GROUNDWATER MONITORING PLAN

PLANT MCINTOSH INACTIVE COAL COMBUSTION INACTIVE CCR LANDFILL NO. 3 EFFINGHAM COUNTY, GEORGIA

FOR

Georgia Power

November 2022

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Beverly Tipton
Digitally signed by Beverly Tipton
Date: 2023.01.27 09:23:47 -05'00'

GEORGIA REGISTERED No. PE041928 PROFESSIONAL ENGINEER JOHN MATTHEW EAST
11 | 18 | 2022

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CERTIFICATION

I hereby certify that this Groundwater Monitoring Plan was prepared by, or under the direct supervision of, a Qualified Groundwater Scientist, in accordance with the Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management. According to 391-3-4-.01, a Qualified Groundwater Scientist is "a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action." The design of the groundwater monitoring system was developed in compliance with the Georgia EPD Rules of Solid Waste Management, Chapter 391-3-4.10(6).

Signature: _____

Date: 11/18/2022

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1. 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 Inactive Coal Combustion Residuals (CCR) Landfill No. 3 (Inactive CCR Landfill No. 3) (Site) at Georgia Power Company's (GPC's) Plant McIntosh. This plan meets the requirements of EPD rules and uses EPD's *Manual for Groundwater Monitoring* dated September 1991 as a guide (EPD, 1991). Groundwater sampling locations are presented in Appendix A, Figure A-1 Compliance Monitoring Network Map. 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.

In accordance with the EPD 391-3-4.10(6), a detection monitoring well network for Inactive Landfill No. 3 has been installed and certified by a qualified professional engineer. This certification has been placed in the Site'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.

2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Plant McIntosh is in southeast Effingham County, Georgia, on the west bank of the Savannah River at Big Kiffer Point (Appendix A, Figure A-1, Compliance Monitoring Network Map). The plant is located within the Coastal Plain Province of Georgia. Coastal Plain sediments are composed of stratified clay, silt, sand, and limestone, resting on much older igneous and metamorphic basement rocks (Cooke, 1943). These older, crystalline rocks dip to the south and east causing the overlying sediments to form a wedge-shaped deposit, which is thickest to the east and the south. The Coastal Plain deposits crop out at the land surface in bands, from the oldest to the most recent, from the Fall Line to the coast. Pleistocene-aged deposits are at the surface in this region. Recharge to the major aquifers in the area is to the northeast of Plant McIntosh, where these formations outcrop (Southern Company Services Earth Science & Environmental Engineering [SCS ES&EE], 1998).

The uppermost aquifer at Plant McIntosh is the surficial aquifer, characterized by silty, sandy clays, clayey silts, silty sands, and fine to medium grained sands. Groundwater at Inactive CCR Landfill No. 3 flows from the southwest to the northeast across the Site (Appendix A, Figure A-2, Potentiometric Surface Contour Map). Based on slug test data collected in a subset of wells in March 1997 and December 2020, and corresponding horizontal hydraulic conductivity (Kh) calculations, the average Kh in a subset of monitoring wells (GWC-1 [Avg. Kh = 6.05 x 10-4 cm/sec], GWC-2 [Avg. Kh = 9.75 x 10-4 cm/sec], GWA-1B [Avg. Kh = 3.50 x 10-3 cm/sec], GWC-1A [Avg. Kh = 8.45 x 10-4 cm/sec], GWC-5A [Avg. Kh = 1.92 x 10-3 cm/sec], and GWC-6A [Avg. Kh = 6.23 x 10-4 cm/sec]), was determined to be 1.41 x 10-3 cm/sec (or 4.00 ft/day, SCS ES&EE, 1998). This average Kh value is consistent with Kh literature values for sandy soils, which are the predominant soil type in the Plant McIntosh area. To calculate an average gradient across Landfill No. 3, the hydraulic gradient was calculated between three separate monitoring well pairs based on groundwater flow interpreted for August 2021 (the most current groundwater elevation data): GWA-2B/GWA-7A, GWA-3A/GWC-6A, and GWA-4/GWC-4A (see table below). The average calculated groundwater flow velocity for August 2021 is 0.063 ft/day or 22.87 feet per year (ft/year).

Groundwater Flow Velocity Calculations - August 2021
2022 LF3 RTC
Georgia Power Company
Plant McIntosh Inactive CCR Landfill No. 3
Effingham County, Georgia

Monitoring Wells	h_1	h_2	K (ft/day)	n_e	dh (ft)	dl (ft)	i (ft/ft)	Velocity (ft/day)	Velocity (ft/year)
GWA-3A to GWC-6A	48.39	46.45	4.00	0.20	1.94	581	0.0033	0.066	24.09
GWA-4 to GWC-4A	47.65	46.35			1.30	609	0.0021	0.042	15.33
GWA-2B to GWA-7A	48.17	46.34			1.83	460	0.0040	0.080	29.20
								Avg. (ft/day)	Avg. (ft/year)
								0.063	22.87

Notes:

ft - feet
h_1 and h_2 - groundwater elevation at location 1 and 2
K - hydraulic conductivity
n_e - effective porosity
dh - difference between h_1 and h_2
dl - distance between locations 1 and 2
i - hydraulic gradient (dh/dl)
Velocity = linear velocity x Ki/n_e
Groundwater elevations measured August 16, 2021
Elevations are in feet relative to North American Vertical Datum 88 (NAVD 88)

3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells are installed to monitor the uppermost occurrence of groundwater beneath the Site. Locations are selected based on disposal cell layouts and Site geologic and hydrogeologic considerations. GPC follows the recommendation as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (EPD, 1991) to determine well spacing based on site-specific conditions. Locations are chosen to serve as upgradient (GWA) or downgradient (GWC) based on groundwater flow direction determined by potentiometric evaluation. The well naming nomenclature is based on EPD's *Industrial Waste Disposal Site Design and Operations Plan – Supplemental Data for Solid Waste Handling Permit* (EPD, undated). 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.

A map depicting monitoring well locations is included in Appendix A, Figure A-1 Compliance Monitoring Network Map. Appendix A, Table A-1 includes a tabulated list of individual monitoring wells with well construction details such as location coordinates, top-of-casing elevation, well depths and screened intervals. Any change to the groundwater monitoring network will be made by a minor modification to the permit pursuant to Georgia Rules of Solid Waste Management, Chapter 391-3-4-.02(4)(b)7.

4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT, AND REPORTING

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 rotosonic 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. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the Region 4 EPA Science and Ecosystem Support Division (SESD) *Operating Procedure for Field Equipment Cleaning and Decontamination* (EPA, SESDGUID-205-R3, 2015) as a general guide for best practices.

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

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. Monitoring wells shall be installed using the latest version of the Region 4 EPA SESD *Operating Procedure for Design and Installation of Monitoring Wells* (EPA, SESDGUID-205-R1, 2013) as a general guide for best practices.

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 International (ASTM), National Science 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 Site.

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 steps

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.

Pre-packed dual-wall well screens may be used for well construction. Pre-packed dual-wall 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 dual-wall well screens will be installed following general industry standards and using the latest version of the Region 4 EPA SESD *Operating Procedure for Design and Installation of Monitoring Wells* (EPA, SESDGUID-205-R1, 2013) as a general guide for best practices.

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 hole 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 a minimum of 2 feet above the top of the well screen.

The materials used to seal the annular space must prevent hydraulic communication between strata and prevent migration from overlying areas into the well screen interval. A minimum of 2 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 2 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 cementitious grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 2 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 will 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 will 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

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. Development can be discontinued once a turbidity of less than 10 NTU is achieved. Additionally, the stabilization criteria contained in Appendix C 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 by 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. All 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.

4.3 Abandonment

Monitoring wells will be abandoned using industry-accepted practices, the latest version of the Region 4 EPA SESD *Operating Procedure for Design and Installation of Monitoring Wells* and using the *Manual for Groundwater Monitoring* (EPD, 1991), and Georgia Water Well Standards Act (EPD, 1985) as guides. In accordance with the Georgia Rules for Solid Waste Management Section 391-3-4-.10(6)(g) monitoring wells require replacement after two consecutive dry sampling events. Well installation will be directed by a qualified groundwater scientist. A minor modification will be submitted to the EPD in accordance with Rule 391-3-4-.02(3)(b)(6) prior to the installation or decommissioning of monitoring wells. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole. If appropriate, piezometers or groundwater wells located within the footprint of the Site will be over-drilled prior to abandonment.

4.4 Documentation

Within 60 days of the construction and development and/or abandonment of each new groundwater monitoring well, completed under the direction of a qualified groundwater scientist, a well installation/abandonment report will be submitted to the EPD. The following information will be documented in this report as applicable to installation or abandonment.

- Well identification
- Copy of current driller's bond on file with the Water Well Advisory Council during the time of installation
- Name of drilling contractor
- Drilling date
- Type of drill rig
- Drilling method
- Drilling fluids used (if applicable)
- Schematic of the well with dimensions for all components (e.g., casing, screen, sump, well pad)
- Lithologic logs
- Type of protective well cap
- Well casing and screen materials
- Screen slot size and joint type
- Borehole and well casing diameter
- Filter pack material/size, emplacement method and volume
- Annular seal material, emplacement method and volume
- Surface seal material and volume
- Well location data given to within an accuracy of 0.5 feet based on survey data recorded from an acceptable survey point datum by a Georgia-registered professional surveyor
- Well elevation data including ground surface and top of casing elevation given to within an accuracy of +/-0.01 feet based on survey data recorded from an acceptable survey point datum by a Georgia- registered professional surveyor
- Screen length and top of screen elevation reported in feet below ground surface
- Documentation that water quality field parameters meet well development criteria

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-134(5)(d)(vii)), 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.

5. 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 1, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. To establish the existing background statistical dataset, eight independent samples from each groundwater well were collected and analyzed for EPD approved modified Appendix I and Appendix II test parameters as well as 40 CFR Part 257, Subpart D, Appendix III and Appendix IV test parameters. For future network monitoring wells, a minimum of eight independent samples from each groundwater well will be collected and analyzed for EPD approved modified Appendix I and Appendix II test parameters, as well as 40 CFR Part 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 EPD modified Appendix I, EPD modified Appendix II and 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 Company will perform assessment monitoring in accordance with the Georgia Rules for Solid Waste Management Chapter 391-3-4-.10 to also include 40 CFR 257, Subpart D, Appendix IV test parameters. 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 (EPD, 2015).

A state-modified Appendix I list of detection parameters for the approved Georgia EPD Solid Waste Permit [No. 051-010D(LI)] have been historically monitored for the approved monitoring wells in accordance with the requirements of Chapter 391-3-4-.14, Rules for Solid Waste Management. These parameters will continue to be monitored during Detection Monitoring and will be monitored for Appendix II during Assessment Monitoring, if necessary.

As shown on Table 2, Analytical Methods, the groundwater samples will be analyzed using methods specified in EPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), EPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by the Georgia EPD. The method used will be able to reach a practical quantification limit to detect natural background conditions at the Site. The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Program (NELAP). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

TABLE 1
GROUNDWATER MONITORING PARAMETERS & FREQUENCY

MONITORING PARAMETER		GROUNDWATER MONITORING	
		Background	Semiannual Events
Field Parameters	Temperature	X	X
	pH	X	X
	ORP	X	X
	Turbidity	X	X
	Specific Conductance	X	X
	Dissolved Oxygen	X	X
Appendix I and II (EPD-approved modified Appendix I and II test parameters from 40 CFR 258, Subpart E)	Barium	X	X
	Beryllium	X	X
	Chromium	X	X
	Cobalt	X	X
	Copper	X	X
	Lead	X	X
	Vanadium	X	X
	Zinc	X	X
Appendix III (Detection test parameters from 40 CFR 257, Subpart D)	Boron	X	X
	Calcium	X	X
	Chloride	X	X
	Fluoride	X	X
	pH (field)	X	X
	Sulfate	X	X
	Total Dissolved Solids	X	X

Table 1 – continued
GROUNDWATER MONITORING PARAMETERS & FREQUENCY

MONITORING PARAMETERS		GROUNDWATER MONITORING FREQUENCY	
		Background	Semi-Annual Events
Appendix IV Metals (Assessment test parameters from 40 CFR 257, Subpart D)	Antimony	x	
	Arsenic	x	
	Barium	x	
	Beryllium	x	
	Cadmium	x	
	Chromium	x	
	Cobalt	x	
	Fluoride	x	
	Lead	x	
	Lithium	x	
	Mercury	x	
	Molybdenum	x	
	Selenium	x	
	Thallium	x	
	Radium 226 & 228	x	

TABLE 2
ANALYTICAL METHODS

Parameters	EPA Method Number
Boron	6010D/6020B
Calcium	6010D/6020B
Chloride	300.0/300.1/9250/9251/9253/9056A
Fluoride	300.0/300.1/9214/9056A
pH	150.1field/90405C
Sulfate	9035/9036/9038300.0/300.1/9056A
Total Dissolved Solids (TDS)	160.1/Standard Method/2540C
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
Copper	EPA 7840/7841/6010D/6020B
Fluoride	300.0/300.1/9214/9056A
Lead	EPA 7420/7421/6010D/6020B
Lithium	6010D/6020B
Mercury	7470
Molybdenum	6010D/6020B
Nickel	EPA 7840/7841/6010D/6020B
Selenium	EPA 7740/7741A/6010B/6020
Thallium	EPA 7840/7841/6010/6020
Vanadium	EPA 7840/7841/6010D/6020B
Zinc	EPA 7840/7841/6010D/6020B
Radium 226 and 228 combined	EPA 903/9320/9315

If any parameters contained in Appendix I or II of 40 CFR 258, Subpart E, as amended, 56 Fed. Reg. 51032 - 51039 (EPA, 1991) have been detected previously at statistically significant levels above background concentrations, these parameters will continue to be monitored.

6. SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix C, Groundwater Sampling Procedures. Sampling procedures were developed using standard industry practice and EPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for 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 groundwater semi- annual monitoring reports submitted to the 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.

7. CHAIN-OF-CUSTODY

All 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
- 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.

8. FIELD AND LABORATORY QUALITY ASSURANCE / QUALITY CONTROL

All field quality control samples will be prepared the same as compliance samples regarding 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 10 samples using non-dedicated equipment.

Field Duplicates - Field duplicates will be 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 will be collected in the field using the same water source that is used for decontamination. The water will be 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.

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

Calibration of field instruments will occur daily and follow the recommended 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 all groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and all checks and 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 instrumentation will be obtained as a corrective action in the event that recalibration does not improve instrument function. Completed calibration field forms will be provided with the semi-annual groundwater monitoring reports.

9. REPORTING RESULTS

A semiannual groundwater report that documents the results of sampling and analysis will be submitted to EPD. At a minimum, semiannual 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 complete overview of purging/sampling methodologies including sampling equipment used.

3. Discussion of results.

4. Recommendations for the future monitoring consistent with the Rules.

5. Potentiometric surface contour map for the aquifer(s) being monitored, signed, and sealed by a Georgia-registered P.G. or P.E.

6. 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.

7. Groundwater flow rate and direction calculations.

8. 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.

9. 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.

10. If applicable, semiannual assessment monitoring results.

11. Any alternate source demonstration completed during the previous monitoring period, if applicable.

12. Laboratory reports.

13. Chain-of custody (COC) documentation.

14. Field sampling logs including field instrument calibration, indicator parameters, and parameter stabilization data.

15. Field logs and forms for each sampling event to include, but not limited to, well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling.

16. Documentation of non-functioning wells.

17. Table of current analytical results for each well, highlighting statistically significant increases, and concentrations above maximum contaminant level (MCL).

18. Statistical analyses.

19. Certification by a qualified groundwater scientist.

10. STATISTICAL ANALYSIS

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. Statistical analysis techniques will be consistent with the USEPA document Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance (Unified Guidance) (EPA, 2009).

According to EPD rules (391-3-4-.10(6)(a)), which incorporates 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 hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. As authorized by the rule, statistical tests that will 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) ((§257.93(f)(5)). 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).

An interwell statistical method will be used to compare Appendix I and 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.

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the Site's operating record pursuant to 391-3-4-.10(6). Figure 1, Statistical Analysis Plan Overview, includes a flowchart that depicts the process that will be followed to develop the site-specific plan. Figure 2, Decision Logic for Computing Prediction Limits, presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits.

FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

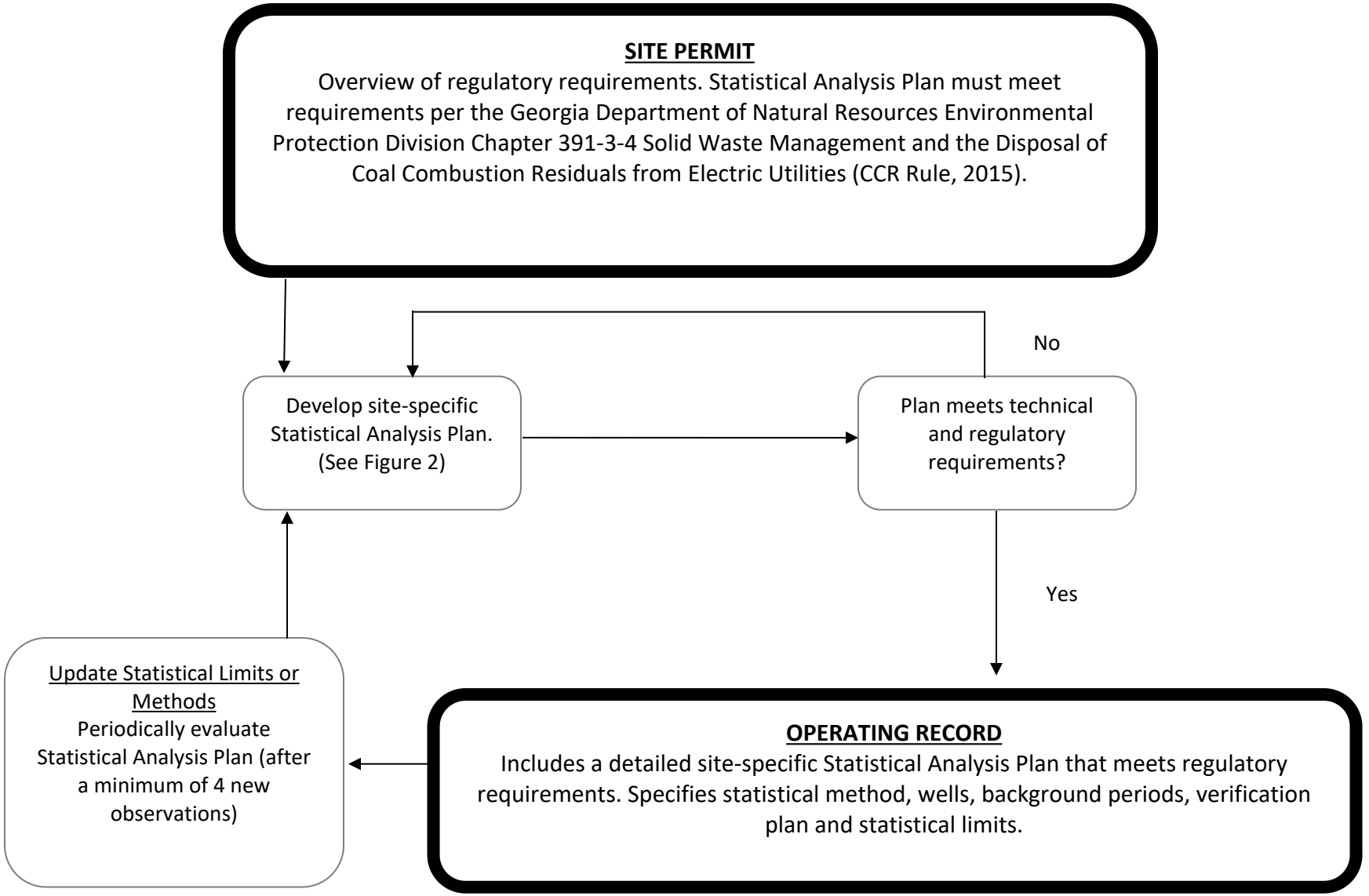
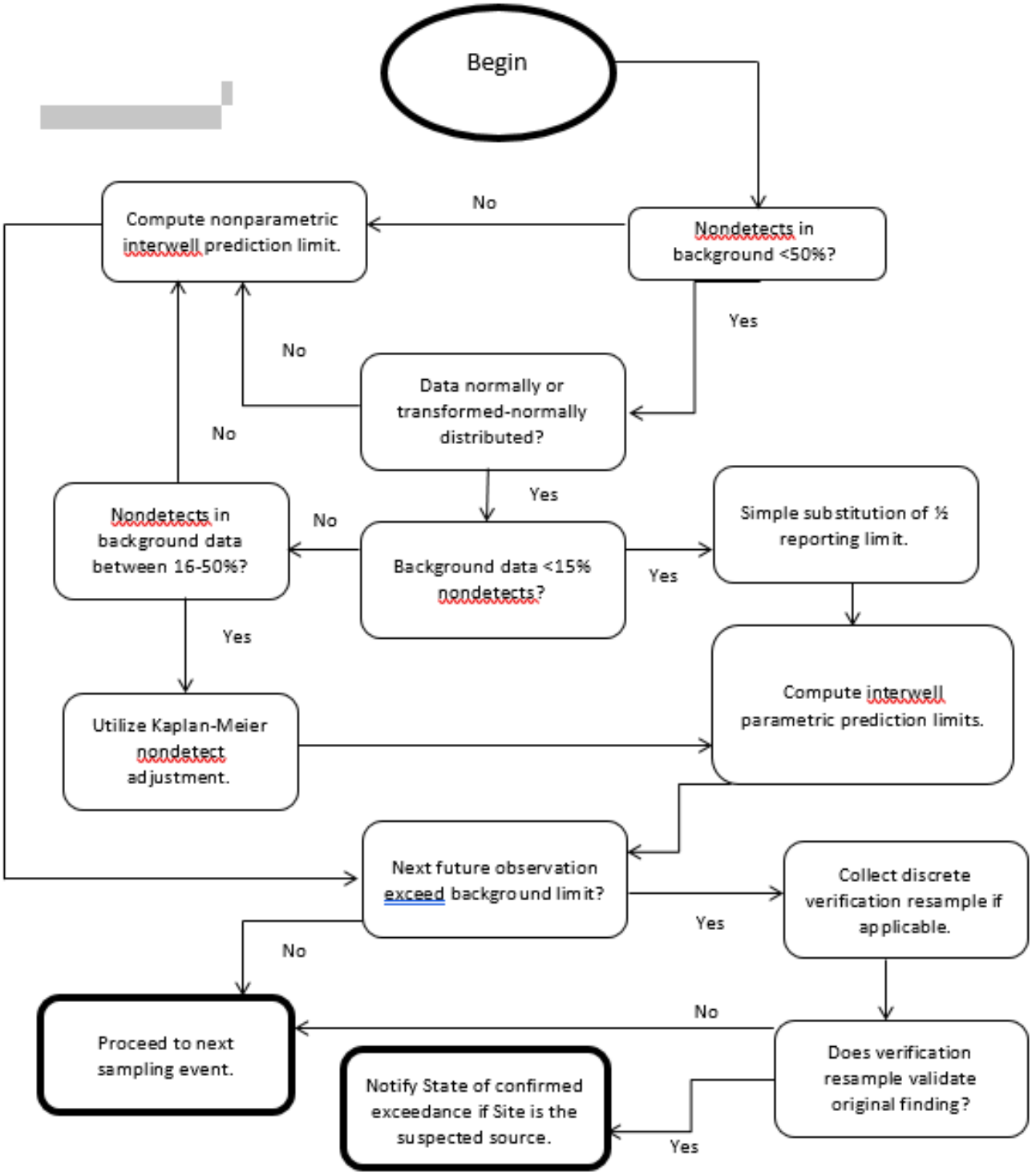


Figure 2: DECISION LOGIC WITH INTERWELL PREDICTION LIMITS



11. REFERENCES

Cooke, 1943. Cooke, Charles W., 1943, Geology of the Coastal Plain of Georgia, United States Geologic Survey Bulletin 941.

EPA, 2009. *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance.* United States Environmental Protection Agency

EPA, 2015. 40 CFR Parts 257 and 261. *Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule*.

EPA, SESDGUID-205-R1, 2013. EPA, Region 4 SESD *Operating Procedure for Design and Installation of Monitoring Wells*. SESDGUID-205-R1, Published January 29, 2013.

EPA, SESDGUID-205-R3, 2015. EPA, Region 4 SESD *Operating Procedure for Field Equipment Cleaning and Decontamination*. SESDPROC-205-R3. Published February 5, 2007, revised December 18, 2015.

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

EPD, 1991. Georgia Environmental Protection Division, 1991. Manual for Groundwater Monitoring. (PP. 38).

GA EPD, undated. Industrial Waste Disposal Site Design and Operations Plan – Supplemental Data for Solid Waste Handling Permit. Georgia Department of Natural Resources.

EPD, 2018. Georgia EPD Rules and Regulations, 2018. Rule Subject 391-3-4, Solid Waste Management. Revised March 28, 2018.

SCS ES&EE, 1998. *Groundwater Monitoring Plan, Plant McIntosh Ash Disposal Site No. 3*, prepared by Southern Company, August 5, 1998.

APPENDIX

Appendix A – Monitoring System Details

FIGURE A-1 COMPLIANCE MONITORING NETWORK MAP

FIGURE A-2 POTENTIOMETRIC SURFACE CONTOUR MAP

TABLE A-1 MONITORING NETWORK WELL DETAILS

TABLE A-2 WATER LEVEL MONITORING NETWORK PIEZOMETER DETAILS

BORING AND WELL CONSTRUCTION LOGS

DRILLER BOND SUMMARY

WELL RE-SURVEY PG CERTIFICATION

ATLANTIC COAST CONSULTING, INC.

200 0 100 200

SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	EXISTING BUFFER
	WASTE MANAGEMENT BOUNDARY
GWC-1	MONITORING WELL
PZ-1	PIEZOMETER

NOTES:

1. AERIAL DATED 2/15/2022 FROM SAM, LLC. ADDITIONAL PHOTOGRAPHY DATED 2021 FROM MICROSOFT CORPORATION, MAXAR, CNES, DISTRIBUTION AIRBUS DS.

I HEREBY CERTIFY THAT I AM A QUALIFIED GROUNDWATER SCIENTIST, IN ACCORDANCE WITH THE RULES OF SOLID WASTE MANAGEMENT, AND 40 CFR 258.50(g). A QUALIFIED GROUNDWATER SCIENTIST IS A SCIENTIST OR ENGINEER 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 AS MAY BE DEMONSTRATED BY STATE REGISTRATION, PROFESSIONAL CERTIFICATIONS, OR COMPLETION OF ACCREDITED UNIVERSITY PROGRAMS, THAT ENABLE INDIVIDUALS TO MAKE SOUND PROFESSIONAL JUDGMENTS REGARDING GROUNDWATER MONITORING, CONTAMINANT FATE AND TRANSPORT, AND CORRECTIVE ACTION. I HEREBY CERTIFY THAT THE DESIGN OF THIS GROUNDWATER MONITORING SYSTEM WAS DEVELOPED IN ACCORDANCE WITH THE RULES OF SOLID WASTE MANAGEMENT, CHAPTER 391-3-4.

CHARLES BRISENDINE ADAMS
No.1632
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST

PROJECT

Georgia Power

GEORGIA POWER COMPANY
PLANT McINTOSH
INACTIVE LANDFILL No. 3

GROUNDWATER MONITORING PLAN

COMPLIANCE MONITORING NETWORK MAP

PROJECT NO. I054-110 July 2022

DRAWN BY:	RW	FIGURE:
CHECKED BY:	CA	A-1

ATLANTIC COAST CONSULTING, INC.

200 0 100 200

SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	EXISTING BUFFER
	WASTE MANAGEMENT BOUNDARY
GWC-1A 46.79	MONITORING WELL GROUNDWATER ELEVATION (FT NAVD88)
PZ-1 46.35	PIEZOMETER GROUNDWATER ELEVATION (FT NAVD88)
47	GROUNDWATER ELEVATION CONTOUR (FT NAVD88)
	GROUNDWATER FLOW DIRECTION

NOTES:
1. DEPTHS TO WATER MEASURED AUGUST 16, 2021.
2. FT NAVD88 = FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.
3. AERIAL DATED 2/15/2022 FROM SAM, LLC. ADDITIONAL PHOTOGRAPHY DATED 2021 FROM MICROSOFT CORPORATION, MAXAR, CNES, DISTRIBUTION AIRBUS DS.

CHARLES BRISENDINE ADAMS
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No.1632

I HEREBY CERTIFY THAT I AM A QUALIFIED GROUNDWATER SCIENTIST, IN ACCORDANCE WITH THE RULES OF SOLID WASTE MANAGEMENT, AND 40 CFR 258.50(g). A QUALIFIED GROUNDWATER SCIENTIST IS A SCIENTIST OR ENGINEER 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 AS MAY BE DEMONSTRATED BY STATE REGISTRATION, PROFESSIONAL CERTIFICATIONS, OR COMPLETION OF ACCREDITED UNIVERSITY PROGRAMS THAT ENABLE INDIVIDUALS TO MAKE SOUND PROFESSIONAL JUDGMENTS REGARDING GROUNDWATER MONITORING, CONTAMINANT FATE AND TRANSPORT, AND CORRECTIVE ACTION. I HEREBY CERTIFY THAT THE DESIGN OF THIS GROUNDWATER MONITORING SYSTEM WAS DEVELOPED IN ACCORDANCE WITH THE RULES OF SOLID WASTE MANAGEMENT, CHAPTER 391-3-4.

PROJECT

Georgia Power

GEORGIA POWER COMPANY
PLANT McINTOSH
INACTIVE LANDFILL No. 3

GROUNDWATER MONITORING PLAN

POTENTIOMETRIC SURFACE CONTOUR MAP AUGUST 2021

PROJECT NO. 1054-110 July 2022

DRAWN BY:	RW	FIGURE:
CHECKED BY:	MM	A-2

Table A-1
Groundwater Network Well Construction Details

Well ID	Northing	Easting	Ground Surface Elevation (NAVD) (ft)	Top of Casing Elevation (NAVD) (ft)	Total Depth (ft bTOC)	Top of Screen Elevation (NAVD) (ft)	Bottom of Screen Elevation (NAVD) (ft)	Purpose	Installation Date	Average Hydraulic Conductivity (cm/sec) *	Average Hydraulic Conductivity (ft/day) *
GWA-1B	852028.09	954564.84	64.39	67.36	58.53	19.40	9.40	Upgradient	12/4/2020	3.50E-03	9.92E+00
GWA-2B	851831.06	954866.86	63.38	66.20	51.78	24.72	14.72	Upgradient	8/29/2018	--	--
GWA-3A	851893.61	955179.89	59.53	62.77	33.88	40.03	30.03	Upgradient	5/16/1998	--	--
GWA-4	851980.95	955475.64	58.80	62.01	29.16	38.30	28.30	Upgradient	5/7/1998	--	--
GWA-5	852110.59	955844.69	57.35	60.43	33.00	37.85	24.38	Upgradient	5/7/1998	--	--
GWA-7A	852254.28	954654.74	65.37	67.92	46.94	31.28	21.28	Upgradient	8/29/2018	--	--
GWC-1A	852453.58	955309.28	64.00	66.76	47.37	29.93	19.93	Downgradient	12/8/2020	8.45E-04	2.40E+00
GWC-2	852343.90	955958.27	60.80	64.19	36.79	37.20	27.20	Downgradient	1/23/1996	9.75E-04	2.76E+00
GWC-4A	852544.35	955702.05	64.37	66.60	36.96	41.87	31.87	Downgradient	5/16/1998	--	--
GWC-5A	852689.80	955477.18	65.64	67.84	42.60	35.59	25.59	Downgradient	12/9/2020	1.92E-03	5.44E+00
GWC-6A	852462.38	955046.58	65.66	68.37	42.43	36.29	26.29	Downgradient	12/7/2020	6.23E-04	1.77E+00

Notes:
-- = not applicable
* horizontal hydraulic conductivity (Kh)
bTOC = below top of casing
ft = feet
Northings and Eastings are feet relative to North American Datum 1983 (NAD83), State Plane Georgia East Zone
NAVD elevations are feet relative to North American Vertical Datum of 1988
Wells resurveyed June 2020

Table A-2

Water Level Monitoring Network Piezometer Details

Well	Installation Date (mm/dd/yyyy)	Northing	Easting	Ground Surface Elevation (NAVD)	Top of Casing Elevation (NAVD)	Top of Screen Elevation (NAVD)	Bottom of Screen Elevation (NAVD)	Bottom Depth (ft BTOC)	Purpose
PZ-1	8/29/2018	852400.01	954904.93	64.70	67.41	25.00	15.00	52.71	Downgradient Piezometer
PZ-2	8/28/2018	852549.77	955306.02	64.99	67.26	35.29	25.29	42.27	Upgradient Piezometer
PZ-3	8/30/2018	852032.57	955677.60	58.69	61.28	29.99	19.99	41.59	Downgradient Piezometer
PZ-4	1/21/2022	851879.27	954615.01	63.60	66.41	23.57	13.57	53.19	Upgradient Piezometer
PZ-5	1/20/2022	852171.15	954557.82	64.90	67.52	24.74	14.74	53.13	Downgradient Piezometer

Notes:

1. ft BTOC indicates feet below top of casing.
2. Northings and Eastings are feet relative to North American Datum 1983 (NAD83), State Plane Georgia East Zone
3. NAVD elevations are feet relative to North American Vertical Datum of 1988.
4. Wells resurveyed June 2020.

Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

WELL NUMBER GWA-1B

CLIENT Georgia Power
PROJECT Taylor Goble
PROJECT NUMBER I054-110
PROJECT LOCATION Plant McIntosh
DATE STARTED 12/4/20 **COMPLETED** 12/4/20
GROUND ELEVATION 64.39 ft **HOLE SIZE** 6 inch
DRILLING CONTRACTOR Cascade
GROUND WATER LEVELS:
DRILLING METHOD T-300 Rotosonic
▼ **AFTER DRILLING** 18.43 ft / Elev 45.96 ft
LOGGED BY Taylor Goble **DRILLED BY** Tommy Ardito
NORTHING 852028.09 (GA State Plane West NAD83)
NOTES Elevation data are relative to NAVD88
EASTING 954564.84 (GA State Plane West NAD83)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Top Elev: 67.36 ft Casing Type: PVC
			SP-SC		POORLY GRADED SAND WITH CLAY, (SP-SC) very dark gray (2.5Y 3/1), poorly graded, subrounded, fine grained, dry, loose, non plastic, with clay	
5						
					7.5 / 56.9	
			SC		CLAYEY SAND, (SC) light gray (2.5Y 7/1), poorly graded, subrounded, fine grained, wet, medium dense, low plasticity	
10						
	SS	2-3			13.5 / 50.9	
	SS	4-5	SC		CLAYEY SAND, (SC) light gray with tan (2.5Y 7/2), poorly graded, subrounded, fine grained, wet, medium dense, low plasticity, trace clay nodules	
15						
					18.0 / 46.4	
	SS	3-3	CL		SANDY LEAN CLAY, (CL) reddish yellow with orange (7.5YR 6/8), wet, very stiff, medium plasticity	▼
	SS	4-5				
20						Grout: 6.8 cu. ft.
					23.0 / 41.4	
	SS	2-4	SC		CLAYEY SAND, (SC) light gray with tannish orange (7.5YR 7/1), poorly graded, subrounded, fine grained, wet, dense, low plasticity	
	SS	4-5				
25						
					28.0 / 36.4	
	SS	3-4	SC		CLAYEY SAND, (SC) light brown with light gray (7.5YR 6/4), poorly graded, subrounded, fine grained, wet, dense, low plasticity	
	SS	5-6				
30						
					33.0 / 31.4	
	SS	0-0	CL		SANDY LEAN CLAY, (CL) light brown (7.5YR 6/4), fine grained, wet, medium stiff, medium plasticity	
	SS	0-2				
35						

(Continued Next Page)

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1150 North Meadow Parkway, Suite 100
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WELL NUMBER GWA-1B

CLIENT Georgia Power **PROJECT** Taylor Goble

PROJECT NUMBER I054-110 **PROJECT LOCATION** Plant McIntosh

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35			CL		SANDY LEAN CLAY, (CL) light brown (7.5YR 6/4), fine grained, wet, medium stiff, medium plasticity *(continued)*	
					38.0 — 26.4	
	SS	2-2	CL		SANDY LEAN CLAY, (CL) gray with light gray (7.5YR 5/1), fine to coarse grained, wet, loose, medium plasticity	
40	SS	2-3				
					43.0 — 21.4	
	SS	3-2	CL		SANDY LEAN CLAY, (CL) very dark gray (7.5YR 3/1), fine to coarse grained, wet, medium dense, medium plasticity, with silt	
45	SS	4-18				
					48.0 — 16.4	
	SS	5-8	SC		CLAYEY SAND, (SC) very dark gray (7.5YR 3/1), fine grained, wet, loose, medium plasticity, with silt	
50	SS	9-10				
	SS	2-6				
55	SS	12-16			55.0 — 9.4	

Bottom of borehole at 55.0 feet.

Bentonite Seal: 0.33 cu. ft.

Filter Pack: 2.1 cu. ft.

Top of screen elevation: 19.40

Screen Interval

Bottom of screen elevation: 9.40

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1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

WELL NUMBER GWC-1A

CLIENT Georgia Power
PROJECT Taylor Goble
PROJECT NUMBER I054-110
PROJECT LOCATION Plant McIntosh
DATE STARTED 12/8/20 **COMPLETED** 12/8/20
GROUND ELEVATION 64.00 ft **HOLE SIZE** 6 inch
DRILLING CONTRACTOR Cascade
GROUND WATER LEVELS:
DRILLING METHOD T-300 Rotosonic
▼ **AFTER DRILLING** 17.81 ft / Elev 46.19 ft
LOGGED BY Taylor Goble **DRILLED BY** Tommy Ardito
NORTHING 852453.58 (GA State Plane West NAD83)
NOTES Elevation data are relative to NAVD88
EASTING 955300.47 (GA State Plane West NAD83)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			SM		SILTY SAND, (SM) light gray with pale brown (10YR 7/1), fine grained, dry, non plastic, little clay
5					5.0
			SM		SILTY SAND, (SM) red (10R 4/8), fine grained, dry, non plastic, little clay
10					10.0
			SM		SILTY SAND, (SM) light brown with gray (7.5YR 6/3), fine grained, dry, non plastic, little clay, High plastic clay lense present
	SS	2-4			
15	SS	5-5			15.0
			SC		CLAYEY SAND, (SC) red with gray (10R 4/8), fine grained, moist, low plasticity, with clay
	SS	2-4			
20	SS	6-7			20.0
			SM		SILTY SAND, (SM) light brown to reddish yellow (7.5YR 6/4), fine to coarse grained, wet, non plastic, little clay, Quartz-rich
	SS	4-4			
25	SS	4-4			25.0
			SC		CLAYEY SAND, (SC) gray with brown (7.5YR 5/1), fine to coarse grained, wet, low plasticity, Quartz-rich
	SS	2-3			
30	SS	4-6			
	SS	3-2			
35	SS	4-4			

WELL DIAGRAM

Casing Top Elev: 66.76 ft
Casing Type: PVC

59.0
54.0
49.0
44.0
39.0

Grout: 5.1 cu. ft.

Bentonite Seal: 0.33 cu. ft.

Filter Pack: 2.1 cu. ft.

(Continued Next Page)

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WELL NUMBER GWC-1A

CLIENT Georgia Power **PROJECT** Taylor Goble

PROJECT NUMBER I054-110 **PROJECT LOCATION** Plant McIntosh

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35			SC		CLAYEY SAND, (SC) gray with brown (7.5YR 5/1), fine to coarse grained, wet, low plasticity, Quartz-rich *(continued)*	Top of screen elevation: 29.93
	SS	1-1				
40	SS	2-1			40.0	24.0 Screen Interval
			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), coarse grained, wet, low plasticity, with fine to coarse gravel	
	SS	2-2				
45	SS	3-3			45.0	19.0 Bottom of screen elevation: 19.93

Bottom of borehole at 45.0 feet.

EVAN B. PERRY
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1744

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Roswell, GA 30076
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WELL NUMBER GWC-5A

CLIENT Georgia Power
PROJECT Taylor Goble
PROJECT NUMBER I054-110
PROJECT LOCATION Plant McIntosh
DATE STARTED 12/9/20 **COMPLETED** 12/9/20
GROUND ELEVATION 65.64 ft **HOLE SIZE** 6 inch
DRILLING CONTRACTOR Cascade
GROUND WATER LEVELS:
DRILLING METHOD T-300 Rotosonic
▼ **AFTER DRILLING** 20.15 ft / Elev 45.49 ft
LOGGED BY Taylor Goble **DRILLED BY** Tommy Ardito
NORTHING 852689.80 (GA State Plane West NAD83)
NOTES Elevation data are relative to NAVD88
EASTING 955477.18 (GA State Plane West NAD83)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0							Casing Top Elev: 67.84 ft Casing Type: PVC
			SM		SILTY SAND, (SM) brown (7.5YR 4/6), fine grained, dry, very loose, non plastic, with silt, and organics		
						2.5 / 63.1	
			CL		SANDY LEAN CLAY, (CL) gray with reddish orange (10YR 5/2), fine grained, dry, very soft to very stiff, medium plasticity		
5							
10						11.0 / 54.6	
			SC-SM		CLAYEY SAND, (SC-SM) red with gray (10R 4/8), fine grained, wet, very stiff to stiff, medium plasticity		Grout: 4.2 cu. ft.
	SS	3-6				14.0 / 51.6	
15	SS	4-5	CL		SANDY LEAN CLAY, (CL) red with gray (10R 4/8), fine grained, wet, firm to stiff, medium plasticity		
						18.0 / 47.6	
	SS	3-3	SC		CLAYEY SAND, (SC) red with brown (10R 4/8), fine grained, wet, very stiff to stiff, medium plasticity		
20	SS	4-5					▼
	SS	1-2					
25	SS	2-3					
						26.0 / 39.6	Bentonite Seal: 0.33 cu. ft.
			SP-SM		POORLY GRADED SAND WITH SILT, (SP-SM) tan (7.5YR 6/4), fine grained, wet, loose, non plastic		
						28.0 / 37.6	
	SS	2-4	SC		CLAYEY SAND, (SC) light gray with light brown (7.5YR 7/1), fine grained, wet, stiff, medium plasticity		Filter Pack: 2.1 cu. ft.
30	SS	5-3				30.0 / 35.6	Top of screen elevation: 35.59
			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/4), fine to coarse grained, wet, stiff, medium plasticity, quartz-rich		
	SS	3-2					
35	SS	2-3					

(Continued Next Page)

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1150 North Meadow Parkway, Suite 100
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770-594-5998

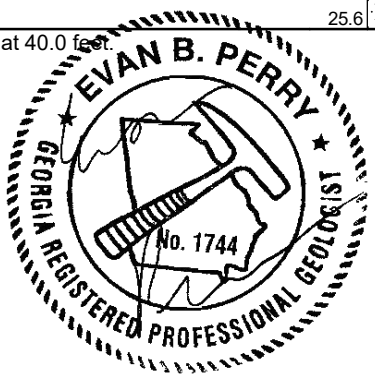
WELL NUMBER GWC-5A

CLIENT Georgia Power **PROJECT** Taylor Goble

PROJECT NUMBER I054-110 **PROJECT LOCATION** Plant McIntosh

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/4), fine to coarse grained, wet, stiff, medium plasticity, quartz-rich *(continued)*	Screen Interval
				38.0		27.6
	SS	1-6	SC		CLAYEY SAND, (SC) light brown (7.5YR 6/4), fine to coarse grained, wet, stiff, low plasticity, decrease clay content	Bottom of screen elevation: 25.59
40	SS	7-7		40.0		25.6

Bottom of borehole at 40.0 feet.



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770-594-5998

WELL NUMBER GWC-6A

CLIENT Georgia Power
PROJECT Taylor Goble
PROJECT NUMBER I054-110
PROJECT LOCATION Plant McIntosh
DATE STARTED 12/7/20 **COMPLETED** 12/7/20
GROUND ELEVATION 65.66 ft **HOLE SIZE** 6 inch
DRILLING CONTRACTOR Cascade
GROUND WATER LEVELS:
DRILLING METHOD T-300 Rotosonic
▼ **AFTER DRILLING** 22.55 ft / Elev 43.11 ft
LOGGED BY Taylor Goble **DRILLED BY** Tommy Ardito
NORTHING 852462.38 (GA State Plane West NAD83)
NOTES Elevation data are relative to NAVD88
EASTING 955046.58 (GA State Plane West NAD83)

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						Casing Top Elev: 68.37 ft Casing Type: PVC
			SM		SILTY SAND, (SM) gray (10YR 5/1), fine grained, dry, very loose to loose, non plastic	
3.0						62.7
			CL		SANDY LEAN CLAY, (CL) brown with gray (7.5YR 4/6), fine grained, dry, soft to hard, low plasticity, with silt, and organics	
5					5.0	60.7
			SC		CLAYEY SAND, (SC) brown with gray (7.5YR 4/6), fine grained, dry, soft to hard, medium plasticity	
10					10.0	55.7
			CL		SANDY LEAN CLAY, (CL) red with gray (10R 4/8), fine grained, wet, stiff, medium plasticity	
	SS	2-3				
	SS	4-7				
15					15.0	50.7
			CL		SANDY LEAN CLAY, (CL) red to brown (10R 4/8), fine grained, wet, stiff to very stiff, high plasticity	
	SS	2-3				
	SS	3-4				
20					20.0	45.7
			CL		SANDY LEAN CLAY, (CL) light gray and white (7.5YR 7/1), fine grained, wet, stiff to very stiff, high plasticity	
	SS	2-2				
	SS	4-5				
25					25.0	40.7
			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), fine grained, wet, stiff, medium plasticity	
	SS	3-2				
	SS	2-3				
30					30.0	35.7
			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), fine to coarse grained, wet, stiff, medium plasticity, quartz-rich	
	SS	3-2				
	SS	4-4				
35					35.0	30.7

Grout: 4.2 cu. ft.
Bentonite Seal: 0.33 cu. ft.
Filter Pack: 2.1 cu. ft.
Top of screen elevation: 36.29

(Continued Next Page)

Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
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770-594-5998

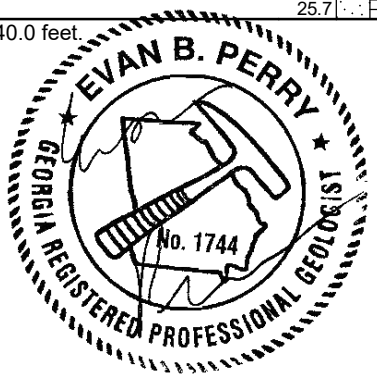
WELL NUMBER GWC-6A

CLIENT Georgia Power **PROJECT** Taylor Goble

PROJECT NUMBER I054-110 **PROJECT LOCATION** Plant McIntosh

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35						
			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), fine to coarse grained, wet, stiff, low plasticity, decrease clay content	Screen Interval
	SS	4-2				
40	SS	2-5		40.0	25.7	Bottom of screen elevation: 26.29

Bottom of borehole at 40.0 feet.



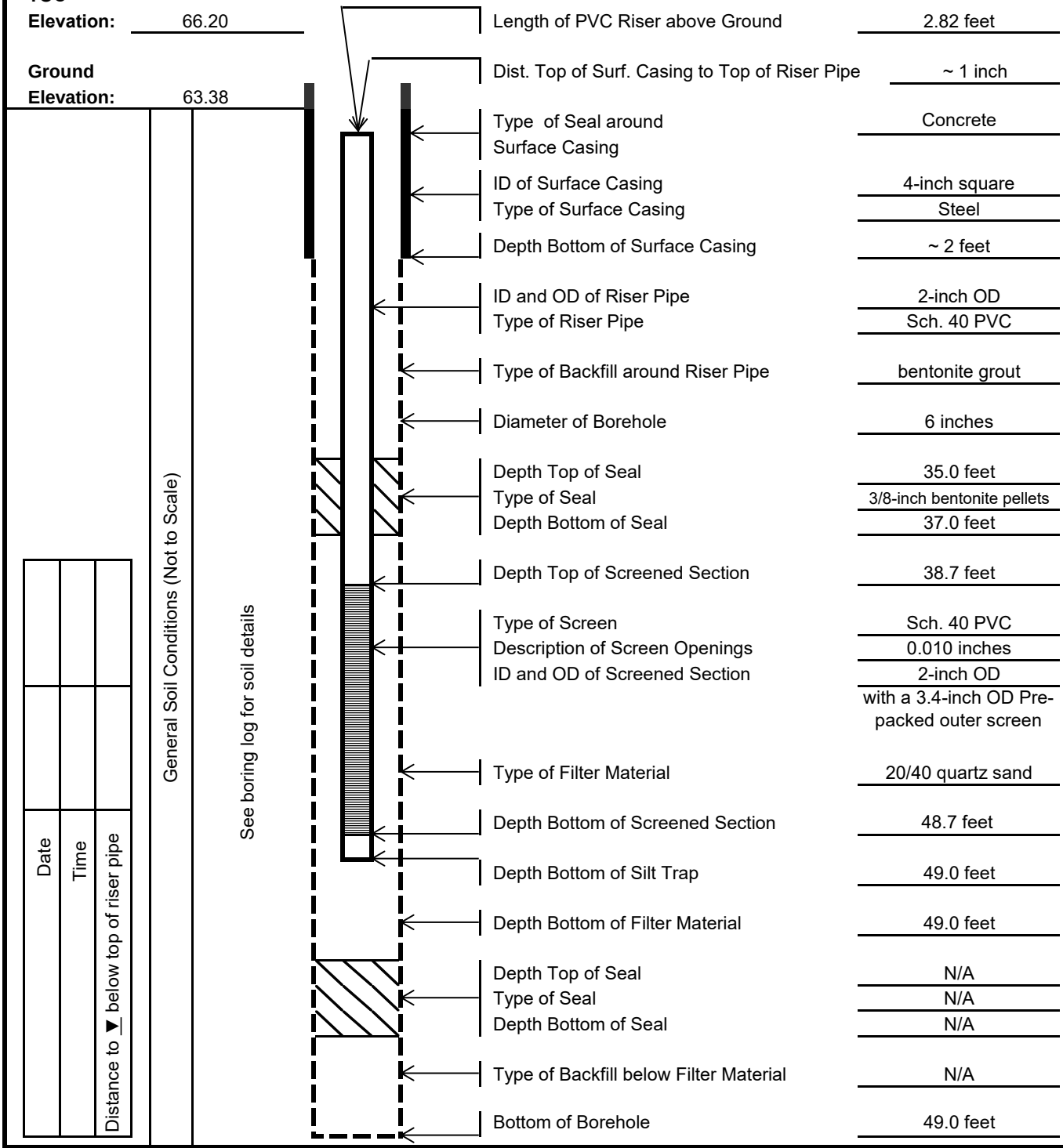
Groundwater Well Installation Log

GWA-2B

Project	Plant McIntosh	**GEI Proj. No.**	1800205
City / Town	Effingham County, GA	**Location**	Inactive CCR Landfill No. 3
Client	Georgia Power Company	N - 851831.06	
Contractor	Cascade Drilling	E - 954866.86	
Driller	Ray Whitt **GEI Rep.** Peter Adams	**Install Date**	8/29/2018

TOC Elevation: 66.20

Ground Elevation: 63.38



Length of PVC Riser above Ground	2.82 feet
Dist. Top of Surf. Casing to Top of Riser Pipe	~ 1 inch
Type of Seal around Surface Casing	Concrete
ID of Surface Casing	4-inch square
Type of Surface Casing	Steel
Depth Bottom of Surface Casing	~ 2 feet
ID and OD of Riser Pipe	2-inch OD
Type of Riser Pipe	Sch. 40 PVC
Type of Backfill around Riser Pipe	bentonite grout
Diameter of Borehole	6 inches
Depth Top of Seal	35.0 feet
Type of Seal	3/8-inch bentonite pellets
Depth Bottom of Seal	37.0 feet
Depth Top of Screened Section	38.7 feet
Type of Screen	Sch. 40 PVC
Description of Screen Openings	0.010 inches
ID and OD of Screened Section	2-inch OD with a 3.4-inch OD Pre-packed outer screen
Type of Filter Material	20/40 quartz sand
Depth Bottom of Screened Section	48.7 feet
Depth Bottom of Silt Trap	49.0 feet
Depth Bottom of Filter Material	49.0 feet
Depth Top of Seal	N/A
Type of Seal	N/A
Depth Bottom of Seal	N/A
Type of Backfill below Filter Material	N/A
Bottom of Borehole	49.0 feet

Notes:

All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

GEI Consultants

BORING INFORMATION

LOCATION: Landfill No. 3 — N: 851831.06, E: 954866.86

GROUND SURFACE EL. (ft): 63.38 — **DATE START/END:** 6/30/2018 - 6/30/2018

VERTICAL DATUM: NAVD 88 — **DRILLING COMPANY:** Cascade

TOTAL DEPTH (ft): 45.0 — **DRILLER NAME:** Richard Mooney

LOGGED BY: P. Adams — **RIG TYPE:** Geoprobe 7720DT

BORING

GWA-2B

DRILLING INFORMATION

HAMMER TYPE: NA — **CASING I.D./O.D.:** 2 inch/ NA — **CORE BARREL TYPE:**

AUGER I.D/O.D.: NA / NA — **DRILL ROD O.D.:** NM — **CORE BARREL I.D./O.D.:** NA / NA

DRILLING METHOD: Direct Push

WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:

Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer

S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140 lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
63.38								
		DP1	0 to 5	60/42				(0-0.3'): TOPSOIL (0.3-6'): SILTY SAND (SM); ~70% fine sand, ~30% nonplastic to low plasticity fines. Medium dense. Moist. Grey-brown.
58.38	5	DP2	5 to 10	60/48				(6-15'): SANDY LEAN CLAY (CL); ~70% medium plasticity fines, ~30% fine sand. Stiff. Moist. Grey-brown with red mottling.
53.38	10	DP3	10 to 15	60/60				
48.38	15	DP4	15 to 20	60/48				(15-25'): FAT CLAY (CH); ~85% medium to high plasticity fines,~15% fine to coarse sand. Hard. Moist. Grey.
43.38	20	DP5	20 to 25	60/60				

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh

CITY/STATE: Effingham County, GA

GEI PROJECT NUMBER: 1800205

GEI Consultants

GEI WOBURN.STD 2-LOCATION-GRAPHIC LOG MCINTOSH_BORING_LOGS_JUNE2018.GPJ 7/30/18

LOCATION: Landfill No. 3
GROUND SURFACE EL. (ft): 63.38 **DATE START/END:** 6/30/2018 - 6/30/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade

BORING GWA-2B

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		DP6	25 to 30	60/60				(25-35'): SANDY LEAN CLAY (CL); ~65% medium plasticity fines, ~35% fine to coarse sand. Stiff. Very moist. Grey-brown.
33.38	30	DP7	30 to 35	60/60				
28.38	35	DP8	35 to 40	60/60				(35-36'): SILTY SAND (SM); ~60% fine to coarse sand, ~40% nonplastic to low plasticity fines. Loose. Wet. Brown.
								(36-38'): FAT CLAY (CH); ~85% high plasticity fines, ~15% fine to coarse sand. Hard. Moist. Grey.
								(38-40'): WIDELY GRADED SAND WITH CLAY (SW-SC); ~84.9% fine to coarse sand, ~14.7% medium plasticity fines, ~0.4% fine gravel. Dense. Wet. Dark grey.
23.38	40	DP9	40 to 45	60/60		Recommended screen interval: 38-48'		(40-45'): WIDELY GRADED SAND WITH SILT (SW-SM); ~88.7% fine to coarse sand, ~11.1% nonplastic fines, ~0.2% fine gravel. Dense. Wet. Brown with red and yellow mottling.
18.38	45							Bottom of boring at depth 45 ft. Backfilled with bentonite chips and hydrated
	50							
	55							

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.
All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988. Coordinates are in NAD 1983 Georgia State Plane East Zone. Well resurveyed June 2020.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

SITE: SEPCO Plant McIntosh, Rincon, GA WELL NO. G.W.A-3A(Deep)

"AS-BUILT" DIAGRAM OF EACH WELL: attached

NAME OF DRILLER(S): Ron Wilkerson
Tim Wainwright
Joseph Whitaker
Carroll Crowther

TYPE OF DRILL RIG(S): Cannonball B-53

DRILLING METHOD: 6.25" I. D. hollow stem augers

WELL LOCATION: See the attached well schematic

BOREHOLE DIAMETER: 12.25 inches

WELL CASING DIAMETER: 2.0" I. D.

WELL DEPTH: 30'

DRILLING AND LITHOLOGIC LOGS: attached

CASING MATERIALS: 2.0" dia. ASTM, NSF rated, Schedule 40 PVC

SCREEN MATERIALS AND DESIGN: 2" to 4" dia. PVC with 0.01" slots ("Pre-Pac Dual-Wall Well Screen")

SCREENING AND CASING JOINT TYPE: flush threaded

SCREEN SLOT SIZE: 0.01" slots - 1.5" long (4 slots per diameter) (8 slots per vertical inch)

SCREEN LENGTH: 10'

FILTER PACK MATERIAL/SIZE: 20/30 quartz (silica) sand

FILTER PACK VOLUME: 8.78 cu. ft.

FILTER PACK PLACEMENT METHOD: Tremie pipe

SEALANT MATERIALS: Course grit sodium benonite

SEALANT VOLUME: 1.57 cu. ft.

SEALANT PLACEMENT METHOD: Tremie pipe

SURFACE SEAL DESIGN/CONSTRUCTION: See the attached well schematic

WELL DEVELOPMENT PROCEDURE: Pumping/surging

TYPE OF PROTECTIVE WELL CAP: 4" x 4" x 4' locking steel cover

GROUND SURFACE ELEVATION: See the attached individual well schematic

WELL CAP ELEVATION: See the attached individual well schematic

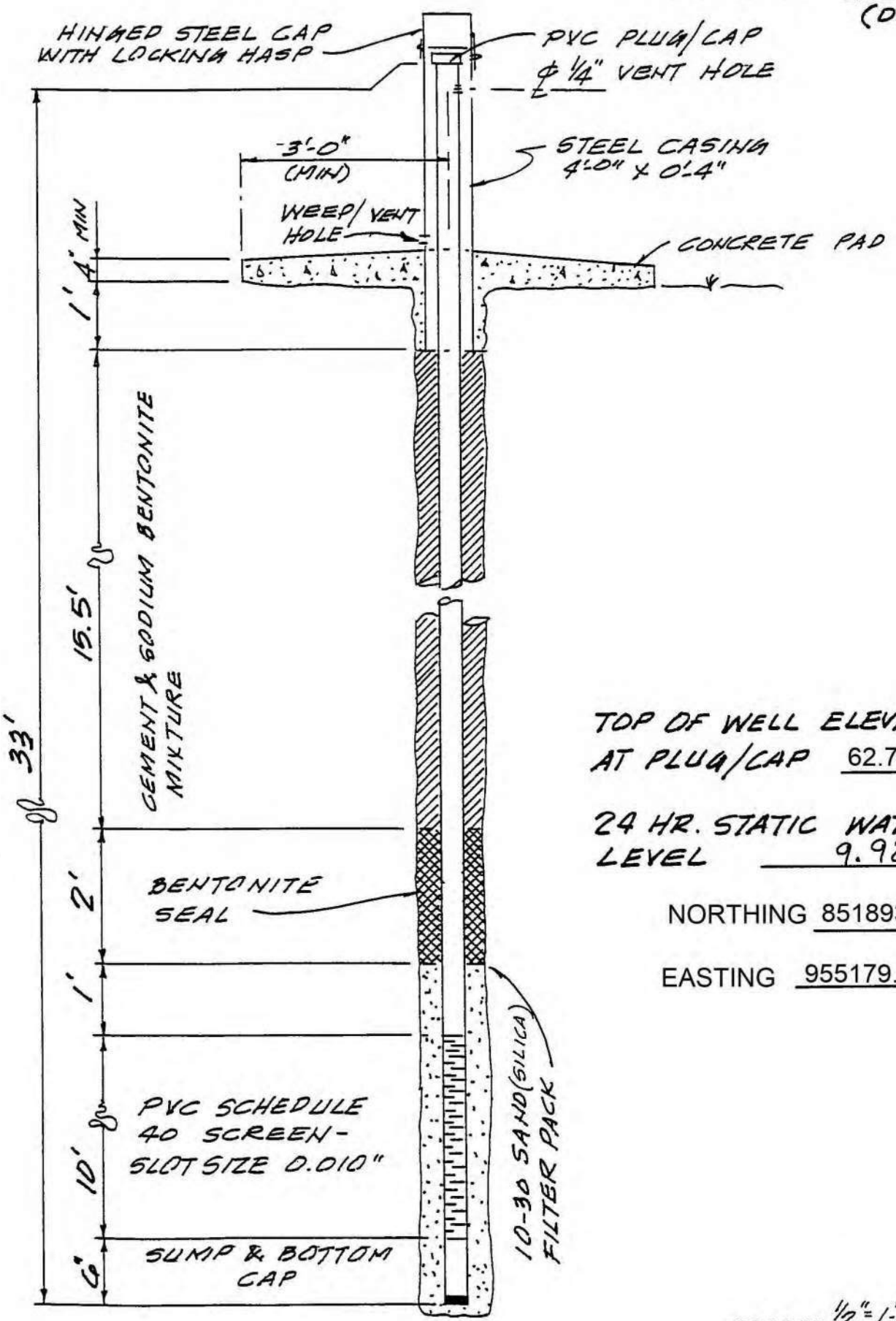
DETAILED DRAWING OF WELL: See the attached individual well schematic

GENERAL WELL INSTALLATION PROCEDURES

Prior to drilling the first well, all equipment was steam cleaned. This process was repeated after installation of each well.

All monitoring wells were installed using hollow-stem augers to advance the holes.

WELL Nº GWA-3A (DEEP)



TOP OF WELL ELEVATION AT PLUG/CAP 62.77

24 HR. STATIC WATER LEVEL 9.92'

NORTHING 851893.61

EASTING 955179.89

SCALE: 1/2" = 1'-0" VERT.
1" = 1'-0" HORZ

NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

SITE: SEPCO Plant McIntosh, Rincon, GA WELL NO. G.W.A.-4

"AS-BUILT" DIAGRAM OF EACH WELL: attached

NAME OF DRILLER(S): Ron Wilkerson
Tim Wainwright
Joseph Whitaker
Carroll Crowther

TYPE OF DRILL RIG(S): Cannonball B-53

DRILLING METHOD: 6.25" I. D. hollow stem augers

WELL LOCATION: See the attached well schematic

BOREHOLE DIAMETER: 12.25 inches

WELL CASING DIAMETER: 2.0" I. D.

WELL DEPTH: 26'

DRILLING AND LITHOLOGIC LOGS: attached

CASING MATERIALS: 2.0" dia. ASTM, NSF rated, Schedule 40 PVC

SCREEN MATERIALS AND DESIGN: 2" to 4" dia. PVC with 0.01" slots ("Pre-Pac Dual-Wall Well Screen")

SCREENING AND CASING JOINT TYPE: flush threaded

SCREEN SLOT SIZE: 0.01" slots - 1.5" long (4 slots per diameter) (8 slots per vertical inch)

SCREEN LENGTH: 5'

FILTER PACK MATERIAL/SIZE: 20/30 quartz (silica) sand

FILTER PACK VOLUME: 4.75 cu. ft.

FILTER PACK PLACEMENT METHOD: Tremie pipe

SEALANT MATERIALS: Course grit sodium benonite

SEALANT VOLUME: 1.60 cu. ft.

SEALANT PLACEMENT METHOD: Tremie pipe

SURFACE SEAL DESIGN/CONSTRUCTION: See the attached well schematic

WELL DEVELOPMENT PROCEDURE: Pumping/surging

TYPE OF PROTECTIVE WELL CAP: 4" x 4" x 4' locking steel cover

GROUND SURFACE ELEVATION: See the attached individual well schematic

WELL CAP ELEVATION: See the attached individual well schematic

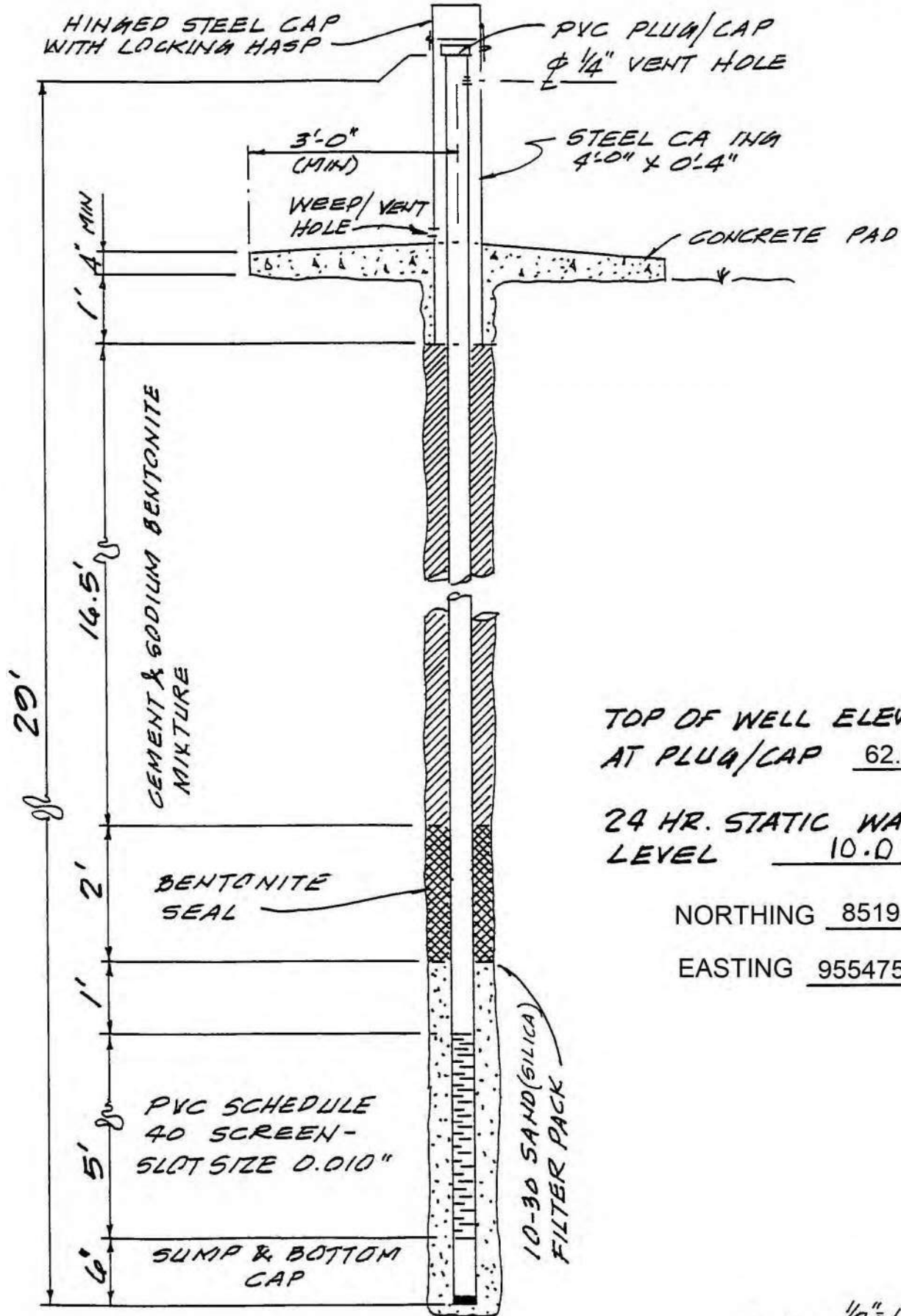
DETAILED DRAWING OF WELL: See the attached individual well schematic

GENERAL WELL INSTALLATION PROCEDURES

Prior to drilling the first well, all equipment was steam cleaned. This process was repeated after installation of each well.

All monitoring wells were installed using hollow-stem augers to advance the holes.

WELL Nº GWA-4



TOP OF WELL ELEVATION AT PLUG/CAP 62.01

24 HR. STATIC WATER LEVEL 10.08

NORTHING 851980.91

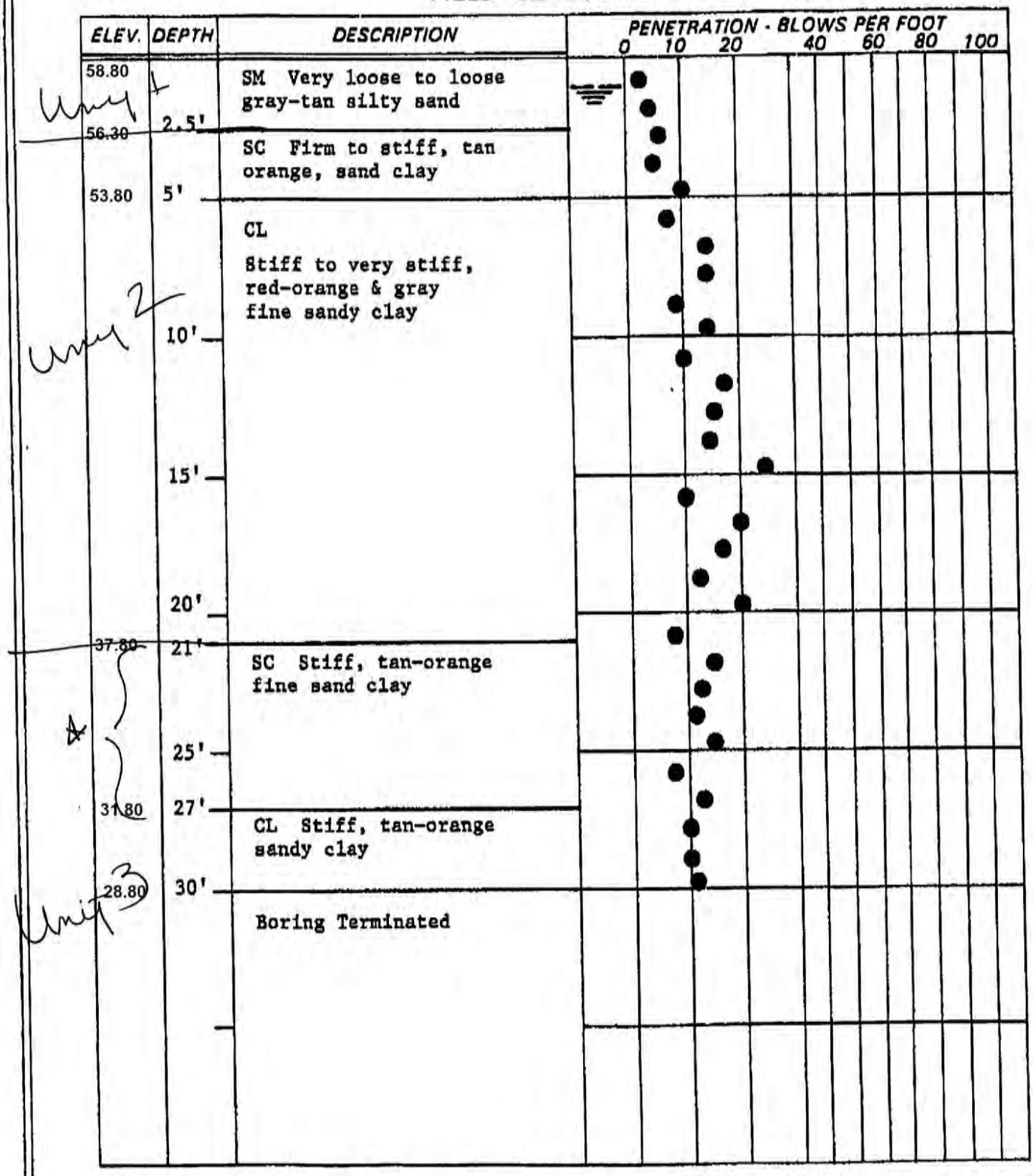
EASTING 955475.74

SCALE: 1/2" = 1'-0" VERT.
1" = 1'-0" HORZ

NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

TEST BORING RECORD

FIELD CLASSIFIED



Penetration is number of blows of 140 lb. hammer falling 30 in. required to drive 2.0 in. O.D. sampler one foot.

BORING NO. G.W.A-4

WHITAKER LABORATORY, INC.

JOB SEPCO Plant McInTosh

DATE 5/7/98

SITE: SEPCO Plant McIntosh, Rincon, GA WELL NO. G.W.A.-5

"AS-BUILT" DIAGRAM OF EACH WELL: attached

NAME OF DRILLER(S): Ron Wilkerson
Tim Wainwright
Joseph Whitaker
Carroll Crowther

TYPE OF DRILL RIG(S): Cannonball B-53

DRILLING METHOD: 6.25" I. D. hollow stem augers

WELL LOCATION: See the attached well schematic

BOREHOLE DIAMETER: 12.25 inches

WELL CASING DIAMETER: 2.0" I. D.

WELL DEPTH: 30'

DRILLING AND LITHOLOGIC LOGS: attached

CASING MATERIALS: 2.0" dia. ASTM, NSF rated, Schedule 40 PVC

SCREEN MATERIALS AND DESIGN: 2" to 4" dia. PVC with 0.01" slots ("Pre-Pac Dual-Wall Well Screen")

SCREENING AND CASING JOINT TYPE: flush threaded

SCREEN SLOT SIZE: 0.01" slots - 1.5" long (4 slots per diameter) (8 slots per vertical inch)

SCREEN LENGTH: 10'

FILTER PACK MATERIAL/SIZE: 20/30 quartz (silica) sand

FILTER PACK VOLUME: 8.50 cu. ft.

FILTER PACK PLACEMENT METHOD: Tremie pipe

SEALANT MATERIALS: Course grit sodium benonite

SEALANT VOLUME: 1.45 cu. ft.

SEALANT PLACEMENT METHOD: Tremie pipe

SURFACE SEAL DESIGN/CONSTRUCTION: See the attached well schematic

WELL DEVELOPMENT PROCEDURE: Pumping/surging

TYPE OF PROTECTIVE WELL CAP: 4" x 4" x 4' locking steel cover

GROUND SURFACE ELEVATION: See the attached individual well schematic

WELL CAP ELEVATION: See the attached individual well schematic

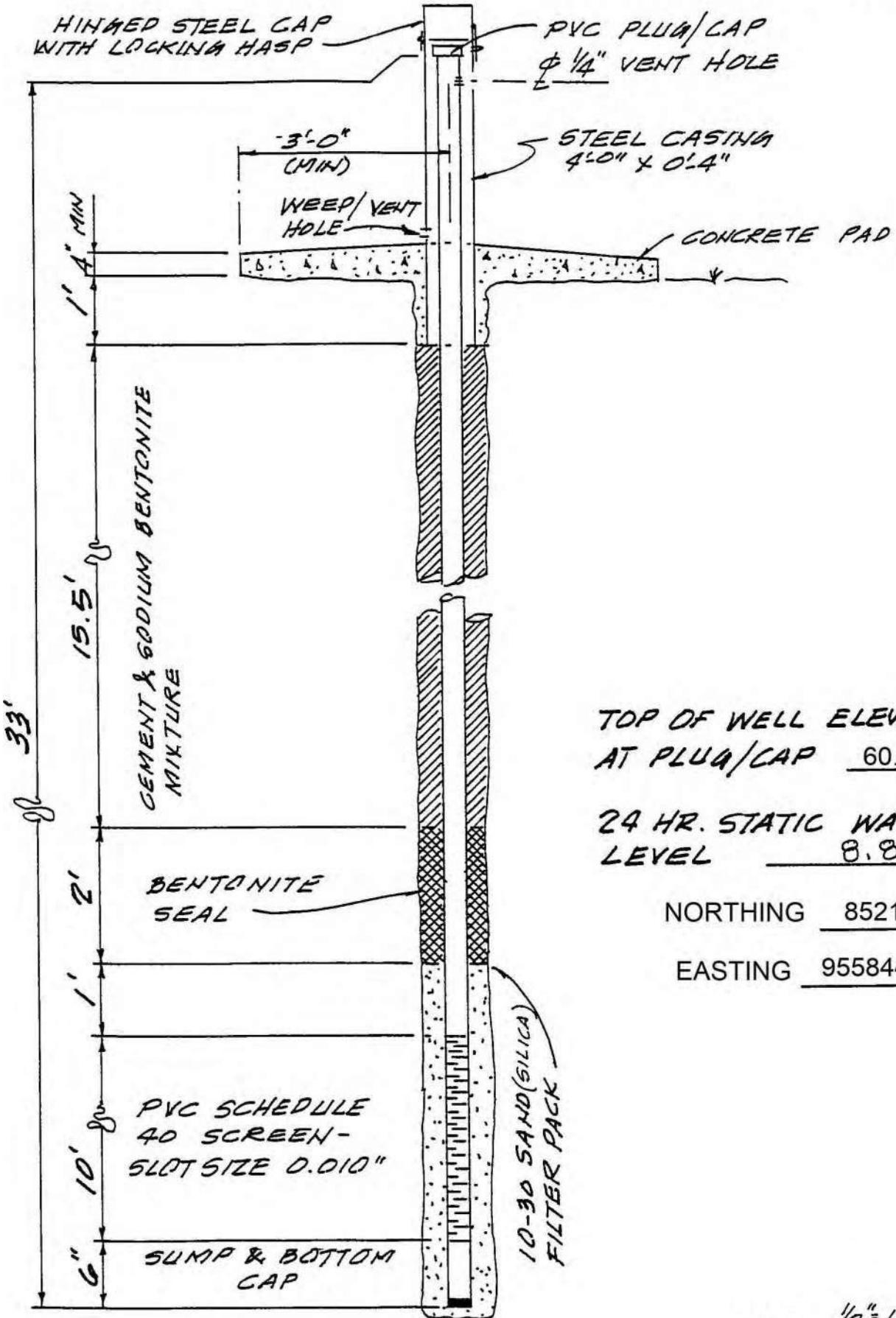
DETAILED DRAWING OF WELL: See the attached individual well schematic

GENERAL WELL INSTALLATION PROCEDURES

Prior to drilling the first well, all equipment was steam cleaned. This process was repeated after installation of each well.

All monitoring wells were installed using hollow-stem augers to advance the holes.

WELL Nº GWA-5



TOP OF WELL ELEVATION AT PLUG/CAP 60.43

24 HR. STATIC WATER LEVEL 8.88'

NORTHING 852110.59

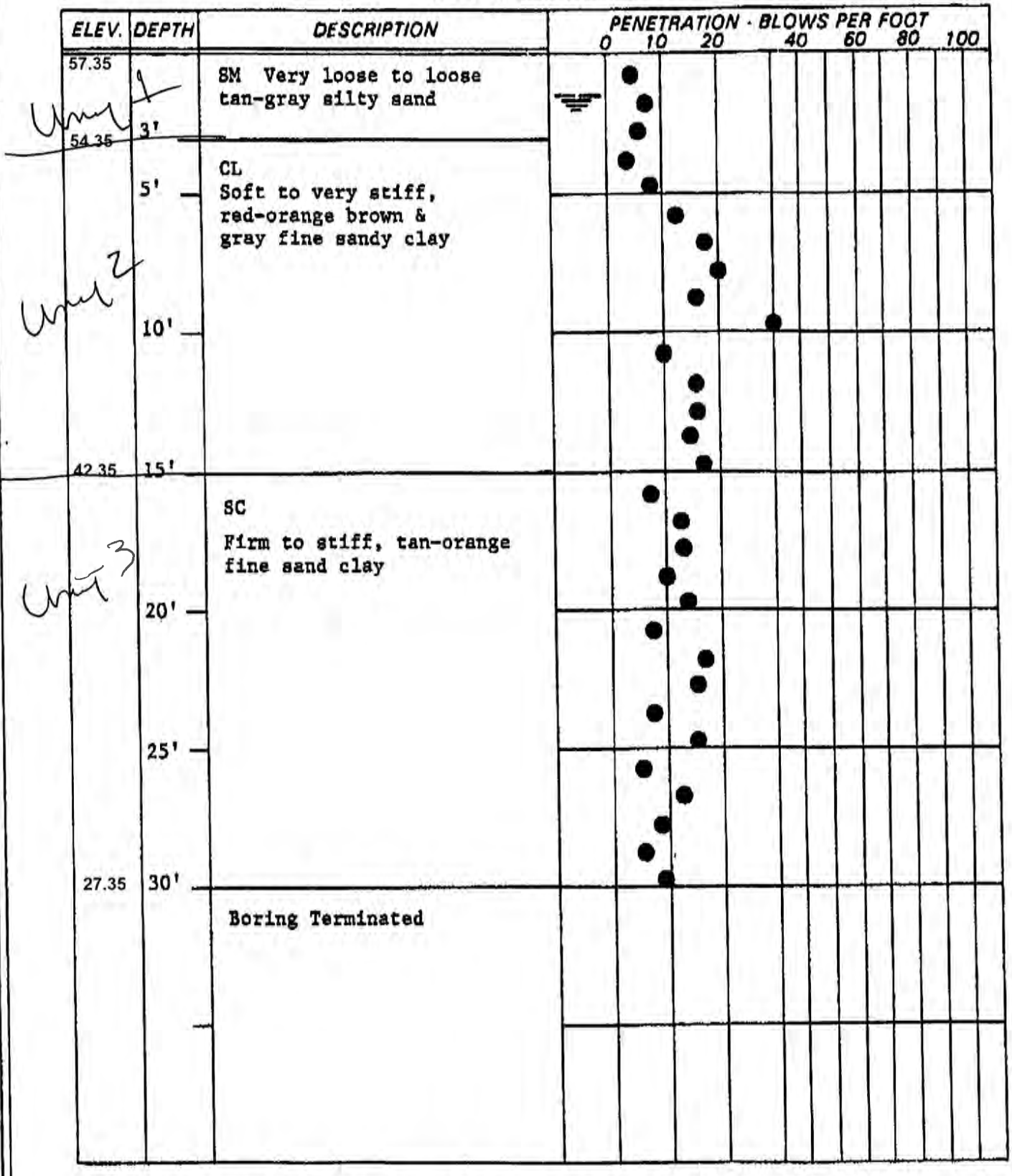
EASTING 955844.69

SCALE: 1/2" = 1'-0" VERT.
1" = 1'-0" HORZ

NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

TEST BORING RECORD

FIELD CLASSIFIED



Penetration is number of blows of 140 lb. hammer falling 30 in. required to drive 2.0 in. O.D. sampler one foot.

BORING NO. G.W.A.-5

WHITAKER LABORATORY, INC.

JOB SEPCO Plant McIntosh

DATE 5/7/98

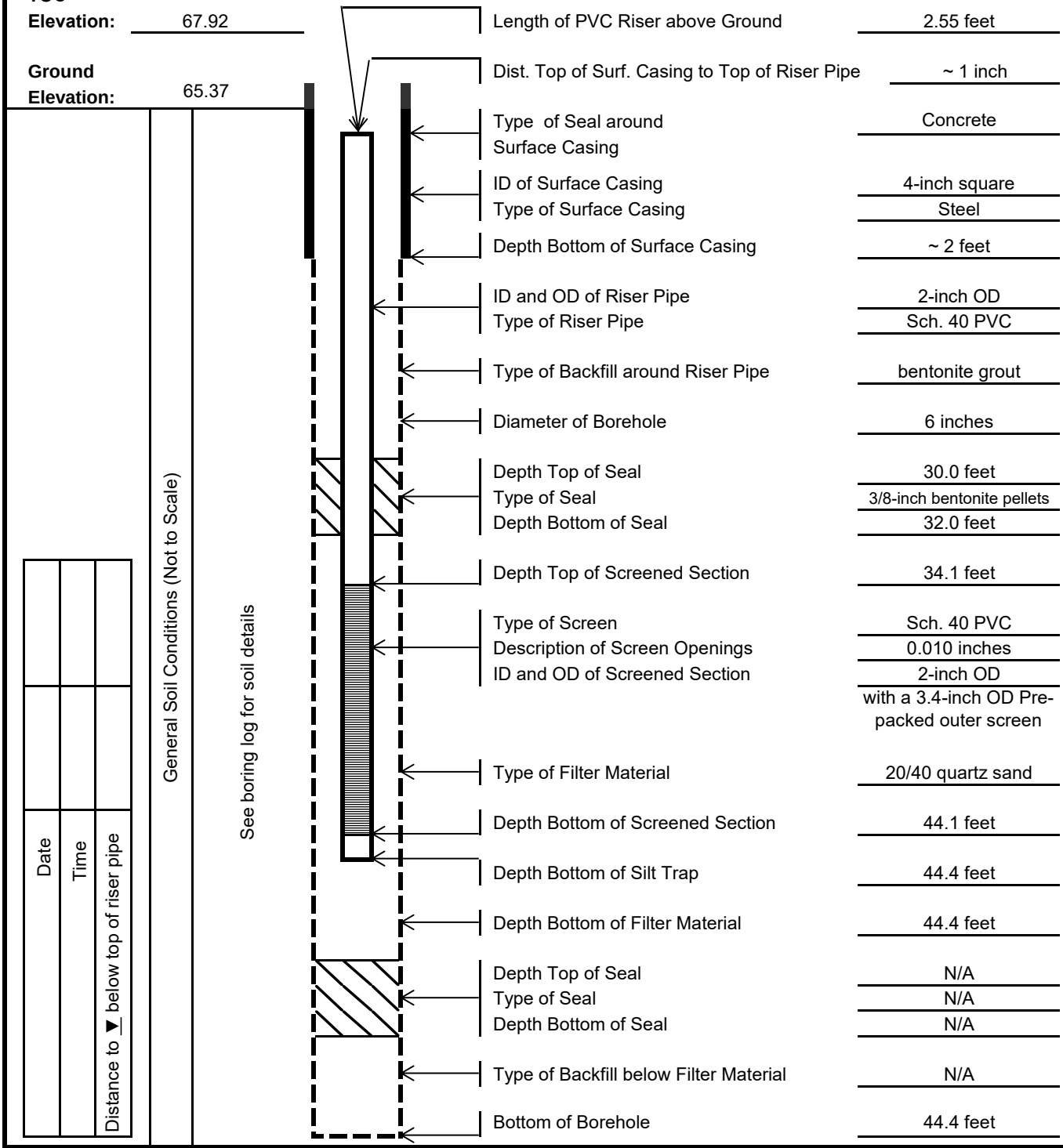
Groundwater Well Installation Log

GWA-7A

Project	Plant McIntosh	**GEI Proj. No.**	1800205
City / Town	Effingham County, GA	**Location**	Inactive CCR Landfill No. 3
Client	Georgia Power Company	N - 852254.28	
Contractor	Cascade Drilling	E - 954654.74	
Driller	Ray Whitt **GEI Rep.** Peter Adams	**Install Date**	8/29/2018

TOC Elevation: 67.92

Ground Elevation: 65.37



Length of PVC Riser above Ground	2.55 feet
Dist. Top of Surf. Casing to Top of Riser Pipe	~ 1 inch
Type of Seal around Surface Casing	Concrete
ID of Surface Casing	4-inch square
Type of Surface Casing	Steel
Depth Bottom of Surface Casing	~ 2 feet
ID and OD of Riser Pipe	2-inch OD
Type of Riser Pipe	Sch. 40 PVC
Type of Backfill around Riser Pipe	bentonite grout
Diameter of Borehole	6 inches
Depth Top of Seal	30.0 feet
Type of Seal	3/8-inch bentonite pellets
Depth Bottom of Seal	32.0 feet
Depth Top of Screened Section	34.1 feet
Type of Screen	Sch. 40 PVC
Description of Screen Openings	0.010 inches
ID and OD of Screened Section	2-inch OD with a 3.4-inch OD Pre-packed outer screen
Type of Filter Material	20/40 quartz sand
Depth Bottom of Screened Section	44.1 feet
Depth Bottom of Silt Trap	44.4 feet
Depth Bottom of Filter Material	44.4 feet
Depth Top of Seal	N/A
Type of Seal	N/A
Depth Bottom of Seal	N/A
Type of Backfill below Filter Material	N/A
Bottom of Borehole	44.4 feet

Notes:

All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

GEI Consultants

BORING INFORMATION

LOCATION: Landfill No. 3 — N: 852254.28, E: 954654.74
GROUND SURFACE EL. (ft): 65.37 — **DATE START/END:** 6/30/2018 - 6/30/2018
VERTICAL DATUM: NAVD 88 — **DRILLING COMPANY:** Cascade
TOTAL DEPTH (ft): 45.0 — **DRILLER NAME:** Richard Mooney
LOGGED BY: P. Adams — **RIG TYPE:** Geoprobe 7720DT

BORING

GWA-7A

DRILLING INFORMATION

HAMMER TYPE: NA — **CASING I.D./O.D.:** 2 inch/ NA — **CORE BARREL TYPE:**
AUGER I.D/O.D.: NA / NA — **DRILL ROD O.D.:** NM — **CORE BARREL I.D./O.D.:** NA / NA
DRILLING METHOD: Direct Push
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140 lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
65.37								
		DP1	0 to 5	60/48				(0-0.3'): TOPSOIL (0.3-5'): SILTY SAND (SM); ~70% fine sand, ~30% nonplastic to low plasticity fines. Organics throughout. Medium dense. Moist. Grey.
60.37	5	DP2	5 to 10	60/42				(5-10.5'): SANDY LEAN CLAY (CL); ~60% low to medium plasticity fines, ~40% fine sand. Stiff. Moist. Grey.
55.37	10	DP3	10 to 15	60/60				(10.5-13'): LEAN CLAY WITH SAND (CL); ~75% medium plasticity fines, ~25% fine sand. Very stiff. Moist. Grey with red mottling.
								(13-13.3'): SILTY SAND (SM); ~80% fine to coarse sand, ~20% nonplastic fines. Very loose. Wet. Brown.
								(13.3-15'): LEAN CLAY WITH SAND (CL); ~75% medium plasticity fines, ~25% fine sand. Stiff. Moist. Grey with red mottling.
50.37	15	DP4	15 to 20	60/48				(15-15.5'): SILTY SAND (SM); ~80% fine to coarse sand, ~20% nonplastic fines. Loose. Wet. Brown.
								(15.5-17'): LEAN CLAY WITH SAND (CL); ~75% medium plasticity fines, ~25% fine sand. Stiff. Moist. Grey with red mottling.
								(17-20'): FAT CLAY (CH); ~85% high plasticity fines, ~15% fine sand. Very hard. Moist. Grey.
45.37	20	DP5	20 to 25	60/60				(20-21.5'): CLAYEY SAND (SC); ~60% fine to coarse sand, ~40% medium to high plasticity fines. Medium dense. Wet. Brown.
								(21.5-23'): FAT CLAY (CH); ~85% high plasticity fines, ~15% fine sand. Very hard. Moist. Grey.
								(23-25'): CLAYEY SAND (SC); ~70% fine to coarse sand, ~30% low plasticity fines. medium dense. Very moist. Brown.

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

LOCATION: Landfill No. 3
GROUND SURFACE EL. (ft): 65.37 **DATE START/END:** 6/30/2018 - 6/30/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade

BORING GWA-7A

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		DP6	25 to 30	60/60				(25-27'): FAT CLAY (CH); ~85% high plasticity fines, ~15% fine sand. Very hard. Moist. Grey. (27-30'): SANDY FAT CLAY (CH); ~60% medium to high plasticity fines, ~40% fine sand. Hard. Very moist. Brown.
35.37	30	DP7	30 to 35	60/60				(30-30.5'): WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% nonplastic fines. Medium dense. Wet. Light brown. (30.5-35'): FAT CLAY WITH SAND (CH); ~80% medium to high plasticity fines, ~20% coarse sand. Hard. Very moist. Brown.
30.37	35	DP8	35 to 40	60/60		Recommended screen interval: 35-45'		(35-38'): CLAYEY SAND (SC); ~77.4% fine to coarse sand, ~22.6% low to medium plasticity fines. Loose. Wet. Light brown. (38-38.5'): SANDY LEAN CLAY (CL); ~60% medium plasticity fines, ~40% fine sand. Very stiff. Very moist. Grey. (38.5-42'): SILTY SAND (SM); ~84.3% fine to coarse sand, ~15.7% nonplastic fines. Dense. Wet. Light brown.
25.37	40	DP9	40 to 45	60/60				(42-43'): CLAYEY SAND (SC); ~60% fine to coarse sand, ~40% medium plasticity fines. Medium dense. Wet. Brown-grey. (43-44'): WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% nonplastic fines. Dense. Wet. Light brown. (44-45'): CLAYEY SAND (SC); ~60% fine to coarse sand, ~40% medium plasticity fines. Medium dense. Wet. Brown-grey.
20.37	45							Bottom of boring at depth 45 ft. Backfilled with bentonite chips and hydrated
	50							
	55							

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

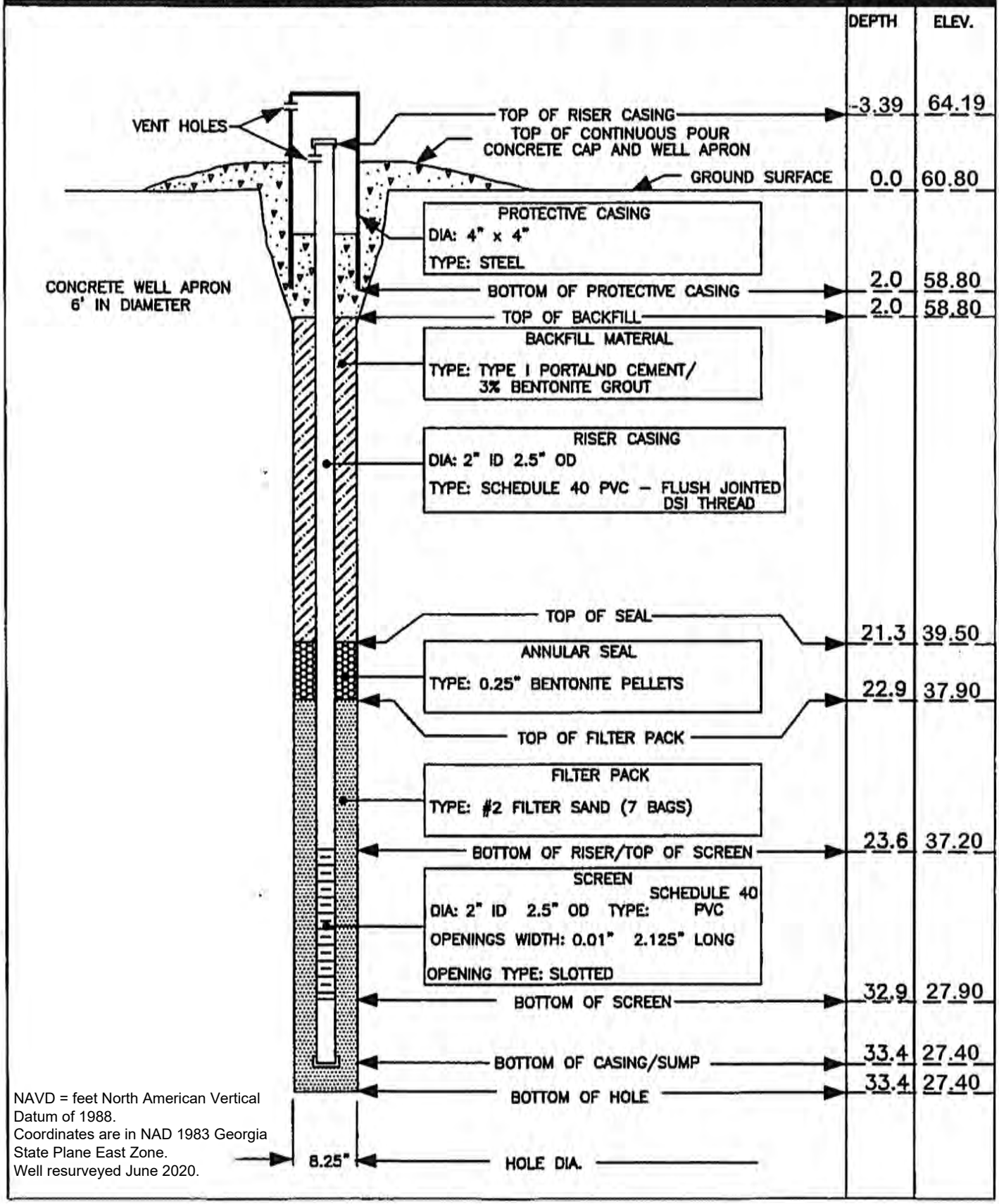
PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

Southern Company Services

WELL CONSTRUCTION LOG

PROJECT: Plant McIntosh Groundwater Monitoring Plan		WELL NO.: GWC-2
SITE: East Side of Ash Disposal Area #3	LOCATION: N 852343.90 E 955958.27	
BEGUN: 1/22/96	COMPLETED: 1/22/96	PREPARED BY: Terri Hartsfield
WATER LEVEL: EL. 53.21	CONTRACTOR: SCS – Atlanta	



NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

Well Identification	GWC-2
Name of Drillers	Jeff Gilreath David Ivey Melvin Hughes
Identification of Drill Rig	CME 75 Serial # 242227
Drilling Method	Hollow Stem Auger w/ Continuous Sampler
Well Location	N 852343.90 E 955958.27
Borehole Diameter	8.25"
Well Casing Diameter	2" I. D.
Well Depth	33.4'
Casing Materials	Schedule 40 PVC
Screen Materials	Schedule 40 PVC
Screen Design	Slotted
Casing and Screen Joint Type	Flush Jointed
Screen Slot Size	0.01"
Screen Slot Length	2 1/8"
Filter Pack Material and Size	#2 filter sand
Filter Pack Volume	7 bags (~ 3.5 cu. ft.)
Filter Pack Placement Method	tremie
Sealant Materials	0.25" bentonite pellets
Sealant Volume	0.54 cu. ft.
Sealant Placement Method	tremie
Well Development Procedures	Grunfos Rediflo
Type of Protective Well Cap	locking, compression ring

Southern Company Services, Inc.
Soil Boring Log

Project:	Plant McIntosh Groundwater Monitoring Plan		**HOLE No. GWC-2**
Location:	Ash Disposal Site No. 3		
Purpose:	Install 2" Monitoring Well		SHEET 1 OF 1
Position:	N 852343.90, E 955958.27	Surface Elevation: 60.80	
Rig Type:	CME 75	Contractor: SCS Atlanta	Driller: Jeff Gilreath
Drilling Method:	Hollow Stem Auger	Boring Depth: 33.5	No. SPT: 7 No. UD Samples: 1
Date Started:	1/23/96 Date Completed: 1/23/96	Logged By: Terri Hartsfield	Date Logged: 1/23/96
Hole Closure:	2" Monitoring Well		

WATER TABLE	DEPTH AND ELEVN. (FT)	SYMBOLIC LOG	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE LEGEND	SAMPLE RECOVERY (%)	SAMPLE SPT VALUES BLOWS/6" (N)	COMMENTS	TEST RESULTS MOISTURE CONTENT (%)	TEST RESULTS LIQUID LIMIT (%)	TEST RESULTS PLASTIC LIMIT (%)	TEST RESULTS K (cm/s)
	0 60.80		4 Dark Gray, Silty Sand TOPSOIL	SS-1		100		Auger w/ Continuous Sampler				
	60.10		Light Gray, Silty, Fine-Grained SAND									
	5 55.80		Grades to a Gray and Brown and Red Mottled Clayey Silty Fine-Grained SAND. By 6' Becomes Gray, Tan and Red Fine-Grained Sandy CLAY w Muscovite	SS-2		100						
	10 50.80			SS-3		100						
	15 45.80		Grades to a Gray, Tan and Orange Very Stiff SILT w/Fine-Grained SAND	SS-4		100		U.D. Sample from 13.5 - 15.5'				
			Tan, Very Silty Clayey, Fine- to Medium-Grained Quartz SAND									
	20 40.80		Olive Gray and Orange, Fractured Silty CLAY (Water Fractures?)	SS-5		100						
	25 35.80		Orange, Fine- to Medium-Grained Silty SAND. Very Wet	SS-6		70						
	30 30.80			SS-7		70						
	27.30		Boring Terminated @ 33.5'									

SS = Split Spoon; ST = Shelby Tube;
D = Dennison; P = Pitcher; O = Other

▽ while drilling
▼ after drilling

☑ 8.86 after 24 hours

Hole No. **GWC-2**

SITE: SEPCO Plant McIntosh, Rincon, GA WELL NO. G.W.C-4A(Deep)

"AS-BUILT" DIAGRAM OF EACH WELL: attached

NAME OF DRILLER(S): Ron Wilkerson
Tim Wainwright
Joseph Whitaker
Carroll Crowther

TYPE OF DRILL RIG(S): Cannonball B-53

DRILLING METHOD: 6.25" I. D. hollow stem augers

WELL LOCATION: See the attached well schematic

BOREHOLE DIAMETER: 12.25 inches

WELL CASING DIAMETER: 2.0" I. D.

WELL DEPTH: 33'

DRILLING AND LITHOLOGIC LOGS: attached

CASING MATERIALS: 2.0" dia. ASTM, NSF rated, Schedule 40 PVC

SCREEN MATERIALS AND DESIGN: 2" to 4" dia. PVC with 0.01" slots ("Pre-Pac Dual-Wall Well Screen")

SCREENING AND CASING JOINT TYPE: flush threaded

SCREEN SLOT SIZE: 0.01" slots - 1.5" long (4 slots per diameter) (8 slots per vertical inch)

SCREEN LENGTH: 10'

FILTER PACK MATERIAL/SIZE: 20/30 quartz (silica) sand

FILTER PACK VOLUME: 8.67 cu. ft.

FILTER PACK PLACEMENT METHOD: Tremie pipe

SEALANT MATERIALS: Course grit sodium benonite

SEALANT VOLUME: 1.60 cu. ft.

SEALANT PLACEMENT METHOD: Tremie pipe

SURFACE SEAL DESIGN/CONSTRUCTION: See the attached well schematic

WELL DEVELOPMENT PROCEDURE: Pumping/surging

TYPE OF PROTECTIVE WELL CAP: 4" x 4" x 4' locking steel cover

GROUND SURFACE ELEVATION: See the attached individual well schematic

WELL CAP ELEVATION: See the attached individual well schematic

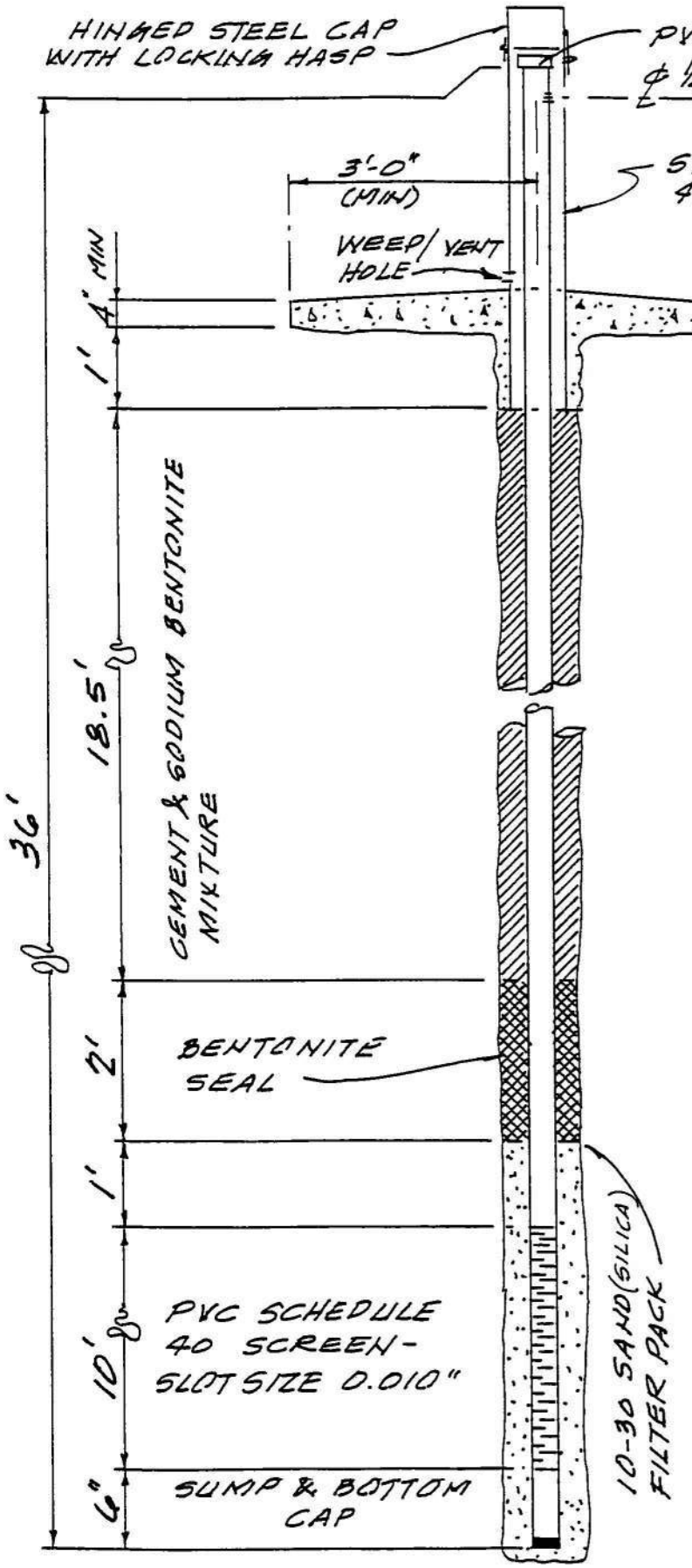
DETAILED DRAWING OF WELL: See the attached individual well schematic

GENERAL WELL INSTALLATION PROCEDURES

Prior to drilling the first well, all equipment was steam cleaned. This process was repeated after installation of each well.

All monitoring wells were installed using hollow-stem augers to advance the holes.

WELL Nº GWC-4A
(DEEP)



TOP OF WELL ELEVATION AT PLUG/CAP 66.60

24 HR. STATIC WATER LEVEL 12.38'

NORTHING 852544.35

EASTING 955702.05

SCALE: 1/2" = 1'-0" VERT.
1" = 1'-0" HORZ

NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

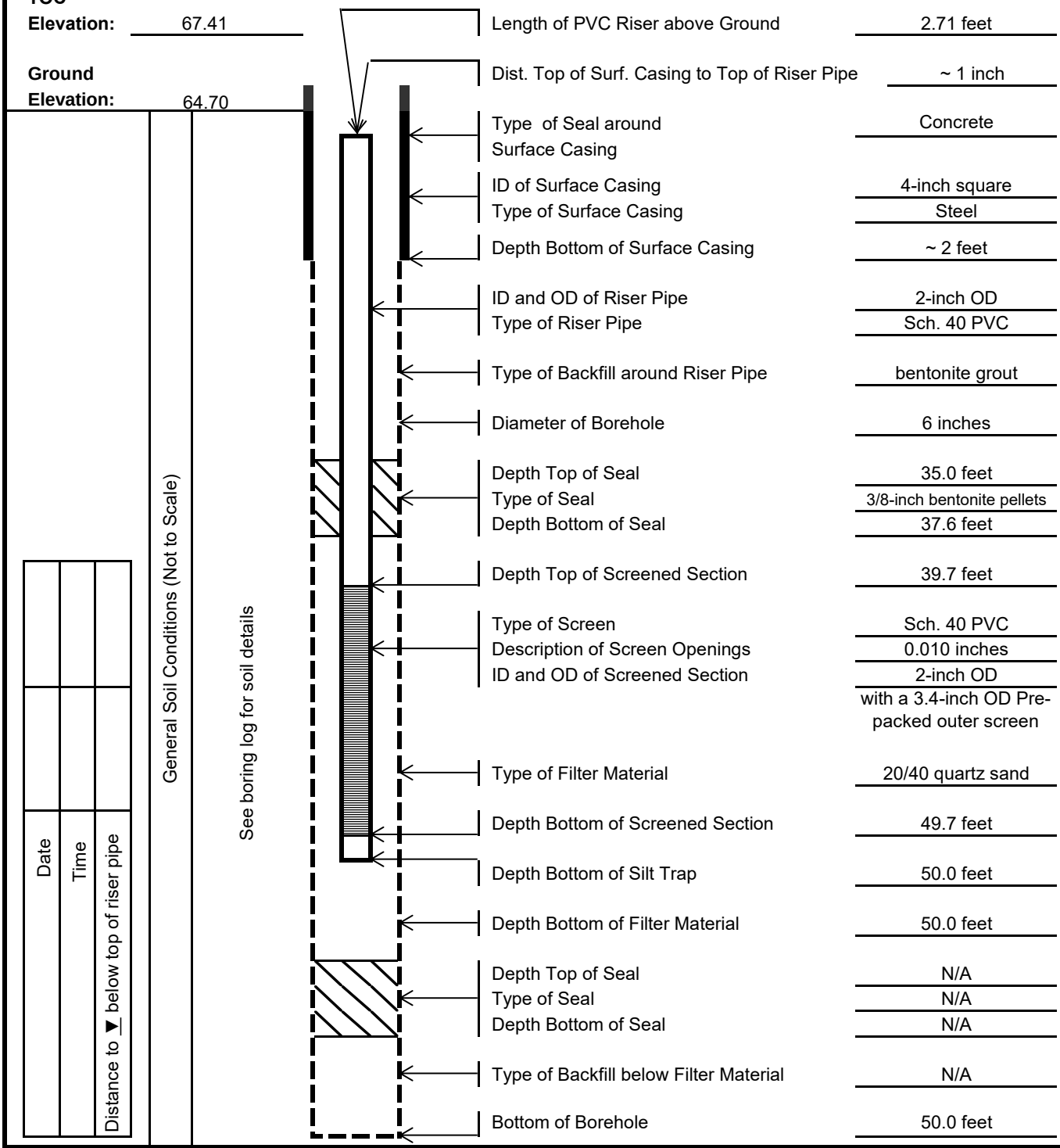
Groundwater Well Installation Log

PZ-1

Project	Plant McIntosh	**GEI Proj. No.**	1800205
City / Town	Effingham County, GA	**Location**	Inactive CCR Landfill No. 3
Client	Georgia Power Company	N - 852400.01	
Contractor	Cascade Drilling	E - 954904.93	
Driller	Ray Whitt **GEI Rep.** Peter Adams	**Install Date**	8/29/2018

TOC Elevation: 67.41

Ground Elevation: 64.70



Length of PVC Riser above Ground	2.71 feet
Dist. Top of Surf. Casing to Top of Riser Pipe	~ 1 inch
Type of Seal around Surface Casing	Concrete
ID of Surface Casing	4-inch square
Type of Surface Casing	Steel
Depth Bottom of Surface Casing	~ 2 feet
ID and OD of Riser Pipe	2-inch OD
Type of Riser Pipe	Sch. 40 PVC
Type of Backfill around Riser Pipe	bentonite grout
Diameter of Borehole	6 inches
Depth Top of Seal	35.0 feet
Type of Seal	3/8-inch bentonite pellets
Depth Bottom of Seal	37.6 feet
Depth Top of Screened Section	39.7 feet
Type of Screen	Sch. 40 PVC
Description of Screen Openings	0.010 inches
ID and OD of Screened Section	2-inch OD with a 3.4-inch OD Pre-packed outer screen
Type of Filter Material	20/40 quartz sand
Depth Bottom of Screened Section	49.7 feet
Depth Bottom of Silt Trap	50.0 feet
Depth Bottom of Filter Material	50.0 feet
Depth Top of Seal	N/A
Type of Seal	N/A
Depth Bottom of Seal	N/A
Type of Backfill below Filter Material	N/A
Bottom of Borehole	50.0 feet

Notes:

All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

GEI Consultants

BORING INFORMATION

LOCATION: Landfill No. 3, between GWA-7 and GWC-6 N: 852400.01, E: 954904.93
GROUND SURFACE EL. (ft): 64.70 **DATE START/END:** 6/29/2018 - 6/29/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade
TOTAL DEPTH (ft): 50.0 **DRILLER NAME:** Richard Mooney
LOGGED BY: P. Adams **RIG TYPE:** Geoprobe 7720DT

BORING

PZ-1

DRILLING INFORMATION

HAMMER TYPE: NA **CASING I.D./O.D.:** 2 inch/ NA **CORE BARREL TYPE:**
AUGER I.D/O.D.: NA / NA **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.:** NA / NA
DRILLING METHOD: Direct Push
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140 lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
64.70								
		DP1	0 to 5	60/48				(0-0.3'): TOPSOIL (0.3-2.5'): SILTY SAND (SM); ~70% fine sand, ~30% nonplastic to low plasticity fines. Medium dense. Moist. Grey.
								(2.5-10'): SANDY LEAN CLAY (CL); ~60% medium plasticity fines, ~40% fine sand. Very stiff. Moist. Grey.
59.70	5	DP2	5 to 10	60/60				
54.70	10	DP3	10 to 15	60/60				(10-12'): SILTY SAND (SM); ~70% fine to coarse sand, ~30% nonplastic to low plasticity fines. Loose. Wet. Grey.
								(12-15'): SANDY LEAN CLAY (CL); ~60% medium plasticity fines, ~40% fine sand. Medium stiff. Moist. Grey.
49.70	15	DP4	15 to 20	60/60				(15-17'): SILTY SAND (SM); ~80% fine to coarse sand, ~20% nonplastic to low plasticity fines. Loose. Wet. Brown.
								(17-20'): FAT CLAY WITH SAND (CH); ~80% medium to high plasticity fines, ~20% fine sand. Hard. Moist. Grey.
44.70	20	DP5	20 to 25	60/48				(20-28'): FAT CLAY (CH); ~90% high plasticity fines, ~10% fine sand. Very hard. Moist. Grey.

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

LOCATION: Landfill No. 3, between GWA-7 and GWC-6
GROUND SURFACE EL. (ft): 64.70 **DATE START/END:** 6/29/2018 - 6/29/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade

BORING PZ-1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		DP6	25 to 30	60/60				
								(28-30'): SANDY LEAN CLAY (CL); ~70% medium plasticity fines, ~30% fine sand. Medium stiff. Moist. Grey-brown.
34.70	30	DP7	30 to 35	60/60				(30-33'): WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% nonplastic fines. Dense. Wet. Light brown.
								(33-40'): CLAYEY SAND (SC); ~75.2% fine sand, ~24.8% medium plasticity fines. Medium dense. Wet. Brown.
29.70	35	DP8	35 to 40	60/60				
24.70	40	DP9	40 to 45	60/60		Recommended screen interval: 40-50'		(40-43'): WIDELY GRADED SAND WITH SILT (SW-SM); ~91.2% fine to coarse sand, ~8.8% nonplastic fines. Dense. Wet. Light brown.
								(43-45'): CLAYEY SAND (SC); ~60% fine sand, ~40% medium plasticity fines. Medium dense. Wet. Brown.
19.70	45	DP10	45 to 50	60/60				(45-47'): WIDELY GRADED SAND (SW); ~90% fine to coarse sand, ~10% nonplastic fines. Loose. Wet. Light brown.
								(47-50'): SILTY SAND (SM); ~80% fine sand, ~20% nonplastic fines. Dense. Wet. Brown-orange and dark grey.
14.70	50							Bottom of boring at depth 50 ft. Backfilled with bentonite chips and hydrated
	55							

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

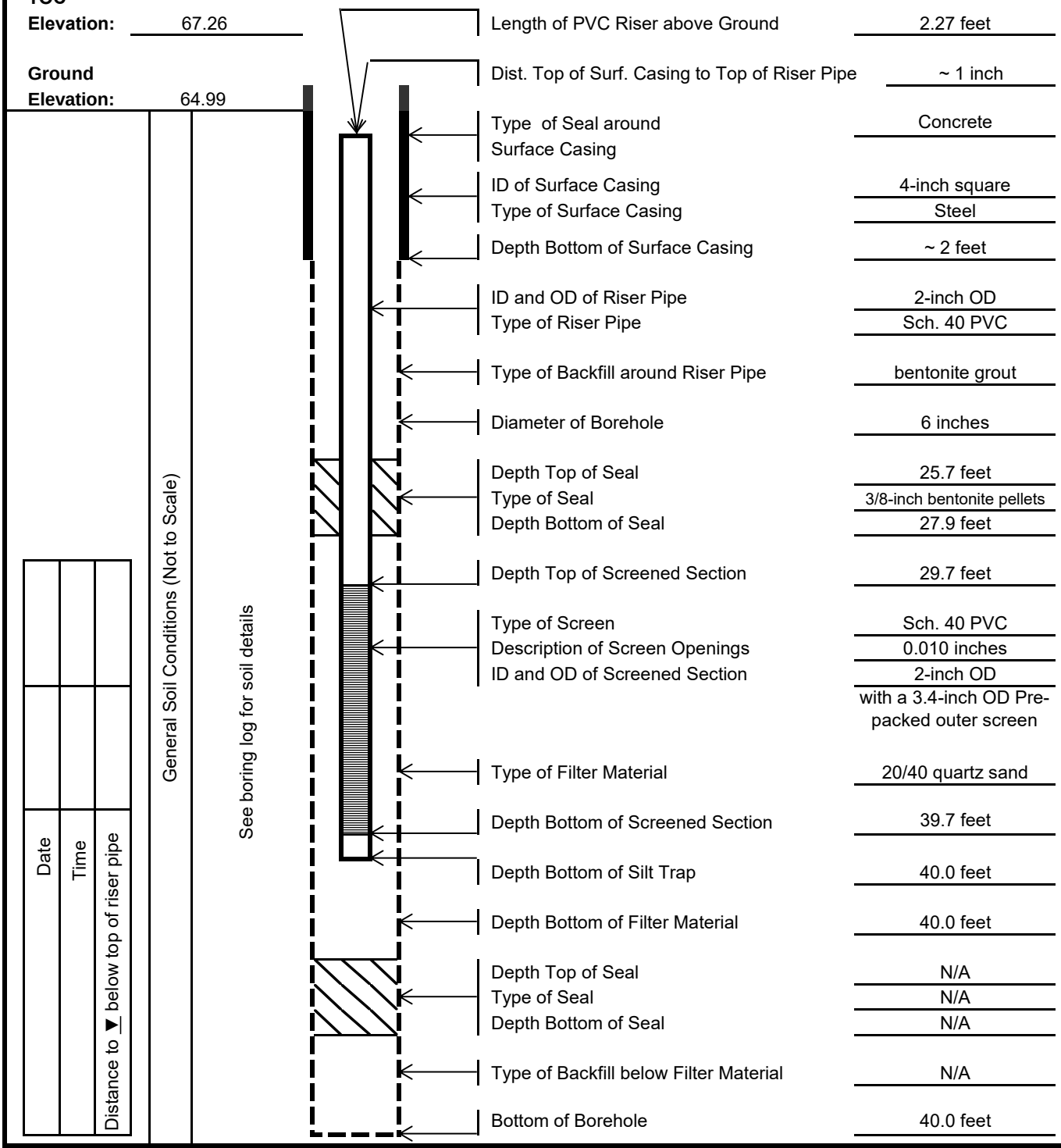
Groundwater Well Installation Log

PZ-2

Project	Plant McIntosh	**GEI Proj. No.**	1800205
City / Town	Effingham County, GA	**Location**	Inactive CCR Landfill No. 3
Client	Georgia Power Company		N - 852549.77
Contractor	Cascade Drilling		E - 955306.02
Driller	Ray Whitt **GEI Rep.** Peter Adams	**Install Date**	8/28/2018

TOC Elevation: 67.26

Ground Elevation: 64.99



Length of PVC Riser above Ground	2.27 feet
Dist. Top of Surf. Casing to Top of Riser Pipe	~ 1 inch
Type of Seal around Surface Casing	Concrete
ID of Surface Casing	4-inch square
Type of Surface Casing	Steel
Depth Bottom of Surface Casing	~ 2 feet
ID and OD of Riser Pipe	2-inch OD
Type of Riser Pipe	Sch. 40 PVC
Type of Backfill around Riser Pipe	bentonite grout
Diameter of Borehole	6 inches
Depth Top of Seal	25.7 feet
Type of Seal	3/8-inch bentonite pellets
Depth Bottom of Seal	27.9 feet
Depth Top of Screened Section	29.7 feet
Type of Screen	Sch. 40 PVC
Description of Screen Openings	0.010 inches
ID and OD of Screened Section	2-inch OD with a 3.4-inch OD Pre-packed outer screen
Type of Filter Material	20/40 quartz sand
Depth Bottom of Screened Section	39.7 feet
Depth Bottom of Silt Trap	40.0 feet
Depth Bottom of Filter Material	40.0 feet
Depth Top of Seal	N/A
Type of Seal	N/A
Depth Bottom of Seal	N/A
Type of Backfill below Filter Material	N/A
Bottom of Borehole	40.0 feet

Notes:

All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

GEI Consultants

BORING INFORMATION

LOCATION: Landfill No. 3, north of GWC-1 N: 852549.77, E: 955306.02
GROUND SURFACE EL. (ft): 64.99 **DATE START/END:** 6/29/2018 - 6/29/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade
TOTAL DEPTH (ft): 50.0 **DRILLER NAME:** Richard Mooney
LOGGED BY: P. Adams **RIG TYPE:** Geoprobe 7720DT

BORING

PZ-2

DRILLING INFORMATION

HAMMER TYPE: NA **CASING I.D./O.D.:** 2 inch/ NA **CORE BARREL TYPE:**
AUGER I.D/O.D.: NA / NA **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.:** NA / NA
DRILLING METHOD: Direct Push
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140 lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
64.99								
		DP1	0 to 5	60/48				(0-0.3'): TOPSOIL (0.3-7'): CLAYEY SAND (SC); ~70% fine sand, ~30% low to medium plasticity fines. Medium dense. Moist. Brown.
59.99	5	DP2	5 to 10	60/60				(7-14'): SANDY LEAN CLAY (CL); ~60% low to medium plasticity fines, ~40% fine sand. Stiff. Moist. Grey with red mottling.
54.99	10	DP3	10 to 15	60/60				
49.99	15	DP4	15 to 20	60/60				(14-16'): CLAYEY SAND (SC); ~70% fine sand, ~30% low to medium plasticity fines. Medium dense. Wet. Light brown. (16-20'): SANDY LEAN CLAY (CL); ~70% low to medium plasticity fines. ~30% fine to coarse sand. Very stiff. Moist. Red-grey.
44.99	20	DP5	20 to 25	60/60				(20-26.5'): FAT CLAY (CH); ~90% medium to high plasticity fines, ~10% fine sand. Very hard. Moist. Grey.

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

GEI WOBURN STD 2-LOCATION-GRAPHIC LOG MCINTOSH_BORING_LOGS_JUNE2018.GPJ 7/30/18

LOCATION: Landfill No. 3, north of GWC-1
GROUND SURFACE EL. (ft): 64.99 **DATE START/END:** 6/29/2018 - 6/29/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade

BORING PZ-2

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		DP6	25 to 30	60/60				
								(26.5-30'): SILTY SAND (SM); ~70% fine to coarse sand, ~30% nonplastic to low plasticity fines. Medium dense. Very moist. Grey.
34.99	30	DP7	30 to 35	60/60		Recommended screen interval: 30-40'		(30-36'): WIDELY GRADED SAND WITH SILT (SW-SM); ~89.4% fine to coarse sand, ~10.6% nonplastic fines. Medium dense. Wet. Brown.
29.99	35	DP8	35 to 40	60/60				(36.38.5'): CLAYEY SAND (SC); ~65.4% fine to coarse sand, ~34.6% low to medium plasticity fines. Dense. Wet. Brown-red.
								(38.5-41'): SILTY SAND (SM); ~80% fine to coarse sand, ~20% nonplastic fines. Dense. Wet. Grey with brown mottling.
24.99	40	DP9	40 to 45	60/60				(41-45'): CLAYEY SAND (SC); ~70% fine to coarse sand, ~40% low to medium plasticity fines. Medium dense. Wet. Grey.
19.99	45	DP10	45 to 50	60/60				(45-50'): SILTY SAND (SM); ~80% fine to coarse sand, ~20% nonplastic fines. Medium dense. Wet. Brown.
14.99	50							Bottom of boring at depth 50 ft. Backfilled with bentonite chips and hydrated
	55							

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

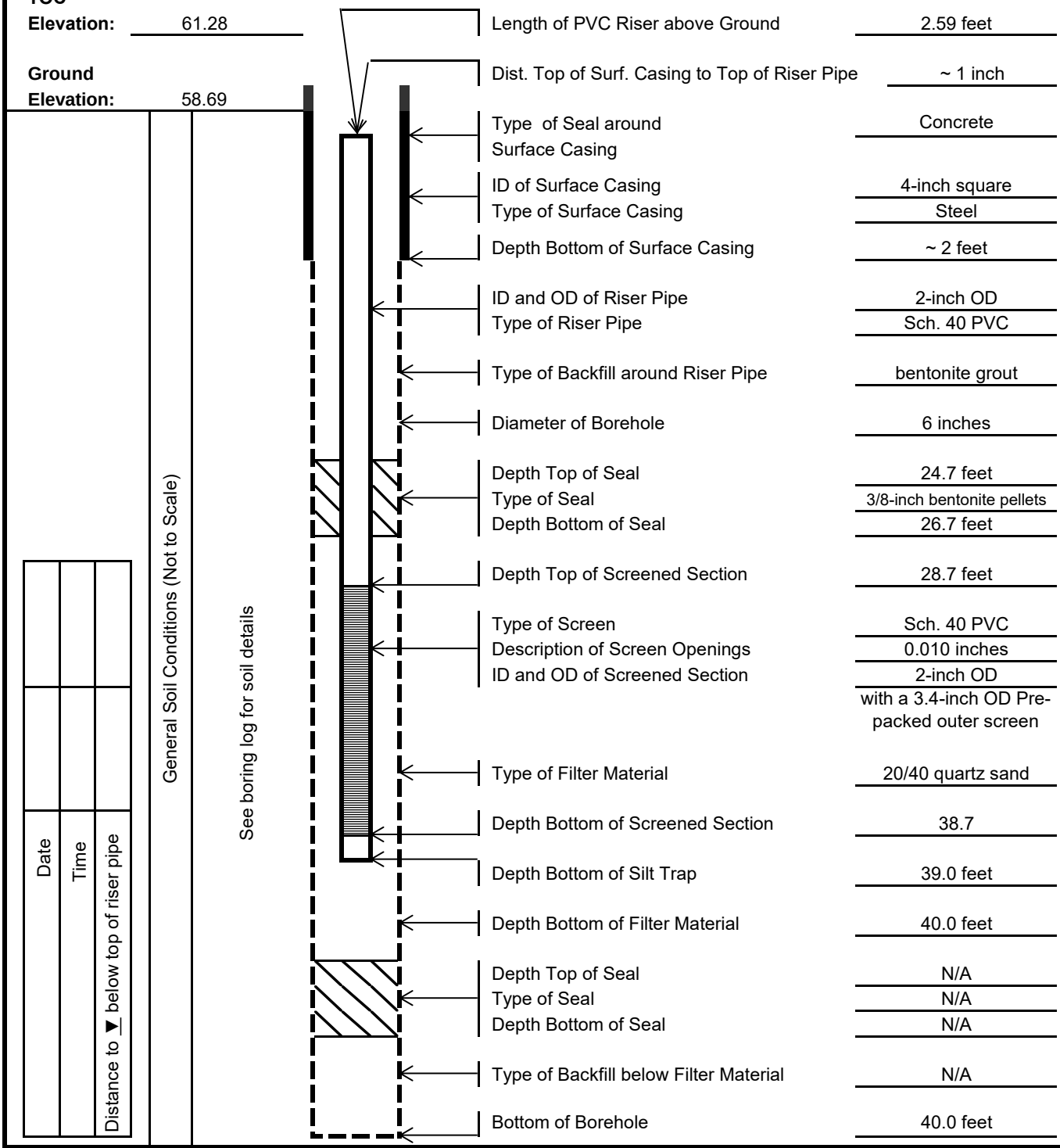
Groundwater Well Installation Log

PZ-3

Project	Plant McIntosh	**GEI Proj. No.**	1800205
City / Town	Effingham County, GA	**Location**	Inactive CCR Landfill No. 3
Client	Georgia Power Company	N - 852032.57	
Contractor	Cascade Drilling	E - 955677.60	
Driller	Ray Whitt **GEI Rep.** Peter Adams	**Install Date**	8/30/2018

TOC Elevation: 61.28

Ground Elevation: 58.69



Length of PVC Riser above Ground	2.59 feet
Dist. Top of Surf. Casing to Top of Riser Pipe	~ 1 inch
Type of Seal around Surface Casing	Concrete
ID of Surface Casing	4-inch square
Type of Surface Casing	Steel
Depth Bottom of Surface Casing	~ 2 feet
ID and OD of Riser Pipe	2-inch OD
Type of Riser Pipe	Sch. 40 PVC
Type of Backfill around Riser Pipe	bentonite grout
Diameter of Borehole	6 inches
Depth Top of Seal	24.7 feet
Type of Seal	3/8-inch bentonite pellets
Depth Bottom of Seal	26.7 feet
Depth Top of Screened Section	28.7 feet
Type of Screen	Sch. 40 PVC
Description of Screen Openings	0.010 inches
ID and OD of Screened Section	2-inch OD with a 3.4-inch OD Pre-packed outer screen
Type of Filter Material	20/40 quartz sand
Depth Bottom of Screened Section	38.7
Depth Bottom of Silt Trap	39.0 feet
Depth Bottom of Filter Material	40.0 feet
Depth Top of Seal	N/A
Type of Seal	N/A
Depth Bottom of Seal	N/A
Type of Backfill below Filter Material	N/A
Bottom of Borehole	40.0 feet

Notes:

All depths are measured below ground surface (bgs).
NAVD = feet North American Vertical Datum of 1988.
Coordinates are in NAD 1983 Georgia State Plane East Zone.
Well resurveyed June 2020.

GEI Consultants

BORING INFORMATION

LOCATION: Landfill No. 3, between GWA-4 and GWA-5 N: 852032.57, E: 955677.60
GROUND SURFACE EL. (ft): 58.69
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 40.0
LOGGED BY: P. Adams
DATE START/END: 6/30/2018 - 6/30/2018
DRILLING COMPANY: Cascade
DRILLER NAME: Richard Mooney
RIG TYPE: Geoprobe 7720DT

BORING

PZ-3

DRILLING INFORMATION

HAMMER TYPE: NA
AUGER I.D/O.D.: NA / NA
DRILLING METHOD: Direct Push
WATER LEVEL DEPTHS (ft): Not measured
CASING I.D./O.D.: 2 inch/ NA
DRILL ROD O.D.: NM
CORE BARREL TYPE:
CORE BARREL I.D./O.D.: NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140 lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
58.69		DP1	0 to 5	60/48				(0-0.3'): TOPSOIL (0.3-6'): SILTY SAND (SM); ~80% fine sand, ~20% nonplastic to low plasticity fines. Medium density. Moist. Grey.
53.69	5	DP2	5 to 10	60/60				(6-10'): SANDY LEAN CLAY (CL); ~70% medium plasticity fines, ~30% fine sand. Stiff. Moist. Grey-red.
48.69	10	DP3	10 to 15	60/60				(10-16'): FAT CLAY (CH); ~85% high plasticity fines, ~15% fine sand. Hard. Moist. Grey.
43.69	15	DP4	15 to 20	60/60				(16-25'): CLAYEY SAND (SC); ~70% fine to coarse sand, ~30% medium plasticity fines. Medium dense. Moist. Grey-brown.
38.69	20	DP5	20 to 25	60/60				

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

LOCATION: Landfill No. 3, between GWA-4 and GWA-5
GROUND SURFACE EL. (ft): 58.69 **DATE START/END:** 6/30/2018 - 6/30/2018
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Cascade

BORING PZ-3

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Sample Information: Depth (ft)	Sample Information: Pen./ Rec. (in)	Sample Information: Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Graphic Log	Soil and Rock Description
		DP6	25 to 30	60/60				(25-30'): SILTY SAND (SM); ~70% fine to coarse sand, ~30% nonplastic fines. Medium dense. Wet. Brown.
28.69	30	DP7	30 to 35	60/60		Recommended screen interval: 30-40'		(30-35'): CLAYEY SAND (SC); ~81.8% fine to coarse sand, ~18.2% nonplastic to low plasticity fines. Medium dense. Wet. Brown.
24.69	35	DP8	35 to 40	60/60				(35-40'): WIDELY GRADED SAND WITH SILT (SW-SM); ~89.8% fine to coarse sand, ~10.2% nonplastic fines. Medium dense. Wet. Brown.
18.69	40							Bottom of boring at depth 40 ft. Backfilled with bentonite chips and hydrated
	45							
	50							
	55							

NOTES: Exploratory boring for proposed well installation. No well installed in this boring.

PROJECT NAME: Georgia Power Company - Plant McIntosh
CITY/STATE: Effingham County, GA
GEI PROJECT NUMBER: 1800205

GEI Consultants

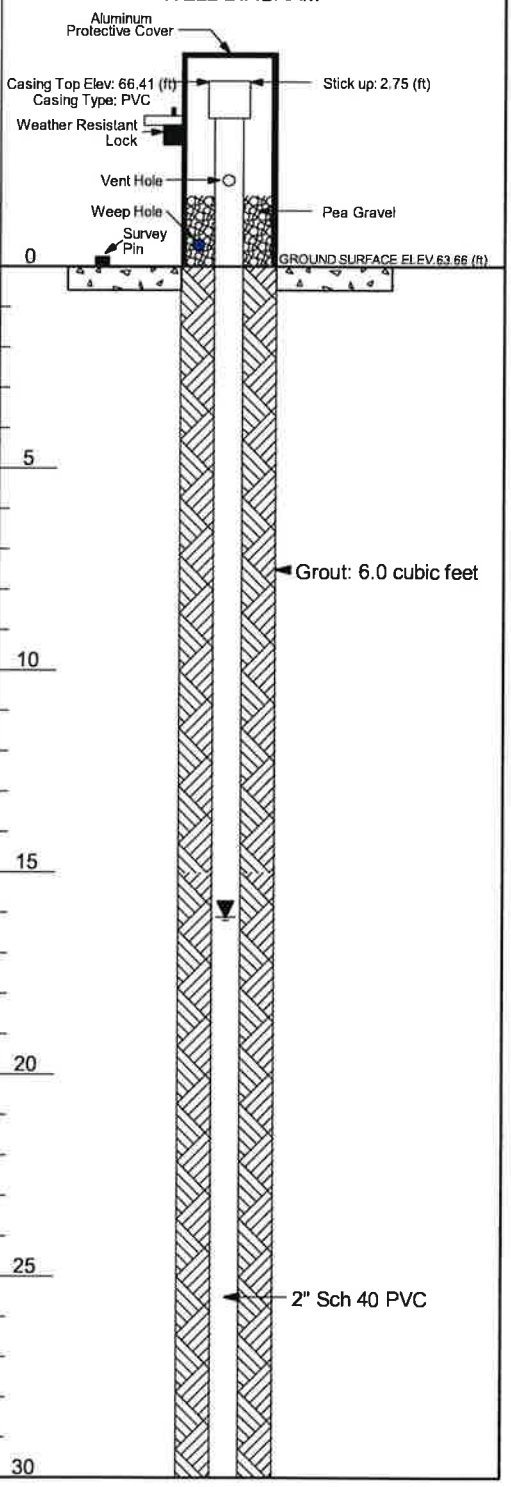
Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

BORING ID PZ-4

CLIENT Southern Company
PROJECT LOCATION Plant McIntosh Landfill #3
PROJECT NAME Taylor Goble
PROJECT NUMBER I054-110
DATE STARTED 1/21/2022 11:00:00 AM
GROUND ELEVATION 63.6 ft
COMPLETED 1/22/2022 9:30:00 AM
NORTHING 851879.27
DRILLING CONTRACTOR Cascade Environmental
EASTING 954615.01
DRILLING METHOD T-300 Rotosonic
HOLE SIZE 6.00"
LOGGED BY Taylor Goble
DRILLED BY Donald Myles
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (MSL ft)
0							0
5	AU			SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), poorly graded, subrounded, fine grained, dry, low plasticity	5
10	UD			SC		LEAN CLAY WITH SAND, (SC) light gray (7.5YR 6/1), poorly graded, rounded, fine grained, dry, medium plasticity	10.0 / 53.7 / 10
15	SS	100	2-3-5-4 (8)	CL		LEAN CLAY WITH SAND, (CL) light gray (7.5YR 6/1), poorly graded, rounded, fine grained, dry, medium plasticity	15.0 / 48.7 / 15
20	UD			CL			
25	SS	100	1-1-1-1 (2)	CL		LEAN CLAY, (CL) brown (7.5YR 5/3), dry, medium plasticity	20.0 / 43.7 / 20
30	UD			CL			
	SS	100	1-1-2-2 (3)	CL		SANDY LEAN CLAY, (CL) brown (7.5YR 5/3), poorly graded, subrounded, fine grained, moist, low plasticity	25.0 / 38.7 / 25
	UD			CL			30.0 / 33.7 / 30

WELL DIAGRAM



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Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

BORING ID PZ-4

CLIENT Southern Company **PROJECT LOCATION** Plant McIntosh Landfill #3

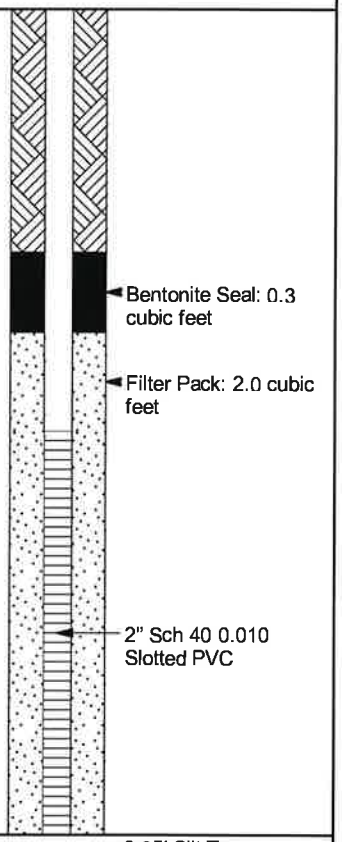
PROJECT NAME Taylor Goble **PROJECT NUMBER** I054-110

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (MSL ft)
30							30
	SS	100	3-4-4-5 (8)	SC		CLAYEY SAND, (SC) light brown (7.5YR 6/3), poorly graded, subrounded, fine grained, wet, low plasticity	
	UD						
35							35
	SS	100	1-1-2-2 (3)	SC		CLAYEY SAND, (SC) dark gray (7.5YR 4/1), well graded, rounded, fine to coarse grained, wet, low plasticity	
	UD						
40							40
	SS	96	1-1-1-1 (2)	SW		WELL GRADED SAND, (SW) dark gray (7.5YR 4/1), well graded, subangular, coarse grained, wet	
	UD						
45							45
	SS	67	6-11-12-15 (23)	SW		WELL GRADED SAND, (SW) dark gray (7.5YR 4/1), well graded, subangular, coarse grained, wet	
	UD						
50							50

35.0 / 28.7
40.0 / 23.7
45.0 / 18.7
50.4 / 13.2

Bottom of borehole at 50.44 feet.

WELL DIAGRAM



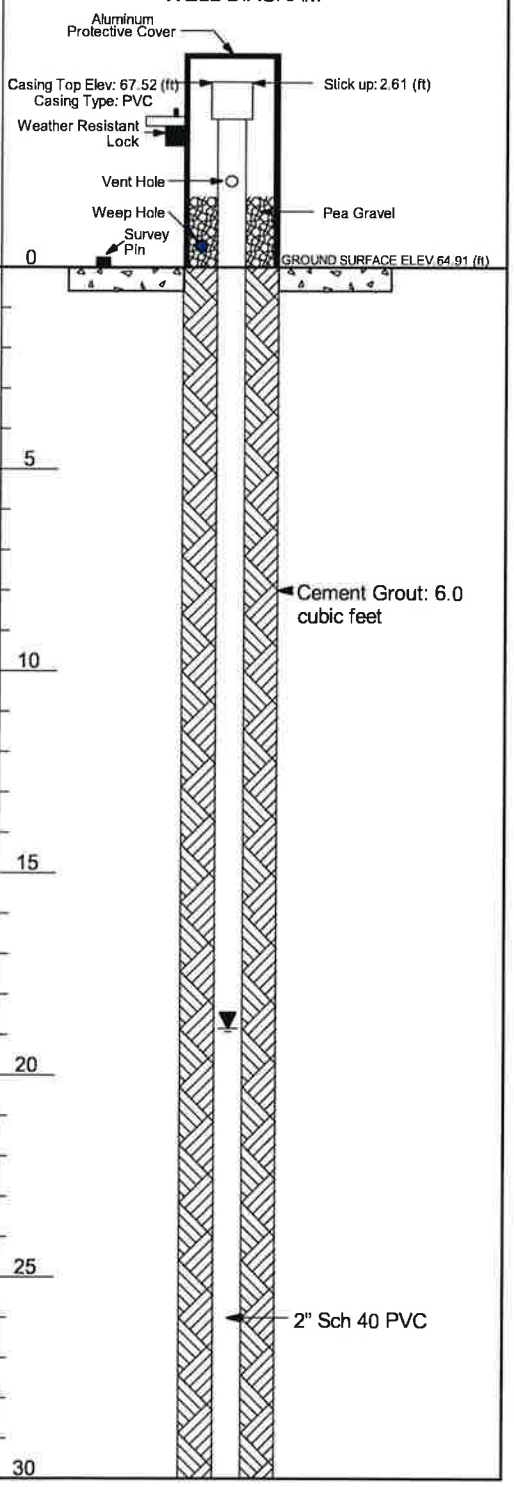
Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

BORING ID PZ-5

CLIENT Southern Company
PROJECT LOCATION Plant McIntosh Landfill #3
PROJECT NAME Taylor Goble
PROJECT NUMBER I054-110
DATE STARTED 1/20/2022 8:00:00 AM
GROUND ELEVATION 64.9 ft
COMPLETED 1/20/2022 3:45:00 PM
NORTHING 852171.15
DRILLING CONTRACTOR Cascade Environmental
EASTING 954557.82
DRILLING METHOD T-300 Rotosonic
HOLE SIZE 6.00"
LOGGED BY Taylor Goble
DRILLED BY Donald Myles
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (MSL ft)
0							0
5	AU			SP-SC		CLAYEY SAND, (SP-SC) light gray (2.5Y 7/1), poorly graded, subrounded, fine grained, dry, low plasticity	5.0 / 59.9
10				SC		CLAYEY SAND, (SC) light gray tannish (2.5Y 7/2), poorly graded, subrounded, fine grained, dry, low plasticity	10.0 / 54.9
15	UD			CL		SANDY LEAN CLAY, (CL) light gray reddish (10R 6/1), poorly graded, subrounded, fine grained, dry, medium plasticity	15.0 / 49.9
20	SS	100	4-3-3-4 (6)	CL		LEAN CLAY, (CL) gray (7.5YR 6/1), dry, medium plasticity	20.0 / 44.9
25	UD			SC		LEAN CLAY, (SC) gray (7.5YR 6/1), dry, medium plasticity	25.0 / 39.9
30	SS	100	2-2-5-5 (7)	SP-SC		POORLY GRADED SAND WITH CLAY, (SP-SC) pale brown (7.5YR 6/3), poorly graded, rounded, coarse grained, wet, low plasticity	30.0 / 34.9
	UD	58	4-6-8-10 (14)				

WELL DIAGRAM



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Atlantic Coast Consulting, Inc
1150 North Meadow Parkway, Suite 100
Roswell, GA 30076
770-594-5998

BORING ID PZ-5

CLIENT Southern Company **PROJECT LOCATION** Plant McIntosh Landfill #3

PROJECT NAME Taylor Goble **PROJECT NUMBER** I054-110

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elevation (MSL ft)	WELL DIAGRAM
30							30	
	SS	25	1-1-1-1 (2)	CL		SANDY LEAN CLAY, (CL) gray (5YR 5/1), poorly graded, subrounded, fine grained, wet, medium plasticity		
35	UD					35.0	29.9	35
	SS	100	1-1-1-1 (2)	SP-SC		POORLY GRADED SAND WITH CLAY, (SP-SC) dark gray (5YR 4/1), poorly graded, rounded, coarse grained, wet, medium plasticity		Bentonite Seal: 0.3 cubic feet
40	UD					40.0	24.9	40
	SS	100	1-2-2-4 (4)	SP		POORLY GRADED SAND, (SP) dark gray (5YR 4/1), poorly graded, rounded, coarse grained, wet		Filter Pack: 2.0 cubic feet
45	UD					45.0	19.9	45
	SS	83	6-10-6-7 (16)	SP-SC		POORLY GRADED SAND, (SP-SC) dark gray (5YR 4/1), poorly graded, rounded, coarse grained, wet		2" Sch 40 0.010 Slotted PVC
50	UD					50.5	14.4	50

Bottom of borehole at 50.52 feet.

0.35' Silt Trap

Plant McIntosh Landfill No. 3
Summary of Driller EPD Bonds

WELL ID	DRILLER	INSTALLATION DATE	BOND NUMBER
NETWORK WELLS			
GWA-1A	Southern Company Services	1/5/2017	4993104
GWA-2B	Southern Company Services	8/29/2018	4993104
GWA-3A	Whitaker Laboratory	5/6/1998	*
GWA-4	Whitaker Laboratory	5/7/1998	*
GWA-5	Whitaker Laboratory	5/7/1998	*
GWA-7A	Cascade	8/29/2018	800031223
GWC-1	Southern Company Services	1/22/1996	4993104
GWC-2	Southern Company Services	1/23/1996	4993104
GWC-4A	Whitaker Laboratory	5/16/1998	*
GWC-5	Whitaker Laboratory	5/5/1998	*
GWC-6	Whitaker Laboratory	5/6/1998	*
NON-NETWORK WELLS			
GWA-1B	Cascade	12/4/2020	800031223
GWC-1A	Cascade	12/8/2020	800031223
GWC-5A	Cascade	12/9/2020	800031223
GWC-6A	Cascade	12/7/2020	800031223
PZ-1	Cascade	8/29/2018	800031223
PZ-2	Cascade	8/28/2018	800031223
PZ-3	Cascade	8/30/2018	800031223

* See email from Edward Rooks (GA EPD) dated 9/1/2021.
Attached are the Piezometer bonds for PZ-4 and PZ-5.

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.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

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.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2025

_____
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.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

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

S-0157/GE 8/08

x

107 Mountain Brook Dr., Ste. 104
Canton, GA 30115

GUNNIN
LAND SURVEYING

www.gunninsurvey.com
678.880.7502

DATE: July 2, 2020

TO: Atlantic Coastal Consulting, Inc
1150 Northmeadow Parkway
Suite 100
Roswell, GA 30076

ATTN: Evan Perry of Atlantic Coastal Consulting

SUBJECT: Plant Mcintosh Landfill #3: 18 wells / 3 piezometers

The following data has been established on the existing wells using Georgia State Plane East Zone (NAD 83 horizontal and NAVD 88 vertical). Wells were surveyed to the following tolerances: 0.01' vertical and 0.5' horizontal via conventional survey methods, GPS, OPUS processing, and level loops. Each well was cross-checked for horizontal and vertical accuracy.

WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	NAIL	NAIL	NAIL	TOP OF CASE	TOP OF PVC
PZ-1	852400.01	954904.93	64.70	67.63	67.41
PZ-2	852549.77	955306.02	64.99	67.60	67.26
PZ-3	852032.57	955677.60	58.69	61.52	61.28

WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	NAIL	NAIL	NAIL	TOP OF CASE	TOP OF PVC
GWA-1A	852023.48	954556.79	64.23	66.97	66.76
GWA-2A	851830.61	954846.09	63.79	66.47	66.33
GWA-2B	851831.06	954866.86	63.38	66.48	66.20
GWA-7A	852254.28	954654.74	65.37	68.20	67.92

WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	TOP OF CASE	TOP OF CASE	PAD	TOP OF CASE	TOP OF PVC
GWA-1	852026.28	954546.93	63.76	67.32	66.90
GWA-2	851831.46	954854.59	63.02	66.52	66.17
GWA-3A	851893.61	955179.89	59.53	63.06	62.77
GWA-3B	851891.96	955180.00	59.53	63.11	62.78
GWA-4	851980.91	955475.74	58.80	62.25	62.01
GWA-5	852110.59	955844.69	57.35	60.76	60.43
GWA-7	852261.63	954667.90	65.07	68.24	67.77
GWC-1	852446.79	955308.31	63.63	66.38	66.08
GWC-2	852343.90	955958.27	60.80	64.64	64.19
GWC-3	852759.94	954845.83	64.25	67.14	66.91
GWC-4A	852544.35	955702.05	64.37	67.27	66.60
GWC-4B	852546.24	955700.46	64.37	67.05	66.83
GWC-5	852679.23	955461.61	64.43	68.40	68.08
GWC-6	852469.31	955055.59	65.28	68.79	68.51

Sincerely yours,

Gunnin Land Surveying, LLC.

Jesse R. Gunnin, L.S. Principal Surveyor

141 Railroad Street - Ste. 116
Canton, GA 30114

GUNNIN
LAND SURVEYING

www.gunninsurvey.com
678.880.7502

DATE: February 2, 2022

TO: Atlantic Coastal Consulting, Inc
1150 Northmeadow Parkway
Suite 100
Roswell, GA 30076

ATTN: Charles Adams of Atlantic Coastal Consulting

SUBJECT: Plant Mcintosh Landfill #3: 2 Piezometers

The following data has been established on the existing wells using Georgia State Plane East Zone (NAD 83 horizontal and NAVD 88 vertical). Wells were surveyed to the following tolerances: 0.01' vertical and 0.5' horizontal via conventional survey methods, GPS, OPUS processing, and level loops. Each well was cross-checked for horizontal and vertical accuracy. Date of Survey: 1/27/2022.

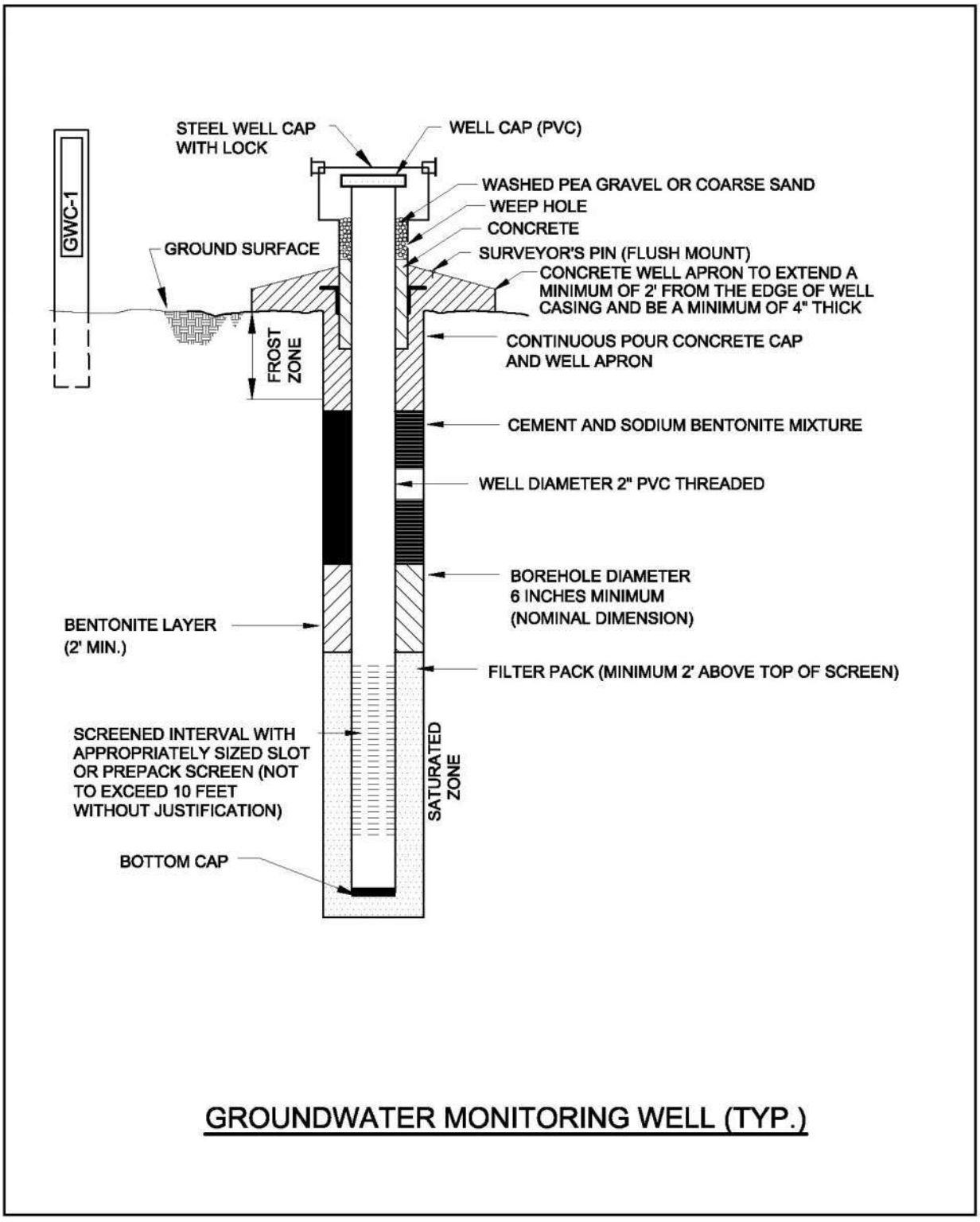
WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	NAIL	NAIL	NAIL	TOP OF CASE	TOP OF PVC
PZ-4	851879.27	954615.01	63.66	66.62	66.41
PZ-5	852171.15	954557.82	64.91	67.80	67.52

Sincerely yours,

Gunnin Land Surveying, LLC.

Jesse R. Gunnin, L.S. Principal Surveyor

Appendix B - Groundwater Monitoring Well Detail



Appendix C - Groundwater Sampling Procedure

Groundwater sampling will be conducted using the latest United States Environmental Protection Agency (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. 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.

GPC 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 GPC 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 using a water measuring device consisting of probe and measuring tape capable of measuring water levels with accuracy to 0.01 foot. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.

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 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. All non-dedicated pumps and wiring will be decontaminated before use and between well locations in general accordance with EPA Region 4 SESD Operating Procedure - Field Equipment Cleaning and Decontamination (LSASDPROC-205-R4), or the latest version of the document.

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 feet 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 3 to 5 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 for pH
    - ± 5% for specific conductance (conductivity)
    - ±10% or ±0.2 mg/L (whichever is greater) for DO where DO>0.5mg/L. If DO<0.5mg/L no stabilization criteria apply
    - Temperature – Record only, not used for stabilization criteria

- ORP – Record only, not used for stabilization criteria.
- ≤10 for turbidity (see additional details below)

The goal when sampling is to attain a turbidity of less than 5 NTU; however, samples may be collected where turbidity is less than 10 NTU and the stabilization criteria described above are met. If sample turbidity is greater than 5 NTU and all other stabilization criteria have been met, samplers will continue purging for 1 additional hour in order to reduce the turbidity to 5 NTU or less.

- If turbidity remains above 5 NTU but is less than 10 NTU after the additional hour of purging, and all other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTU, 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.

7. Collect samples at a low flow rate according to the most current version of USEPA Region 4 SESD guidance 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. All sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.

8. 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.

9. All sample bottles will be filled, capped, and placed in a cooler containing ice immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.

10. Sample containers and preservative will be appropriate for the analytical method being used.

11. Information contained on sample container labels will include:

    a. Name of Site

    b. Date and time of sampling

    c. Sample description (well number)

    d. Sampler's initials

    e. Preservatives

    f. Analytical method(s)

12. After samples are collected, samplers will remove all non-dedicated equipment. Upon completion of all activity the well will be closed and locked.

13. 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; however, at no time will samples be analyzed after the method-prescribed hold time.

Throughout the sampling process new latex or 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.