATION: 789.2
 TOC ELEVATION: 789.07 ft

DEPTH W.L.: 4.86
 ELEVATION W.L.: 784.34
 DATE W.L.: 1/14/2020
 TIME W.L.: 12:38

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 5.00 SC, clayey SAND, fine to coarse; brown and orange-brown, non-cohesive, moist	SC		784.2				<p style="font-size: small;">Portland Cement, AquaGuard Bentonite Grout</p> <p style="font-size: small;">PEL-PLUG 3/8" Bentonite Pellets</p> <p style="font-size: small;">#2 FilterSil</p> <p style="font-size: small;">0.010" Slotted Schedule 40 PVC</p>	<p>WELL CASING Interval: 0'-29.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p>WELL SCREEN Interval: 18.9'-28.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 16.9'-29.2' Type: #2 FilterSil</p> <p>FILTER PACK SEAL Interval: 11.9'-16.9' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-11.9' Type: Portland Cement, AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A</p>
5	785	5.00 - 10.00 ML, clayey SILT, some sand, trace gravel; brown to light brown, cohesive, w < PL	ML		5.00					
10	780	10.00 - 15.00 ML, sandy SILT, coarse sand, some clay; gray-brown, cohesive, w < PL	ML		779.2					
15	775	15.00 - 20.00 ML, sandy SILT, coarse sand, some clay; brown, cohesive, w ~ PL	ML		774.2					
20	770	20.00 - 29.20 SM, silty SAND, fine to coarse, some clay, trace gravel; brown and gray-brown, wet	SM		769.2					
30	760	Boring completed at 29.20 ft				760				

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-94


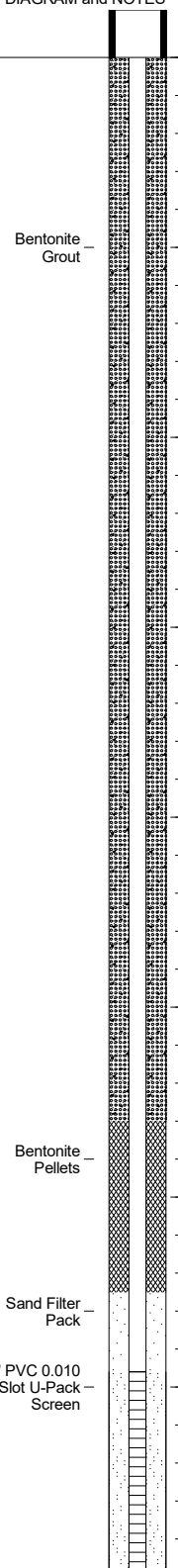


SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.24 ft
 LOCATION: Northeast side, on property line

DRILL RIG: CME 550
 DATE STARTED: 1/21/20
 DATE COMPLETED: 1/23/20

NORTHING: 1,394,402.00
 EASTING: 2,203,513.70
 GS ELEVATION: 799.2
 TOC ELEVATION: 801.74 ft

DEPTH W.L.: 13.81 ft bTOC
 ELEVATION W.L.: 770.49
 DATE W.L.: 1/28/2020
 TIME W.L.: 16:44

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 9.00 CL, silty CLAY, medium plasticity, some sand; reddish brown, cohesive, w > PL, soft	CL		790.2	S-01	GRAB			0.00 0.75	 <p>Bentonite Grout</p> <p>Bentonite Pellets</p> <p>Sand Filter Pack</p> <p>3" PVC 0.010 Slot U-Pack Screen</p>	<p>WELL CASING Interval: 0 ft-bgs - 45 ft-bgs Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush</p> <p>WELL SCREEN Interval: 34.6 ft-bgs - 44.6 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 32.5 ft-bgs - 44.6 ft-bgs Type: FilterSII Sand</p> <p>FILTER PACK SEAL Interval: 28 ft-bgs - 32.5 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0 ft-bgs - 28 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 4' x 4' Concrete Pad Protective Casing: Aluminum Riser</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A</p>
795					9.00	S-02	DO	2-2-4	6	1.50 1.50		
5		9.00 - 13.50 ML, SILT, non-plastic, trace sand; orange-brown, micaceous, non-cohesive, moist, firm to stiff	ML		785.7	S-03	DO	18-24-33	57	1.50 1.50		
10					13.50	S-04	DO	6-10-20	30	1.50 1.50		
15		13.50 - 45.24 SM, silty SAND, fine; mottled tan-brown and white, micaceous, saprolitic, non-cohesive, dry to moist, very dense	SM			S-05	DO	4-5-16	21	1.42 1.50		
18.50		18.50: Compact				S-06	DO	21-24-22	46	1.08 1.50		
20						S-07	DO	10-50	50/4	0.83 0.83		
25						S-08	DO	50	50/3	0.25 0.25		
28		28.50: Trace quartz gravel from pegmatitic vein, dense				S-09	DO	50	50/5	0.42 0.42		
30		30.00: Trace quartz gravel, very dense				S-10	DO	50	50/4	0.33 0.33		
35						S-11	DO	50	50/3	0.58 0.25		
37.50		37.50: 1.0" pegmatitic vein consisting of potassium feldspar and plagioclase feldspar				S-12	DO	50	50/4	0.83 0.83		
40						S-13	DO	19-50	50/2	0.17 0.17		

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Heather Brissey & Michael Boatman PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-94

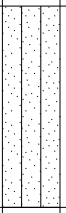
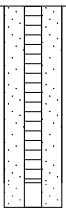
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 45.24 ft
 LOCATION: Northeast side, on property line

DRILL RIG: CME 550
 DATE STARTED: 1/21/20
 DATE COMPLETED: 1/23/20

NORTHING: 1,394,402.00
 EASTING: 2,203,513.70
 GS ELEVATION: 799.2
 TOC ELEVATION: 801.74 ft

DEPTH W.L.: 13.81 ft bTOC
 ELEVATION W.L.: 770.49
 DATE W.L.: 1/28/2020
 TIME W.L.: 16:44

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE		
40		13.50 - 45.24 SM, silty SAND, fine; mottled tan-brown and white, micaceous, saprolitic, non-cohesive, dry to moist, very dense (<i>Continued</i>) 42.00: Trace gravel	SM		S-14	DO	50	50/2	0.17 0.17		WELL CASING Interval: 0 ft-bgs - 45 ft-bgs Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush WELL SCREEN Interval: 34.6 ft-bgs - 44.6 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 32.5 ft-bgs - 44.6 ft-bgs Type: FilterSII Sand FILTER PACK SEAL Interval: 28 ft-bgs - 32.5 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0 ft-bgs - 28 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout WELL COMPLETION Pad: 4' x 4' Concrete Pad Protective Casing: Aluminum Riser DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A
					S-15	DO	8-26-50	76/10	0.83 0.83		
755					S-16	DO	50	50/4	0.33 0.33		
45					Boring completed at 45.24 ft						
45				753.96							
750											
50											
750											
55											
745											
60											
740											
65											
735											
70											
730											
75											
725											
80											

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Heather Brissey & Michael Boatman PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/11/20



RECORD OF BOREHOLE B-95

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 33.30 ft
 LOCATION: East of B-96

DRILL RIG: CME 550
 DATE STARTED: 2/11/20
 DATE COMPLETED: 2/11/20

NORTHING: 1,394,518.60
 EASTING: 2,203,167.70
 GS ELEVATION: 784.3
 TOC ELEVATION: 784.00 ft

DEPTH W.L.: 1.7 ft bTOC
 ELEVATION W.L.: 782.3
 DATE W.L.: 2/26/2020
 TIME W.L.: 13:49

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 10.00 Hydro Vac'd for utilities clearance									<p style="font-size: small;">Bentonite Grout Bentonite Pellets Sand Filter Pack 3" PVC 0.010 Slot U-Pack Screen</p>	<p>WELL CASING Interval: 0 ft-bgs - 33.3 ft-bgs Material: PVC Diameter: 2" Joint Type: Flush</p> <p>WELL SCREEN Interval: 23 ft-bgs - 33 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: 4"</p> <p>FILTER PACK Interval: 20.8 ft-bgs - 33.3 ft-bgs Type: FilterSil Sand</p> <p>FILTER PACK SEAL Interval: 17.5 ft-bgs - 20.5 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0 ft-bgs - 17.5 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2'x2' Concrete Pad Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A</p>
780												
775												
770		13.50 - 33.30 SANDY SILT, low plasticity, fine grained sand; brown; non-cohesive, wet, loose			774.3 10.00							
770					770.8 13.50	S-01	DO	3-3-4	7	N/A 1.50		
765		18.50: SANDY SILT, low plasticity, fine grained sand; tan, orange, bronze, laminated, saprolite (gneiss parent rock), micaceous; non-cohesive, moist, very dense				S-02	DO	14-27-27	54	N/A 1.50		
760		23.50: Trace fine gravel	ML			S-03	DO	8-50	50/5	N/A 0.92		
755		28.50: Compact				S-04	DO	3-2-8	10	N/A 1.50		
750		Boring completed at 33.30 ft			751							
745												
740												
735												
730												
725												
720												
715												
710												
705												
700												
695												
690												
685												
680												
675												
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490												
485												
480												
475												
470												
465												
460												
455												
450												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/2/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Heather Brissey
 CHECKED BY: Timothy Richards, PG
 DATE: 4/28/20



RECORD OF BOREHOLE B-96

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 33.10 ft
 LOCATION: North side of AP4

DRILL RIG: CME 550
 DATE STARTED: 2/10/20
 DATE COMPLETED: 2/10/20

NORTHING: 1,394,478.70
 EASTING: 2,203,099.30
 GS ELEVATION: 785.3
 TOC ELEVATION: 784.92 ft

DEPTH W.L.: 4.31 ft bTOC
 ELEVATION W.L.: 780.61
 DATE W.L.: 2/26/2020
 TIME W.L.: 15:14

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	785	0.00 - 10.00 Hydro Vac'd for utilities clearance										WELL CASING Interval: 0 ft-bgs - 33.1 ft-bgs Material: PVC Diameter: 2" Joint Type: Flush WELL SCREEN Interval: 23.1 ft-bgs - 33.1 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: 4" FILTER PACK Interval: 20 ft-bgs - 33.1 ft-bgs Type: FilterSil Sand FILTER PACK SEAL Interval: 15.8 ft-bgs - 20 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0 ft-bgs - 15.8 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout WELL COMPLETION Pad: 2'x2' Concrete Pad Protective Casing: 8" Round Flush Mount DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A
5	780											
10	775											
13.50	771.8											
13.50 - 33.10	771.8	SILTY SAND, low to no plasticity; light grey, saprolitic (gneiss parent rock); non-cohesive, dry to moist, very dense										
15	770				S-01	DO	50	50/5	0.17 0.50			
20	765				S-02	DO	4-50	50/3	0.50 1.00			
23.50	760	grey to tan	SM		S-03	DO	17-50	50/5	1.00 1.00			
28.50	755	Iron staining			S-04	DO	5-26-50	76/11	1.30 1.50			
33.10	752.2	Boring completed at 33.10 ft										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
 CHECKED BY: Timothy Richards, PG
 DATE: 4/28/20



RECORD OF BOREHOLE B-97

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 31.00 ft
 LOCATION: East of B-98

DRILL RIG: CME 550
 DATE STARTED: 2/11/20
 DATE COMPLETED: 2/11/20

NORTHING: 1,394,430.00
 EASTING: 2,203,008.30
 GS ELEVATION: 786.6
 TOC ELEVATION: 786.29 ft

DEPTH W.L.: 3.24 ft bTOC
 ELEVATION W.L.: 783.05
 DATE W.L.: 2/27/2020
 TIME W.L.: 10:54

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	785	0.00 - 10.00 Hydro Vac'd for utilities clearance										<p>WELL CASING Interval: 0 ft-bgs - 31.7 ft-bgs Material: PVC Diameter: 2" Joint Type: Flush</p> <p>WELL SCREEN Interval: 21.3 ft-bgs - 31.3 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: 4"</p> <p>FILTER PACK Interval: 13.5 ft-bgs - 21.3 ft-bgs Type: FilterSil Sand</p> <p>FILTER PACK SEAL Interval: 7.5 ft-bgs - 13.5 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0 ft-bgs - 7.5 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2'x2' Concrete Pad Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: HQ Core Barrell</p>
5	780											
10	775											
15	770	13.50 - 16.00 gravelly SILTY SAND, no plasticity, medium grained sand, coarse gravel; tan to dark brown; non-cohesive, moist, compact	SM		776.6 10.00	773.1 13.50	S-01	DO	15-17-15	32		
20	765	16.00 - 31.70 Fresh, foliated, dark grey and white, fine to coarse grained, strong, GNEISS			770.6 16.00							
25	760											
30	755	29.00: Slightly weathered, porous, medium strong										
35	750	Boring completed at 31.00 ft										
40	745											
45												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: S. Milam

GA INSPECTOR: Heather Brissey
 CHECKED BY: Timothy Richards, PG
 DATE: 4/28/20



RECORD OF BOREHOLE B-98

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 19.40 ft
 LOCATION: West of B-97

DRILL RIG: Geoprobe 7822DT
 DATE STARTED: 2/10/20
 DATE COMPLETED: 2/10/20

NORTHING: 1,394,392.50
 EASTING: 2,202,934.00
 GS ELEVATION: 789.8
 TOC ELEVATION: 789.67 ft

DEPTH W.L.: 5.33 ft bTOC
 ELEVATION W.L.: 784.34
 DATE W.L.: 2/27/2020
 TIME W.L.: 10:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 10.00 Hydro Vac'd for utilities clearance							<p>WELL CASING Interval: 0 ft-bgs - 19.4 ft-bgs Material: PVC Diameter: 2" Joint Type: Flush</p> <p>WELL SCREEN Interval: 9 ft-bgs- 19 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: 4"</p> <p>FILTER PACK Interval: 7 ft-bgs - 9 ft-bgs Type: FilterSil Sand</p> <p>FILTER PACK SEAL Interval: 4 ft-bgs - 7 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0 ft-bgs - 4 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout</p> <p>WELL COMPLETION Pad: 2'x2' Concrete Pad Protective Casing: 8" Round Flush Mount</p> <p>DRILLING METHODS Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A</p>
5	785								
10	780	10.00 - 19.40 Augered through with Geoprobe. No Soil data collected		779.8 10.00					
15	775								
20	770	Boring completed at 19.40 ft		770.4					
25	765								
30	760								
35	755								
40	750								
45	745								

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade
 DRILLER: Eladio Gonzalaz

GA INSPECTOR: Heather Brissey
 CHECKED BY: Timothy Richards, PG
 DATE: 4/28/20



RECORD OF BOREHOLE B-99

SHEET 1 of 1

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 12.30 ft
 LOCATION: Smyrna, GA

DRILL RIG: CME 550X
 DATE STARTED: 7/7/20
 DATE COMPLETED: 7/7/20

NORTHING: 1,394,524.20
 EASTING: 2,203,084.50
 GS ELEVATION: 782.6
 TOC ELEVATION: 782.39 ft

DEPTH W.L.: 5.93
 ELEVATION W.L.: 776.46
 DATE W.L.: 7/7/20
 TIME W.L.: 16:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	780	0.00 - 5.00 GRAVEL WITH SILT; non-native, brown to brown-tan with some red, silty, poorly graded gravel with some concrete fill, some organics, slightly weathered, non-cohesive, moist to wet, loose to compact (fill)	GW-GM	777.6					<p>WELL CASING Interval: 0'-12'3" Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam</p> <p>WELL SCREEN Interval: 7'3"-12'3" Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 5"-12'3" Type: Filtersil std61</p> <p>FILTER PACK SEAL Interval: 3'-5" Type: 3/8" Coated Pel-Plug</p> <p>ANNULUS SEAL Interval: 0'-3" Type: Aquagaurd Bentonite Grout</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Auger Rock Drill:</p>	
5	775	5.00 - 9.00 GRAVEL WITH SILT; non-native, brown to brown tan with red, silty, poorly graded gravel with some concrete fill, some organics, slightly weathered, non-cohesive, wet, loose to compact (fill)	GW-GM	773.6	R1		12.30			
10	770	9.00 - 12.30 SILTY GRAVEL; brown, tan and red, non-cohesive, wet, loose to compact (mix of fill and saprolite)	GM	770.3						
15	765	Boring completed at 12.30 ft								
20	760									
25	755									
30	750									
35	745									
40	740									
45										

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 8/24/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: SCS CFS
 DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 8/24/2020



RECORD OF BOREHOLE B-100

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 44.80 ft
 LOCATION: Smyrna, GA

DRILL RIG: CME 550X
 DATE STARTED: 7/8/20
 DATE COMPLETED: 7/8/20

NORTHING: 1,390,254.80
 EASTING: 2,202,242.10
 GS ELEVATION: 775.3
 TOC ELEVATION: 777.95 ft

DEPTH W.L.: 34.78
 ELEVATION W.L.: 743.17
 DATE W.L.: 7/8/20
 TIME W.L.: 15:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	775	0.00 - 11.00 SILT-SILTY GRAVEL; mix of topsoil, residuum, fill, rip-rap boulders, soil; clayey silt, red-brown, micaceous, moist, moderately weathered, non-cohesive, moist, (backfilled cuttings)	ML-GM		775.0 764.3 11.00	R1	AUGER			0.00 11.00	<p>WELL CASING Interval: 0'-44'8" Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam</p> <p>WELL SCREEN Interval: 34'8"-44'8" Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 32'2"-44'8" Type: Filtersil std61</p> <p>FILTER PACK SEAL Interval: 30'-32'2" Type: 3/8" Coated Pel-Plug</p> <p>ANNULUS SEAL Interval: 2'-30' Type: Aquagard Bentonite Grout</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Auger Rock Drill:</p>
5	770										
10	765										
15	760	13.50 - 15.00 SILT; with sand, gravel and trace clay, red-brown, highly weathered, non-cohesive, dry to moist, loose to compact	ML		761.8 13.50 760.3 15.00	R2	SS	3-3-2		1.45 1.50	
20	755	18.50 - 20.00 SILTY SAND; heavy organic matter (wood), red-brown with black organic matter, moderately weathered, non-cohesive, dry, loose	SM		756.8 18.50 755.3 20.00	R3	SS	3-3-2		0.60 1.50	
25	750	23.50 - 25.00 CLAYEY SAND; some organic matter, brown, slightly weathered, cohesive, w<PL, soft	SC		751.8 23.50 750.3 25.00	R4	SS	2-1-2		1.60 1.50	
30	745	28.50 - 30.00 CLAYEY SAND WITH SILT; trace organic matter, brown with some red, micaceous, moderately weathered, cohesive, w>PL, firm to soft, moist to wet	SC-SM		746.8 28.50 745.3 30.00	R5	SS	1-2-1		1.50 1.50	
35	740	33.50 - 35.00 CLAYEY SAND; some silt, red with some brown, highly weathered trace mica, cohesive, w>PL, wet, soft to very soft, trace gravel	SC		741.8 33.50 740.3 35.00	R6	SS	WH-WH-2		1.40 1.50	
40	735	38.50 - 40.00 CLAYEY SAND; some gravel of gneiss (bottom 0.5'), black-brown with red, highly	SC		736.8 38.50 735.3	R7	SS	2-6-22		1.30 1.50	

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: SCS CFS
 DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 8/24/2020



Log continued on next page

3" PVC 0.010

RECORD OF BOREHOLE B-100

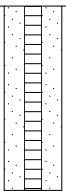

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 44.80 ft
 LOCATION: Smyrna, GA

DRILL RIG: CME 550X
 DATE STARTED: 7/8/20
 DATE COMPLETED: 7/8/20

NORTHING: 1,390,254.80
 EASTING: 2,202,242.10
 GS ELEVATION: 775.3
 TOC ELEVATION: 777.95 ft

DEPTH W.L.: 34.78
 ELEVATION W.L.: 743.17
 DATE W.L.: 7/8/20
 TIME W.L.: 15:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
					DEPTH (ft)							
40	735	weathered, non-cohesive, wet, loose to compact			40.00						Slot U-Pack Screen 	WELL CASING Interval: 0'-44'8" Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 34'8"-44'8" Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 32"-44'8" Type: Filtersil std61 FILTER PACK SEAL Interval: 30'-32'2" Type: 3/8" Coated Pel-Plug ANNULUS SEAL Interval: 2'-30" Type: Aquagaurd Bentonite Grout WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: Auger Rock Drill:
		42.50 - 45.00 CLAYEY SAND; some gravel, red with black and brown, highly weathered, cohesive, w-PL, firm to soft, micaceous schist gravel	SC		732.8 42.50	R8	SS	4-5-12	0.00 1.50			
45	730	Boring completed at 44.80 ft			730.3 45.00							
50	725											
55	720											
60	715											
65	710											
70	705											
75	700											
80												

BOREHOLE RECORD_MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ_PIEDMONT.GDT 9/22/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: SCS CFS
 DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 8/24/2020



RECORD OF BOREHOLE B-101D

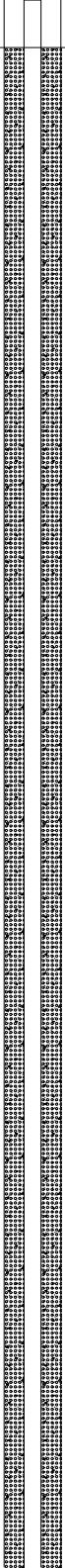
SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 75.00 ft
 LOCATION: Next to DGWC-9

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/11/20
 DATE COMPLETED: 11/12/20

NORTHING: 1394063.6
 EASTING: 2204168.2
 GS ELEVATION: 821.2 ft
 TOC ELEVATION: 824.29 ft

DEPTH W.L.: 34.0
 ELEVATION W.L.: 790.3
 DATE W.L.: 11/12/20
 TIME W.L.: 0954

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL	[Cross-hatched pattern]					Stick-up - 	B-101D Borehole Diameter: 4" WELL CASING Interval: 0-75' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 64.9'-74.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 62.5'-75.0' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 59.0'-62.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-59.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons NOTES
5										
10		10.00 - 15.00 (SM), SILTY SAND; tannish brown to reddish brown, low plasticity, w<pl, dry, loose to soft	SM	[Dotted pattern]	10.00					
15		15.00 - 16.00 (TWR), TRANSITIONALLY WEATHERED ROCK; dark gray, deeply weathered, fine to medium, poorly jointed	TWR	[Blue triangles]	15.00	1	ROTO SONIC	8.00 10.00		
16		16.00 - 20.00 (CL), CLAY; some sand, reddish brown, fine to coarse, low plasticity, w<PL, soft, moist to wet	CL	[Diagonal lines]	16.00					
20		20.00 - 23.00 (ML), SILT; trace to some gravels, reddish brown, low plasticity, w<PL, very soft, wet	ML	[Vertical lines]	20.00	2	ROTO SONIC	4.00 5.00		
23		23.00 - 25.00 (SM), SILTY SAND; trace gravels, tannish brown to gray, non-plastic, w<PL, loose, dry, TWR	TWR	[Blue triangles]	23.00					
25		25.00 - 35.00 NO RECOVERY; material washed out of core barrel after switching to rock coring methods based on the TWR at the 23-25' interval.	NR		25.00	3	ROTO SONIC	0.00 10.00		
30										
35		35.00 - 40.00 NO RECOVERY; The core barrel was able to be advanced to depth, but casing was not able to advance to depth. Material was lost while extracting core barrel.	NR		35.00	4	ROTO SONIC	0.00 5.00		
40		40.00 - 50.00 NO RECOVERY; The core barrel was able to be advanced to depth, but casing was not able to advance to depth. Material was lost while extracting core barrel.	NR		40.00	5	ROTO SONIC	0.00 10.00		
45										
50		Log continued on next page								

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-101D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 75.00 ft
 LOCATION: Next to DGWC-9

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/11/20
 DATE COMPLETED: 11/12/20

NORTHING: 1394063.6
 EASTING: 2204168.2
 GS ELEVATION: 821.2 ft
 TOC ELEVATION: 824.29 ft

DEPTH W.L.: 34.0
 ELEVATION W.L.: 790.3
 DATE W.L.: 11/12/20
 TIME W.L.: 0954

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		50.00 - 51.00 (ML), SANDY SILT; grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML		50.00	6	ROTO SONIC	9.50 10.00		B-101D Borehole Diameter: 4" WELL CASING Interval: 0-75' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 64.9'-74.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 62.5'-75.0' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 59.0'-62.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-59.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons NOTES
		51.00 - 52.00 (ML), SILT; trace gravels, schist fragments, grayish tan, non-plastic, non-cohesive, w<PL, loose, dry	ML		51.00					
		52.00 - 52.30 (TWR), TRANSITIONALLY WEATHERED ROCK; deeply weathered, R2, well foliated, fine to medium grain, iron staining.	TWR		52.30					
55		52.30 - 60.00 (ML), SANDY SILT; with gravel, grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML			7	ROTO SONIC	2.50 10.00	Sand Filter Pack	
60		60.00 - 70.00 (SCHIST), BEDROCK; well foliated, highly crenulated, poorly jointed, iron staining	BR		60.00					
65						8	ROTO SONIC	3.55 5.00	U-Pack Screen	
70		70.00 - 72.00 (ML), SANDY SILT; grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML		70.00					
		72.00 - 75.00 (SCHIST), BEDROCK; well foliated, highly crenulated, poorly jointed, iron staining	BR		72.00					
75		Boring completed at 75.00 ft								
80										
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-102D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.00 ft
 LOCATION: Next to DGWC-10

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/9/20
 DATE COMPLETED: 11/10/20

NORTHING: 1393828.4
 EASTING: 2204200.4
 GS ELEVATION: 820.6 ft
 TOC ELEVATION: 823.42 ft

DEPTH W.L.: 34.0
 ELEVATION W.L.: 789.4
 DATE W.L.: 11/10/2020
 TIME W.L.: 1444

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up -	<p>B-102D Borehole Diameter: 4" WELL CASING Interval: 0'-85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 74.4'-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.0'-75.4' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 67'-72' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-67' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons</p> <p>NOTES</p>
10		10.00 - 15.50 (CL), CLAY; red brown, trace to some sand, fine grain, w~PL, low plasticity, soft, moist	CL		10.00	1	ROTO SONIC	6.50 10.00		
15		15.50 - 17.50 (ML), SILT; red brown, trace gravels, non-plastic to low plasticity, w<PL, soft, moist	ML		15.50					
17.50		17.50 - 20.00 (ML), SILT; tanish-orange brown to silver, nonplastic to low plasticity, soft to loose	ML		17.50					
20		20.00 - 26.00 (SM), SILTY SAND; bronze, some coarse sand, nonplastic, dry to moist	SM		20.00	2	ROTO SONIC	10.00 10.00		
26		26.00 - 30.00 (SM), SILTY SAND; gray, some coarse sand, nonplastic, non-cohesive, compact, dry to moist	SM		26.00					
30		30.00 - 40.00 (SM), SILTY SAND; gray and orange-brown, non-plastic to low plasticity, firm to compact, dry to moist, soft to firm, contains muscovite	SM		30.00	3	ROTO SONIC	9.00 10.00	AquaGuard Bentonite - Grout	
40		40.00 - 44.00 (SM), SILTY SAND; gray and orange-brown, non-plastic to low plasticity, firm to compact, dry to moist, soft to firm	SM		40.00					
44		44.00 - 46.00 (ML), SILT; gray, non-plastic to lows plasticity, soft, moist,	ML		44.00	4	ROTO SONIC	7.00 10.00		
46		46.00 - 50.00 (SM), SILTY SAND; reddish brown, non-plastic to low plasticity, very soft, wet	SM		46.00					
50		Log continued on next page								

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2), GPJ PIEDMONT.GDT 7/19/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-102D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.00 ft
 LOCATION: Next to DGWC-10

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/9/20
 DATE COMPLETED: 11/10/20

NORTHING: 1393828.4
 EASTING: 2204200.4
 GS ELEVATION: 820.6 ft
 TOC ELEVATION: 823.42 ft

DEPTH W.L.: 34.0
 ELEVATION W.L.: 789.4
 DATE W.L.: 11/10/2020
 TIME W.L.: 1444

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC				
50		50.00 - 51.00 (SM), SILTY SAND; reddish brown, non-plastic to low plasticity, very soft, wet	SM	[Pattern]	50.00	5	ROTO SONIC	5.00 5.00		<p>B-102D Borehole Diameter: 4" WELL CASING Interval: 0'-85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 74.4'-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.0'-75.4' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 67'-72' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-67' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons</p> <p>NOTES</p>		
		51.00 - 55.00 (SM), SILTY SAND; gray, w<PL, fine to compact, dry to moist, contains muscovite	SM	[Pattern]	51.00							
55		55.00 - 60.00 (SM), SILTY SAND; gray to yellow orange, w<PL, fine to stiff, dry to moist, saprolitic	SM	[Pattern]	55.00	6	ROTO SONIC	5.00 5.00				
60		60.00 - 65.00 (ML), SILT; gray to light brown, w<PL, dense, dry	ML	[Pattern]	60.00	7	ROTO SONIC	4.00 5.00				
65		65.00 - 70.00 (TWR), TRANSITIONALLY WEATHERED ROCK; silty sand, gray, low plasticity, w<PL, stiff to hard, dry, saprolitic	TWR	[Pattern]	65.00	8	ROTO SONIC	5.00 5.00				
70		70.00 - 75.00 (SCHIST), BEDROCK, dark gray to black, fine to medium grain, moderately foliated, poorly jointed, high crenulated, weak to strong rock, slightly to moderately weathered, feldspar, muscovite, schist.	BR	[Pattern]	70.00	9	ROTO SONIC	5.00 5.00				
75		75.00 - 85.00 (SCHIST), BEDROCK; dark gray to black, moderately foliated, poorly jointed, high crenulated, weak to strong rock, slightly to moderately weathered, feldspar, muscovite, schist	BR	[Pattern]	75.00	10	ROTO SONIC	7.00 10.00				
85		Boring completed at 85.00 ft										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2), GPJ PIEDMONT.GDT 7/19/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-103D

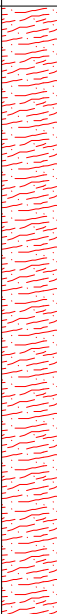
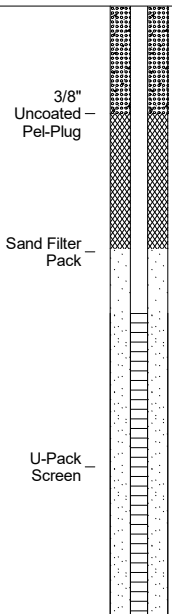
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 70.00 ft
 LOCATION: East of DGWC-47

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/14/20
 DATE COMPLETED: 10/15/20

NORTHING: 1391543.5
 EASTING: 2202614.4
 GS ELEVATION: 793.8 ft
 TOC ELEVATION: 795.96 ft

DEPTH W.L.: 12.0
 ELEVATION W.L.: 783.9
 DATE W.L.: 10/15/2020
 TIME W.L.: 0740

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		40.00 - 70.00 (GNEISS), BEDROCK; light gray-green to dark gray; well foliated, poorly jointed, muscovite, biotite, feldspar, quartz <i>(Continued)</i>	BR							<p>B-103D Borehole Diameter: 4" WELL CASING Interval: 0'-70' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 60'-70' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 57.9'-70.0' Type: FilterSil Quantity: 3, 5-50 lbs bags FILTER PACK SEAL Interval: 53.5'-57.9' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-53.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 40 gallons</p> <p>NOTES</p>
55					7	ROTO SONIC	7.50 10.00			
60								Sand Filter Pack		
65					8	ROTO SONIC	9.65 10.00	U-Pack Screen		
70		Boring completed at 70.00 ft								
75										
80										
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-104D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 60.00 ft
 LOCATION: East of DGWC-48

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/20/20
 DATE COMPLETED: 10/20/20

NORTHING: 1391318.3
 EASTING: 2202298.5
 GS ELEVATION: 785.3 ft
 TOC ELEVATION: 787.90 ft

DEPTH W.L.: 12.0
 ELEVATION W.L.: 775.9
 DATE W.L.: 10/20/2020
 TIME W.L.: 1818

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 10.00 Air knife; FILL	FILL					Stick-up -	<p>B-104D Borehole Diameter: 4" WELL CASING Interval: 0'-60' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 50'-60' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 47.15'-60.0' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 44'-47.15' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-44' Type: AquaGuard Bentonite Grout Quantity: Approximately 40 gallons</p> <p>NOTES</p>
5									
10		10.00 - 12.00 (CL), CLAY; red brown; moist, soft, low plasticity, w<PL, FILL	CL		10.00				
15		12.00 - 22.00 (ML), SILT; dark brown to gray; non-plastic to low plasticity, dry to moist, w<PL, soft to firm	ML		12.00	1	ROTO SONIC	$\frac{8.00}{8.00}$	
20						2	ROTO SONIC	$\frac{4.00}{4.00}$	
25		22.00 - 30.00 (ML), SILT; dark brown; w~PL, moist to wet, soft to firm, contains gravels of biotite gneiss (trace)	ML		22.00	3	ROTO SONIC	$\frac{8.00}{8.00}$	
30		30.00 - 35.00 (TWR), TRANSITIONALLY WEATHERED ROCK; rust brown to gray; deeply weathered biotite gneiss, poorly foliated, poorly jointed, iron staining	TWR		30.00			AquaGuard Bentonite - Grout	
35		35.00 - 55.50 (GNEISS), BEDROCK; biotite, quartz, feldspar, light to dark gray, strong to medium strong, fresh to slightly weathered, locally contains iron staining and garnets	BR		35.00	4	ROTO SONIC	$\frac{6.55}{10.00}$	
40						5	ROTO SONIC	$\frac{2.10}{5.00}$	
45						6	ROTO SONIC	$\frac{4.35}{7.50}$	
50		Log continued on next page						Sand Filter -	

BOREHOLE RECORD - MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT, 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-104D

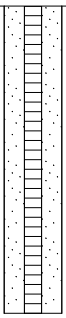
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 60.00 ft
 LOCATION: East of DGWC-48

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/20/20
 DATE COMPLETED: 10/20/20

NORTHING: 1391318.3
 EASTING: 2202298.5
 GS ELEVATION: 785.3 ft
 TOC ELEVATION: 787.90 ft

DEPTH W.L.: 12.0
 ELEVATION W.L.: 775.9
 DATE W.L.: 10/20/2020
 TIME W.L.: 1818

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
50		35.00 - 55.50 (GNEISS), BEDROCK; biotite, quartz, feldspar, light to dark gray, strong to medium strong, fresh to slightly weathered, locally contains iron staining and garnets <i>(Continued)</i>	BR	[Red wavy lines]		6		4.35 7.50	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">Pack</div>  </div>	<p>B-104D Borehole Diameter: 4" WELL CASING Interval: 0'-60' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 50'-60' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 47.15'-60.0' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 44'-47.15' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-44' Type: AquaGuard Bentonite Grout Quantity: Approximately 40 gallons</p> <p>NOTES</p>
55		55.50 - 60.00 (SCHIST), BEDROCK; quartz, muscovite, gray to silver, medium grain, medium strong, fresh to moderately weathered	BR	[Black diagonal lines]	55.50	7	ROTO SONIC	6.15 7.50		
60		Boring completed at 60.00 ft								
65										
70										
75										
80										
85										
90										
95										
100										

BOREHOLE RECORD - MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-105D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 70.00 ft
 LOCATION: East of DGWC-40

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/18/20
 DATE COMPLETED: 10/19/20

NORTHING: 1390634.5
 EASTING: 2201831.9
 GS ELEVATION: 776.0 ft
 TOC ELEVATION: 779.01 ft

DEPTH W.L.: 22.50
 ELEVATION W.L.: 756.5
 DATE W.L.: 10/19/2020
 TIME W.L.: 0950

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up -	<p>B-105D Borehole Diameter: 4" WELL CASING Interval: 0'-70' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 60'-70' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 57.5'-60.0' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 53.75'-57.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-53.75' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
10		10.00 - 15.00 (ML), SILT; red to orange brown, some clay, low plasticity, dry to moist, w<PL, soft to firm, FILL	CL-ML		10.00					
15		15.00 - 27.00 (ML), SILT; olive brown to silvery brown, low plasticity, moist, firm, w<PL, contains muscovite	ML		15.00	1	ROTO SONIC	9.25 10.00		
20			ML			2	ROTO SONIC	6.00 7.50		
27		27.00 - 27.50 (CL), CLAY; white, medium plasticity, firm, moist, w<PL, possible WT	CL		27.50					
27.5		27.50 - 32.50 (ML), SILT; gray/brown, fine grain, low to medium plasticity, moist, w~PL, soft to firm	ML							
32.5		32.50 - 33.80 (SM), SILTY SAND; non-plastic to low plasticity, dry to moist, fine to coarse, w<PL, loose, sand is mica (biotite/muscovite)	SM		32.50	3	ROTO SONIC	8.50 10.00		
33.8		33.80 - 37.50 (ML), SILT; gray/brown, fine grain, low to moderate plasticity, moist, w~PL, soft to firm	ML		33.80				AquaGuard Bentonite - Grout	
37.5		37.50 - 40.00 (ML), SILT; whitish gray, trace fine sand, low plasticity, moist to dry, w~PL, firm/compact, high feldspar	ML		37.50	4	ROTO SONIC	2.50 2.50		
40		40.00 - 45.00 (SM), SILTY SAND; brown to black, non-plastic to low plasticity, moist, w<PL, fine to coarse, compact to loose. Sand particles size is mica, not quartz.	SM		40.00	5	ROTO SONIC	5.00 5.00		
45		45.00 - 50.00 (SM), SILTY SAND; rock flour, trace gravels, tan brown, non-plastic, dry, fine to coarse, w<PL, loose, sand is micaceous, transitions to TWR from 48.8'-50.0'	SM		45.00	6	ROTO SONIC	5.00 5.00		

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-105D

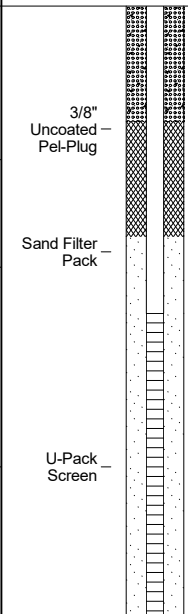
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 70.00 ft
 LOCATION: East of DGWC-40

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/18/20
 DATE COMPLETED: 10/19/20

NORTHING: 1390634.5
 EASTING: 2201831.9
 GS ELEVATION: 776.0 ft
 TOC ELEVATION: 779.01 ft

DEPTH W.L.: 22.50
 ELEVATION W.L.: 756.5
 DATE W.L.: 10/19/2020
 TIME W.L.: 0950

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
50		50.00 - 55.00 (SM), SILTY SAND; brown to black, low to medium plasticity, moist to dry, w<PL, loose/soft, materials is from gneiss (relief structure), TWR	SM	[Graphic Log: Dotted pattern]	50.00	7	ROTO SONIC	5.00 5.00		<p>B-105D Borehole Diameter: 4" WELL CASING Interval: 0'-70' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam</p> <p>WELL SCREEN Interval: 60'-70' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 57.5'-60.0' Type: FilterSil Quantity: 4-50 lbs bags</p> <p>FILTER PACK SEAL Interval: 53.75'-57.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0'-53.75' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
55		55.00 - 70.00 (GNEISS), BEDROCK; light to dark gray, fine to medium grain, well foliated, poorly jointed, fresh to slightly weathered, strong to medium strong	BR	[Graphic Log: Red wavy lines]	55.00	8	ROTO SONIC	2.75 3.50		
60			BR	[Graphic Log: Red wavy lines]		9	ROTO SONIC	4.80 6.50		
65			BR	[Graphic Log: Red wavy lines]		10	ROTO SONIC	4.25 5.00		
70		Boring completed at 70.00 ft								
75										
80										
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-106D

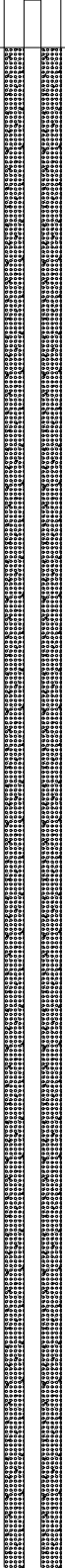
SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 80.00 ft
 LOCATION: North of DGWC-8

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/12/20
 DATE COMPLETED: 11/13/20

NORTHING: 1394327.1
 EASTING: 2203869.2
 GS ELEVATION: 823.5 ft
 TOC ELEVATION: 826.21 ft

DEPTH W.L.: 37.0
 ELEVATION W.L.: 789.2
 DATE W.L.: 11/13/2020
 TIME W.L.: 1652

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up - 	B-106D Borehole Diameter: 4" WELL CASING Interval: 0'-80' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 69.4'-79.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 66.61'-80' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 62.85'-66.61' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-62.85' Type: AquaGuard Bentonite Grout Quantity: NOTES
10		10.00 - 16.75 (ML), SILT; some fine to medium sand, some gravel, moist, firm, w<PL, low to medium plasticity	ML		10.00	1	ROTO SONIC	8.20 10.00		
16.75		16.75 - 18.10 (ML), SILT; some coarse sand, moist, stiff, w<PL	ML		16.75					
18.10		18.10 - 20.00 (CL), CLAY; red to red-brown, some coarse sand, dry to moist, w<PL, soft, some muscovite, Fill	CL		18.10					
20		20.00 - 28.00 (ML), SILT; brown, some fines, very fine to coarse sand, wet, soft to very soft, w<PL, medium plasticity,	ML		20.00	2	ROTO SONIC	10.00 10.00		
28		28.00 - 30.00 (SP), SAND; uniformly graded, some silt, non-cohesive, loose, moist, non-plastic	SP		28.00					
30		30.00 - 32.00 (SM), SILTY SAND; brown, trace gravel, dry to moist, cohesive, firm to stiff, w<PL, low plasticity, some crenulations, saprolitic	SM		30.00	3	ROTO SONIC	5.00 5.00		
32		32.00 - 35.00 (SM), SILTY SAND; dry to moist, cohesive, firm to stiff, w~PL, low to medium plasticity	SM		32.00					
35		35.00 - 40.00 (ML), SANDY SILT; brown, fine to coarse sand, micas, firm to stiff, w>PL, dry to wet	ML		35.00	4	ROTO SONIC	5.00 5.00		
40		40.00 - 45.00 (SM), SILTY SAND; brown, fine to coarse sand, some gravel, schist, quartz vein fragments, micas, firm to stiff, w<PL, moist, medium plasticity	SM		40.00	5	ROTO SONIC	5.00 5.00		
45		45.00 - 47.00 (SM), SILTY SAND; brown, fine to coarse sand, some gravel, schist, quartz vein fragments, micas, stiff to very stiff, w>PL, moist, medium plasticity, saprolitic	SM		45.00	6	ROTO SONIC	2.00		
47		47.00 - 60.00 NO RECOVERY; material too loose and continues to fall out of core barrel	NR		47.00	7	ROTO SONIC	0.00 13.00		

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-106D

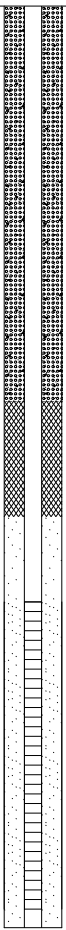
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 80.00 ft
 LOCATION: North of DGWC-8

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/12/20
 DATE COMPLETED: 11/13/20

NORTHING: 1394327.1
 EASTING: 2203869.2
 GS ELEVATION: 823.5 ft
 TOC ELEVATION: 826.21 ft

DEPTH W.L.: 37.0
 ELEVATION W.L.: 789.2
 DATE W.L.: 11/13/2020
 TIME W.L.: 1652

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		47.00 - 60.00 NO RECOVERY; material too loose and continues to fall out of core barrel (Continued)	NR			7	ROTO SONIC	0.00 13.00	 <p style="font-size: small; text-align: center;">3/8" Uncoated - Pel-Plug</p> <p style="font-size: small; text-align: center;">Sand Filter Pack</p> <p style="font-size: small; text-align: center;">U-Pack Screen</p>	<p>B-106D Borehole Diameter: 4" WELL CASING Interval: 0'-80' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 69.4'-79.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 66.61'-80' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 62.85'-66.61' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-62.85' Type: AquaGuard Bentonite Grout Quantity:</p> <p>NOTES</p>
55										
60		60.00 - 65.00 (SCHIST), BEDROCK; silvery blue, well foliated, poorly jointed, moderate to deeply weathered, weak to medium strong rock, iron staining	BR	[Graphic Log]	60.00	8	ROTO SONIC	1.60 5.00		
65		65.00 - 75.00 (BIOTITE GNEISS), BEDROCK; light gray to dark gray, zones of muscovite schistosity, very fine grain, moderate to poor foliation, poorly jointed, fresh to moderately weathered, medium strong, iron staining, feldspar, quartz	BR	[Graphic Log]	65.00	9	ROTO SONIC	5.20 10.00		
70										
75		75.00 - 80.00 (BIOTITE GNEISS), BEDROCK; light gray to dark gray, zones of muscovite schistosity, very fine grain, moderate to poor foliation, poorly jointed, fresh to moderately weathered, medium strong, iron staining, feldspar, quartz	BR	[Graphic Log]	75.00	10	ROTO SONIC	3.40 5.00		
80		Boring completed at 80.00 ft								
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-107D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.75 ft
 LOCATION: Southwest of DGWC-19

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/28/20
 DATE COMPLETED: 10/28/20

NORTHING: 1392334.5
 EASTING: 2202596.4
 GS ELEVATION: 820.6 ft
 TOC ELEVATION: 823.38 ft

DEPTH W.L.: 21.8
 ELEVATION W.L.: 801.6
 DATE W.L.: 10/28/2020
 TIME W.L.: 1440

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up -	<p>B-107D Borehole Diameter: 4" WELL CASING Interval: 0'-85.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 75.1'-85.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.25'-85.5' Type: FilterSil Quantity: 4, 5-50 lbs bags FILTER PACK SEAL Interval: 68.8'-72.25' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon ANNULUS SEAL Interval: 0'-68.8' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
10		10.00 - 20.00 (CL-ML), SILTY and CLAY; red brown to brown, trace sand, low to medium plasticity, soft to firm, moist, contains muscovite	CL-ML		10.00	1	ROTO SONIC	7.00 10.00		
20		20.00 - 38.00 (SM), SILTY SAND; brown to tannish brown, trace sand, w<PL, low plasticity, loose to compact, large grains of muscovite	SM		20.00	2	ROTO SONIC	4.30 10.00		
35		38.00 - 40.00 (SM), SILTY SAND; black and silverish gray, fine to medium, non-plastic, w<PL, loose sand, moist,	SM		38.00	3	ROTO SONIC	10.00 10.00	AquaGuard Bentonite - Grout	
40		40.00 - 50.00 (SM-ML), SILTY SAND to SILT; brown to silverish brown, moist to wet, w<PL, soft to stiff	SM		40.00	4	ROTO SONIC	9.00 10.00		
50		Log continued on next page								

BOREHOLE RECORD - MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-107D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.75 ft
 LOCATION: Southwest of DGWC-19

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/28/20
 DATE COMPLETED: 10/28/20

NORTHING: 1392334.5
 EASTING: 2202596.4
 GS ELEVATION: 820.6 ft
 TOC ELEVATION: 823.38 ft

DEPTH W.L.: 21.8
 ELEVATION W.L.: 801.6
 DATE W.L.: 10/28/2020
 TIME W.L.: 1440

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		50.00 - 60.00 (SM-ML), SILTY SAND to SILT; brown to silverish brown, moist to wet, w<PL, soft to stiff	SM		50.00	5	ROTO SONIC	6.00 10.00		<p>B-107D Borehole Diameter: 4" WELL CASING Interval: 0'-85.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 75.1'-85.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.25'-85.5' Type: FilterSil Quantity: 4.5-50 lbs bags FILTER PACK SEAL Interval: 68.8'-72.25' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon ANNULUS SEAL Interval: 0'-68.8' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
55										
60		60.00 - 67.00 NO RECOVERY; material was washed away by coring methods. Material from 63' to 67' is inferred as TWR.	NR		60.00	6	ROTO SONIC	0.00 7.00		
65										
70		67.00 - 75.00 (GNEISS), BEDROCK; dark gray to black, well foliated, poorly jointed, slightly to deeply weathered, weak to medium strong, feldspar, quartz, muscovite,	BR		67.00	7	ROTO SONIC	6.70 8.00	3/8" Uncoated Pel-Plug	
75									Sand Filter Pack	
80		75.00 - 85.75 (GNEISS), BEDROCK; dark gray to black, well foliated, poorly jointed, slightly to deeply weathered, weak to medium strong, feldspar, quartz, muscovite,	BR		75.00	8	ROTO SONIC	6.80 10.75	U-Pack Screen	
85		Boring completed at 85.75 ft			85.75					
90										
95										
100										

BOREHOLE RECORD - MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-108D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 80.00 ft
 LOCATION: Next to DGWC-20

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/26/20
 DATE COMPLETED: 10/27/20

NORTHING: 1392156.1
 EASTING: 2202312.5
 GS ELEVATION: 818.4 ft
 TOC ELEVATION: 821.13 ft

DEPTH W.L.: 17.7
 ELEVATION W.L.: 803.43
 DATE W.L.: 10/27/2020
 TIME W.L.: 0915

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up - 	B-108D Borehole Diameter: 4" WELL CASING Interval: 0'-80.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 69'-79' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 65.85'-79' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 62.5'-65.85' Type: 3/8" Uncoated Pel-Plug Quantity: 1- 5 gallon bucket ANNULUS SEAL Interval: 0'-62.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons NOTES
10		10.00 - 12.00 (CL), CLAY;w<PL, low plasticity, moist to wet, Fill	CL		10.00					
15		12.00 - 20.00 (ML), SILT; tannish brown with black spots, trace fine sand, w<PL, non-plastic to low plasticity, compact to firm, moist	ML		12.00	1	ROTO SONIC	10.00 10.00		
20		20.00 - 30.00 (ML), SILT; tannish brown with black/silver spots, trace to some fine sand, w<PL, low plasticity, dry to moist, firm, saprolite, deeply weather biotite gneiss	ML		20.00	2	ROTO SONIC	9.50 10.00		
30		30.00 - 40.00 (ML-SM), SILT and SILTY SAND; silverish brown, trace clay, w<PL, nonplastic to low plasticity, moist, firm to stiff, contains muscovite, saprolite	SM		30.00	3	ROTO SONIC	8.00 10.00		
35									AquaGuard Bentonite Grout	
40		40.00 - 50.00 (ML-SM), SILT and SILTY SAND; silverish brown, trace clay, w<PL, nonplastic to low plasticity, moist, soft to firm, contains muscovite, saprolite	SM		40.00	4	ROTO SONIC	6.75 10.00		
50		Log continued on next page								

BOREHOLE RECORD_MCDONOUGH MASTER LIST (2).GPJ_PIEDMONT.GDT_2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-108D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 80.00 ft
 LOCATION: Next to DGWC-20

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 10/26/20
 DATE COMPLETED: 10/27/20

NORTHING: 1392156.1
 EASTING: 2202312.5
 GS ELEVATION: 818.4 ft
 TOC ELEVATION: 821.13 ft

DEPTH W.L.: 17.7
 ELEVATION W.L.: 803.43
 DATE W.L.: 10/27/2020
 TIME W.L.: 0915

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		50.00 - 51.00 (SP), SAND; black to dark gray, w<PL, non-plastic, firm, loose, wet	SP	[SP Pattern]	50.00				3/8" Uncoated Pel-Plug	<p>B-108D Borehole Diameter: 4" WELL CASING Interval: 0'-80.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 69'-79' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 65.85'-79' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 62.5'-65.85' Type: 3/8" Uncoated Pel-Plug Quantity: 1- 5 gallon bucket ANNULUS SEAL Interval: 0'-62.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
55		51.00 - 57.50 (ML), SILT; gray to brown, w<PL, low plasticity, firm to stiff, moist, saprolite	ML	[ML Pattern]	51.00	5	ROTO SONIC	7.50 7.50		
60		57.50 - 65.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, deeply weathered, weak rock, iron staining	BR	[BR Pattern]	57.50	6	ROTO SONIC	1.25 7.50	Sand Filter Pack	
65		65.00 - 75.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong rock, iron staining	BR	[BR Pattern]	65.00	7	ROTO SONIC	6.55 10.00		
70		75.00 - 80.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong rock, iron staining	BR	[BR Pattern]	75.00	8	ROTO SONIC	4.80 5.00		
75		Boring completed at 80.00 ft								U-Pack Screen
80										
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-109D


SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 100.00 ft
 LOCATION: Next to DGWC-2

DRILL RIG: Geoprobe 8140LS
 DATE STARTED: 10/30/20
 DATE COMPLETED: 10/31/20

NORTHING: 1393957.5
 EASTING: 2202127
 GS ELEVATION: 847.8 ft
 TOC ELEVATION: 850.73 ft

DEPTH W.L.: 23.50
 ELEVATION W.L.: 827.2
 DATE W.L.: 10/31/2020
 TIME W.L.: 1157

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	0.00	0.00 - 10.00 Air knife; FILL	FILL	[Cross-hatch pattern]					Stick-up - 	B-109D Borehole Diameter: 4" WELL CASING Interval: 0'-100' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 89.4'-99.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 86.5'-99.4' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 83.9'-86.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-83.9' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons NOTES
10	10.00	10.00 - 13.50 (ML). SILT; brown, soft,	ML	[Vertical lines pattern]	10.00					
15	13.50	13.50 - 20.00 (CL). CLAY; red to red brown, trace sand, medium plasticity, w<PL, firm, moist to dry,	CL	[Diagonal lines pattern]	13.50	1	ROTO SONIC	10.00 10.00		
20	20.00	20.00 - 30.00 (SM). SILTY SAND; gray to reddish gray, fine to medium, loose to soft, dry to moist, w<PL, low plasticity, quartz, biotite, feldspar	SM	[Dotted pattern]	20.00	2	ROTO SONIC	3.70 10.00		
30	30.00	30.00 - 36.00 (SM). SILTY SAND; gray to reddish gray, some clay, fine to medium, loose to soft, dry to moist, w<PL, low plasticity, quartz, biotite, feldspar	SM	[Dotted pattern]	30.00	3	ROTO SONIC	6.00 6.00		
36	36.00	36.00 - 40.00 (CL). CLAY; black to dark gray, low plasticity, w<PL, very soft to hard, dry to moist, saprolite, biotite gneiss, saprolite,	CL	[Diagonal lines pattern]	36.00	4	ROTO SONIC	4.00 4.00		
40	40.00	40.00 - 45.00 (TWR). TRANSITIONALLY WEATHERED ROCK; black to dark gray, silt with some fine sand, trace gravels, low plasticity, w<PL, soft, moist to wet, biotite gneiss fragments	TWR	[Triangle pattern]	40.00	5	ROTO SONIC	2.20 5.00		
45	45.00	45.00 - 46.00 (GRANITE). BEDROCK; biotite, feldspar, quartz, white to light gray, fine grain, quartz veins, weakly foliated, poorly jointed, fresh to slightly weathered, medium strong	BR	[Pink pattern]	45.00	6	ROTO SONIC	4.20 10.00		
50	46.00	46.00 - 55.00 (GNEISS). BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining	BR	[Red pattern]	46.00					

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2).GPJ PIEDMONT.GDT 7/19/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



Log continued on next page

RECORD OF BOREHOLE B-109D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 100.00 ft
 LOCATION: Next to DGWC-2

DRILL RIG: Geoprobe 8140LS
 DATE STARTED: 10/30/20
 DATE COMPLETED: 10/31/20

NORTHING: 1393957.5
 EASTING: 2202127
 GS ELEVATION: 847.8 ft
 TOC ELEVATION: 850.73 ft

DEPTH W.L.: 23.50
 ELEVATION W.L.: 827.2
 DATE W.L.: 10/31/2020
 TIME W.L.: 1157

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		46.00 - 55.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining (<i>Continued</i>)	BR	[Red wavy lines]		6	ROTO SONIC	4.20 10.00		<p>B-109D Borehole Diameter: 4" WELL CASING Interval: 0'-100' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 89.4'-99.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 86.5'-99.4' Type: FilterSil Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 83.9'-86.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-83.9' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
55		55.00 - 65.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong to weak, iron staining. Pegmatitic zone 57.75' - 58.75' bgs (biotite, quartz, feldspar).	BR	[Red wavy lines]	55.00	7	ROTO SONIC	8.25 10.00		
60			BR	[Red wavy lines]		8	ROTO SONIC	10.00 10.00		
65		65.00 - 80.00 (GNEISS), BEDROCK; quartz, feldspar, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining.	BR	[Red wavy lines]	65.00	9	ROTO SONIC	5.00 5.00		
70			BR	[Red wavy lines]		10	ROTO SONIC	4.25 5.00		
75		80.00 - 85.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed, fresh, fine to medium grain, medium strong, iron staining, locally contains chlorite	BR	[Red wavy lines]	80.00	11	ROTO SONIC	5.00 5.00		
80		85.00 - 100.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, green when dry and dark gray to black when wet, well foliated, poorly jointed fresh, fine to medium grain, medium strong, iron staining, locally contains chlorite and epidote	BR	[Red wavy lines]	85.00	12	ROTO SONIC	8.40 10.00		
85			BR	[Red wavy lines]				3/8" Uncoated Pel-Plug		
90			BR	[Red wavy lines]				Sand Filter Pack		
95			BR	[Red wavy lines]				U-Pack Screen		
100		Boring completed at 100.00 ft								

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2), GPJ PIEDMONT.GDT 7/19/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-110D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 65.00 ft
 LOCATION: Next to DGWC-68A

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/14/20
 DATE COMPLETED: 11/17/20

NORTHING: 1391294.4
 EASTING: 2200736
 GS ELEVATION: 764.7 ft
 TOC ELEVATION: 764.61 ft

DEPTH W.L.: 9.35
 ELEVATION W.L.: 755.3
 DATE W.L.: 11/17/2020
 TIME W.L.: 1110

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 5.00 Hand Auger 0'-10'; core loss from 0'-5',	NR					Flush mount -	<p>B-110D Borehole Diameter: 4" WELL CASING Interval: 0'-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 53'-63' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 50.5'-63' Type: FilterSil Quantity: 3.5-50 lbs bags FILTER PACK SEAL Interval: 46'-50.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-46' Type: AquaGuard Bentonite Grout Quantity: Approximately 85 gallons</p> <p>NOTES</p>
5		5.00 - 8.50 (CL), CLAY; reddish brown to yellowish orange, trace to some fine to medium sand, moist, low plasticity, w<PL, soft to firm, Fill	CL	[Hatched Pattern]	5.00	1	ROTO SONIC	7.00 12.00	
10		8.50 - 12.00 (ML), SILT; brown to dark brown, trace fine sand, moist, non-plastic, w<PL, soft	ML	[Vertical Lines]	8.50				
15		12.00 - 20.00 (ML), SILT; brown to dark brown, some fine sand, moist, non-plastic, w<PL, soft	ML	[Vertical Lines]	12.00	2	ROTO SONIC	3.00 8.00	
20		20.00 - 25.00 (ML), SILT; brown to dark brown, some fine sand, moist, non-plastic, w<PL, firm to stiff	ML	[Vertical Lines]	20.00	3	ROTO SONIC	3.00 5.00	
25		25.00 - 35.00 NO RECOVERY; material too loose and soft to stay in core barrel	NR		25.00	4	ROTO SONIC	0.00 10.00	
35		35.00 - 45.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, fine-to medium-grained, fresh to slightly weathered, strong rock, locally contains vein quartz and garnets	BR	[Red Hatched Pattern]	35.00	5	ROTO SONIC	6.40 10.00	
45		45.00 - 55.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium-grained, fresh to slightly weathered, strong rock, zones of fine-grained biotite	BR	[Red Hatched Pattern]	45.00	6	ROTO SONIC	8.70 10.00	
50		Log continued on next page						3/8" Uncoated Pel-Plug	

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-110D

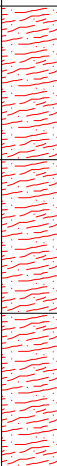
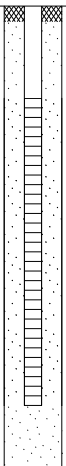
SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 65.00 ft
 LOCATION: Next to DGWC-68A

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/14/20
 DATE COMPLETED: 11/17/20

NORTHING: 1391294.4
 EASTING: 2200736
 GS ELEVATION: 764.7 ft
 TOC ELEVATION: 764.61 ft

DEPTH W.L.: 9.35
 ELEVATION W.L.: 755.3
 DATE W.L.: 11/17/2020
 TIME W.L.: 1110

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		45.00 - 55.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium-grained, fresh to slightly weathered, strong rock, zones of fine-grained biotite <i>(Continued)</i>	BR			6	ROTO SONIC	8.70 10.00		<p>B-110D Borehole Diameter: 4" WELL CASING Interval: 0'-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 53'-63' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 50.5'-63' Type: FilterSil Quantity: 3.5-50 lbs bags FILTER PACK SEAL Interval: 46'-50.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-46' Type: AquaGuard Bentonite Grout Quantity: Approximately 85 gallons</p> <p>NOTES</p>
55		55.00 - 60.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium grain, fresh to slightly weathered, strong rock, local zones of fine-grained biotite	BR		55.00	7	ROTO SONIC	5.00 5.00		
60		60.00 - 65.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine-to medium-grained, fresh to slightly weathered, strong rock, local zones of fine grained biotite	BR		60.00	8	ROTO SONIC	4.00 5.00		
65		Boring completed at 65.00 ft								
70										
75										
80										
85										
90										
95										
100										

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ - PIEDMONT.GDT 2/3/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-111D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.00 ft
 LOCATION: West of DGWC-5

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/1/20
 DATE COMPLETED: 11/3/20

NORTHING: 1394303.4
 EASTING: 2202956.4
 GS ELEVATION: 789.1 ft
 TOC ELEVATION: 791.87 ft

DEPTH W.L.: 8.9
 ELEVATION W.L.: 755.30
 DATE W.L.: 11/3/2020
 TIME W.L.: 0815

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Air Knife; Fill	FILL						Stick-up -	<p>B-111D Borehole Diameter: 6" WELL CASING Interval: 0'-85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 74.15'-84.15' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.1'-84.15' Type: FilterSil Quantity: 3-50 lbs bags FILTER PACK SEAL Interval: 68.7'-72.1' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-68.7' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
5										
10		10.00 - 15.00 (ML), SILT; tan to brown, trace fine to coarse sand, moist to wet, soft, low plasticity, w<PI, saprolite	ML		10.00					
15		15.00 - 20.00 (ML), SILT; gray and green to brown, low plasticity, w<PL, moist, soft to firm	ML		15.00	1	ROTO SONIC	10.00 10.00		
20		20.00 - 26.00 (ML), SILT; gray and green to brown, low plasticity, w<PL, moist, soft to firm, more saprolitic	ML		20.00					
25						2	ROTO SONIC	8.00 8.00		
30		26.00 - 27.00 (TWR), TRANSITIONALLY WEATHERED ROCK; silt, gray and green to brown, low plasticity, w<PL, moist, soft to firm, saprolitic, locally contains gravels of augen biotite gneiss	TWR		26.00					
30		27.00 - 34.00 (GNEISS), BEDROCK; quartz, feldspar, biotite, white to dark gray, moderately weathered, medium strong, iron staining, locally contains augen feldspars	BR		27.00	3	ROTO SONIC	1.00 2.00	AquaGuard Bentonite - Grout	
35		34.00 - 51.50 (GNEISS), BEDROCK; biotite, quartz, feldspar, white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong, iron staining, locally contains K-spar augens	BR		34.00	4	ROTO SONIC	2.20 4.00		
40						5	ROTO SONIC	1.70 6.00		
45						6	ROTO SONIC	10.00 10.00		
50		Log continued on next page								

BOREHOLE RECORD: MCDONOUGH MASTER LIST (2) (3) (1).GPJ | PIEDMONT.GDT 2/10/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-111D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 1668496.18
 DRILLED DEPTH: 85.00 ft
 LOCATION: West of DGWC-5

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 11/1/20
 DATE COMPLETED: 11/3/20

NORTHING: 1394303.4
 EASTING: 2202956.4
 GS ELEVATION: 789.1 ft
 TOC ELEVATION: 791.87 ft

DEPTH W.L.: 8.9
 ELEVATION W.L.: 755.30
 DATE W.L.: 11/3/2020
 TIME W.L.: 0815

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50			BR		51.50				<p>B-111D Borehole Diameter: 6" WELL CASING Interval: 0'-85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam WELL SCREEN Interval: 74.15'-84.15' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC FILTER PACK Interval: 72.1'-84.15' Type: FilterSil Quantity: 3-5 lbs bags FILTER PACK SEAL Interval: 68.7'-72.1' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0'-68.7' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>NOTES</p>
55		51.50 - 58.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong, locally contains epidote	BR			7	ROTO SONIC 7.00 10.00		
60		58.00 - 85.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium to strong,	BR		58.00				
65						8	ROTO SONIC 5.00 5.00		
70						9	ROTO SONIC 5.00 5.00		
75						10	ROTO SONIC 5.00 5.00		
80						11	ROTO SONIC 10.00 10.00		
85		Boring completed at 85.00 ft							
90									
95									
100									

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1).GPJ PIEDMONT.GDT 2/10/21

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Fred Dorse

GA INSPECTOR: Michael Boatman, PG
 CHECKED BY: Timothy Richards, PG
 DATE: 2/3/21



RECORD OF BOREHOLE B-112D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 55.00 ft
 LOCATION: Offset of DGWC-69

DRILL RIG: TSi 150CC
 DATE STARTED: 3/21/21
 DATE COMPLETED: 3/22/21

NORTHING: 1,391,564.2
 EASTING: 2,200,664.1
 GS ELEVATION: 766.1
 TOC ELEVATION: 765.58 ft

DEPTH W.L.: 6.87
 ELEVATION W.L.: 758.71
 DATE W.L.: 4/12/2021
 TIME W.L.: 12:18

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0	765	0.00 - 7.00 CL, Silty CLAY, low plasticity; red brown; soft, dry to moist, W<PL	CL		759.1				8" Flush Mount	WELL CASING Interval: 0-44.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 44.7-54.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 54.7-55' FILTER PACK Interval: 42.5-55' Type: #1 Filter Sand Quantity: 4-50 lbs bags FILTER PACK SEAL Interval: 38.5-42.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-38.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons WELL COMPLETION Pad: 4'x4'x4" Concrete Protective Casing: 8" Flush Mount DRILLING METHODS Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic
5	760	7.00 - 11.50 SP, SAND with trace silt and gravels, non-plasticity fine to coarse; blue-gray; soft to firm, moist, W<PL	SP		7.00			Hand Auger		
10	755	11.50 - 12.50 ML, Clayey SILT, low plasticity; brown to gray-brown; soft, moist, W<PL	ML		11.50			1	9.00 10.00	
15	750	12.50 - 16.00 SM, SILTY SAND, non to low plasticity; tan to brown to beige; loose to compact, dry, W<PL	SM		12.50					
20	745	16.00 - 20.00 TWR, Transitionally Weathered Rock; No recovery; Wash out; Driller noted the material was hard enough to drill with water (coring), but soft enough to wash away.	TWR		16.00				AquaGuard Grout	
25	740	20.00 - 30.00 Slightly to moderately weathered, well foliated, well jointed, light gray to gray, fine-medium grained, medium strong, quartz-feldspar-biotite GNEISS; locally contains vein quartz and augened potassium feldspar (K-spar)	BR		746.1			2	3.80 10.00	
30	735	30.00 - 40.00 Fresh to slightly weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, weak to medium strong, quartz-feldspar-biotite GNEISS; locally contains epidote	BR		736.1			3	7.80 10.00	
40	730	Log continued on next page			726.1				Bentonite Seal	

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-112D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 55.00 ft
 LOCATION: Offset of DGWC-69

DRILL RIG: TSi 150CC
 DATE STARTED: 3/21/21
 DATE COMPLETED: 3/22/21

NORTHING: 1,391,564.2
 EASTING: 2,200,664.1
 GS ELEVATION: 766.1
 TOC ELEVATION: 765.58 ft

DEPTH W.L.: 6.87
 ELEVATION W.L.: 758.71
 DATE W.L.: 4/12/2021
 TIME W.L.: 12:18

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC				
40	725	40.00 - 50.00 Fresh to moderately weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, weak to medium strong, quartz-feldspar-biotite GNEISS; locally contains vein quartz and water staining	BR	[Graphic Log]	40.00	4	[Photo]	5.00 10.00	#1 Sand filter pack	0.010" Slotted Schedule 40 PVC	Sump	<p>WELL CASING Interval: 0-44.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 44.7-54.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 54.7-55'</p> <p>FILTER PACK Interval: 42.5-55' Type: #1 Filter Sand Quantity: 4-50 lbs bags</p> <p>FILTER PACK SEAL Interval: 38.5-42.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-38.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4'x4" Concrete Protective Casing: 8" Flush Mount</p> <p>DRILLING METHODS Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic</p>
45	720				716.1							
50	715	50.00 - 55.00 Slightly to moderately weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, medium strong to strong, potassium feldspar, plagioclase, quartz-biotite GNEISS; locally contains epidote, pegmatitic vein quartz, and augened k-spar	BR	[Graphic Log]	50.00	5	[Photo]	5.00 5.00				
55	710	Boring completed at 55.00 ft			711.1							
60	705											
65	700											
70	695											
75	690											
80												

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-113D

SHEET 1 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 85.00 ft
 LOCATION: Offset of B-72

DRILL RIG: TSi 150CC
 DATE STARTED: 3/22/21
 DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
 EASTING: 2,200,719.2
 GS ELEVATION: 758.8
 TOC ELEVATION: 758.22 ft

DEPTH W.L.: 1.46
 ELEVATION W.L.: 756.76
 DATE W.L.: 4/12/2021
 TIME W.L.: 12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0		0.00 - 3.00 CL, Silty CLAY, low plasticity; red-brown; soft, dry to moist, W<PL	CL		755.8 3.00				8" Flush Mount	WELL CASING Interval: 0-74.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 74.4-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 84.4-84.7' FILTER PACK Interval: 72.4-84.7' Type: #1 Filter Sand Quantity: 3.5 - 50 lbs bags FILTER PACK SEAL Interval: 68.0-72.4' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-68.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Flush Mount DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic
755		3.00 - 10.00 ML, Clayey SILT, non to low plasticity; dark brown to brown; soft, moist to wet (with depth), W<PL	ML			Hand Auger		0.00 10.00		
750					748.8 10.00					
10		10.00 - 15.50 ML, Clayey SILT with some sand, low plasticity; dark brown to brown; soft to firm, dry to moist, W<PL	ML							
745					743.3 15.50		1	7.60 10.00		
15		15.50 - 20.00 TWR, Transitional Weathered Rock; breaks down to a ML, Clayey SILT with some sand, low plasticity; dark brown to brown; soft to firm, dry to moist, W<PL	TWR							
740					738.8 20.00					
20		20.00 - 30.00 Highly weathered, poorly foliated, poorly jointed, gray to black, fine-medium grained, very weak to weak, quartz-feldspar-biotite-muscovite SCHIST; locally contains vein quartz and water staining	BR					3.80 10.00		
735					728.8 30.00					
25		30.00 - 35.15 Highly weathered, poorly foliated, poorly jointed, gray to black, fine-medium grained, very weak to weak, quartz-feldspar-biotite-muscovite SCHIST; locally contains vein quartz, water staining, and garnets	BR							
730					723.65 35.15			7.00 10.00	AquaGuard Grout	
30		35.15 - 50.00 Fresh to slightly weathered, poorly foliated, white to pink and green, very fine to medium grained, medium strong to very strong, muscovite-plagioclase-k-spar-quartz GNEISS; locally contains vein quartz, epidote, and garnets	BR							
725										
35										
720										
40		Log continued on next page								

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-113D

SHEET 2 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 85.00 ft
 LOCATION: Offset of B-72

DRILL RIG: TSi 150CC
 DATE STARTED: 3/22/21
 DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
 EASTING: 2,200,719.2
 GS ELEVATION: 758.8
 TOC ELEVATION: 758.22 ft

DEPTH W.L.: 1.46
 ELEVATION W.L.: 756.76
 DATE W.L.: 4/12/2021
 TIME W.L.: 12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
40		35.15 - 50.00 Fresh to slightly weathered, poorly foliated, white to pink and green, very fine to medium grained, medium strong to very strong, muscovite-plagioclase-k-spar-quartz GNEISS; locally contains vein quartz, epidote, and garnets <i>(Continued)</i>								<p>WELL CASING Interval: 0-74.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 74.4-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 84.4-84.7'</p> <p>FILTER PACK Interval: 72.4-84.7' Type: #1 Filter Sand Quantity: 3.5 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 68.0-72.4' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 72.4-84.4' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Flush Mount</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
45	715		BR			4	6.50 10.00			
50		50.00 - 60.00 Fresh, weakly foliated, poorly jointed, light gray to greenish white, fine to medium grained, medium strong to strong, epidote-muscovite-biotite-feldspar-quartz GNEISS; locally contains garnets and pyrite.			708.8 50.00					
55	710		BR			5	10.00 10.00			
60		60.00 - 76.00 Fresh, weakly foliated, poorly jointed, green to white to gray, fine to medium grained, medium strong to strong, GNEISS; locally contains vein quartz and garnets			698.8 60.00					
65	695		BR			6	7.50 10.00			
70	690		BR					Bentonite Seal		
75						7	8.70 10.00	#1 Filter Sand		
80	685	76.00 - 85.00 Fresh to slightly weathered, weak to moderately foliated, poorly jointed, greenish white to gray, fine to medium grained, strong, GNEISS; locally contains folds, vein quartz, and garnets; rock becomes schistose in localized areas.	BR		682.8 76.00					
		Log continued on next page								

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-113D

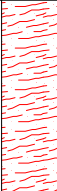

SHEET 3 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 85.00 ft
 LOCATION: Offset of B-72

DRILL RIG: TSi 150CC
 DATE STARTED: 3/22/21
 DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
 EASTING: 2,200,719.2
 GS ELEVATION: 758.8
 TOC ELEVATION: 758.22 ft

DEPTH W.L.: 1.46
 ELEVATION W.L.: 756.76
 DATE W.L.: 4/12/2021
 TIME W.L.: 12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
80		76.00 - 85.00 Fresh to slightly weathered, weak to moderately foliated, poorly jointed, greenish white to gray, fine to medium grained, strong, GNEISS; locally contains folds, vein quartz, and garnets; rock becomes schistose in localized areas. <i>(Continued)</i>	BR			8		4.50 5.00	0.010" Slotted Schedule 40 PVC Sump -	WELL CASING Interval: 0-74.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 74.4-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 84.4-84.7' FILTER PACK Interval: 72.4-84.7' Type: #1 Filter Sand Quantity: 3.5 - 50 lbs bags FILTER PACK SEAL Interval: 68.0-72.4' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-68.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 8" Flush Mount DRILLING METHODS Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic
675		Boring completed at 85.00 ft								
85		Boring completed at 85.00 ft								
670		Boring completed at 85.00 ft								
90		Boring completed at 85.00 ft								
665		Boring completed at 85.00 ft								
95		Boring completed at 85.00 ft								
660		Boring completed at 85.00 ft								
100		Boring completed at 85.00 ft								
655		Boring completed at 85.00 ft								
105		Boring completed at 85.00 ft								
650		Boring completed at 85.00 ft								
110		Boring completed at 85.00 ft								
645		Boring completed at 85.00 ft								
115		Boring completed at 85.00 ft								
640		Boring completed at 85.00 ft								
120		Boring completed at 85.00 ft								

BOREHOLE RECORD: 166849621.GPJ - PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-115D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 80.00 ft
 LOCATION: South of overflow parking

DRILL RIG: TSi 150CC
 DATE STARTED: 3/19/21
 DATE COMPLETED: 3/20/21

NORTHING: 1,391,265.3
 EASTING: 2,202,580.7
 GS ELEVATION: 786.4
 TOC ELEVATION: 789.17 ft

DEPTH W.L.: 19.32
 ELEVATION W.L.: 769.85
 DATE W.L.: 4/7/2021
 TIME W.L.: 14:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0	785	0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance								<p>WELL CASING Interval: 0-69.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 69.2-79.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 79.2-79.5'</p> <p>FILTER PACK Interval: 66.7-79.5' Type: #1 Filter Sand Quantity: 4 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 62.5-66.7' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-62.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 100 gallons</p> <p>WELL COMPLETION Pad: 4'x4'x4" Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
5	780					Air Knife	0.00 10.00			
10	775	10.00 - 13.00 CL, Silty CLAY with trace organics, low to moderate plasticity; dark brown; fill; soft to firm, moist, W<PL	CL		776.4 10.00					
15	770	13.00 - 18.00 SC, Clayey SAND, low plasticity, fine to coarse; dark red brown to red brown; fill; soft/loose, dry to moist, W<PL	SC		773.4 13.00	1	10.00 10.00			
20	765	18.00 - 20.00 ML, Clayey SILT, low plasticity; tan; soft, moist, W<PL	ML		768.4 18.00					
25	760	20.00 - 25.00 TWR, Transitional Weathered Rock; breaks down to a ML, Sandy SILT with trace cobbles, non to low plasticity; light brown to brown; soft/loose, moist, W<PL	TWR		766.4 20.00					
30	755	25.00 - 30.00 Highly to moderately weathered, well foliated, well jointed, dark gray to black, fine to medium grained, very weak to weak, muscovite SCHIST; locally is water stained	BR		761.4 25.00	2	8.50 10.00			
35	750	30.00 - 50.00 Fresh to moderately weathered, well foliated, well jointed, green to gray to black, fine to medium grained, very weak to medium strong, muscovite SCHIST; locally interlayered with an epidote-quartz-muscovite schistose GNEISS	BR		756.4 30.00	3	7.50 10.00	AquaGuard Grout		

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-115D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 80.00 ft
 LOCATION: South of overflow parking

DRILL RIG: TSi 150CC
 DATE STARTED: 3/19/21
 DATE COMPLETED: 3/20/21

NORTHING: 1,391,265.3
 EASTING: 2,202,580.7
 GS ELEVATION: 786.4
 TOC ELEVATION: 789.17 ft

DEPTH W.L.: 19.32
 ELEVATION W.L.: 769.85
 DATE W.L.: 4/7/2021
 TIME W.L.: 14:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
40	745	30.00 - 50.00 Fresh to moderately weathered, well foliated, well jointed, green to gray to black, fine to medium grained, very weak to medium strong, muscovite SCHIST; locally interlayered with an epidote-quartz-muscovite schistose GNEISS (Continued)	BR	[Graphic Log Pattern]	736.4 50.00	4	[Photo]	6.50 10.00	<p>WELL CASING Interval: 0-69.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 69.2-79.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 79.2-79.5'</p> <p>FILTER PACK Interval: 66.7-79.5' Type: #1 Filter Sand Quantity: 4 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 62.5-66.7' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-62.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 100 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
45	740		BR	[Graphic Log Pattern]			[Photo]	6.50 10.00	
50	735	50.00 - 70.00 Fresh to slightly weathered, well foliated, well jointed, light gray to green, fine to medium grained, weak to strong, chlorite-quartz-muscovite SCHIST	BR	[Graphic Log Pattern]	716.4 70.00	5	[Photo]	6.50 10.00	
55	730		BR	[Graphic Log Pattern]			[Photo]	6.50 10.00	
60	725		BR	[Graphic Log Pattern]			[Photo]	6.50 10.00	
65	720		BR	[Graphic Log Pattern]			[Photo]	8.00 10.00	
70	715	70.00 - 80.00 Fresh to Slightly weathered, weak to moderately foliated, poorly jointed, gray to black, fine grained, medium strong to strong, quartz-biotite-muscovite SCHIST; locally contains pyrite and garnets	BR	[Graphic Log Pattern]	706.4	7	[Photo]	10.00 10.00	
75	710		BR	[Graphic Log Pattern]			[Photo]	10.00 10.00	
80		Boring completed at 80.00 ft						10.00 10.00	

BOREHOLE RECORD 166849621.GPJ_PIEDMONT.GDT 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-116D

SHEET 1 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 90.00 ft
 LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
 DATE STARTED: 3/7/21
 DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
 EASTING: 2,200,611.0
 GS ELEVATION: 805.3
 TOC ELEVATION: 807.82 ft

DEPTH W.L.: 40.82
 ELEVATION W.L.: 767.00
 DATE W.L.: 4/6/2021
 TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES		PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	REC		
0	805	0.00 - 3.00 CL, Silty CLAY, low plasticity; red brown; soft to firm, moist, W<PL	CL		802.3				<p>WELL CASING Interval: 0-79.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 79.2-89.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 89.2-89.5'</p> <p>FILTER PACK Interval: 75.5-89.5' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bag</p> <p>FILTER PACK SEAL Interval: 70.6-75.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-70.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
5	800	3.00 - 6.00 ML, Clayey SILT with trace to some fine to coarse sand, non plasticity; brown; soft/ loose, dry to moist, W<PL	ML		799.3	Hand Auger	0.00 10.00		
		6.00 - 10.00 SM, SILTY SAND, non to low plasticity; yellow-brown to tan; loose, dry, W<PL	SM		795.3				
10	795	10.00 - 11.00 CL, Silty CLAY with some silt, low plasticity; red brown to brown; soft, moist, W<PL	CL		10.00				
		11.00 - 20.00 ML, Clayey SILT, non plasticity; brown to gray-brown; soft/ loose, moist, W<PL; locally contains books of muscovite	ML		794.3				
15	790					1	13.50 10.00		
20	785	20.00 - 21.50 CL, Silty CLAY with some fine sand, low plasticity; orange brown; soft, moist, W~PL	CL		785.3				
		21.50 - 30.00 ML, Clayey SILT with trace clay and fine sand, non plasticity; brown to gray-brown; soft/ loose, moist, W<PL; locally contains books of muscovite	ML		783.8				
25	780					2	15.00 10.00		
30	775	30.00 - 40.00 ML, Clayey SILT with trace fine sand and trace to some clay, non to low plasticity; gray; soft, moist, W<PL to W~PL	ML		775.3				
					30.00				
35	770					3	12.00 10.00		
40					765.3				

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-116D

SHEET 2 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 90.00 ft
 LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
 DATE STARTED: 3/7/21
 DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
 EASTING: 2,200,611.0
 GS ELEVATION: 805.3
 TOC ELEVATION: 807.82 ft

DEPTH W.L.: 40.82
 ELEVATION W.L.: 767.00
 DATE W.L.: 4/6/2021
 TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC					
40	765	40.00 - 50.00 ML, Clayey SILT with some fine to coarse sand, non to low plasticity; gray to gray-brown; soft (becoming firm to stiff with depth), moist to wet, W<PL	ML		40.00	4		12.00	10.00	<p style="text-align: center;">Bentonite Seal</p>	<p>WELL CASING Interval: 0-79.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 79.2-89.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 89.2-89.5'</p> <p>FILTER PACK Interval: 75.5-89.5' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bag</p> <p>FILTER PACK SEAL Interval: 70.6-75.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-70.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>		
45	760				755.3			50.00					
50	755	50.00 - 54.90 TWR, Transitional Weathered Rock; breaks down to a ML, Clayey SILT with some fine to coarse sand, non to low plasticity; gray to gray-brown; soft (becoming firm to stiff with depth), moist to wet, W<PL	TWR		750.4	5		5.10	10.00				
55	750	54.90 - 90.00 Fresh to slightly weathered, well foliated, well jointed, gray to black, fine to medium grained, weak to medium strong, garnet-chlorite-quartz-biotite-muscovite SCHIST			54.90								
60	745		BR		740	6		7.00	10.00				
65	740				735								
70	735				730								
75	730				725	7		8.00	10.00				
80	725		720										

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-116D

SHEET 3 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 90.00 ft
 LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
 DATE STARTED: 3/7/21
 DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
 EASTING: 2,200,611.0
 GS ELEVATION: 805.3
 TOC ELEVATION: 807.82 ft

DEPTH W.L.: 40.82
 ELEVATION W.L.: 767.00
 DATE W.L.: 4/6/2021
 TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS							
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC									
80	725	54.90 - 90.00 Fresh to slightly weathered, well foliated, well jointed, gray to black, fine to medium grained, weak to medium strong, garnet-chlorite-quartz-biotite-muscovite SCHIST (<i>Continued</i>)	BR		715.3	8		9.00 10.00	0.010" Slotted Schedule 40 PVC #1 Filter Sand Sump		WELL CASING Interval: 0-79.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw	WELL SCREEN Interval: 79.2-89.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 89.2-89.5'	FILTER PACK Interval: 75.5-89.5' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bag	FILTER PACK SEAL Interval: 70.6-75.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket	ANNULUS SEAL Interval: 0-70.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons	WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" Aluminium	DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic
85	720										Boring completed at 90.00 ft						
90	715	Boring completed at 90.00 ft															
95	710	Boring completed at 90.00 ft															
100	705	Boring completed at 90.00 ft															
105	700	Boring completed at 90.00 ft															
110	695	Boring completed at 90.00 ft															
115	690	Boring completed at 90.00 ft															
120	685	Boring completed at 90.00 ft															

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-117D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 75.00 ft
 LOCATION: Offset of DGWC-71

DRILL RIG: TSi 150CC
 DATE STARTED: 3/17/21
 DATE COMPLETED: 3/17/21

NORTHING: 1,393,963.8
 EASTING: 2,201,727.3
 GS ELEVATION: 861.2
 TOC ELEVATION: 863.82 ft

DEPTH W.L.: 27.88
 ELEVATION W.L.: 835.94
 DATE W.L.: 4/7/2021
 TIME W.L.: 9:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0	860	0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance		[Cross-hatched pattern]						WELL CASING Interval: 0-64.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 64.7-74.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 74.7-75' FILTER PACK Interval: 62.5- 75' Type: #1 Filter Sand Quantity: 4 - 50 lbs bags FILTER PACK SEAL Interval: 58.5-62.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-58.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4'x4' Aluminium DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic
5	855					Air Knife		0.00 10.00		
10	850	10.00 - 16.00 SM, SILTY SAND, low plasticity; red brown; soft/loose, moist, W<PL	SM	[Reddish-brown soil]	851.2 10.00	1	[Photo]	7.00 9.00		
15	845	16.00 - 19.00 ML, Clayey SILT with trace sand, low plasticity; light gray to white; soft, moist, W<PL	ML	[Light gray soil]	845.2 16.00		[Photo]			
20	840	19.00 - 29.00 SM, SILTY SAND, low plasticity, very fine; light gray to tannish white; soft, moist, W<PL	SM	[Light gray soil]	842.2 19.00	2	[Photo]	9.50 10.00		
25	835						[Photo]			
30	830	29.00 - 39.00 SM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; soft, moist (becoming dry with depth), W<PL	SM	[Light gray soil]	832.2 29.00	3	[Photo]	10.00 10.00	AquaGuard Grout	
35	825						[Photo]			
40			SM	[Light gray soil]	822.2 39.00	4	[Photo]	9.00 10.00		

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-117D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 75.00 ft
 LOCATION: Offset of DGWC-71

DRILL RIG: TSi 150CC
 DATE STARTED: 3/17/21
 DATE COMPLETED: 3/17/21

NORTHING: 1,393,963.8
 EASTING: 2,201,727.3
 GS ELEVATION: 861.2
 TOC ELEVATION: 863.82 ft

DEPTH W.L.: 27.88
 ELEVATION W.L.: 835.94
 DATE W.L.: 4/7/2021
 TIME W.L.: 9:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
40	820	39.00 - 41.00 SM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; compact/dense to firm/stiff, moist (becoming dry with depth), W<PL (Continued)	SM	[Symbol]	820.2 41.00	4	[Photo]	9.00 10.00	[Piezo Diagram]	WELL CASING Interval: 0-64.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 64.7-74.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 74.7-75' FILTER PACK Interval: 62.5- 75' Type: #1 Filter Sand Quantity: 4 - 50 lbs bags FILTER PACK SEAL Interval: 58.5-62.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-58.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4'x4' Aluminium DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic
45	815	41.00 - 49.00 TWR, Transitional Weathered Rock; breaks down to abreaks down to aSM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; compact/dense to firm/stiff, moist (becoming dry with depth), W<PL	TWR	[Symbol]	812.2 49.00					
50	810	49.00 - 75.00 Fresh to moderately weathered, well foliated, moderately jointed, gray to dark gray, fine to medium grained, medium strong, biotite-quartz-feldspar GNEISS; locally contains pegmatite and quartz veins	BR	[Symbol]	[Symbol]	5	[Photo]	7.50 10.00	[Piezo Diagram]	
55	805					6	[Photo]	8.50 10.00	[Piezo Diagram]	
60	800					7	[Photo]	4.50 6.00	[Piezo Diagram]	
65	795								[Piezo Diagram]	
70	790								[Piezo Diagram]	
75	785	Boring completed at 75.00 ft				786.2			[Piezo Diagram]	

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-118

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 75.00 ft
 LOCATION: West of gas pipeline

DRILL RIG: TSi 150CC
 DATE STARTED: 3/8/21
 DATE COMPLETED: 3/9/21

NORTHING: 1,391,219.3
 EASTING: 2,200,449.7
 GS ELEVATION: 805.0
 TOC ELEVATION: 807.70 ft

DEPTH W.L.: 50.65
 ELEVATION W.L.: 757.05
 DATE W.L.: 4/6/2021
 TIME W.L.: 9:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0	805	0.00 - 3.00 CL, Silty CLAY with trace to some fine sand, low plasticity; dark red; soft, dry to moist, W<PL	CL		802 3.00					<p>WELL CASING Interval: 0-64.85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 64.85-74.85' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 74.85-75.15'</p> <p>FILTER PACK Interval: 61.8-75.15 Type: #1 Filter Sand Quantity: 4 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 56.6-61.8' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-56.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic</p>
5	800	3.00 - 10.00 SP, SAND, non plasticity, uniformly graded; yellow-orange; loose, dry to moist, W<PL	SP			Hand Auger		0.00 10.00		
10	795	10.00 - 18.50 CL, Silty CLAY with trace to some fine sand, low plasticity; red-orange and white; soft, moist, W<PL	CL		795 10.00			5.00 10.00		
15	790									
20	785	18.50 - 20.00 ML, Clayey SILT with trace sand and fine gravels, non plasticity; olive brown to brown; loose, dry, W<PL	ML		786.5 18.50					
		20.00 - 25.00 SP, SAND, non plasticity, fine to coarse, poorly graded; tannish-orange; loose, moist, W<PL	SP		785 20.00					
25	780	25.00 - 30.00 SM, SILTY SAND, low plasticity, fine to medium; orange to tan; loose/soft, moist, W<PL	SM		780 25.00			7.50 10.00		
30	775	30.00 - 32.00 ML, Sandy SILT, non plasticity; brown to dark brown; soft, moist, W<PL	ML		775 30.00			2.50 2.00		
		32.00 - 40.00 TWR, Transitional Weathered Rock; breaks down to a SW-SM, SAND AND SILT with some gravels, non to low plasticity, fine to coarse; white; loose, wet, W<PL	TWR		773 32.00			1.00 6.00		
35	770							AquaGuard Grout		
40	765				765			1.50 2.00		

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ | PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-118

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 75.00 ft
 LOCATION: West of gas pipeline

DRILL RIG: TSi 150CC
 DATE STARTED: 3/8/21
 DATE COMPLETED: 3/9/21

NORTHING: 1,391,219.3
 EASTING: 2,200,449.7
 GS ELEVATION: 805.0
 TOC ELEVATION: 807.70 ft

DEPTH W.L.: 50.65
 ELEVATION W.L.: 757.05
 DATE W.L.: 4/6/2021
 TIME W.L.: 9:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC				
40	765	40.00 - 50.00 Slightly to moderately weathered, well foliated, moderately jointed, tan to white to gray, fine to medium grained, medium strong, plagioclase-K-spar-biotite-quartz GNEISS	BR		40.00		6	4.80 10.00	<div style="text-align: center;">Bentonite Seal</div> <div style="text-align: center;"># 1 Filter Sand</div> <div style="text-align: center;">0.010" Slotted Schedule 40 PVC</div> <div style="text-align: center;">Sump</div>	<p>WELL CASING Interval: 0-64.85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 64.85-74.85' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 74.85-75.15'</p> <p>FILTER PACK Interval: 61.8-75.15 Type: #1 Filter Sand Quantity: 4 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 56.6-61.8' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-56.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>		
45	760				755 50.00			7				2.50 10.00
50	755	50.00 - 60.00 Moderately weathered, well foliated, well jointed, tan to white to brown, fine to medium grained, weak to medium strong, plagioclase-K-spar-biotite-quartz GNEISS	BR		745 60.00		8					0.00 10.00
55	750				730			9				2.50 5.00
60	745	60.00 - 75.00 Fresh to slightly weathered, well foliated, poorly jointed, greenish gray to gray, fine to medium grained, medium strong, epidote-biotite-feldspar-quartz GNEISS			730							Boring completed at 75.00 ft
65	740											
70	735											
75	730											
80	725											

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-119D

SHEET 1 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 105.00 ft
 LOCATION: Offset of B-118

DRILL RIG: TSi 150CC
 DATE STARTED: 3/10/21
 DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
 EASTING: 2,200,446.6
 GS ELEVATION: 804.5
 TOC ELEVATION: 807.15 ft

DEPTH W.L.: 49.94
 ELEVATION W.L.: 757.21
 DATE W.L.: 4/5/2021
 TIME W.L.: 13:37

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
0		0.00 - 12.50 CL, Sandy CLAY, low plasticity, fine to coarse; red to red-orange; soft/loose, dry to moist, W<PL	CL						<p>WELL CASING Interval: 0-94.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 94.7-104.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 104.7-105'</p> <p>FILTER PACK Interval: 91.5-105' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 86.5-91.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-86.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 160 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4" x 4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
5	800				Hand Auger		0.00 10.00		
10	795			792					
15	790	12.50 - 18.00 ML, Clayey SILT with some fine sand, low plasticity; pink-brown to tan; loose, dry to moist, W<PL	ML		1	786.5 18.00 785.5 19.00 784.5 20.00 783 21.50 781 23.50	7.50 9.00		
20	785	18.00 - 19.00 SP, SAND with trace to some silt, low plasticity, uniformly graded; white to tan; loose, dry, W<PL	SP						
		19.00 - 20.00 SC, CLAYEY SAND, moderate plasticity, fine to medium; dark brown; soft, moist, W-PL	SC						
		20.00 - 21.50 SP, SAND with some silt, low plasticity, fine; white to tan to gray; loose, dry to moist, W<PL	SP						
		21.50 - 23.50 SM, SILTY SAND, low plasticity; beige brown; soft, moist to wet, W-PL	SM						
25	780	23.50 - 27.50 ML, Clayey SILT with some fine sand, moderate plasticity; light to dark brown; soft/loose, dry to moist, W<PL	ML		2		9.50 10.00		
		27.50 - 29.00 SP, SAND with trace to some silt, non plasticity, fine to coarse; white to beige; loose, dry, W<PL	SP						
30	775	29.00 - 39.00 ML, Sandy SILT with trace gravels, low plasticity, fine; tan to light brown; loose, dry to moist, W<PL	ML		3		9.50 10.00	AquaGuard Grout	
35	770			777					
				775.5					
40	765		ML		4	765.5 39.00	4.50 6.00		

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-119D

SHEET 2 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 105.00 ft
 LOCATION: Offset of B-118

DRILL RIG: TSi 150CC
 DATE STARTED: 3/10/21
 DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
 EASTING: 2,200,446.6
 GS ELEVATION: 804.5
 TOC ELEVATION: 807.15 ft

DEPTH W.L.: 49.94
 ELEVATION W.L.: 757.21
 DATE W.L.: 4/5/2021
 TIME W.L.: 13:37

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
40		39.00 - 45.00 ML, Sandy SILT with trace gravels and cobbles, low plasticity, fine; tan to light brown; loose, dry to wet, W<PL (<i>Continued</i>)	ML		759.5 45.00	4		4.50 6.00		WELL CASING Interval: 0-94.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw WELL SCREEN Interval: 94.7-104.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 104.7-105' FILTER PACK Interval: 91.5-105' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bags FILTER PACK SEAL Interval: 86.5-91.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket ANNULUS SEAL Interval: 0-86.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 160 gallons WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4"x4" Aluminium DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic
45	760	45.00 - 50.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND with trace gravels(weatherd gneiss) low plasticity; light gray to tan; firm/compact, moist to wet, W<PL	TWR		754.5 50.00	5		6.00 5.00		
50	755	50.00 - 53.40 Slightly to moderately weathered, well foliated, moderately jointed, gray to brown, fine grained, weak to medium strong, muscovite-quartz-feldspar-biotite GNEISS	BR		751.1 53.40	6		6.20 10.00		
55	750	53.40 - 60.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND, low plasticity; grayish brown to gray; loose, dry to moist, W<PL	TWR		744.5 60.00	7		4.00 10.00		
60	740	60.00 - 67.00 Slightly to moderately weathered, well foliated, moderately jointed, gray to brown, fine grained, weak to medium strong, muscovite-quartz-feldspar-biotite GNEISS	BR		737.5 67.00	8		8.50 10.00		
65										
70	735	67.00 - 87.00 Fresh to slightly weathered, moderately foliated, poorly jointed, dark gray to black, very fine to fine grained, medium strong, feldspar-quartz-biotite GNEISS	BR							
75	730									
80	725									

Log continued on next page

BOREHOLE RECORD: 166849621.GPJ - PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-119D

SHEET 3 of 3

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 105.00 ft
 LOCATION: Offset of B-118

DRILL RIG: TSi 150CC
 DATE STARTED: 3/10/21
 DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
 EASTING: 2,200,446.6
 GS ELEVATION: 804.5
 TOC ELEVATION: 807.15 ft

DEPTH W.L.: 49.94
 ELEVATION W.L.: 757.21
 DATE W.L.: 4/5/2021
 TIME W.L.: 13:37

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
80		67.00 - 87.00 Fresh to slightly weathered, moderately foliated, poorly jointed, dark gray to black, very fine to fine grained, medium strong, feldspar-quartz-biotite GNEISS (Continued)	BR					0.010" Slotted Schedule 40 PVC Sump -	<p>WELL CASING Interval: 0-94.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 94.7-104.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 104.7-105'</p> <p>FILTER PACK Interval: 91.5-105' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 86.5-91.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-86.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 160 gallons</p> <p>WELL COMPLETION Pad: 4'x4'x4" Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic</p>
85	720			717.5	9	7.00 10.00			
		87.00 - 90.00 Fresh to slightly weathered, poor to moderately foliated, poorly jointed, dark gray to black, medium grained, medium strong, chlorite-epidote-quartz-feldspar-biotite GNEISS	BR			714.5			
90	715	90.00 - 105.00 Fresh to slightly weathered, foliated, poorly jointed, light gray to dark gray, fine to medium grained, medium strong to strong, feldspar-biotite-quartz GNEISS; locally contains garnets and k-spar augens	BR			90.00			
95	710				10	9.00 10.00			
100	705		BR						
105	700			699.5	11	4.90 5.00			
		Boring completed at 105.00 ft							
110	695								
115	690								
120	685								

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-120D

SHEET 1 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 70.00 ft
 LOCATION: Offset of B-3

DRILL RIG: TSi 150CC
 DATE STARTED: 3/5/21
 DATE COMPLETED: 3/6/21

NORTHING: 1,394,047.2
 EASTING: 2,202,436.4
 GS ELEVATION: 834.0
 TOC ELEVATION: 836.42 ft

DEPTH W.L.: 33.76
 ELEVATION W.L.: 802.66
 DATE W.L.: 4/9/2021
 TIME W.L.: 12:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
0		0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance								<p>WELL CASING Interval: 0-59' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 59-69' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 69.0-69.3'</p> <p>FILTER PACK Interval: 56.0-69.3' Type: #1 Filter Sand Quantity: 5.5 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 53-56' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-53' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4'x4" Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
5					Air Knife		0.00 10.00			
10		10.00 - 20.00 ML, Clayey SILT with trace medium to coarse sand, non to low plasticity; tan to brown; loose, dry to moist, W<PL	ML		824 10.00	1	6.80 10.00			
15										
20		20.00 - 27.00 SM, SILTY SAND with some gravels, non plasticity; light gray to gray; loose, dry to moist, W<PL	SM		814 20.00	2	10.00 10.00			
25										
30		27.00 - 30.00 ML, Clayey SILT with trace medium to coarse sand, non to low plasticity; tan to brown; loose, dry to moist, W<PL	ML		807 27.00					
35		30.00 - 36.00 SM, SILTY SAND with trace fine to coarse gravels, non plasticity; tan to brown; compact to dense, dry to moist, W<PL	SM		804 30.00	3	8.00 10.00	AquaGuard Grout		
40		36.00 - 40.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND with trace fine to coarse gravels, non plasticity; olive to tan to brown; compact to dense, dry to moist, W<PL	TWR		798 36.00					
		Log continued on next page			794					

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE B-120D

SHEET 2 of 2

PROJECT: Plant McDonough
 PROJECT NUMBER: 166849621
 DRILLED DEPTH: 70.00 ft
 LOCATION: Offset of B-3

DRILL RIG: TSi 150CC
 DATE STARTED: 3/5/21
 DATE COMPLETED: 3/6/21

NORTHING: 1,394,047.2
 EASTING: 2,202,436.4
 GS ELEVATION: 834.0
 TOC ELEVATION: 836.42 ft

DEPTH W.L.: 33.76
 ELEVATION W.L.: 802.66
 DATE W.L.: 4/9/2021
 TIME W.L.: 12:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
40		40.00 - 70.00 Fresh to slightly weathered, well foliated, poorly jointed, white to dark gray, fine to coarse grained, biotite-feldspar-quartz GNEISS; locally the feldspars are augened	BR		40.00				<p>WELL CASING Interval: 0-59' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p>WELL SCREEN Interval: 59-69' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 69.0-69.3'</p> <p>FILTER PACK Interval: 56.0-69.3' Type: #1 Filter Sand Quantity: 5.5 - 50 lbs bags</p> <p>FILTER PACK SEAL Interval: 53-56' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0-53' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>	<p>WELL COMPLETION Pad: 4'x4' Concrete Protective Casing: 4"x4" Aluminium</p> <p>DRILLING METHODS Soil Drill: Rotasonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotasonic Sample Type: Rotasonic</p>
45	790				4		7.80 10.00			
50	785									
55	780				5		6.20 10.00			
60	775									
65	770				6		8.50 10.00			
70		Boring completed at 70.00 ft			764					
75										
80										

BOREHOLE RECORD: 166849621.GPJ_PIEDMONT.GDT: 5/24/21

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/24/21



RECORD OF BOREHOLE DGWC-121

SHEET 1 of 2

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 50.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/22/22
 DATE COMPLETED: 3/22/22

NORTHING: 1,390,739.7
 EASTING: 2,200,849.4
 GS ELEVATION: 764.52
 TOC ELEVATION: 764.16 ft

DEPTH W.L.: 9.4'
 ELEVATION W.L.: 755.12
 DATE W.L.: 3/22/22
 TIME W.L.: 19:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
0		0.00 - 8.00 Fill material							<p>WELL CASING Interval: 0'-39.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 39.7'-49.7' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 37.5'-49.7' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 3.5 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 34'-37.5' Type: Pel Plug Bentonite Pellets Quantity: 1 x 50 lb bucket</p> <p>ANNULUS SEAL Interval: 0'-34' Type: Aquaguard bentonite grout Quantity: 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
5	760				756.52	1	6.50 10.00		
8		8.00 - 10.00 MH, CLAYEY SILT; very micaceous, little fine to coarse sand, brown/red brown, saprolitic, dry	MH		8.00				
10	755				754.52				
15	750	10.00 - 20.00 ML, fine sandy SILT; very micaceous, little clay, brown to dark brown, saprolitic, crenulated, dry	ML		10.00	2	9.75 10.00		
20	745				744.52				
25	740	20.00 - 29.50 SW-ML, fine SAND and SILT; very micaceous, little clay, dark brown to brown, iron staining, saprolitic, moist	SW-ML		20.00	3	9.75 10.00		
30	735				735.02				
35	730	29.50 - 30.00 TWR, Transitionally Weathered Rock; muscovite schist	TWR		30.00	4	9.75 10.00		
40	725	30.00 - 40.00 TWR; fine to coarse gravel with fine sandy silt, little clay, friable, very micaceous, brown to dark brown, orange iron staining in soils, moist	TWR						
45	720	40.00 - 48.50 TWR; same as above	TWR		40.00	5	7.50 10.00		
50	715	48.50 - 50.00 muscovite SCHIST, fine to coarse grained, medium strong,			48.50				
					716.02				
					714.52				

Log continued on next page

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D, GPJ, PIEDMONT, GDT, 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE DGWC-121

SHEET 2 of 2

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 50.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/22/22
 DATE COMPLETED: 3/22/22

NORTHING: 1,390,739.7
 EASTING: 2,200,849.4
 GS ELEVATION: 764.52
 TOC ELEVATION: 764.16 ft

DEPTH W.L.: 9.4'
 ELEVATION
 W.L.: 755.12
 DATE W.L.: 3/22/22
 TIME W.L.: 19:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
50		slightly to moderately weathered, slightly to moderately fractured, some iron staining Boring completed at 50.00 ft							WELL CASING Interval: 0'-39.7' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 39.7'-49.7' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 37.5'-49.7' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 3.5 x 50 lb bag FILTER PACK SEAL Interval: 34'-37.5' Type: Pel Plug Bentonite Pellets Quantity: 1 x 50 lb bucket ANNULUS SEAL Interval: 0'-34' Type: Aquaguard bentonite grout Quantity: 2 bags Aquaguard + 40 gal water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic	
55	710									
60	705									
65	700									
70	695									
75	690									
80	685									
85	680									
90	675									
95	670									
100	665									

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ_PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-122D

SHEET 1 of 2

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 85.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/24/22
 DATE COMPLETED: 3/24/22

NORTHING: 1,390,992.8
 EASTING: 2,202,975.4
 GS ELEVATION: 777.32
 TOC ELEVATION: 777.03 ft

DEPTH W.L.: 30.25
 ELEVATION W.L.: 747.07
 DATE W.L.: 3/25/22
 TIME W.L.: 8:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
0	775	0.00 - 10.00 FILL, CL, SILTY CLAY, moist, micaceous, trace of organics; air knifed for utility clearance							<p>WELL CASING Interval: 0'-69.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 69.8'-79.8' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 67.8'-85' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 5 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 64.2'-67.8' Type: Pel Plug Bentonite Pellets Quantity: 1 x 50 lb bucket</p> <p>ANNULUS SEAL Interval: 0'-64.2' Type: Aquaguard bentonite grout Quantity: 3 batches of 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
5	770				1	NA	10.00		
10	765	10.00 - 20.00 CL, SILTY CLAY, moist, high plasticity, little fine to coarse gravel, orange to brown, schist fragments	CH		2	8.50	10.00		
15	760				2	8.50	10.00		
20	755	20.00 - 30.00 SP-SM, SAND and SILT, dark brown, iron staining, low plasticity, weathered boulder encountered, muscovite, biotite schist boulder			3	6.50	10.00		
25	750		SP-SM		3	6.50	10.00		
30	745	30.00 - 40.00 SP-SM, SAND, moist, dark gray, fine grained, trace of organics, rounded shape			4	9.75	10.00		
35	740		SP-SM		4	9.75	10.00		
40	735	40.00 - 41.00 SP-SM, SILTY SAND, dark brown, little iron staining, fine, rounded shape			5	9.75	10.00		
45	730	41.00 - 50.00 muscovite biotite SCHIST, strong, fresh to slightly weathered, slightly fractured, fine to coarse grains, little iron staining			5	9.75	10.00		
50	727.32	Log continued on next page							

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ - PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-122D

SHEET 2 of 2

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 85.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/24/22
 DATE COMPLETED: 3/24/22

NORTHING: 1,390,992.8
 EASTING: 2,202,975.4
 GS ELEVATION: 777.32
 TOC ELEVATION: 777.03 ft

DEPTH W.L.: 30.25
 ELEVATION W.L.: 747.07
 DATE W.L.: 3/25/22
 TIME W.L.: 8:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
50		50.00 - 60.00 Muscovite biotite SCHIST, strong, fresh, unfractured, fine to coarse grains		[Graphic Log Pattern]	50.00					<p>WELL CASING Interval: 0'-69.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 69.8'-79.8' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 67.8'-85' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 5 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 64.2'-67.8' Type: Pel Plug Bentonite Pellets Quantity: 1 x 50 lb bucket</p> <p>ANNULUS SEAL Interval: 0'-64.2' Type: Aquaguard bentonite grout Quantity: 3 batches of 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
725						6	6.50 10.00			
55										
720										
60		60.00 - 65.00 Same as above			717.32 60.00					
715										
65		65.00 - 70.00 muscovite biotite SCHIST, strong, fresh to slightly weathered, slightly fractured, fine to coarse grained, traces of iron staining			712.32 65.00	7	9.50 10.00			
710										
70		70.00 - 73.00 Same as above, some iron staining, slightly to moderately fractured			707.32 70.00					
705										
75		73.00 - 80.00 muscovite biotite SCHIST, strong fresh, unfractured, fine to coarse grained			704.32 73.00	8	9.20 10.00			
700										
80		80.00 - 85.00 muscovite biotite SCHIST, strong fresh to slightly weathered, slightly fractured, fine to coarse grained, trace to little iron staining			697.32 80.00	9	5.00 5.00			
695										
85		Boring completed at 85.00 ft			692.32					
690										
90										
685										
95										
680										
100										

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ - PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-123D

SHEET 1 of 4

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 160.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/25/22
 DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
 EASTING: 2,202,608.4
 GS ELEVATION: 778.85
 TOC ELEVATION: 781.80 ft

DEPTH W.L.: 13.2
 ELEVATION W.L.: 765.65
 DATE W.L.: 4/4/22
 TIME W.L.: 14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO		
0		0.00 - 10.00 FILL, CL, SILTY CLAY, moist, micaceous, trace of organics; Air knifed for utility clearance	CL	[Hatched Pattern]	768.85	1			<p>WELL CASING Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips</p> <p>ANNULUS SEAL Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
775							NA 10.00		
5									
770									
10		10.00 - 20.00 ML-CH, SILT and CLAY, moist, red, orange, brown, some fine sand, trace of fine schist gravel, micaceous	ML-CH	[Diagonal Pattern]	758.85	2	9.75 10.00		
765									
15									
760									
20		20.00 - 28.00 Same as above	ML-CH	[Diagonal Pattern]	750.85	3	8.50 10.00		
755									
25									
750		28.00 - 30.00 ML, sandy SILT, moist, gray, fine, trace of coarse gravel	ML	[Vertical Lines]	748.85				
30		30.00 - 31.50 Same as above	ML	[Vertical Lines]	747.35				
745		31.50 - 40.00 muscovite biotite SCHIST, fine grained, strong, slightly to moderately weathered, slight, fractured, some iron staining		[Wavy Pattern]	738.85	4	9.75 10.00		
740									
40		40.00 - 50.00 muscovite biotite garnet SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, traces iron staining		[Wavy Pattern]	728.85	5	7.50 10.00		
735									
45									
730									
50		Log continued on next page							

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ_PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-123D

SHEET 2 of 4

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 160.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/25/22
 DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
 EASTING: 2,202,608.4
 GS ELEVATION: 778.85
 TOC ELEVATION: 781.80 ft

DEPTH W.L.: 13.2
 ELEVATION W.L.: 765.65
 DATE W.L.: 4/4/22
 TIME W.L.: 14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
50		50.00 - 60.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, traces of iron staining		50.00					Pel Plug - Pellets	<p>WELL CASING Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips</p> <p>ANNULUS SEAL Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
725					6		9.30 10.00			
55				718.85						
720				60.00			9.50 10.00			
60		60.00 - 70.00 muscovite biotite chlorite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly fractured, trace of iron staining						Haliburton Bentonite - Chips 3/8"		
715					7		9.50 10.00			
65				708.85						
710				70.00			9.50 10.00			
70		70.00 - 80.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly weathered, slightly fractured, secondary mineralization of fractures, trace of iron staining						Haliburton Bentonite - Chips 3/8"		
705					8		9.50 10.00			
75				698.85						
700				80.00			7.50 10.00			
80		80.00 - 90.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly weathered, slightly fractured, secondary mineralization of fractures, trace of iron staining						Haliburton Bentonite - Chips 3/8"		
695					9		7.50 10.00			
85				688.85						
690				90.00			8.00 10.00			
90		90.00 - 100.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, fresh to slightly weathered, unfractured to slightly fractured						Haliburton Bentonite - Chips 3/8"		
685					10		8.00 10.00			
95				678.85						
680				678.85						
100		Log continued on next page								

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ - PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-123D

SHEET 3 of 4

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 160.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/25/22
 DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
 EASTING: 2,202,608.4
 GS ELEVATION: 778.85
 TOC ELEVATION: 781.80 ft

DEPTH W.L.: 13.2
 ELEVATION W.L.: 765.65
 DATE W.L.: 4/4/22
 TIME W.L.: 14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO	REC		
100		100.00 - 110.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, fresh to slightly weathered, unfractured to slightly fractured		[Graphic Log Pattern]	100.00				<p style="font-size: small;">Pel Plug Pellets Filter Sil Filtration sand and gravel 0.010" Slotted Schedule 40 PVC U-pack Screen</p>	<p>WELL CASING Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag</p> <p>FILTER PACK SEAL Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips</p> <p>ANNULUS SEAL Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic</p>
675						11	9.75 10.00			
105					668.85					
670		110.00 - 120.00 muscovite Biotite SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, secondary mineralization of fractures with calcite @ 114' bgs, measured -0.018 gallons per minute (gpm) from borehole geophysics heat-pulse flow meter (HPFM), trace vein quartz		[Graphic Log Pattern]	110.00					
110						12	8.25 10.00			
665					658.85					
115		120.00 - 130.00 Same as above. Water producing fracture at 129.5' identified using borehole geophysics		[Graphic Log Pattern]	120.00					
660					648.85					
120						13	9.75 10.00			
655					648.85					
125		130.00 - 140.00 Same as above; Trace secondary mineralization of calcite within fractures @ 131 bgs, water producing fracture at 130.5' identified using borehole geophysics, measured -0.027 gallons per minute (gpm) from HPFM		[Graphic Log Pattern]	130.00					
650						14	9.00 10.00			
130					638.85					
645										
135		140.00 - 150.00 muscovite biotite, garnet SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, calcite precipitation @ 145' bgs		[Graphic Log Pattern]	140.00					
640						15	9.00 10.00			
140					628.85					
635										
145										
630										
150		Log continued on next page								

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ - PIEDMONT.GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



RECORD OF BOREHOLE B-123D

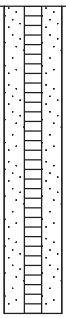
SHEET 4 of 4

PROJECT: SCS Plant McDonough
 PROJECT NUMBER: GL166849621
 DRILLED DEPTH: 160.00 ft
 LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
 Truck-Mounted Sonic
 DATE STARTED: 3/25/22
 DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
 EASTING: 2,202,608.4
 GS ELEVATION: 778.85
 TOC ELEVATION: 781.80 ft

DEPTH W.L.: 13.2
 ELEVATION W.L.: 765.65
 DATE W.L.: 4/4/22
 TIME W.L.: 14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	PHOTO			REC
150		150.00 - 160.00 Same as above; calcite @ 157.5' bgs		[Graphic Log Pattern]	150.00		16	9.75 10.00		WELL CASING Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
625								WELL SCREEN Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"		
155									FILTER PACK Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag	
160		Boring completed at 160.00 ft			618.85				FILTER PACK SEAL Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips	
620									ANNULUS SEAL Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water	
165									WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum	
615									DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic	
170										
610										
175										
605										
180										
600										
185										
595										
190										
590										
195										
585										
200										

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D, GPJ_PIEDMONT, GDT 5/13/22

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Corey Franklin

GA INSPECTOR: Connor Mikilitus
 CHECKED BY: Rachel Kirkman, PG
 DATE: 5/10/22



APPENDIX A

DRILLER BONDS

CLIENT'S COPY

SURETY BOND CONTINUATION CERTIFICATE

TO: State of Georgia
Division of Environmental Protection
2 Martin Luther King Jr. Drive SE
Suite 1252
Atlanta, GA 30334

To be attached to and form a part of: Performance Bond for Well Contractors and Drillers

Principal on the Bond: Michael C. Rice/Cascade Drilling, L.P.

Surety Bond Number: K08315607

Bond Amount: Twenty Thousand and 00/100 Dollars (\$20,000.00)

In consideration of the agreed premium charged for this bond, it is understood and agreed that the following change shall be made to this obligation:

[x] CONTINUATION CERTIFICATE

This certificate extends the life of the bond to June 30, 2017. It is executed upon the express condition that the surety's liability under said bond, together with this and all previous continuation certificates, shall not be cumulative and shall in no event exceed the amount specifically set forth in said bond or any existing certificate changing the amount of said bond.

Signed, sealed and dated this 26th day of May , 2015 .

Westchester Fire Insurance Company

By: Katie S

Katie Snider, Attorney-in-Fact

Surety of Record: Westchester Fire Insurance Company
436 Walnut Street
Philadelphia, PA 19106
Phone: (415) 547-4513

Agent of Record: Kibble & Prentice, a USI Company
601 Union Street, Suite 1000
Seattle, WA 98101
Phone: (206) 441-6300

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested.

Does hereby nominate, constitute and appoint Heather Allen, Holly E Ulfers, Katie Snider, Nancy N Hill, Roxana Palacios, Steven W Palmer, all of the City of SEATTLE, Washington, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Fifteen million dollars & zero cents (\$15,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office,

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 22 day of December 2014.

WESTCHESTER FIRE INSURANCE COMPANY



Stephen M. Haney
Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

On this 22 day of December, AD. 2014 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN E. BRANDT, Notary Public
City of Philadelphia, Phila. County
My Commission Expires Sept. 26, 2018

Karen E. Brandt
Notary Public

I, the undersigned Assistant Secretary of the WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 26th day of May, 2015.



William L. Kelly
William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 22, 2016.



CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

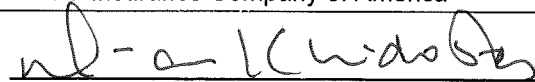
Description of bond Water Well Contractors & Drillers

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7310252

First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

all of the city of Atlanta, state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: David M. Carey
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

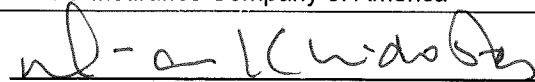
Description of bond Water Well Contractors & Drillers

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7310252

First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

all of the city of Atlanta, state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: David M. Carey
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

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IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

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I, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

GENERAL PURPOSE RIDER

To be attached to and form part of Bond Number 09157828 effective June 30, 2015 issued by the Fidelity and Deposit Company of Maryland in the amount of Twenty Thousand and No/100 (\$20,000.00), on behalf of Craig Penton dba Terracon Consultants, Inc. as Principal, and in favor of Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia as Obligee:

NOW Therefore, it is agreed that:

The expiration date of the bond is hereby amended to:

June 30, 2017

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 30th day of June , 2015 .

Signed, sealed and dated this 4th day of November , 2015 .

Craig Penton dba Terracon Consultants, Inc.
Principal

Fidelity and Deposit Company of Maryland
Surety

Christy M. Braile, Attorney-in-Fact

6/4/14 sent to
Craig Penton
(Stacy Adams)

FOR YOUR RECORDS

Bond Number 09157828

Performance Bond For Water Well Contractors And Drillers

Name of Water Well Contractor or Driller Craig Penton dba Terracon Consultants, Inc.

Know All Men By These Present

That we Craig Penton dba Terracon Consultants, Inc. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Fidelity and Deposit Company of Maryland as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS (\$20,000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

WHEREAS, the WATER WELL STANDARDS ACT OF 1985 (Ga. Laws 1985, p. 1192) (the "ACT") requires that water well contractors and drillers file performance bonds with the director to ensure compliance with the ACT; and WHEREAS the above bound PRINCIPAL is subject to the terms and provisions of said ACT. NOW, THEREFORE, the conditions of this obligation are such that if the above bound PRINCIPAL shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the ACT as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise of full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from date of issuance and shall continue in effect until terminated by expiration, mutual agreement or cancellation upon sixty (60) days written notice to Principal and Obligee; provided that the rights of the obligee and beneficiaries under this bond which arose prior to such termination shall continue.

The bond is effective June 4, 2014 and unless sooner terminated, this bond shall terminate June 30, 2015. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 4th day of, June 2014.

PRINCIPAL, BY _____ (L.S.) TITLE: _____

SURETY BY: Christy M. McCart, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. **800031223**

dated effective June 30, 2017
(MONTH-DAY-YEAR)

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 (\$30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: \$1,200.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

(425) 709-3600
Telephone Number of Agent

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars (\$60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

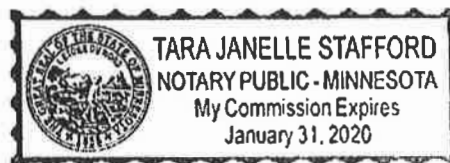
IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-sixth day of October, 2017.

STATE OF MINNESOTA
HENNEPIN COUNTY



By 
Paul J. Brehm, Senior Vice President

On this twenty-sixth day of October, 2017, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



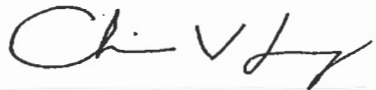

Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 9 day of May 2019



This Power of Attorney expires
October 1, 2019


Christopher V. Jerry, Secretary



Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson, William M. Smith, Derek Sabo, Charla M. Boadle**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

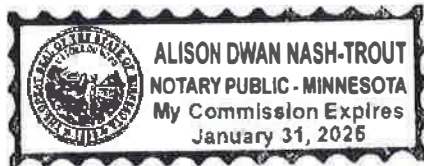
IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.

STATE OF MINNESOTA
HENNEPIN COUNTY



By 
Paul J. Brehm, Senior Vice President

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

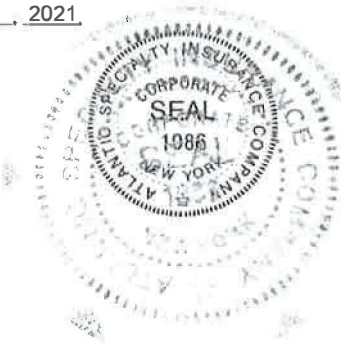



Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 12 day of April, 2021

This Power of Attorney expires
January 31, 2025




Kara Barrow, Secretary

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. 800033976

dated effective 09/27/2017
(MONTH-DAY-YEAR)

on behalf of Ricky Davis / Cascade Drilling, L.P.
(PRINCIPAL)

and in favor of Department of Natural Resources, State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on 06/30/2021
(MONTH-DAY-YEAR)

and ending on 06/30/2023
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and 00/100 Dollars (\$30,000.00)

Description of bond Performance Bond for Water Well Contractors

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 12th, 2021
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By Andrew P. Larsen
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

425-709-3600
Telephone Number of Agent

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. **4993104**

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia Department of Natural Resources, Environmental Protection Division
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2021
(MONTH-DAY-YEAR)

and ending on June 30, 2022
(MONTH-DAY-YEAR)

Amount of bond Fifteen Thousand Dollars and 00/100 (\$15,000.00)

Description of bond Water Well Contractors & Drillers

Premium: \$100.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)
SAFECO Insurance Company of America
175 Berkeley Street, Boston, MA 02116

By 
Attorney-in-Fact Jeffrey M. Wilson, Attorney-in-Fact

McGriff Insurance Services, Inc.
Agent

2211 7th Avenue South, Birmingham, AL 35233
Address of Agent

(205) 252-9871
Telephone Number of Agent



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

Certificate No: 8205019-016032

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, A Lisa B. Ferris; Anna Childress; Jeffrey M. Wilson; Mark W. Edwards II; Richard H. Mitchell; Robert R. Freel; Sam Audia; William M. Smith

all of the city of Birmingham state of AL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of March, 2021.



American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: [Signature]
David M. Carey, Assistant Secretary

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 11th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: [Signature]
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 6th day of May, 2021.



By: [Signature]
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. **4993104**

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia Department of Natural Resources, Environmental Protection Division
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2022
(MONTH-DAY-YEAR)

and ending on June 30, 2023
(MONTH-DAY-YEAR)

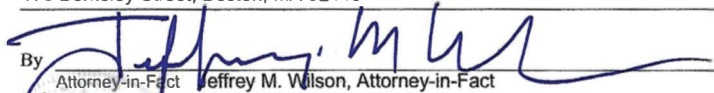
Amount of bond Fifteen Thousand Dollars and 00/100 (\$15,000.00)

Description of bond Water Well Contractors & Drillers

Premium: \$100.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)
SAFECO Insurance Company of America
175 Berkeley Street, Boston, MA 02116

By 
Attorney-in-Fact Jeffrey M. Wilson, Attorney-in-Fact

McGriff Insurance Services, Inc.
Agent

221 1/2th Avenue South, Birmingham, AL 35233
Address of Agent

(205) 252-0871
Telephone Number of Agent



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

Certificate No: 8205019-016032

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, A Lisa B. Ferris; Anna Childress; Jeffrey M. Wilson; Mark W. Edwards II; Richard H. Mitchell; Robert R. Freel; Sam Audia; William M. Smith

all of the city of Birmingham state of AL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of March, 2021.



American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: [Signature]
David M. Carey, Assistant Secretary

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 11th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: [Signature]
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 6th day of May, 2021.



By: [Signature]
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

APPENDIX A

CERTIFIED SURVEY REPORT



1469 HIGHWAY 20 WEST • McDONOUGH, GA 30253
phone: 770-707-0777 fax: 770.707-0755
WWW.METRO-ENGINEERING.COM

SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.


James R. Green R.L.S. No. 2543



Date: 8/10/20

Plant McDonough
Monitoring Well Locations
August 7, 2020

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-100	N33.821507	W84.477304	1390255.7	2202241.1	775.32	1390254.8	2202242.1	777.95	775.3
B-16	N33.827948	W84.473793	1392595.3	2203314.4	823.54	1392595.1	2203315.4	826.47	823.6
B-18	N33.827740	W84.475241	1392520.2	2202876.1	823.89	1392521.0	2202875.5	826.56	823.9
B-24	N33.827616	W84.479935	1392479.7	2201451.1	819.19	1392479.9	2201450.0	822.11	819.3
B-25	N33.828532	W84.479765	1392813.0	2201503.9	833.41	1392813.3	2201502.7	836.54	833.5
B-26	N33.829336	W84.479610	1393105.5	2201551.4	850.61	1393105.6	2201550.4	853.60	850.6
B-28	N33.826209	W84.479175	1391968.5	2201678.9	813.28	1391967.4	2201679.2	816.08	813.3
B-29	N33.825994	W84.480021	1391891.0	2201421.4	813.47	1391890.0	2201422.0	816.43	813.5
B-3	N33.831925	W84.476784	1394044.3	2202412.0	834.86	1394045.1	2202411.5	837.78	835.0
B-31	N33.826387	W84.481648	1392034.9	2200928.0	794.84	1392034.3	2200928.5	797.47	794.9
B-41	N33.823333	W84.478925	1390921.5	2201751.1	792.40	1390920.8	2201751.9	795.20	792.4
B-50	N33.825358	W84.478639	1391656.0	2201840.9	806.49	1391657.1	2201841.0	809.67	809.2
B-51	N33.822173	W84.481705	1390500.7	2200905.6	763.29	1390501.2	2200906.5	765.92	763.3
B-52	N33.827143	W84.480378	1392307.3	2201314.3	820.18	1392308.3	2201314.8	822.89	820.3
B-54	N33.832971	W84.474387	1394422.3	2203141.2	782.54	1394423.5	2203140.7	785.46	782.6
B-55	N33.832207	W84.471067	1394142.2	2204146.8	822.86	1394142.6	2204147.9	825.12	822.9
B-56	N33.831700	W84.470934	1393957.6	2204186.8	820.95	1393957.9	2204187.8	823.59	821.0
B-57	N33.824649	W84.475687	1391397.5	2202736.1	786.03	1391396.3	2202736.9	789.04	786.0
B-58	N33.823902	W84.476706	1391126.5	2202426.0	785.20	1391125.7	2202426.5	788.17	785.2
B-59	N33.832766	W84.474846	1394348.1	2203001.5	785.41	1394349.1	2203001.1	788.00	785.5
B-6	N33.832961	W84.473972	1394420.5	2203266.5	786.45	1394419.5	2203266.5	789.47	786.5
B-60	N33.823839	W84.475205	1391101.4	2202882.2	779.25	1391100.7	2202881.6	782.13	779.2
B-61	N33.823442	W84.476443	1390958.4	2202506.9	778.95	1390957.8	2202505.8	782.09	779.0
B-62	N33.820331	W84.478719	N.A.	N.A.	N.A.	1389828.1	2201811.2	760.08	760.4
B-63	N33.823559	W84.474888	1390998.7	2202977.5	777.37	1390999.1	2202978.1	777.10	777.3
B-64	N33.832856	W84.474746	1394382.3	2203030.6	785.98	1394381.9	2203031.3	785.83	786.1
B-65	N33.832862	W84.471389	N.A.	N.A.	N.A.	1394381.2	2204050.8	821.95	822.3
B-66	N33.831427	W84.470638	1393859.2	2204277.7	813.33	1393858.2	2204277.5	815.90	813.3

Plant McDonough
Monitoring Well Locations
August 7, 2020

B-68	N33.824362	W84.482346	1391298.8	2200715.2	759.05	1391298.2	2200714.2	758.68	759.0
B-7	N33.832841	W84.472887	1394375.6	2203596.0	806.04	1394374.6	2203596.1	809.16	806.1
B-76	N33.822783	W84.475614	1390716.5	2202756.0	760.87	1390717.4	2202756.9	760.53	766.5
B-77	N33.823420	W84.475007	1390949.4	2202941.4	777.12	1390948.7	2202942.0	776.86	777.1
B-78	N33.832708	W84.474987	1394327.3	2202958.7	787.79	1394328.2	2202958.2	790.75	788.0
B-79	N33.833068	W84.474116	1394457.8	2203223.6	785.84	1394458.6	2203223.0	788.66	785.9
B-80	N33.832834	W84.473091	1394373.5	2203533.9	801.73	1394372.6	2203533.9	804.47	801.8
B-81	N33.832815	W84.472409	1394365.8	2203741.3	817.64	1394364.9	2203741.1	820.56	817.7
B-82	N33.831129	W84.470701	1393750.1	2204256.8	807.55	1393750.0	2204258.1	810.07	807.5
B-83	N33.822832	W84.475816	1390735.9	2202695.1	777.17	1390735.5	2202695.6	776.98	777.1
B-84	N33.821939	W84.477307	1390411.2	2202242.5	776.52	1390411.9	2202241.9	776.34	776.6
B-85	N33.832998	W84.474407	1394432.8	2203134.8	782.71	1394433.4	2203134.5	782.54	782.7
B-86	N33.833127	W84.474170	1394479.5	2203207.0	784.52	1394480.0	2203206.6	784.29	784.6
B-87	N33.832915	W84.473100	1394400.8	2203531.3	800.32	1394401.9	2203531.3	803.37	800.4
B-88	N33.832914	W84.472419	1394399.9	2203738.1	816.80	1394401.1	2203738.3	820.07	817.0
B-89	N33.832910	W84.471394	1394398.7	2204048.6	822.53	1394398.4	2204049.4	822.36	822.6
B-90	N33.833185	W84.474151	1394500.4	2203212.8	784.16	1394501.0	2203212.6	784.00	784.2
B-91	N33.833036	W84.474442	N.A.	N.A.	N.A.	1394447.1	2203123.9	782.98	783.1
B-92	N33.832887	W84.474761	1394393.2	2203026.4	785.30	1394392.7	2203026.7	785.08	785.3
B-93	N33.832763	W84.475024	1394348.1	2202947.0	789.19	1394348.7	2202946.7	789.07	789.2
B-94	N33.832915	W84.473158	1394400.9	2203513.8	799.12	1394402.0	2203513.7	801.74	799.2
B-95	N33.833233	W84.474299	1394519.5	2203167.2	784.18	1394518.6	2203167.7	784.00	784.3
B-96	N33.833122	W84.474524	1394479.4	2203098.8	785.19	1394478.7	2203099.3	784.92	785.3
B-97	N33.832988	W84.474823	1394430.6	2203008.0	786.50	1394430.0	2203008.3	786.29	786.6
B-98	N33.832883	W84.475066	1394392.7	2202934.6	789.81	1394392.5	2202934.0	789.67	789.8
B-99	N33.833247	W84.474573	1394524.7	2203084.9	782.57	1394524.2	2203084.5	782.39	782.6
DGWA-53	N33.830346	W84.479224	1393473.5	2201667.7	841.37	1393472.8	2201668.8	844.26	841.3
DGWA-70A	N33.822116	W84.482741	1390480.2	2200591.7	805.67	1390481.4	2200591.6	808.52	805.8
DGWA-71	N33.831695	W84.479078	1393964.3	2201714.7	861.22	1393963.3	2201714.8	863.84	861.2
DGWC-8	N33.832699	W84.471944	1394323.0	2203882.3	824.02	1394322.2	2203882.1	826.38	824.1

Plant McDonough
Monitoring Well Locations
August 7, 2020

DGWC-37	N33.822121	W84.481661	1390483.0	2200920.7	763.64	1390482.2	2200919.8	766.21	763.7
DGWC-10	N33.831317	W84.470889	1393818.1	2204200.0	820.82	1393818.3	2204201.1	823.55	820.9
DGWC-11	N33.830571	W84.471001	1393546.9	2204167.3	797.99	1393547.1	2204166.2	800.57	798.1
DGWC-12	N33.829478	W84.471122	1393149.8	2204127.3	771.10	1393149.4	2204128.3	773.86	771.2
DGWC-13	N33.828740	W84.471263	1392880.8	2204085.7	791.20	1392881.1	2204084.6	794.10	791.3
DGWC-14	N33.827896	W84.471495	1392574.5	2204014.4	789.69	1392574.2	2204013.3	792.40	789.8
DGWC-15	N33.827810	W84.472595	1392544.2	2203677.9	821.43	1392544.1	2203679.0	824.50	821.5
DGWC-17	N33.828084	W84.474664	1392645.0	2203050.2	834.14	1392645.6	2203051.0	837.05	834.2
DGWC-19	N33.827248	W84.476143	1392341.8	2202601.5	822.87	1392342.6	2202601.0	825.46	822.9
DGWC-2	N33.831683	W84.477745	1393957.1	2202119.4	848.17	1393958.0	2202119.5	850.88	848.3
DGWC-20	N33.826754	W84.477079	1392163.7	2202316.3	819.66	1392164.5	2202315.6	822.14	819.8
DGWC-21	N33.826487	W84.477911	1392066.4	2202063.3	813.47	1392067.5	2202063.5	816.28	813.5
DGWC-22	N33.826647	W84.478805	1392125.2	2201791.7	813.69	1392126.3	2201791.9	816.59	813.7
DGWC-23	N33.826957	W84.479498	1392240.4	2201582.8	815.63	1392239.7	2201582.0	818.37	815.7
DGWC-38	N33.821795	W84.480906	1390363.6	2201149.0	754.67	1390362.7	2201148.6	757.43	754.7
DGWC-39	N33.821635	W84.479616	1390302.5	2201539.8	756.93	1390303.6	2201540.1	759.89	757.0
DGWC-4	N33.832275	W84.475959	1394170.6	2202662.7	812.06	1394171.5	2202662.4	814.85	812.1
DGWC-40	N33.822523	W84.478678	1390625.1	2201826.7	776.12	1390625.7	2201825.9	779.06	776.2
DGWC-42	N33.824453	W84.478540	1391327.4	2201869.1	801.98	1391327.8	2201870.2	804.68	802.0
DGWC-47	N33.825080	W84.476104	1391553.1	2202611.3	794.35	1391553.8	2202610.5	797.45	794.3
DGWC-48	N33.824420	W84.477157	1391314.2	2202289.2	785.21	1391314.6	2202290.2	788.33	785.2
DGWC-5	N33.832647	W84.474964	1394305.3	2202965.3	788.64	1394306.3	2202965.1	791.75	788.7
DGWC-67	N33.823417	W84.481959	1390953.6	2200830.0	766.80	1390953.8	2200830.7	766.70	767.0
DGWC-68A	N33.824370	W84.482278	1391300.9	2200733.4	765.06	1391301.2	2200734.9	765.33	765.4
DGWC-69	N33.825150	W84.482537	1391583.9	2200657.2	763.99	1391585.0	2200657.1	763.75	764.0
DGWC-9	N33.831969	W84.470993	1394055.6	2204168.9	821.86	1394055.9	2204170.0	824.35	821.8



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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

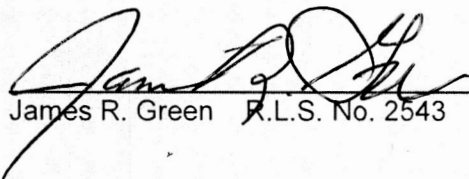
Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

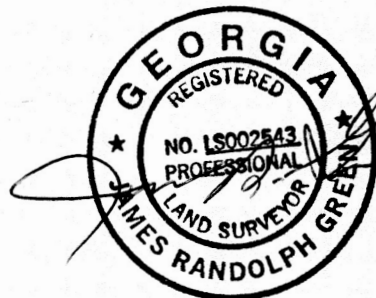
Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.


James R. Green R.L.S. No. 2543

Date: 1/6/21



Plant McDonough
Monitoring Well Locations
January 6, 2021

Well ID	LATITUDE	LONGITUDE	NAIL		NAIL ELEV	PVC		TOP PVC ELEV	ELEV AT BASE
			NORTHING	EASTING		NORTHING	EASTING		
B-101D	N33.831990	W84.470999	1394063.3	2204167.1	821.24	1394063.6	2204168.2	824.29	821.2
B-102D	N33.831344	W84.470891	1393828.2	2204199.0	820.64	1393828.4	2204200.4	823.42	820.6
B-103D	N33.825052	W84.476091	1391542.8	2202615.0	793.77	1391543.5	2202614.4	795.96	793.8
B-104D	N33.824431	W84.477129	1391317.9	2202297.4	785.31	1391318.3	2202298.5	787.90	785.3
B-105D	N33.822547	W84.478659	1390633.9	2201832.7	776.03	1390634.5	2201831.9	779.01	776.0
B-106D	N33.832712	W84.471987	1394328.3	2203869.6	823.39	1394327.1	2203869.2	826.21	823.5
B-107D	N33.827226	W84.476158	1392333.6	2202597.0	820.44	1392334.5	2202596.4	823.38	820.6
B-108D	N33.826733	W84.477091	1392155.6	2202313.1	818.33	1392156.1	2202312.5	821.13	818.4
B-109D	N33.831682	W84.477720	1393956.4	2202127.0	847.78	1393957.5	2202127.0	850.73	847.8
B-110D	N33.824352	W84.482274	1391294.0	2200734.6	764.55	1391294.4	2200736.0	764.61	764.7
B-111D	N33.832640	W84.474992	1394302.6	2202956.5	789.04	1394303.4	2202956.4	791.87	789.1
B-72	N33.824206	W84.482307	1391241.2	2200724.9	758.45	1391241.4	2200725.9	758.46	758.5
B-73	N33.824509	W84.482395	1391351.5	2200698.5	759.16	1391351.8	2200699.4	759.21	759.2
B-74	N33.824311	W84.482504	1391278.9	2200666.3	759.18	1391279.9	2200666.1	759.06	759.2
DW-D1	N33.832657	W84.474840	NA	NA	NA	1394309.5	2203002.8	786.78	786.2
DW-D2	N33.832842	W84.473838	NA	NA	NA	1394375.8	2203307.1	788.53	788.3
DW-D3	N33.832812	W84.472368	NA	NA	NA	1394363.7	2203753.5	817.50	817.2
DW-D4	N33.831941	W84.470988	NA	NA	NA	1394045.5	2204171.7	820.68	820.4

STAFF GAGE	LATITUDE	LONGITUDE	T/POST		TOP T/POST ELEV	TOP GAGE ELEV @ 8'	ELEV AT GRD
			NORTHING	EASTING			
WT-1	N33.825586	W84.482522	1391743.6	2200662.1	759.85	759.32	755.3
WT-3	N33.824028	W84.482353	1391176.9	2200711.8	757.80	756.92	752.6
WT-4	N33.822014	W84.481690	1390443.3	2200910.8	754.13	753.21	749.2
WT-5	N33.821283	W84.480144	1390175.9	2201379.5	749.01	749.07	744.9
ET-1	N33.832761	W84.474439	1394347.0	2203124.5	NA	779.94	775.9



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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.


James R. Green R.L.S. No. 2543

Date: 5/11/21



Plant McDonough
Monitoring Well Locations
April 11, 2021

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-111D	N33.832640	W84.474992	1394302.7	2202956.6	788.99	1394303.6	2202956.4	791.84	789.0
B-112D	N33.825093	W84.482513	1391564.0	2200663.1	765.98	1391564.2	2200664.1	765.58	766.1
B-113D	N33.824270	W84.482329	1391264.7	2200720.2	758.87	1391264.6	2200719.2	758.22	758.8
B-115D	N33.824287	W84.476200	1391266.0	2202580.1	786.43	1391265.3	2202580.7	789.17	786.4
B-116D	N33.822123	W84.482677	1390483.0	2200611.0	805.31	1390483.7	2200611.0	807.82	805.3
B-117D	N33.831696	W84.479036	1393964.7	2201727.1	861.23	1393963.8	2201727.3	863.82	861.2
B-118	N33.824143	W84.483216	1391220.2	2200449.5	804.99	1391219.3	2200449.7	807.70	805.0
B-119D	N33.824190	W84.483226	1391237.5	2200446.4	804.53	1391236.4	2200446.6	807.15	804.5
B-120D	N33.831931	W84.476702	1394046.4	2202436.8	834.03	1394047.2	2202436.4	836.42	834.0



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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections received via a cellular modem utilizing the Leica "Smartnet" RTK Network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Leica GS18T GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Leica GS18T GPS (survey-grade) global positioning system receiver referencing the Georgia State Plane, West Zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.


James R. Green R.L.S. No. 2543

Date: 5/10/22



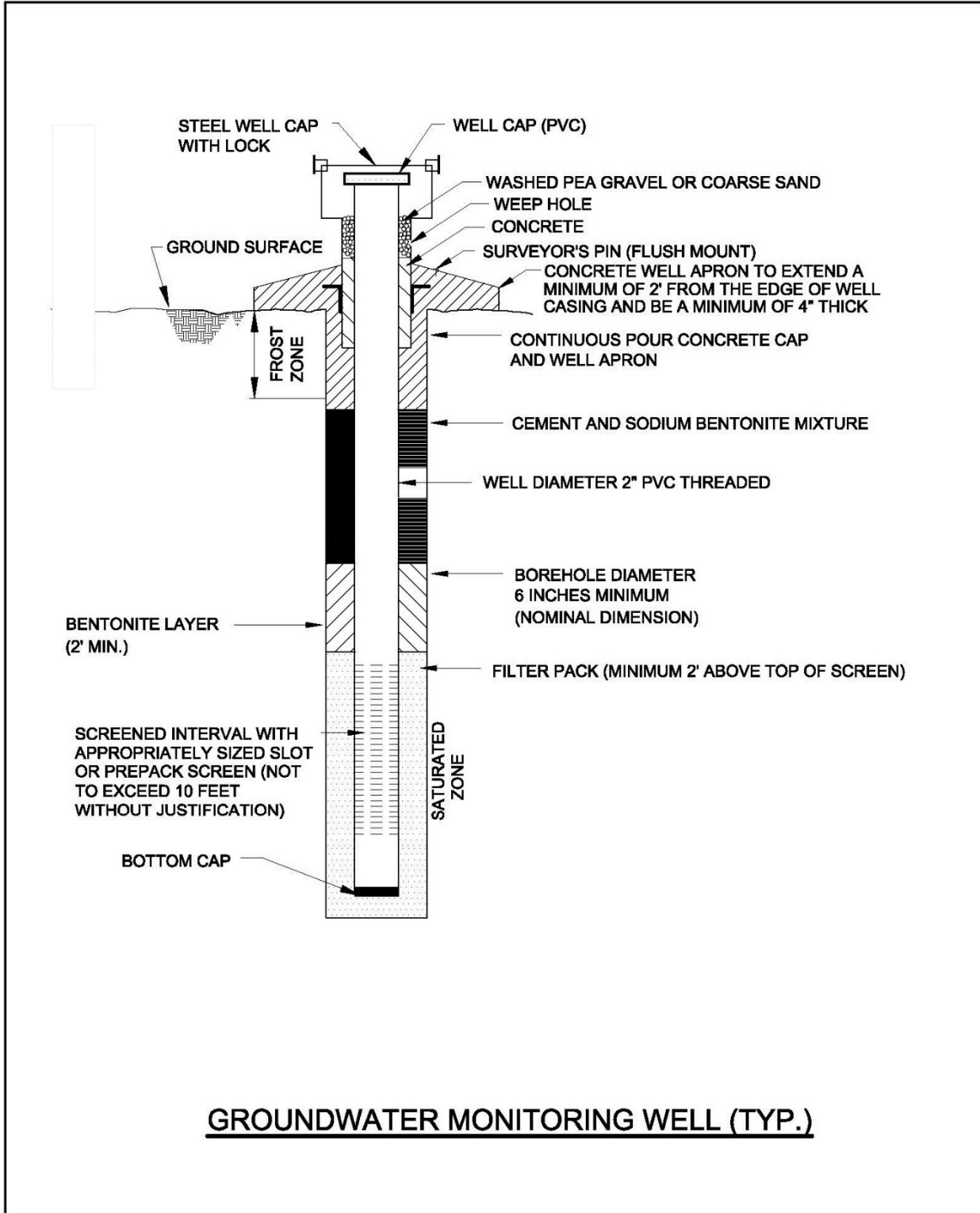
Plant McDonough
Monitoring Well Locations
May 9, 2022

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-122D	N33.823541	W84.474897	1390992.06	2202975.35	777.32	1390992.8	2202975.4	777.03	777.3
B-123D	N33.824203	W84.476108	1391233.80	2202608.91	778.85	1391234.4	2202608.4	781.80	779.0
DWGC121	N33.822829	W84.481895	1390739.51	2200848.27	764.52	1390739.7	2200849.4	764.16	764.6

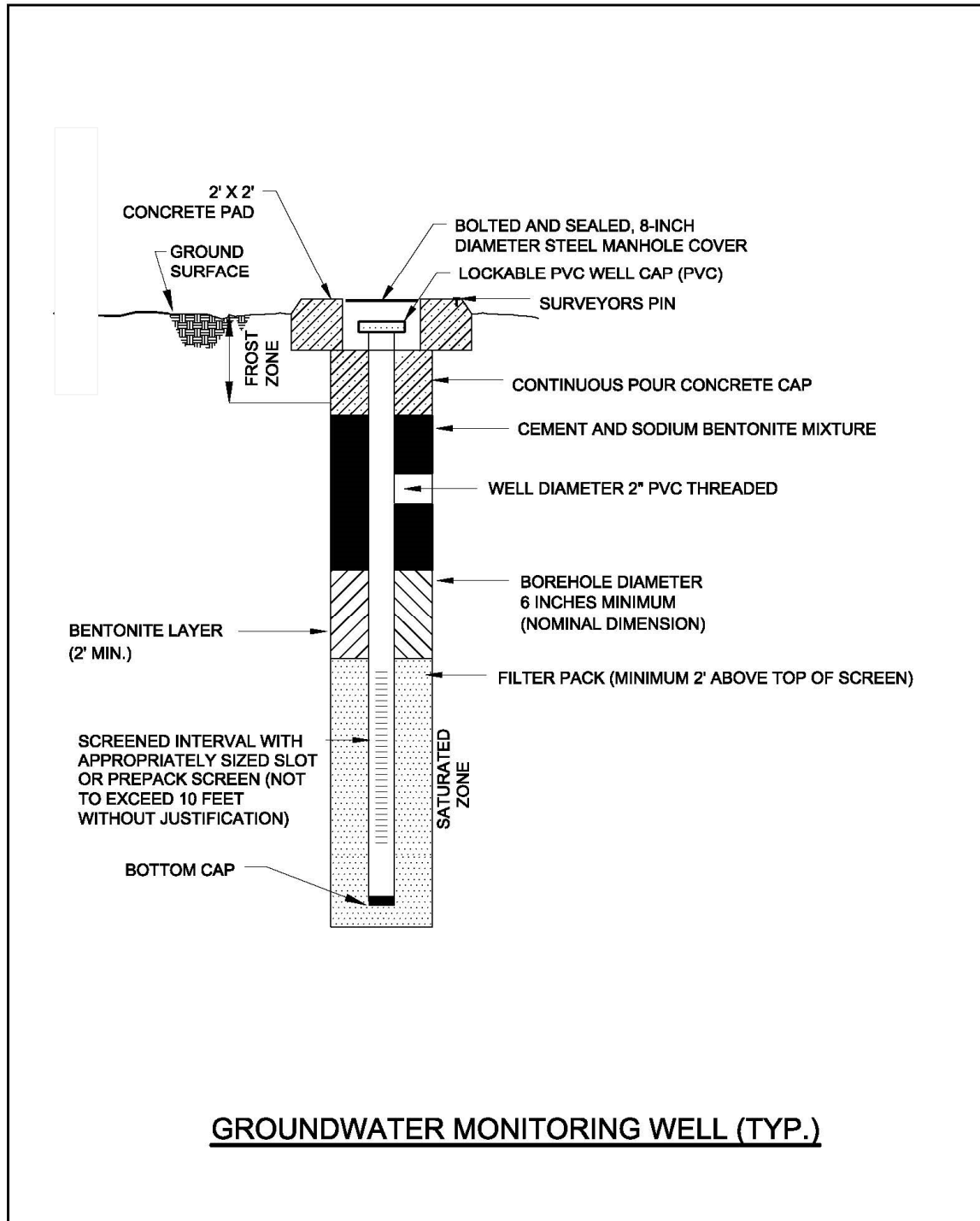
APPENDIX B

GROUNDWATER MONITORING WELL DETAILS

APPENDIX B. GROUNDWATER MONITORING WELL DETAIL



APPENDIX B. GROUNDWATER MONITORING WELL DETAIL-FLUSH MOUNT WELL



APPENDIX C

GROUNDWATER SAMPLING PROCEDURES

APPENDIX C. GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be conducted using the most current United States Environmental Protection Agency (US EPA) Region 4 Field Quality and Technical Procedures as a guide. The following procedures describe the general methods associated with groundwater sampling at the site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. To accomplish this objective, low-flow purging from the screened interval is recommended until target parameters listed below are stabilized and then, representative groundwater flowing from the geologic formation is collected. Any item coming in contact with the inside of the well casing, or the well water will be kept in a clean container and handled only with gloved hands. Field logbooks and forms shall be kept for each sampling event, and should include, but not be limited to, the following: well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling. A sample well inspection form is included in this appendix.

The sampling team will follow the procedures below at each well to ensure that a representative sample is collected:

- 1) Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify Georgia Power if it appears that the well has been compromised.
- 2) Measure and record the depth to water in all wells to be sampled prior to purging. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will consist of a probe and measuring tape capable of measuring water levels with accuracy to 0.01 feet.
- 3) Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. Non-dedicated pumps and wiring will be decontaminated before use and between well locations using procedures described in the latest version of the Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division (SESD) Operating Procedure for Field Equipment Cleaning and Decontamination as a guide.
- 4) Measure Water Level: Immediately prior to purging, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
- 5) Purge Well: Begin pumping the well at approximately 100 to 500 milliliters per minute (ml/min). Monitor the water level continually. Maintain a steady flow rate that results in a stabilized water level with 0.3 ft. or less of variability. Avoid entraining air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
- 6) Monitor Indicator Parameters: Monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, oxidation reduction potential (ORP), and dissolved oxygen (DO)) approximately every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings at a minimum:
 - ± 0.1 S.U. for pH
 - $\pm 5\%$ for specific conductance (conductivity)
 - $\pm 10\%$ or 0.2 milligrams per liter (mg/L) for DO where $DO > 0.5$ mg/L. If $DO < 0.5$ mg/L no stabilization criteria apply

- ≤ 5 nephelometric turbidity units (NTUs) for turbidity
 - Temperature – Record only, not used for stabilization criteria
 - ORP – Record only, not used for stabilization criteria
- 23) Collect samples at a low -flow rate according to the most current version of USEPA Region 4 SESD guidance document, Operating Procedure – Groundwater Sampling (EPA, SESDPROC-301-R#) and such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. Sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container. Sample collection should be performed according to the most current version of US EPA Region 4 Science and Ecosystem Support Division, Operating Procedure – Groundwater Sampling (EPA SESDPROC-301-R3).
- 24) Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results, duplicate samples may be filtered in the field prior to being placed in a sample container, clearly marked as filtered and preserved. Filtering will be accomplished by the use of 0.45-micron filters on the sampling line. At least two filter volumes of sample will pass through before filling sample containers. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity. A new filter must be used for each well and each sampling event.
- 25) Sample bottles will be filled, capped, and placed in an ice containing cooler immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.
- 26) Sample containers and preservative will be appropriate for the analytical method being used.
- 27) Information contained on sample container labels will include:
- a) Name of facility
 - b) Date and time of sampling
 - c) Sample description (well number)
 - d) Sampler's initials
 - e) Preservatives
 - f) Analytical method(s)
- 28) After the samples are collected, samplers will remove non-dedicated equipment. Upon completion of field activity, the well will be closed and locked.
- 29) Non-dedicated equipment will be decontaminated between wells in general accordance with US EPA LSASDPROC-205-R4 (US EPA, 2020).
- 30) Samples will be delivered to the laboratory following appropriate chain-of-custody (COC) and temperature control requirements. The goal for sample delivery will be within 48 hours of collection.

Throughout the sampling process new nitrile gloves will be worn by the sampling personnel. A clean pair of new, disposable gloves will be worn each time a different location is sampled, and new gloves donned prior to filling sample bottles. Gloves will be discarded after sampling each well and before sampling the next well.

The goal when sampling is to attain a turbidity of less than 5 NTUs however, samples may be collected where turbidity is less than 10 NTUs and the stabilization criteria described above are met.

If sample turbidity is greater than 5 NTUs and other stabilization criteria have been met, samplers will continue purging for 3 additional hours in order to reduce the turbidity to 5 NTUs or less.

- If turbidity remains above 5 NTUs but is less than 10 NTUs, and other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTUs, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

Samplers will identify the sample bottle as containing a filtered sample on the sample bottle label and on COC form.

A brief overview of purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.

APPENDIX C

WELL INSPECTION FORM

Well Inspection Form

Site Name:

Permit Number:

Well ID:

Date, field conditions

Yes No N/A

1) Location/Identification

- A** Is the well visible and accessible?
- B** Is the well properly identified with correct well ID?
- C** Is the well in a high traffic area and does the well require protection from traffic?
- D** Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)

2) Protective Casing

- A** Is the protective casing free from apparent damage and able to be secured?
- B** Is the casing free of degradation or deterioration?
- C** Does the casing have a functioning weep hole?
- D** Is the annular space between the casings clear of debris and water, or filled with pea gravel/sand?
- E** Is the well locked and is the lock in good condition?

3) Surface Pad

- A** Is the well pad in good condition (not cracked/broken)?
- B** Is the well pad sloped away from the protective casing?
- C** Is the well pad in complete contact with the ground surface and stable?
- D** Is the well pad in complete contact with the protective casing?
- E** Is the pad surface clean (not covered with sediment or debris)?

4) Internal Casing

- A** Does the cap prevent entry of foreign material into the well?
Is the casing free of kinks/bends, or any obstructions from foreign objects (such as bailers)?
- C** Is the well properly vented for equilibration of air pressure?
- D** Is the survey point clearly marked on the inner casing?
- E** Is the depth of the well consistent with the original well log?
Is the casing stable? (Does PVC move easily when touched or can be taken apart by hand due to lack of grout or use of slip couplings in construction)
- F**

5) Sampling: Groundwater Wells Only

- A** Does water recharge adequately when purged?
If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater monitoring plan for the facility?
- C** Does the well require redevelopment (low flow/turbidity)?

6) Based on professional judgement, is the well construction / location appropriate to **1)** achieve the objectives of the Groundwater Monitoring Program and **2)** comply with the applicable regulatory requirements?

7) Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

APPENDIX D

SURFACE WATER SAMPLING PROCEDURES

D. SURFACE WATER SAMPLING PROCEDURES

Surface water samples will be collected in accordance with the general procedures outlined below if flowing water is observed at each sampling location. These procedures were developed using field sampling guidelines described in the *US EPA Region 4 Field Branches Quality System and Technical Procedures* (<https://www.epa.gov/quality/quality-system-and-technical-procedures-sesd-field-branches>) and *U.S. Environmental Protection Agency, Science and Ecosystem Support Division, Surface Water Sampling, (LSASDPROC-201-R5)*, (US EPA, 2021). Surface water samples will be analyzed for the field parameters and Appendix IV constituents contained in Table 5.

If a dipper or other transfer vessel other than the sample container is used, it must be composed of a non-porous inert material such as glass, PVC, polyethylene, or stainless steel. The following procedures will be used to collect surface water samples:

- Hold the bottle near the base with one hand, and with the other, remove the cap.
- Rinse the sample container with the water to be sampled prior to filling the container, unless the sample containers are pre-preserved. Pre-preserved sample containers should not be rinsed prior to sampling.
- Hold the container underneath the water surface and allow the container to be filled with water. Remove the container from underneath the surface and place the cap back on the container.
- Label the sample container to, at a minimum, include Sample Number, Name of Collector, Date and Time of Collection, and Place/Point of Collection.
- Place the samples in a cooler containing water-ice, if required, for courier or hand delivery to the laboratory within the sample hold times.
- Follow COC and temperature protocols.

The minimum sampling frequency for surface water will be semiannual.



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