

# HYDROGEOLOGIC ASSESSMENT REPORT

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PLANT KRAFT  
INACTIVE CCR LANDFILL  
GRUMMAN ROAD ASH LANDFILL  
CHATHAM COUNTY, GEORGIA

FOR



Georgia  
Power

May 2023





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## CERTIFICATION STATEMENT

This *Hydrogeologic Assessment Report, Georgia Power Company – Plant Kraft Inactive CCR Landfill, Grumman Road Ash Landfill* has been prepared to comply with the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management, Chapter 391-3-3.10(6)., by a licensed professional engineer with:

**ATLANTIC COAST CONSULTING, INC.**

  
Harry M. Jones, P.G.  
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## 1.0 INTRODUCTION

Atlantic Coast Consulting, Inc (ACC) has prepared this Hydrogeologic Assessment Report for Georgia Power Company (GPC) Plant Kraft Inactive CCR Landfill, Grumman Road Ash Landfill (GRL). The document is provided in support of the solid waste permitting application. The facility will modify its solid waste handling permit in accordance with Georgia Department of Natural Resources Environmental Protection Division (GA EPD) Rules for Solid Waste Management, Chapter 391-3-4-.10(6) "Groundwater Monitoring and Corrective Action" as referenced in the Code of Federal Regulations (CFR) 40 CFR 257.90 through 257.98. This report is a comprehensive summary of the hydrogeologic characteristics for GRL. The Site ceased accepting CCR prior to October 19, 2015 and therefore is not subject to federal monitoring requirements. Semiannual sampling and reporting are currently performed under Solid Waste Handling Permit No. 025-061D(LI). Closure certification reports for all portions of GRL have been provided to GA EPD.

The Site consists of four parcels (A, B1, B2, and B3) comprising approximately 33 acres. Closure of the Site in accordance with the landfill permit has been completed. Parcels A and B1 were closed in 2004, and parcels B2 and B3 were closed in 2017. The Site is permitted under Solid Waste Handling Permit No. 025-061D(LI). The final closure Certification Report was submitted to GA EPD on November 25, 2019 (Brantley 2019).

### 1.1 Site Location & Background

GRL is located along Gulfstream Road, approximately one mile northeast of the Savannah/Hilton Head International Airport in Port Wentworth, Chatham County, Georgia (approximately 2 miles west of Plant Kraft, which is located on the Savannah River) (Figure 1). GRL occupies approximately 33.2 acres, and the surrounding area includes: 1) Clifton Equipment Rental Company, Inc. Landfill [Clifton Landfill – GA EPD Permit No. 025-030D(L)] adjacent to the east and 2) Savannah Regional Industrial Landfill [SRIL – GA EPD Permit No. 025-072D(LI)] adjacent and to the south. Clifton Landfill is closed (operated from 1981 to 1998) and SRIL is currently active.

Clifton Landfill was constructed prior to the Resource Conservation and Recovery Act (RCRA), Subtitle D regulations and does not have an engineered designed liner system, leachate collection system, or a landfill gas removal system. The SRIL facility was purchased by Republic Services in 1998 prior to its initial operation. This facility was designed in accordance with RCRA, Subtitle D requirements. The facility is permitted by GA EPD to accept industrial waste. Portions of the SRIL facility are hydraulically downgradient of GRL and Clifton Landfill.

GRL began accepting CCR waste from Plant Kraft in approximately 1980. A site acceptability report was not required at the time when the facility was originally permitted. GRL stopped accepting CCR waste in 2015 and has recently completed final closure. CCR waste was initially placed in the unlined Parcel A, located on the southern end of the site, with subsequent CCR disposal in Parcels B1, B2 and B3 to the north.

### 1.2 Topographic Setting

The site is located in the Atlantic Coastal Plain Physiographic Province of Georgia. The elevation across GRL ranges from approximately 40 feet North American Vertical Datum (NAVD88) in the northwest corner to over 80 feet at the highest point at the crest of Parcel B3. The surface elevations for the Clifton Landfill range from 44 to approximately 115 feet NAVD88 at the crest. The elevations for SRIL range from approximately 35 feet on the east side to over 125 feet NAVD88 at the crest of the landfill. GRL is located in the Port Wentworth, GA United States Geological Survey (USGS) 7.5-minute topographic quadrangle.

## 2.0 SURFACE AND SUBSURFACE INVESTIGATIONS

Georgia Power installed a groundwater monitoring network and submitted a sampling and analysis plan for the facility as part of the 1999 Design and Operations plan. The facility has completed routine semiannual groundwater monitoring since this time. Additional assessment of groundwater impacts in the vicinity of Parcel A was approved by GA EPD with amendments on March 25, 2010, and work at the site was completed May 8, 2010. Results were reported to GA EPD in July 2010.

In 2018, a boundary survey identified four former groundwater monitoring network locations (GWC-3, GWC-4, GWC-5, and GWC-6) as being located slightly outside of the facility's property boundary. Three of these locations (GWC-4, GWC-5, and GWC-6) were offset to within the permit boundary and designated as GWB-4R, GWB-5R, and GWB-6R. The change from "GWC" to "GWB" was due to these locations being hydraulically side-gradient to the unit rather than downgradient. Monitoring well GWC-3 was redundant with existing location GWC-20 and was not replaced (i.e., a conservative inter-well spacing is maintained without this location).

Georgia Power submitted an Assessment of Corrective Measures (ACM) in December 2020 pursuant to GA EPD Rule 391-3-4-.10(6)(a) (Anchor QEA, LLC, 2020). The 2020 ACM supersedes previous documents submitted for the Site under the existing GA EPD Permit No. 025-061D(LI) (SCS, 2013; ACC, 2017; ACC, 2019). The ACM was prepared to evaluate potential groundwater corrective measures for the occurrence of arsenic and molybdenum in groundwater at statistically significant levels (SSLs) at GRL.

Five wells (MW-23D through MW-27D) were installed in December 2020 and January 2021 and incorporated into the routine monitoring program. Wells MW-23D through MW-25D were installed to vertically delineate the extent of arsenic and molybdenum at GWC-15, GWC-16, and GWC-20, respectively. Wells MW-26D and MW-27D were installed to vertically delineate the extent of molybdenum at wells GWB-4R and GWC-1. Groundwater monitoring well GWC-16 is clustered with GWC-21; therefore, the molybdenum SSL at GWC-21 is also vertically delineated by MW-24D.

### 2.1 Lithologic Units

The sediments immediately underlying the Site are part of the regional surficial aquifer system described previously and consist of variable interbedded sands, silts, and clay comprising a near-surface aquifer system (SCS, 1998). Though complex with subtle distinctions, approximately 50 feet of the near-surface aquifer system (soil) can be divided into four units as described below:

- Upper Sands and Topsoil
- Unit 1 Uppermost Aquifer: Silty Fine Sand
- Unit 2 Low Permeability Zone: Interbedded Sand, Silt, and Clay
- Unit 3 Lower Sand Aquifer: Silty and/or Clayey Fine to Medium Sand

Unit 1 comprises the soil unit monitored at the site and has a thickness ranging from approximately 22 to 28 feet across GRL. Although Units 1 through 3 are classified as the surficial aquifer system, additional layers of lower permeability may be present in the surficial aquifer system (Clarke, Hacke, and Peck, 1990; SCS, 1998). Generally, groundwater in the near-surface aquifer system flows from north to south at the GRL but is influenced by topography. Groundwater elevations observed across the site and adjacent landfills suggest that hydraulic communication exists between Units 1, 2, and 3. Unit 2 has a lower permeability than Units 1 and 3 and locally may act as an impediment to downward migration, creating perched water within Unit 1 or impeding migration within the near surface aquifer system. Unit 2 does not appear to be continuous across

the sites such that it creates distinct groundwater flow systems. The geologic and hydrogeologic conditions at GRL were recently described in detail in the ACM Report (Anchor QEA, LLC, 2020).

## **2.2 CCR Areas**

CCR is located in multiple areas on site which include: Parcels A (farthest south), B1, B2 and B3. Figure 2 illustrates the CCR areas of GRL. The extent and depth of CCR material in these noted CCR areas was dependent on the initial excavation and the depth was generally greatest towards the center and typically thinned to less than one foot in thickness toward the perimeter of the pond and landfill.

### 3.0 HYDROGEOLOGIC SETTING

#### 3.1 Regional and Site Hydrogeology

GRL is located in the Atlantic Coastal Plain Physiographic Province, which is underlain in the area by unconsolidated to consolidated layers of sand, silt, and clay and semi-consolidated to dense layers of limestone and dolomite at depth (Clarke et al., 2010). These sediments constitute three major aquifer systems, which are as follows (from shallow to deep): the regional surficial aquifer system, the Brunswick aquifer system, and the Floridan aquifer system. In the Atlantic Coastal Plain, the regional surficial aquifer system consists of Miocene and younger interlayered sand, silt, clay, and thin limestone beds (Clarke, et al., 2010). The regional surficial aquifer system is unconfined, and the fine silty sands and clay layers are found generally less than 80 feet below ground surface (ft bgs) (Anchor, 2020).

The regional surficial aquifer is underlain by a confining unit that separates it from the Brunswick aquifer. The confining unit consists of silty clay and dense thin, phosphatic Miocene limestone. The Oligocene to Miocene Brunswick aquifer consists of two water-bearing zones. The upper Brunswick and lower Brunswick aquifers are separated by a low permeability, sandy phosphatic clay confining unit. The Brunswick aquifer is separated from the Upper Floridan aquifer with the Upper Confining unit and a non-water bearing limestone layer. The Floridan aquifer is confined by the overlying clay and non-water bearing limestone layers. A generalized geologic and hydrogeologic unit schematic for the Coastal Plain of Georgia is presented on Figure 3.

Based on the Hydrologic Atlas 18, Most Significant Groundwater Recharge Areas of Georgia (Davis, et al, 1989), the disposal site is not in a significant recharge area to the Miocene/Pliocene unconfined aquifer.

Hydraulic conductivity is defined as the rate at which water can move through a permeable medium. In-situ rising head and falling slug tests were performed at multiple locations on the site. The range in hydraulic conductivity at these locations was very low, indicating a fairly uniform medium across Unit 1 (typically range from  $10^{-2}$  to  $10^{-3}$  centimeters per second [cm/sec]). As presented in Section 3.2, the average horizontal hydraulic conductivity is approximately  $5.04 \times 10^{-3}$  cm/sec (14.3 feet/day). The values from the field test fall within the standard range of hydraulic conductivity values associated with a silty sand.

The composition of the unsaturated zone varies across the area and includes soils and sediments. Sieve analyses show an upper zone in most of the area to be silty sands with interbedded thin clay partings.

The cation exchange capacity (CEC) was 6.5 milli-equivalents (meq)/100 grams for a soil sample from Unit 1 which is considered low to moderate. Typically, the greater the amount of fines (clay/silt) in the soil, the larger the CEC value.

Unit 2 of the surficial aquifer has a lower permeability than Units 1 and 3 and locally may act as an impediment to downward migration, creating perched water within Unit 1 or impeding migration within the near-surface aquifer system. Unit 2 does not appear to be continuous across the site such that it creates distinct groundwater flow systems. Some groundwater monitoring wells are installed within the Unit 2 soils at the adjacent Clifton landfill (Anchor QEA, LLC, 2020).

Groundwater flow is generally from north to south or from Parcel B3 toward Parcel A; however, groundwater flow is radial near Parcels B2 and B3, at the northern end of the site. Groundwater flow from the adjacent Clifton Landfill enters the site in this area. The monitoring well location map is presented on Figure 4. Well construction logs for the groundwater monitoring network are presented in Appendix A.

Cross-sections were prepared to illustrate the ash monofill areas for the parcels and the closed elevations of the parcels. The cross-section locations are presented on Figure 5. Figures 6 and 7 present multiple lithologic cross sections the GRL.

Groundwater flow directions are illustrated on the January 2023 potentiometric contour map presented in Figure 8. Groundwater elevations for the monitoring wells and piezometers measured during the January 2023 monitoring event for Grumman Road are presented on Table 1.

Upgradient monitoring wells for Grumman Road Landfill include:

- GWA-7
- GWA-8

Downgradient and sidegradient monitoring network wells for Grumman Road Landfill include:

- |   |        |   |        |   |        |
|---|--------|---|--------|---|--------|
| ● | GWB-4R | ● | GWC-11 | ● | GWC-16 |
| ● | GWB-5R | ● | GWC-12 | ● | GWC-17 |
| ● | GWB-6R | ● | GWC-13 | ● | GWC-20 |
| ● | GWC-1  | ● | GWC-14 | ● | GWC-21 |
| ● | GWC-2  | ● | GWC-15 | ● | GWC-22 |
| ● | GWC-9  | ● | MW-23D | ● | MW-24D |
| ● | MW-25D | ● | MW-26D | ● | MW-27D |

### 3.2 Hydraulic Conductivity

In-situ rising head and falling slug tests were performed at multiple locations on the site. The range in hydraulic conductivity at these locations was very low, indicating a fairly uniform medium across the upper aquifer or Unit 1 (typically range from  $10^{-2}$  cm/sec to  $10^{-3}$  cm/sec). Table 2A, Horizontal Hydraulic Conductivity Data Summary, presents a summary of the K values calculated from variable head testing completed in 1998 and 2021. The horizontal hydraulic conductivity (K) was estimated variable head analysis using Bouwer and Rice (1976). The average K value for Unit 1 was  $5.04 \times 10^{-3}$  cm/sec or 14.3 feet/day. The average values are within the standard range of hydraulic conductivity values associated with a silty sand. Vertical K values for relatively low permeability zones observed during drilling were determined by laboratory testing of undisturbed samples (Shelby Tubes) and are summarized in Table 2B, Vertical Hydraulic Conductivity Data Summary. The vertical hydraulic conductivities of these samples were determined to be on the order of  $10^{-7}$  cm/sec. Test data are presented in Appendix B, Hydraulic Conductivity Testing and Results.

### 3.3 Potentiometric Data

Groundwater monitoring potentiometric data collected from 2017 through 2022 and potentiometric surface maps of the uppermost aquifer over the same period are presented in Appendix C, 2017 - 2022 Historical Potentiometric Maps and Water Level Data. Groundwater monitoring wells and non-network wells were resurveyed in March 2023. Data depicted on the historical potentiometric surface maps prior to 2023 reference slightly different top of casing elevations than those referenced in this report. Groundwater flow across the site is generally from north to south or from Parcel B3 toward Parcel A; however, groundwater flow is radial from Parcels B2 and B3, the northernmost parcels.

Average groundwater flow velocity for GRL is based on K, lateral gradient (i) and effective porosity ( $P_e$ ). The average horizontal K for the site is 14.3 feet/day, and the average sitewide gradient

across GRL (January 2023) was 0.0051 ft/ft (based on average of 0.0081 ft/ft from GWB-6R to GWC-16 and 0.0022 ft/ft from GWA-7 to GWC-17), and the effective porosity ( $n_e$ ) was estimated at 0.20. The average groundwater velocity is calculated as:

Equation

$$v = \frac{K ( dh/dl )}{P_e}$$

where:  $v$  = groundwater velocity  
 $K$  = hydraulic conductivity  
 $dh/dl$  = hydraulic gradient  
 $P_e$  = effective porosity

Values Used in Calculation

Value			Notes
$K =$	5.0E-03	cm/sec	Average from aquifer testing
	14.3	ft/day	
$dh/dl_1 =$	0.0081	unitless	Hydraulic gradient from GWB-6R to GWC-16 GWA-7 to GWC-17
$dh/dl_2 =$	0.0022	unitless	
$dh/dl_{avg} =$	0.0057	unitless	Average of $dh/dl_{1,2}$
$P_e =$	0.20	unitless	Estimated

Calculated Flow Velocity

$$v = \frac{(14.3)(0.0051)}{0.20}$$

$$v = 0.36 \text{ ft/day}$$

### 3.4 Conceptual Site Model

The hydrogeologic Conceptual Site Model (CSM) for GRL evaluates site hydrogeologic conditions and constituents with SSLs in groundwater.

The Hydrogeologic model elements include:

- GRL is located in the Coastal Plain Physiographic Province with characteristic flat to gently rolling slopes. The surface water bodies typically have a bottom layer with low permeability soil/sediment layer with sides that are shallow in steepness.



- Four layers or units are present in the upper portion of surficial aquifer (Anchor QEA, LLC, 2020).
- **Upper Sands and Topsoil:** approximately 5 to 10 feet of tan to brown or black, loose, silty, fine-grained sand with occasional organic matter. This unit disappears from between GWC-12 and GWC-11 to the east, perhaps due to excavation in conjunction with construction of the landfill (SCS, 1998).
- **Unit 1 Uppermost Aquifer - Silty Fine Sand:** variably colored (gray, tan, yellow, orange and/or brown) silty fine sand, with occasional opaque minerals, orange-brown concretions, and related iron-oxide-cemented zones known locally as hardpan. The cemented sand zones (hardpan) were observed in several borings across the Site. The color of Unit 1 and the presence of iron oxide zones suggests oxidizing conditions. The opaque minerals, concretions, and iron oxide zones are significant in that they could be sources of arsenic and molybdenum, which may be released upon dissolution of iron minerals if groundwater conditions become more reducing (SCS, 1998).
- **Unit 2 Low Permeability Zone - Interbedded Sand, Silt, and Clay:** at depth of approximately 10 to 25 feet, the soils grade to a light gray to olive gray, silty, very fine-grained sand with occasional layers of fat (plastic) clay. The unit appears to be variable in the percentage of fine material (silt and clay). One grain size analysis indicates that the material is a silty sand, with 28% to 35% of the material passing the No. 200 sieve (SCS, 1998).  

Boring logs from the Clifton landfill suggest that Unit 2 may become more clay rich, and better defined to the east. Unit 2 may not be present near wells GWC-12 (Clifton landfill well), GWC-16, and GWC-15, or may not be identifiable as finer-grained soils (EMC, 1994).
- **Unit 3 Lower Sand Aquifer - Silty and/or Clayey Fine to Medium Sand:** The boring log from boring GWC-11 (Clifton landfill well) indicate silty to clayey fine- to medium-grained sand near the bottom (screened interval) of the boring (EMC, 1994). This appears to be hydraulically connected to Units 1 and 2 and represents a more continuous higher permeability zone in the near-surface aquifer system.

Cross-sections depicting the units are provided as Figures 6 and 7.

- The facility lies within the Savannah River Basin of the Coastal Plain. The Savannah River Basin is 10,577 square miles: 5,821 square miles in eastern Georgia, 4,581 square miles in western South Carolina and 175 square miles<sup>1</sup> in southwestern North Carolina.

The contaminant groundwater model is summarized below:

- Arsenic and molybdenum SSLs have been observed in groundwater wells on the eastern portion of Parcel A adjacent to Clifton Landfill.
- SSLs in groundwater may be related to leachate and reducing conditions associated with Clifton Landfill. The facility is in the process of completing additional studies as part of the ongoing ACM to evaluate this influence.

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<sup>1</sup> Seabrook, Charles. "Savannah River." New Georgia Encyclopedia. 02 February 2021. Web. 28 July 2021.



#### **4.0 SURFACE WATER**

All stormwater runoff from the landfill is directed to a retention pond located within Parcel B1. This retention pond is a part of the Design and Operations Plan for the GRL. The pond has been designed to contain runoff from the 24-hour, 100-year rainfall event.

A standpipe, located within the retention pond, allows controlled discharge through an existing buried pipe that runs south along the east side of Parcel A and empties into a ditch in the southeast corner of the property. This drainage ditch takes stormwater runoff from the Clifton Industrial Landfill which ultimately flows to Pipemaker's Canal and onto the Savannah River.

Discharge is monitored during operation in accordance with GA EPD guidelines. This discharge is covered under the NPDES General Industrial Storm Water Permit Number GAR050000.

## 5.0 GROUNDWATER MONITORING NETWORK

### 5.1 Detection Monitoring Network

The groundwater monitoring program evaluates the aquifer immediately underlying GRL. The monitoring network consists of 21 wells (2 upgradient, 3 sidegradient, 13 downgradient, and 3 vertical delineation), which are sampled semi-annually to evaluate the groundwater quality and perform statistical analysis of the data. Table 1 presents well construction details and groundwater elevations from the most recent sampling event completed in January 2023.

The monitoring network includes two upgradient wells: GWA-7 and GWA-8, 16 downgradient and sidegradient wells: GWC-1, GWC-2, GWB-4R, GWB-5R, GWB-6R, GWC-9, GWC-11, GWC-12, GWC-13, GWC-14, GWC-15, GWC-16, and GWC-17, GWC-20, GWC-21, and GWC-22, and three vertical delineation wells: MW-23D, MW-24D, and MW-25D. Wells GWC-20, GWC-21, and GWC-22 were originally installed to assess impacts; formal incorporation of these wells into the monitoring plan will occur upon GA EPD approval of the revised November 2018 permit application. Due to the adoption of the federally promulgated groundwater protection standard (GWPS) by the GA EPD on February 22, 2022, wells GWB-4R and GWC-1 no longer demonstrate statistically significant exceedances. Therefore, corresponding vertical delineation wells MW-26D and MW-27D have been reclassified as piezometers and, along with network well GWC-10, are currently utilized for water elevations only. The monitoring well network is illustrated on Figure 4.

### 5.2 Assessment Monitoring

Because statistically significant increases of Appendix III constituents over background prediction limits were identified during the initial detection monitoring event, the assessment monitoring program for groundwater previously established under GA EPD Rule 391-3-4-.14 at GRL was superseded. Pursuant to Rule 391-3-4-.10(6) and 40 CFR 257.95, samples were collected from network monitoring wells during August 2019 and analyzed for Appendix IV constituents. Semiannual assessment monitoring events were conducted in October 2019 and March 2020. During the semiannual reporting period for the March 2020 event, Georgia Power established GWPS for Appendix IV constituents in accordance with 40 CFR § 257.95. Statistical evaluation of the October 2020 assessment monitoring data indicated the presence of statistically significant levels (SSL) of arsenic and molybdenum in exceedance of federal GWPS. Details of these sampling events and statistical analyses were provided in the 2020 Annual Groundwater Monitoring and Corrective Action Report – Grumman Road Private Industrial Landfill (ACC, 2020). Pursuant to 40 CFR 257.96, an assessment of corrective measures (ACM) was initiated for GRL on July 9, 2020. An ACM Report was subsequently prepared for GRL and submitted to GA EPD in December 2020 (Anchor, 2020). In accordance with 391-3-4-.10(6), groundwater continues to be monitored at GRL under the assessment monitoring program while the ACM is being implemented.

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## TABLES

**Table 1  
 Well Construction Detail Summary**

Well ID	Purpose	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Total Well Depth (ft bgs)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Screen Length (ft)	Surficial Aquifer Unit	January 2023 Depth to Water (ft btoc)	January 2023 Ground-water Elevation	Date Completed
GWA-7	Upgradient	780887.38	960560.31	43.97	46.58	18.30	13.00	18.00	5	Unit 1	6.37	40.21	07/29/1998
GWA-8	Upgradient	781167.00	960460.57	43.51	46.20	17.50	12.20	17.20	5	Unit 1	7.65	38.55	07/29/1998
GWB-4R	Sidegradient	779975.18	960777.56	46.17	49.04	24.00	13.70	23.70	10	Unit 1	14.86	34.18	10/09/2018
GWB-5R	Sidegradient	780293.66	960693.28	44.72	47.21	24.00	13.70	23.70	10	Unit 1	9.93	37.28	10/09/2018
GWB-6R	Sidegradient	780572.76	960617.28	44.13	46.99	20.00	9.70	19.70	10	Unit 1	7.51	39.48	10/08/2018
GWC-1	Downgradient	779573.38	960870.73	46.49	49.72	24.10	18.80	23.80	5	Unit 1	19.11	30.61	03/10/1997
GWC-2	Downgradient	779433.23	960360.53	47.44	51.22	28.30	23.00	28.00	5	Unit 1	19.73	31.49	03/11/1997
GWC-9	Downgradient	781006.70	959961.26	42.98	46.57	24.35	19.05	24.05	5	Unit 1	9.11	37.46	07/24/1998
GWC-11	Downgradient	780352.21	960122.47	45.35	48.81	19.40	14.10	19.10	5	Unit 1	13.63	35.18	07/23/1998
GWC-12	Downgradient	780098.49	960182.06	43.74	46.89	23.95	18.65	23.65	5	Unit 1	13.14	33.75	07/22/1998
GWC-13	Downgradient	779737.50	960276.20	44.77	47.68	21.40	16.10	21.10	5	Unit 1	14.92	32.76	07/22/1998
GWC-14	Downgradient	779112.24	960431.34	47.22	50.06	24.40	19.10	24.10	5	Unit 1	19.57	30.49	07/22/1998
GWC-15	Downgradient	778948.56	960666.68	44.73	47.36	24.40	19.10	24.10	5	Unit 1	19.30	28.06	07/22/1998
GWC-16	Downgradient	779034.89	960963.23	44.34	47.29	26.00	20.70	25.70	5	Unit 1	20.50	26.79	07/21/1998
GWC-17	Downgradient	781419.25	960048.28	40.82	43.60	20.86	15.56	20.56	5	Unit 1	4.98	38.62	1998
GWC-20	Downgradient	779293.82	960956.67	46.22	49.43	22.30	17.00	22.00	5	Unit 1	21.10	28.33	05/07/2010
GWC-21	Downgradient	779030.28	960948.11	44.10	47.18	21.30	16.00	21.00	5	Unit 1	20.41	26.77	05/07/2010
GWC-22	Downgradient	780712.09	960063.85	43.21	46.25	16.20	10.90	15.90	5	Unit 1	9.01	37.24	05/07/2010
MW-23D	Assessment	779279.75	960955.66	46.51	49.46	60.00	54.70	59.70	5	Unit 3	23.06	26.40	12/17/2020
MW-24D	Assessment	779042.22	960971.12	44.67	47.86	62.00	56.70	61.70	5	Unit 3	22.78	25.08	01/04/2021
MW-25D	Assessment	778944.28	960654.43	44.70	47.67	66.00	60.70	65.70	5	Unit 3	21.07	26.60	01/06/2021
GWC-10	Piezometer	780703.08	960037.03	44.05	46.77	18.35	13.05	18.05	5	Unit 1	9.92	36.85	07/24/1998
MW-26D	Piezometer	779993.34	960774.89	45.77	48.72	66.00	60.70	65.70	5	Unit 3	20.23	28.49	01/10/2021
MW-27D	Piezometer	779558.89	960874.59	47.06	49.80	69.00	63.70	68.70	5	Unit 3	21.84	27.96	01/08/2021

Notes:

ft btoc indicates feet below top of casing; ft bgs indicates feet below ground surface.

Elevations in U.S. Survey Feet (NAVD88) and northings/eastings are Georgia State Plane East (NAD83) based on March 22, 2023 survey.

Depths to water measured January 31, 2023.

Original boring log for GWC-17 is not available.

**TABLE 2A**  
**HORIZONTAL HYDRAULIC CONDUCTIVITY DATA SUMMARY**

Location	Test	Hydraulic Conductivity (cm/sec) <sup>3</sup>	Hydraulic Conductivity (ft/day) <sup>3</sup>
GWC-1 <sup>1</sup>	Slug-In Test	3.29E-03	9.4
	Slug-Out Test	3.94E-03	11.2
GWC-2 <sup>1</sup>	Slug-In Test	2.92E-03	8.3
	Slug-Out Test	5.37E-03	15.3
GWB-4R <sup>2</sup>	Slug-In Test	2.48E-03	7.1
	Slug-Out Test	2.80E-03	8.0
GWB-6R <sup>2</sup>	Slug-In Test	6.59E-03	18.7
	Slug-Out Test	6.58E-03	18.7
GWC-13 <sup>2</sup>	Slug-In Test	3.25E-03	9.2
	Slug-Out Test	3.76E-03	10.7
GWC-15 <sup>2</sup>	Slug-In Test	1.65E-02	46.9
	Slug-Out Test	8.01E-03	22.8
GWC-16 <sup>2</sup>	Slug-In Test	9.85E-03	28.0
	Slug-Out Test	7.30E-03	20.8
Slug-In Geometric Mean		5.04E-03	14.3
Slug-Out Geometric Mean		5.07E-03	14.4

Notes:

1. Average of slug test data included in Groundwater Monitoring Plan (SCS, 1998).
2. Slug Tests performed by ACC and Anchor personnel May 6-7, 2021.
3. cm/sec = centimeters per second and ft/day = feet per day

**TABLE 2B**  
**VERTICAL HYDRAULIC CONDUCTIVITY DATA SUMMARY**

<b>Location</b>	<b>Depth (ft bgs)<sup>1</sup></b>	<b>Hydraulic Conductivity<sup>2</sup> (cm/sec)<sup>3</sup></b>	<b>Hydraulic Conductivity<sup>2</sup> (ft/day)<sup>3</sup></b>
MW-26D	24-26	2.10E-07	5.97E-04
MW-26D	50-52	3.07E-07	8.73E-04

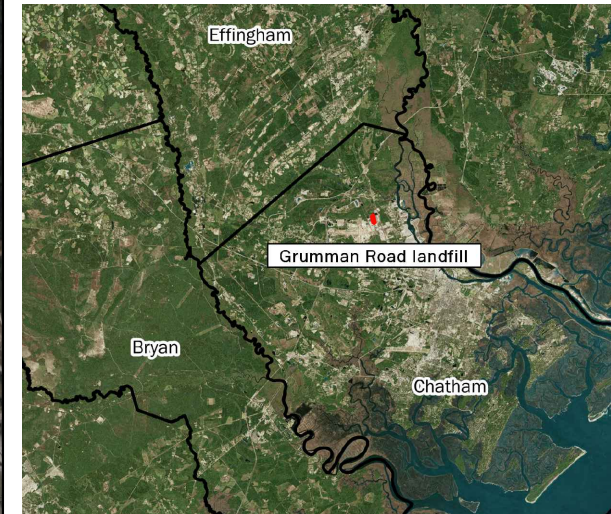
Notes:

1. ft bgs = feet below ground surface
2. Data from Shelby Tube sample analysis completed by Timely Engineering, 2021.
3. cm/sec = centimeters per second and ft/day = feet per day

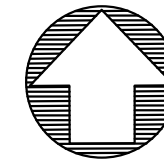


## FIGURES

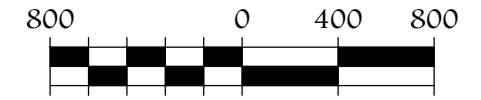




LOCATION IN THE STATE OF GEORGIA (NOT TO SCALE)



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SCALE (IN FEET)

**LEGEND:**

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY

**NOTES:**

1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

**SITE LOCATION MAP**

PROJECT NO. I054-109

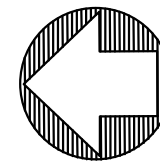
March 2023

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ





ACC

250 0 125 250

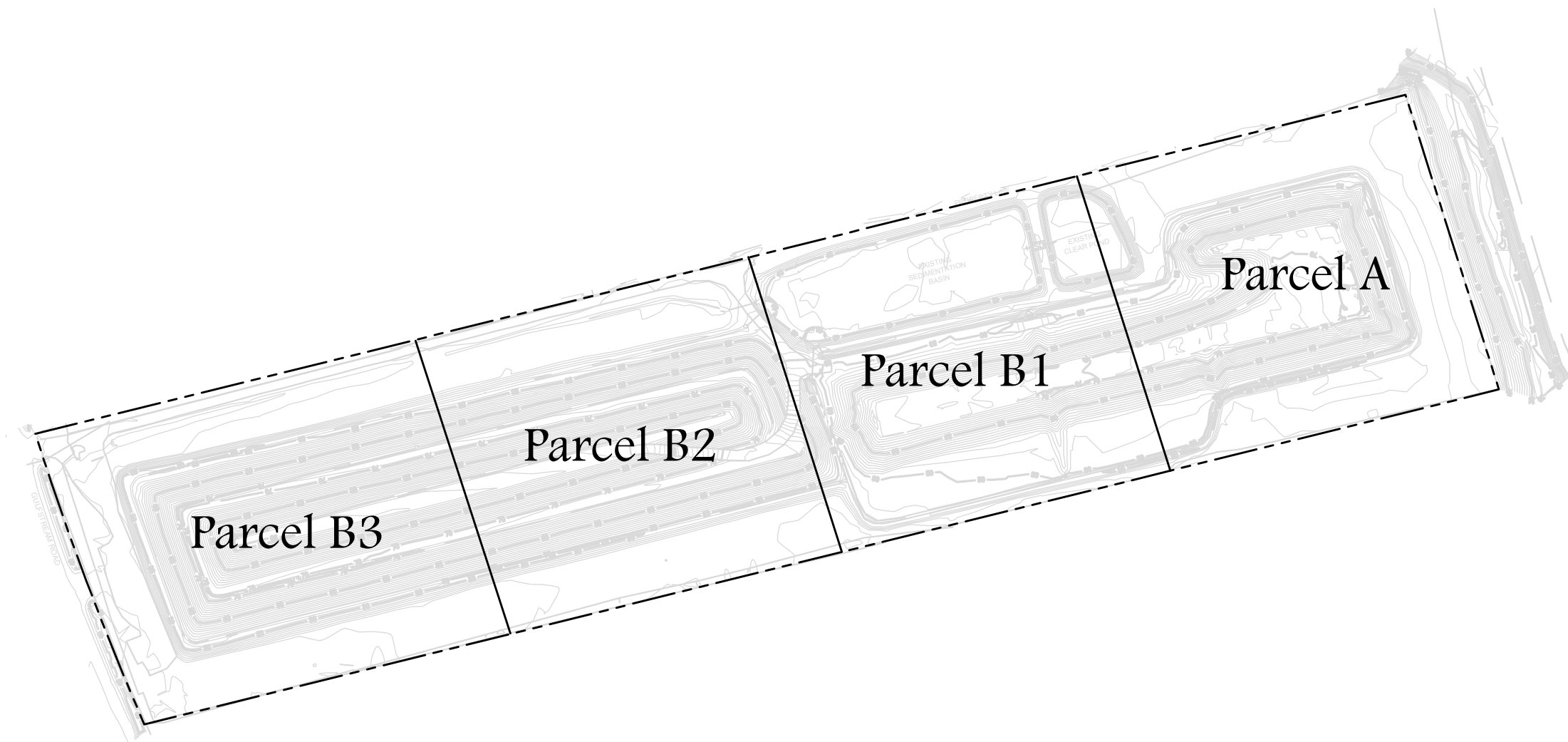


SCALE (IN FEET)

### LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	PROMINENT CONTOUR
	INTERMEDIATE CONTOUR
	ACCESS ROAD
	PARCEL DIVISION LINE

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.
  2. NEW PROMINENT AND INTERMEDIATE CONTOURS ARE FROM AS-BUILT DRAWING, FINAL COVER AS-BUILT: PLANT KRAFT GRUMMAN ROAD LANDFILL, DATED AUGUST 28, 2019 BY MCKIM & CREED.



#### PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

#### CCR UNIT LOCATION MAP

PROJECT NO. I054-109

March 2023

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

2

Series		Coastal Plain		
		Geologic unit	Hydrogeologic unit	
			Savannah	Brunswick
Post-Miocene		Undifferentiated	Water-table zone	
Miocene	Upper	Ebenezer Member	Confining unit	Upper water-bearing zone
				Lower water-bearing zone
	Middle	Coosawhatchie Formation	Upper confining unit	Upper Brunswick aquifer
	Lower			
Parachucla Formation				
	Tiger Leap Formation	Lower Brunswick aquifer		
Oligocene		Lazaretto Creek Formation	NWBL	
		Suwannee Limestone		
Eocene	Upper	Ocala Limestone	Upper Floridan aquifer	Upper water-bearing zone
				Upper Floridan semi confining unit
				Lower water-bearing zone
	Middle	Avon Park Formation	Middle semiconfining unit	
	Lower	Oldsmar Formation	Lower Floridan aquifer	Confining unit
Paleocene		Cedar Keys Limestone	Fernandina permeable zone	
Upper Cretaceous		Undifferentiated	Lower confining unit	

Modified from Williams and Gill, 2010; Gonther, 2012; Cherry and Clarke, 2013; and Williams and Kuniandy, 2015

NWBL, nonwater-bearing limestone above the Upper Floridan aquifer; The Lisbon-Avon Park composite unit is referred to as the middle semiconfining unit at Barbour Pointe



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o 770.594.5998  
www.atlcc.net

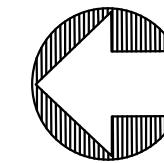
Georgia Power Company  
Grumman Road Private Industrial Landfill

**COASTAL PLAIN GEOLOGIC AND HYDROGEOLOGIC UNIT SCHEMATIC**

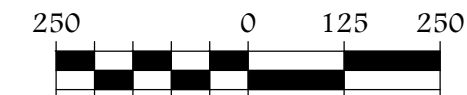
PROJECT: I054-109  
SCALE: NTS  
DATE: 10/2021  
BY: MM

FIGURE: **3**





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SCALE (IN FEET)

### LEGEND:

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1	DETECTION MONITORING WELL
⊕ GWC-10	PIEZOMETER
● MW-23D	ASSESSMENT MONITORING WELL
△ SWC-1	SURFACE WATER MONITORING POINT

### NOTES:

1. PROPERTY BOUNDARY AND WELLS SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.

### PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

### WELL LOCATION MAP



PROJECT NO. I054-109

March 2023

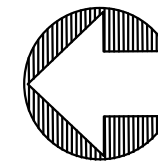
DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

4





ACC

250 0 125 250

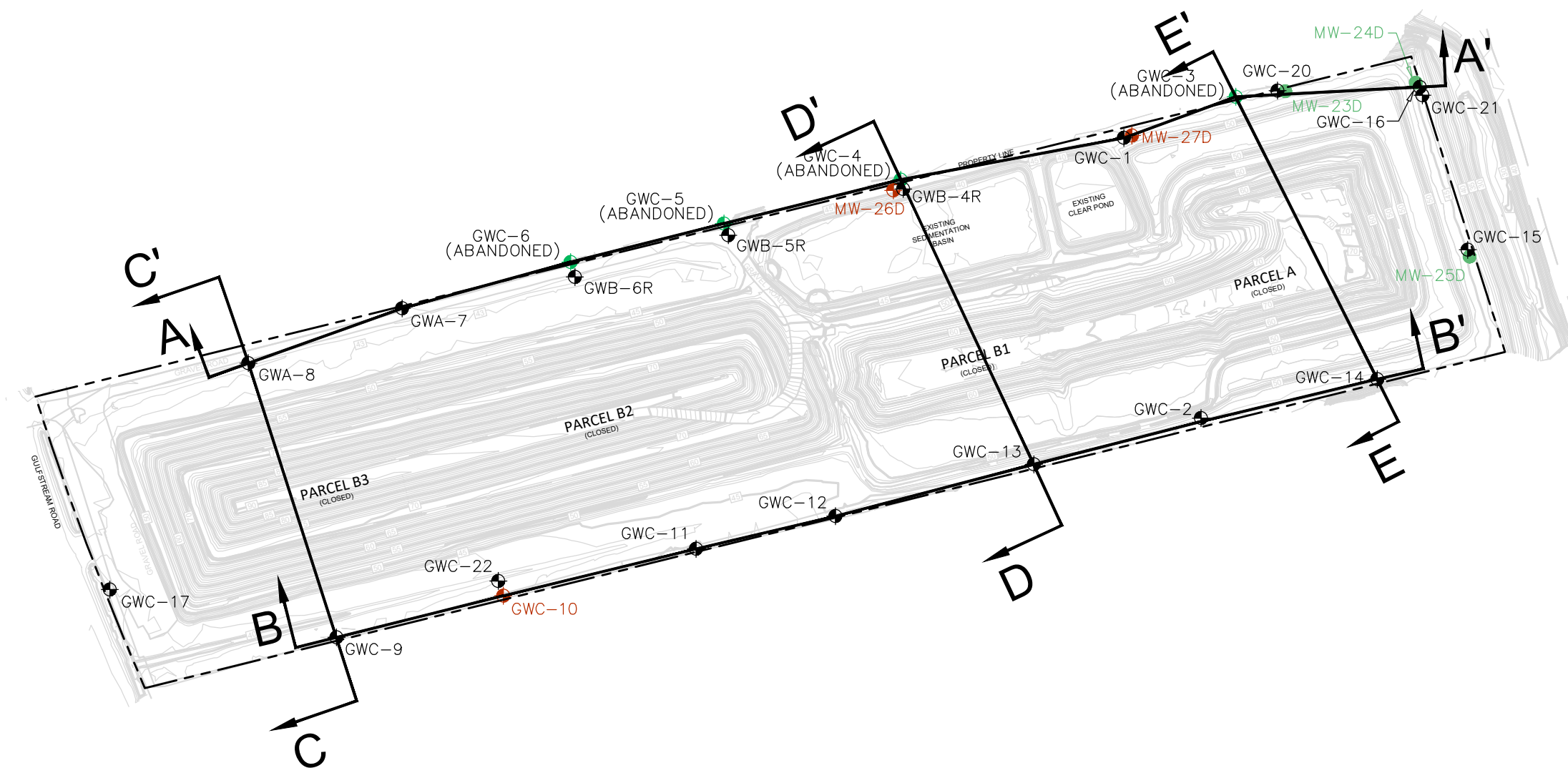


SCALE (IN FEET)

### LEGEND:

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1	DETECTION MONITORING WELL
⊕ GWC-10	PIEZOMETER (NOT MONITORED)
● MW-23D	ASSESSMENT MONITORING WELL
←	CROSS-SECTION CUT & DIRECTION

- NOTES:
1. PROPERTY BOUNDARY AND WELLS SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.
  2. NEW PROMINENT AND INTERMEDIATE CONTOURS ARE FROM AS-BUILT DRAWING, FINAL COVER AS-BUILT: PLANT KRAFT GRUMMAN ROAD LANDFILL, DATED AUGUST 28, 2019 BY MCKIM & CREED.



PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

### CROSS-SECTION LOCATION MAP

PROJECT NO. I054-109

March 2023

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

5







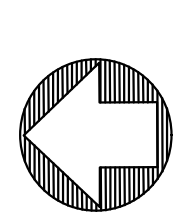




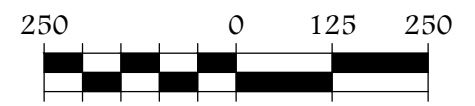


CLIFTON INDUSTRIAL  
WASTE LANDFILL  
GA EPD PERMIT  
NO. 025-030D(L)

GRUMMAN ROAD PRIVATE  
INDUSTRIAL LANDFILL  
GA EPD PERMIT  
NO. 025-061D(LI)



ATLANTIC COAST  
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SCALE (IN FEET)

**LEGEND:**

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1 31.96	DETECTION MONITORING WELL GROUNDWATER ELEVATION
⊕ GWC-10	PIEZOMETER
● MW-23D	ASSESSMENT WELL
36 — 36	GROUNDWATER ELEVATION CONTOUR
→	GROUNDWATER FLOW DIRECTION
△ SWC-1	SURFACE WATER MONITORING POINT

- NOTES:  
1. PROPERTY BOUNDARY AND WELLS SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

JANUARY 2023 POTENTIOMETRIC  
SURFACE MAP

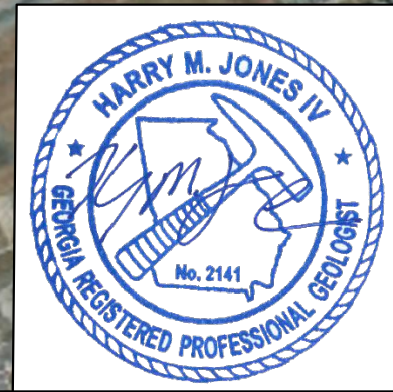
PROJECT NO. I054-109 April 2023

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

8





## **APPENDICES**

**APPENDIX A**  
**Monitoring Well Construction and Boring Logs**

<b>PROJECT:</b> <b>SEPCO</b> Savannah, Georgia	<b>WELL LOG</b> <b>GWA-7</b>
---	------------------------------

PROJECT NO. : 1144-98-185	ELEVATION: 43.97	<b>NOTES:</b> N: 780887.38, E: 960560.31 Top of casing: 46.58. Ground surface: 43.97. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 20.5 FEET	
DATE DRILLED: 07-29-98	WATER LEVEL: 3.1 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
	•••••	<b>SILTY SAND</b> Fine, Medium Gray	7-1	X		6		<p style="font-size: small;">Cement Grout</p> <p style="font-size: small;">Bentonite Seal</p> <p style="font-size: small;">Fine Filter Sand</p> <p style="font-size: small;">2" PVC Schedule 40 Casing</p> <p style="font-size: small;">2" PVC Schedule 40 Screen, 0.010" Slot</p>
5	•••••	Fine, Dark Brown, Wet	7-2	X		8		
10	•••••	Fine, Red Brown to Orange Brown	7-3	X		50		
15	•••••	As Above	7-4	X		13		
20	/ / / / /	<b>CLAYEY FINE SAND</b> Gray, with mica	7-5	X		6		
		Termination of Boring At 21.0 feet						
25								



**PROJECT:** SEPCO Savannah, Georgia **WELL LOG** GWA-8

**PROJECT NO. :** 1144-98-185 **ELEVATION:** 43.51 **NOTES:**  
**LOGGED BY:** MM **BORING DEPTH:** 20.5 FEET N: 781167.00, E: 960460.57  
**DATE DRILLED:** 07-29-98 **WATER LEVEL:** 2.5 Feet @ TOB Top of casing: 46.20. Ground surface: 43.51.  
**DRILLING METHOD:** 4-1/4" I.D. HSA **DRILL RIG:** Simco 2400 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OMV (ppm)	SPR	ELEV.	WELL DIAGRAM
0 - 5	[Dotted pattern]	SILTY SAND Fine, Dark Gray	8-1	[X symbol]		6		<p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Casing</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10	[Dotted pattern]	Fine, Dark Brown	8-2	[X symbol]		50		
10 - 15	[Dotted pattern]	Fine, Dark Red Brown	8-3	[X symbol]		50		
15 - 20	[Dotted pattern]	Very Fine, Olive Gray-Green	8-4	[X symbol]		13		
20 - 21.0	[Hatched pattern]	CLAY Olive Green, with Silty Fine Sand	8-5	[X symbol]		4		
21.0 - 25	[Blank]	Termination of Boring At 21.0 feet						



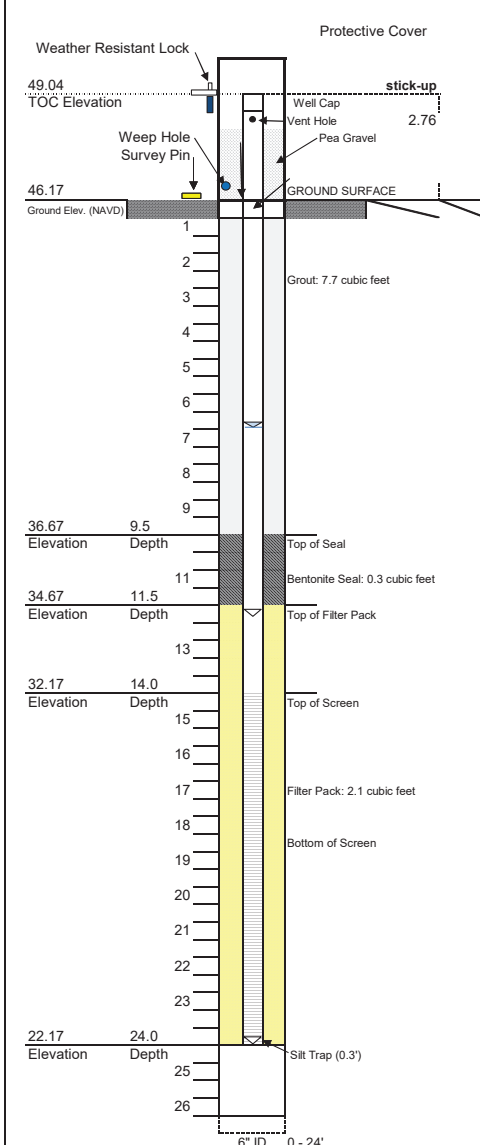


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GWB-4R

BORING ID

PROJECT:	Grumman Road Landfill	PROJECT NO.:	I054-110
TOTAL DEPTH:	24 ft. BGS	SITE LOCATION:	Savannah, Georgia
DATE BEGIN:	9-Oct-2018	DRILLER:	Ray Whitt
DATE COMPLETE:	9-Oct-2018	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	12' BGS		
WATER AFTER 48 HOURS:	11.89' BTOC		



Northing: 779975.18  
 Easting: 960777.56

**SURFACE COMPLETION:**  
 4"x4" Aluminum Protective Casing  
 4'x4'x4" Concrete Pad  
 Weather Resistant Lock  
 Survey Pin

**SOIL DESCRIPTION**

0 - 2.5'	Silty SAND (SM) w. gravel, 3/3 10 YR, minor organics
2.5' - 5'	Silty SAND (SM), fine, 7/4 10 YR, some black striations
5 - 7.5'	Silty SAND (SM), black wet
7.5 - 10'	Same as above
10-12.5'	Silty sand (SM), fine, 5/6 10 YR, wet
12.5-15'	as above except color is reddish-brown (iron stained), wet
15-17.5'	Same as above
17.5-20'	Same as above
20-24'	Silty SAND (SM), fine, color is olive green
Total Well Depth 24'	

Notes

**MATERIALS:**

GROUT: MANUFACTURER:	Portland Type I/II Cement Sakrete
BENTONITE SEAL: MANUFACTURER:	3/8" Bentonite Pellets PDS
FILTER PACK SAND: MANUFACTURER:	20/40 Mesh Filter Media GP#1
WELL SCREEN: MANUFACTURER: SLOT SIZE:	Sch. 40 - 2" PVC Silver-Line™ 0.010-Inch Slot
WELL CASING: MANUFACTURER:	Sch. 40 - 2" PVC Silver-Line™

Soil Descriptions from Unified Soil Classification System  
  
 BTOC - Below Top of Casing  
 ID - Inside Diameter; OD - Outside Diameter  
 MSL - Mean Sea Level  
 BGS - Below Ground Surface

**NOTE:**

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
 Well resurveyed March 2023.

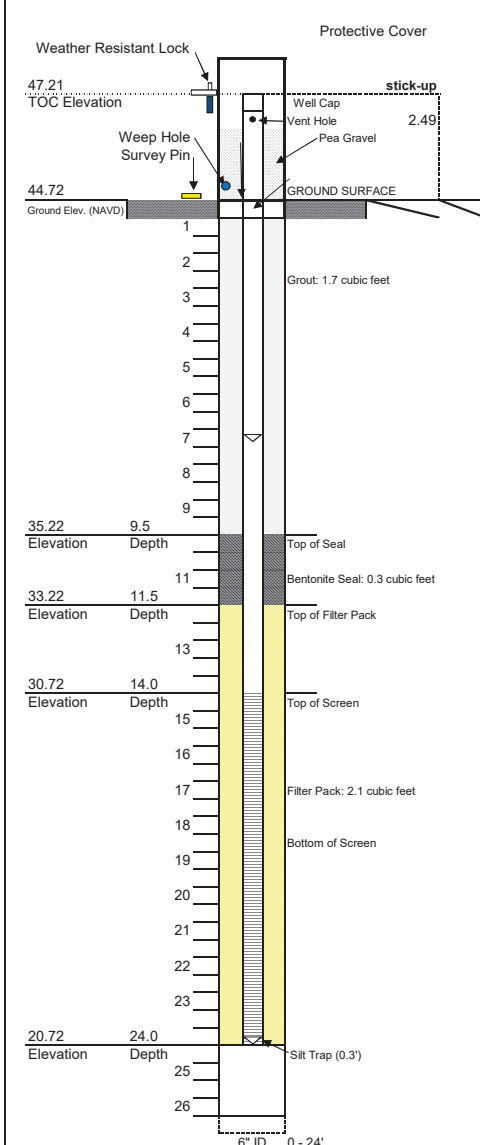


ATLANTIC COAST CONSULTING, INC.

**GWB-5R**

BORING ID

<b>PROJECT:</b> Grumman Road Landfill	<b>PROJECT NO.:</b> I054-110
<b>TOTAL DEPTH:</b> 24 ft. BGS	<b>SITE LOCATION:</b> Savannah, Georgia
<b>DATE BEGIN:</b> 9-Oct-2018	<b>DRILLER:</b> Ray Whitt
<b>DATE COMPLETE:</b> 9-Oct-2018	<b>RIG TYPE:</b> T-300 Rotosonic
<b>INSTALLED BY:</b> Cascade	<b>METHOD:</b> Rotosonic
<b>SUPERVISED BY:</b> Taylor Goble	
<b>WATER 1ST ENCOUNTERED:</b> 12.5' BGS	
<b>WATER AFTER 48 HOURS:</b> 9.66' BTOC	



Northing: 780293.66  
 Easting: 960693.28

**SURFACE COMPLETION:**  
 4"x4" Aluminum Protective Casing  
 4'x4'x4" Concrete Pad  
 Weather Resistant Lock  
 Survey Pin

**SOIL DESCRIPTION**

0 - 2.5'	Silty SAND (SM), fine, 4/6 10 YR, minor organics
2.5' - 5'	Silty SAND (SM), fine, 2.5/1 10 YR, black
5 - 7.5'	Silty SAND (SM), fine 5/1 10 YR, gray
7.5 - 10'	Same as above
10-12.5'	Silty SAND (SM), 6/1 10 YR, wet
12.5-15'	Silty SAND (SM), 4/6 7.5 YR, wet
15-17.5'	Silty SAND (SM), 3/4 7.5 YR, wet
17.5-20'	Same as above
20-24'	Silty SAND (SM), fine, color is olive green
Total Well Depth 24'	

Notes

**MATERIALS:**

GROUT:		Portland Type I/II Cement
MANUFACTURER:		Argos
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/40 Mesh
MANUFACTURER:		Scruggs Co.
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing  
 ID - Inside Diameter; OD - Outside Diameter  
 MSL - Mean Sea Level  
 BGS - Below Ground Surface

**NOTE:**

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
 Well resurveyed March 2023.

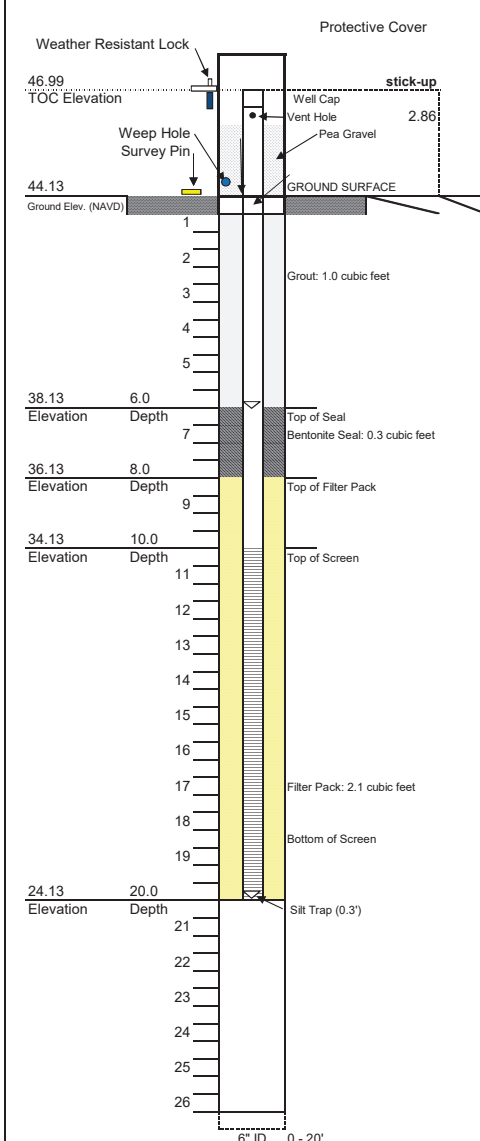


ATLANTIC COAST CONSULTING, INC.

**GWB-6R**

BORING ID

<b>PROJECT:</b> Grumman Road Landfill	<b>PROJECT NO.:</b> I054-110
<b>TOTAL DEPTH:</b> 24 ft. BGS	<b>SITE LOCATION:</b> Savannah, Georgia
<b>DATE BEGIN:</b> 9-Oct-2018	<b>DRILLER:</b> Ray Whitt
<b>DATE COMPLETE:</b> 9-Oct-2018	<b>RIG TYPE:</b> T-300 Rotosonic
<b>INSTALLED BY:</b> Cascade	<b>METHOD:</b> Rotosonic
<b>SUPERVISED BY:</b> Taylor Goble	
<b>WATER 1ST ENCOUNTERED:</b> 12.5' BGS	
<b>WATER AFTER 48 HOURS:</b> 8.63' BTOC	



Northing: 780572.76  
Easting: 960617.28

**SURFACE COMPLETION:**  
4"x4" Aluminum Protective Casing  
4'x4'x4" Concrete Pad  
Weather Resistant Lock  
Survey Pin

**SOIL DESCRIPTION**

0 - 2.5' Silty SAND (SM), organics and gravel

2.5' - 5' Silty SAND (SM), fine, light-brown, some black striations

5 - 7.5' Silty SAND (SM), very fine 2.5/1 7.5 YR, black

7.5 - 10' Same as above except wet

10-12.5' Silty SAND (SM), reddish-brown (iron rich)

12.5-15' as above, wet

15-17.5' Silty SAND (SM), 4/6 7.5 YR, wet

17.5-20' Silty SAND (SM), wet

Total Well Depth 20'

Notes

**MATERIALS:**

<p>GROUT: MANUFACTURER:</p>		<p>Portland Type I/II Cement Argos</p>
<p>BENTONITE SEAL: MANUFACTURER:</p>		<p>3/8" Bentonite Pellets Pel-Plug</p>
<p>FILTER PACK SAND: MANUFACTURER:</p>		<p>20/40 Mesh Scruggs Co.</p>
<p>WELL SCREEN: MANUFACTURER: SLOT SIZE:</p>		<p>Sch. 40 - 2" PVC Campbell Monoflex 0.010-Inch Slot</p>
<p>WELL CASING: MANUFACTURER:</p>		<p>Sch. 40 - 2" PVC Campbell Monoflex</p>

Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing  
ID - Inside Diameter; OD - Outside Diameter  
MSL - Mean Sea Level  
BGS - Below Ground Surface

**NOTE:**

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
Well resurveyed March 2023.



# Southern Company Services, Inc. Soil Boring Log

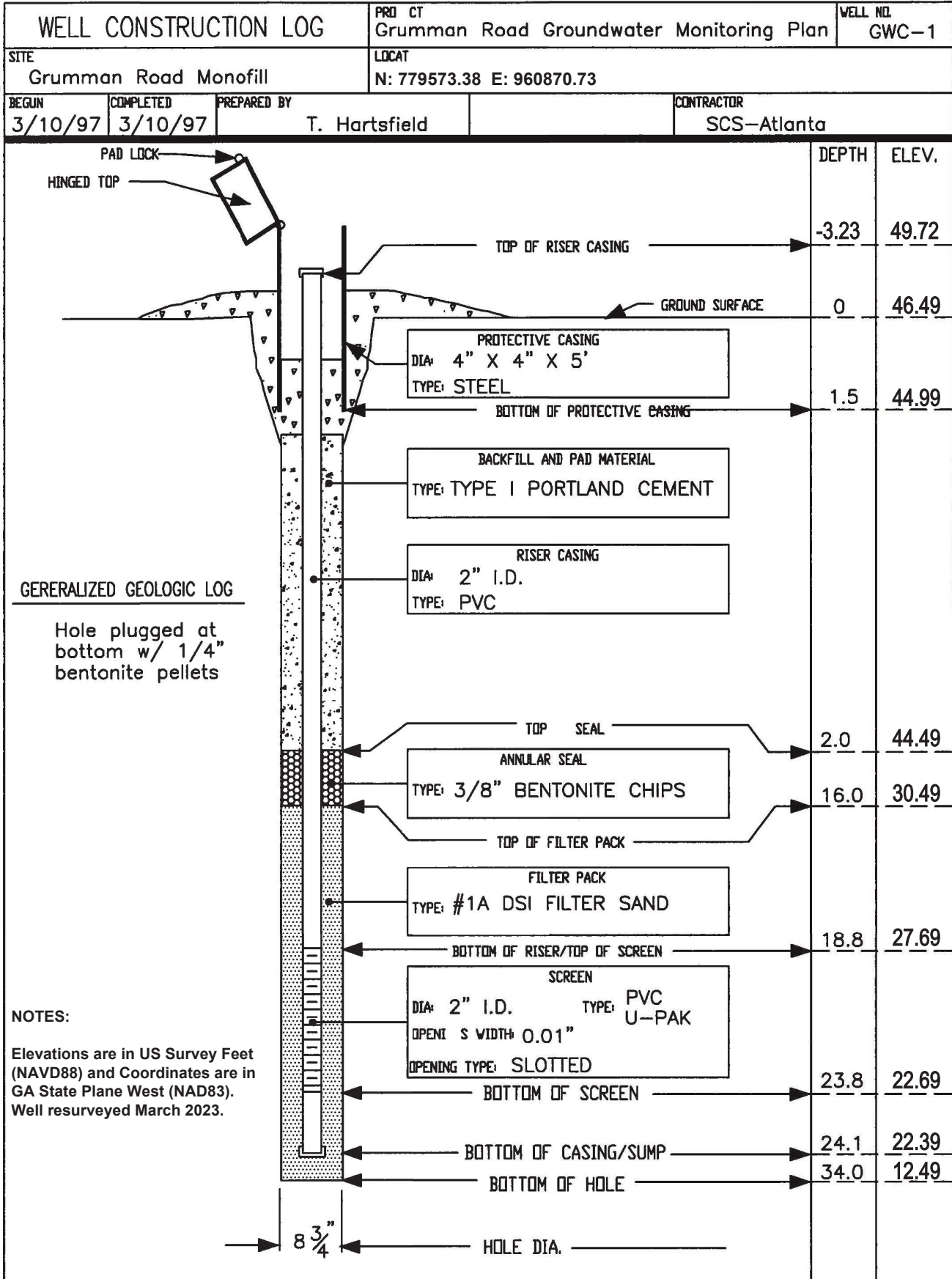


Project:	Grumman Road Monofill	<b>HOLE No. GWC-1</b>
Location:	Southeast Corner	
Purpose:	Monitoring Well Installation	SHEET 1 OF 1
Position:	Surface Elevation:	<b>46.49</b>
Rig Type:	Hollow Stem Auger	Contractor: <b>SCS-Atlanta</b> Driller: <b>Brad Flipovitch</b>
Drilling Method:	<b>CME 75</b>	Boring Depth: <b>34.0</b> No. SPT: <b>6</b> No. UD Samples: <b>3</b>
Date Started:	<b>3/10/97</b>	Date Completed: <b>3/10/97</b> Logged By: <b>Terri Hartsfield</b> Date Logged: <b>3/10/97</b>
Hole Closure:	<b>2" Monitoring Well</b>	

WATER TABLE	DEPTH AND ELEVN. (FT)	SYMBOLIC LOG	SOIL DESCRIPTION	SAMPLE		COMMENTS	TEST RESULTS				
				NUMBER	LEGEND		RECOVERY (%)	SPT VALUES BLOWS/6" (N)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	0	●	Black fine SAND	SS-1	—	90	Sampled w/5' continuous sampler.				
		●	Tan, fine, slightly silty SAND.		—						
	5	●	Dark brown slightly silty fine SAND	SS-2	—	100					
		●	Orangish brown & dark brown, consolidated, silty SAND.		—						
	10	●		UD-1	—	100					
		●		UD-2	—	100					
	15	●	Orangish brown silty, fine SAND.	SS-3	—	100					
	20	●	Tan, medium to coarse grained SAND	SS-4	—	100					
		●	1" layer gravel @ 22'		—						
	25	●	Tan, very fine grained, very silty SAND	UD-3	—	100					
		●	Light olive gray, very fine grained, very silty SAND to sandy silt layered with Tan, fine to medium grained slightly silty SAND.	SS-5	—	100					
	30	●		SS-6	—	100					
		●	Boring Terminated @ 34'		—						

SS = Split Spoon; ST = Shelby Tube; D = Dennison; P = Pitcher; O = Other	<input type="checkbox"/> 18.5 while drilling <input checked="" type="checkbox"/> after drilling	<input checked="" type="checkbox"/> after 24 hours	Hole No. <b>GWC-1</b>
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Northing - 779573.38 Easting - 960870.73  
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
 Well resurveyed March 2023.



# Southern Company Services, Inc. Soil Boring Log



Project:	Grumman Road Monofill	<b>HOLE No. GWC-2</b>
Location:	Southwest Corner	
Purpose:	Monitoring Well Installation	SHEET 1 OF 1
Position:	Surface Elevation: <b>47.44</b>	
Rig Type:	Hollow Stem Auger	Contractor: <b>SCS-Atlanta</b> Driller: <b>David Ivey</b>
Drilling Method:	CME 75	Boring Depth: <b>29.0</b> No. SPT: <b>6</b> No. UD Samples: <b>1</b>
Date Started:	3/11/97	Date Completed: <b>3/11/97</b> Logged By: <b>Terri Harsfield</b> Date Logged: <b>3/11/97</b>
Hole Closure:	<b>2" Monitoring Well</b>	

WATER TABLE	DEPTH AND ELEV. (FT)	SYMBOLIC LOG	SOIL DESCRIPTION	SAMPLE			COMMENTS	TEST RESULTS					
				NUMBER	LEGEND	RECOVERY (%)		SPT VALUES BLOWS/6" (N)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	K (cm/s)	
	0		Dark brown, slightly silty SAND w/organics	SS-1	90		5' Continuous sampler used for soil sampling.						
	5		Tan, slightly silty, fine grained SAND	SS-2	100								
	10		SAND becomes very dense to consolidated & orange brown @ 8'. Contains dark brownish red concretions	SS-3	100								
	15		Tan, silty, very fine grained SAND w/1" layers of gray silt. Grades to very silty fine SAND then to gray, silty SAND to sandy silt	SS-4	100								
	20		White slightly silty, fine SAND (damp)	UD-1				Offset hole 5'					
	20		Light gray, very silty fine SAND to sandy silt	SS-5	100								
	25		White, slightly silty, fine SAND	SS-6	100								
			Boring Terminated @ 29'										

SS = Split Spoon; ST = Shelby Tube; D = Dennison; P = Pitcher; O = Other	<input type="checkbox"/> 17.0 while drilling <input checked="" type="checkbox"/> after 24 hours <input type="checkbox"/> after drilling	Hole No. <b>GWC-2</b>
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Northing - 779433.23    Easting - 960360.53  
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
 Well resurveyed March 2023.



WELL CONSTRUCTION LOG			PROJECT	WELL NO.
SITE Grumman Road Monofill			Grumman Road Groundwater Monitoring Plan	GWC-2
LOCATION N: 779433.23 E: 960360.53				
BEGUN	COMPLETED	PREPARED BY	CONTRACTOR	
3/11/97	3/11/97	T. Hartsfield	SCS-Atlanta	

DEPTH	ELEV.
-3.78	51.22
0	47.44
1.5	45.94
3.0	44.44
18.0	29.44
20.0	27.44
23.0	24.44
28.0	19.44
28.3	19.14
29.0	18.44

DESCRIPTION	DEPTH	ELEV.
TOP OF RISER CASING	-3.78	51.22
GROUND SURFACE	0	47.44
PROTECTIVE CASING DIA: 4" X 4" X 5' TYPE: STEEL	1.5	45.94
BOTTOM OF PROTECTIVE CASING	1.5	45.94
TOP OF BACKFILL	3.0	44.44
BACKFILL MATERIAL TYPE: 3/8" BENTONITE CHIPS		
RISER CASING DIA: 2" I.D. TYPE: PVC		
TOP OF SEAL	18.0	29.44
ANNULAR SEAL TYPE: 1/4" BENTONITE PELLETS	20.0	27.44
TOP OF FILTER PACK		
FILTER PACK TYPE: #1A DS1 FILTER SAND		
BOTTOM OF RISER/TOP OF SCREEN	23.0	24.44
SCREEN DIA: 2" I.D. TYPE: PVC OPENINGS WIDTH: 0.01" 480 THREAD OPENING TYPE: SLOTTED		
BOTTOM OF SCREEN	28.0	19.44
BOTTOM OF CASING/SUMP	28.3	19.14
BOTTOM OF HOLE	29.0	18.44
HOLE DIA.		8 3/4"

**NOTES:**  
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane West (NAD83).  
 Well resurveyed March 2023.

PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWC-9**

PROJECT NO.: 1144-98-185 ELEVATION: 42.98  
 LOGGED BY: MM BORING DEPTH: 26.0 FEET  
 DATE DRILLED: 07-24-98 WATER LEVEL: 3.55 Feet @ TOB  
 DRILLING METHOD: 4-1/4" I.D. HSA DRILL RIG: Simco 2400

NOTES:  
 N: 781006.70 , E: 959961.26  
 Top of casing: 46.57. Ground surface: 42.98.  
 Elevations are in US Survey Feet (NAVD88)  
 and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

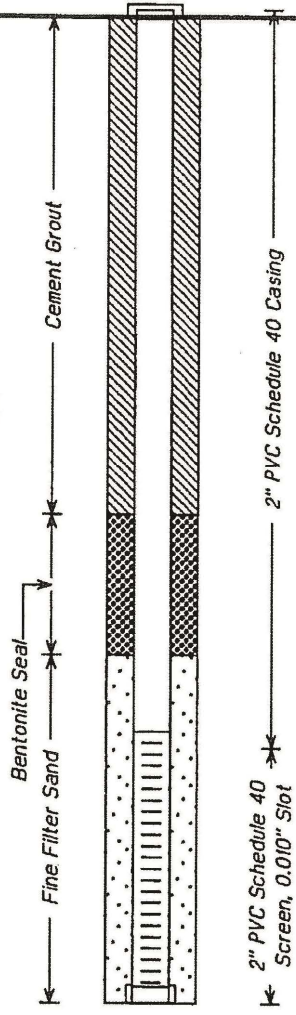
DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	QVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0		<b>SILTY SAND</b> Black with Traces of Stones and Organics	9-1	☒		14		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5		Dark Brown	9-2	☒		14		
10		Reddish Brown, Light Brown	9-3	☒		52		
15		Fine, Gray	9-4	☒		3		
20		Fine, Gray with Gray Clay Seams	9-5	☒		3		
25		<b>CLAYEY FINE SAND</b> Gray	9-6	☒		3		
26.0		Termination of Boring At 26.0 feet						





<b>PROJECT:</b> SEPCO Savannah, Georgia		<b>WELL LOG</b> GWC-11	
<b>PROJECT NO. :</b> 1144-98-185	<b>ELEVATION:</b> 45.35	<b>NOTES:</b> N: 780352.21, E: 960122.47 Top of casing: 48.81. Ground surface: 45.35. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.	
<b>LOGGED BY:</b> MM	<b>BORING DEPTH:</b> 21.0 FEET		
<b>DATE DRILLED:</b> 07-23-98	<b>WATER LEVEL:</b> 7.91 Feet @ TOB		
<b>DRILLING METHOD:</b> 4-1/4" I.D. HSA	<b>DRILL RIG:</b> Simco 2400		

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM	
0		SILTY SAND Fine Dark Gray	11-1	⊗		9			
5		Fine to Medium, Dark Brown, concretions	11-2	⊗		5			
10		SAND Mostly Fine, Minor Coarse Light to Dark Brown	11-3	⊗		28			
15		Fine, Light Tan	11-4	⊗		21			
20		SILTY SANDY CLAY Fine, Light Gray	11-5	⊗		3			
21.0		Termination of Boring At 21.0 feet							



**PROJECT:** SEPCO Savannah, Georgia **WELL LOG** GWC-12

<b>PROJECT NO. :</b> 1144-98-185	<b>ELEVATION:</b> 43.74	<b>NOTES:</b> N: 780098.49, E: 960182.06 Top of casing: 46.89. Ground surface: 43.74. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
<b>LOGGED BY:</b> MM	<b>BORING DEPTH:</b> 26.0 FEET	
<b>DATE DRILLED:</b> 07-22-98	<b>WATER LEVEL:</b> 8.9 Feet @ TOB	
<b>DRILLING METHOD:</b> 4-1/4" I.D. HSA	<b>DRILL RIG:</b> Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		<b>SILTY SAND</b> Fine, Dark Gray to Black with Organics	12-1	☒		15		<p>The well diagram shows a 2" PVC Schedule 40 casing extending to 26 feet. From 0 to 5 feet, the casing is filled with cement grout. A bentonite seal is located between 10 and 13 feet. A fine filter sand section is between 13 and 15 feet. A 2" PVC Schedule 40 screen with 0.010" slots is at the bottom, from 15 to 26 feet.</p>
5 - 10		Fine, Moist, Dark Brown to Brown	12-2	☒		13		
10 - 15		Dark Brown to Orange Brown, with Mica, Wet	12-3	☒		37		
15 - 20		Fine, Brown, Becomes Clayey	12-4	☒		3		
20 - 26		Fine, Light Brown with Medium to Coarse Grained Iron Concretions	12-5	☒		10		
26		Very Silty Fine, Pale Yellow Brown, with Mica, Minor Iron Concretions						
26.0		Termination of Boring At 26.0 feet						



<b>PROJECT:</b> SEPCO Savannah, Georgia		<b>WELL LOG</b>	<b>GWC-13</b>
<b>PROJECT NO.:</b> 1144-98-185	<b>ELEVATION:</b> 44.77	<b>NOTES:</b> N: 779737.50, E: 960276.20 Top of casing: 47.68. Ground surface: 44.77. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.	
<b>LOGGED BY:</b> MM	<b>BORING DEPTH:</b> 26.0 FEET		
<b>DATE DRILLED:</b> 07-22-98	<b>WATER LEVEL:</b> 10.35 Feet @ TOB		
<b>DRILLING METHOD:</b> 4-1/4" I.D. HSA	<b>DRILL RIG:</b> Simco 2400		

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Dark Gray	13-1	☒		8		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Dark Brown Red Brown	13-2	☒		15		
10 - 15		Fine, Orange Brown, Wet	13-3	☒		54		
15 - 20		Fine, Brown to Light Brown with Mica	13-4	☒		24		
20 - 25		Fine, Brown to Gray with Mica and Iron Concretions, Trace Clay	13-5	☒		16		
25 - 26.0		Fine, Light Brown to Gray Very Silty Fine, and Olive Gray Clay	13-6	☒		5		
26.0		Termination of Boring At 26.0 feet						





PROJECT: **SEPCO Savannah, Georgia**

**WELL LOG GWC-14**

PROJECT NO.: 1144-98-185

ELEVATION: 47.22

NOTES:  
N: 779112.24, E: 960431.34

LOGGED BY: MM

BORING DEPTH: 26.0 FEET

Top of casing: 50.06. Ground surface: 47.22.  
Elevations are in US Survey Feet (NAVD88)  
and Coordinates are in GA State Plane East  
(NAD83). Well resurveyed March 2023.

DATE DRILLED: 07-22-98

WATER LEVEL: 17.0 Feet @ TOB

DRILLING METHOD: 4-1/4" I.D. HSA

DRILL RIG: Simco 2400

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVN (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Dark Brown Fine, Tan	14-1	☒		5		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Tan	14-2	☒		6		
10 - 15		Fine, Brown to Gray, Wet	14-3	☒		11		
15 - 20		Fine, Gray with Minor Clay Lenses	14-4	☒		2		
20 - 25		Very Silty Fine, Light Gray	14-5	☒		5		
25 - 26.0		Termination of Boring At 26.0 feet	14-6	☒		7		
30								



PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWC-15**

PROJECT NO.: 1144-98-185 ELEVATION: 44.73 NOTES: N: 778948.56, E: 960666.68  
 LOGGED BY: MM BORING DEPTH: 26.0 FEET  
 DATE DRILLED: 07-22-98 WATER LEVEL: 16.9 Feet @ TOB  
 DRILLING METHOD: 4-1/4" I.D. HSA DRILL RIG: Simco 2400  
 Top of casing: 47.36. Ground surface: 44.73. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVN (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Black Organic Fine, Black to Gray	15-1	☒		16		<p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Casing</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Light Brown	15-2	☒		8		
10 - 15		Fine, Brown, Wet	15-3	☒		47		
15 - 20		Fine, Brown to Light Brown	15-4	☒		13		
20 - 26.0		Very Silty Fine, Light Brown to Gray	15-5	☒		16		
26.0		Termination of Boring At 26.0 feet						
30								



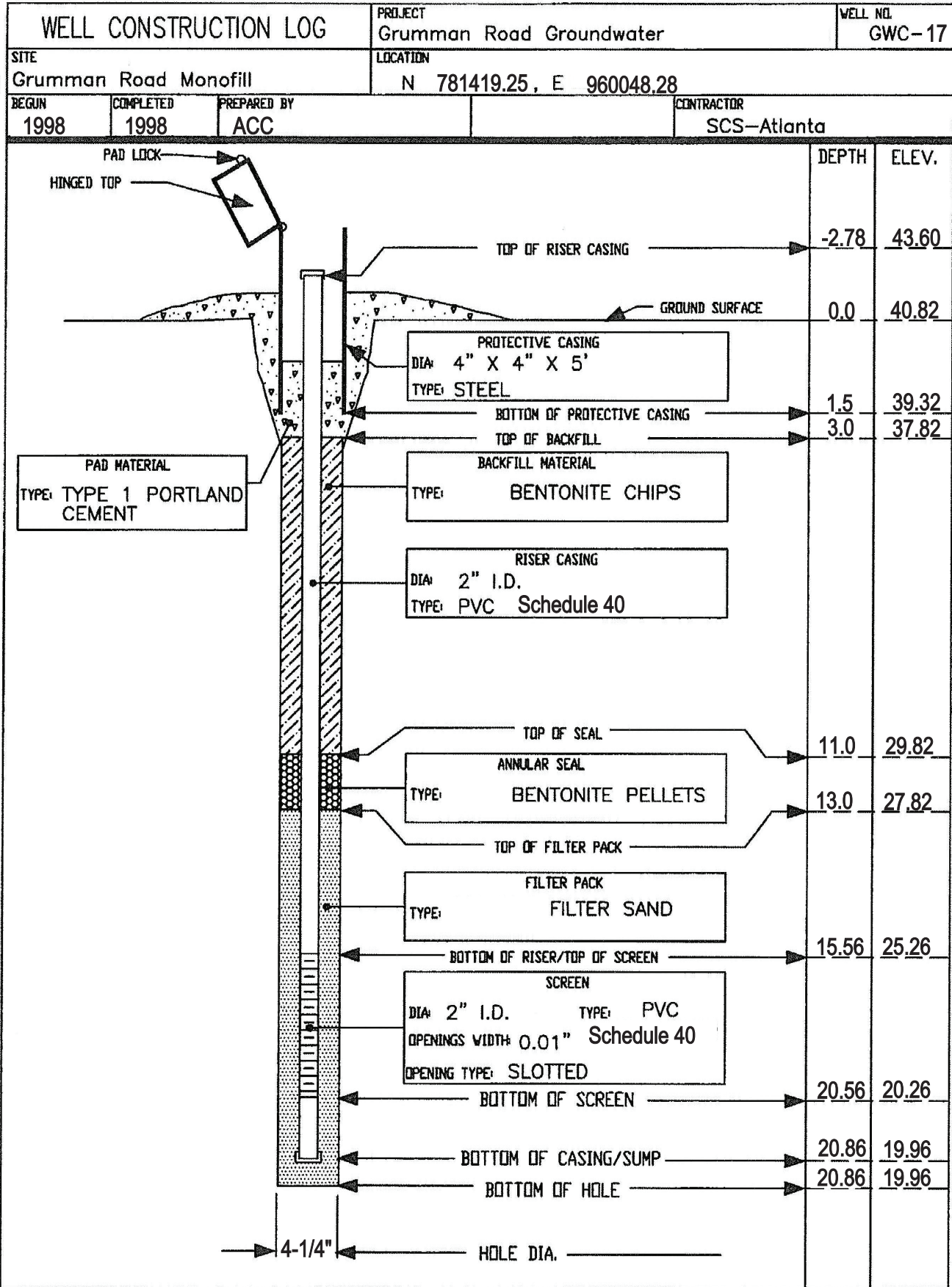
<b>PROJECT:</b> SEPCO Savannah, Georgia	<b>WELL LOG</b> GWC-16
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PROJECT NO. : 1144-98-185	ELEVATION: 44.34	<b>NOTES:</b> N: 779034.89, E: 960963.23  Top of casing: 47.29. Ground surface: 44.34. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 26.0 FEET	
DATE DRILLED: 07-21-98	WATER LEVEL: 17.81 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	DVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0		<b>SILTY SAND</b> Fine, Light Brown	16-1	X		3		<p style="text-align: center;">Cement Grout</p> <p style="text-align: center;">Bentonite Seal</p> <p style="text-align: center;">Fine Filter Sand</p> <p style="text-align: center;">2" PVC Schedule 40 Casing</p> <p style="text-align: center;">2" PVC Schedule 40 Screen, 0.010" Slot</p>
5		Fine, Brown to Light Red Brown	16-2	X		7		
10		Fine, Light Brown to Pale Yellow Brown	16-3	X		20		
15		Tan to White	16-4	X		23		
20		Fine, Wet, Tan to Gray with Minor Gray Clay	16-5	X		23		
25		Very Silty Fine, Gray with Clay	16-6	X		5		
26.0		Termination of Boring At 26.0 feet						







**NOTES:**

Generalized construction log recreated with contextual historical information and approximated field measurements. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

SITE Grumman Road Ash Landfill		PROJECT Grumman Rd Parcel A Inv.	WELL NO. GWC-20
DATE STARTED 5/7/2010		LOCATION Port Wentworth, GA	
ENDED 5/7/2010		PREPARED	

N: 779293.82, E: 960956.67

	DEPTH	ELEVATION
TOP OF CASING	-3.21	49.43
TOP OF CONCRETE	-0.22	46.44
GROUND SURFACE	0	46.22
<b>PROTECTIVE CASING</b> DIAMETER: 6" TYPE: Anodized aluminum		
BOTTOM OF PROTECTIVE CASING	1	45.22
<b>BACKFILL MATERIAL</b> TYPE: Neat cement-bentonite		
<b>RISER CASING</b> DIAMETER: 2" TYPE: Sch 40 PVC		
TOP OF SEAL	11.5	34.72
<b>ANNULAR SEAL</b> TYPE: 3/8" bentonite pellets		
TOP OF FILTER PACK	13.5	32.72
<b>SLOW SAND PACK</b> TYPE: 30/65 mesh filter sand		
15	31.22	
<b>FILTER PACK</b> TYPE: 20/30 mesh filter sand		
BOTTOM OF RISER/ TOP OF SCREEN	17	29.22
<b>SCREEN</b> DIAMETER: 3" x 2" TYPE: Sch 40 U-Pack OPENING WIDTH: 0.010 slot; 1/8" spacing OPENING TYPE: Slotted		
BOTTOM OF SCREEN	22	24.22
BOTTOM OF CASING	22.3	23.92
BOTTOM OF HOLE	22.3	23.92

5/24/10 Water Depth: 20.6'

**NOTE:**  
Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).  
Well resurveyed March 2023.

HOLE DIA: 8.5"



SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

PROJECT		Grumman Rd Parcel A Inv.	WELL NO. GWC-21
SITE		Grumman Road Ash Landfill	
LOCATION		Port Wentworth, GA	
DATE STARTED	5/7/2010	ENDED	5/7/2010
PREPARED			

N: 779030.28, E: 960948.11

	DEPTH	ELEVATION
TOP OF CASING	-3.08	47.18
TOP OF CONCRETE	-0.14	44.24
GROUND SURFACE	0	44.10
<b>PROTECTIVE CASING</b>		
DIAMETER: 6"		
TYPE: Anodized aluminum		
BOTTOM OF PROTECTIVE CASING	1	43.10
<b>BACKFILL MATERIAL</b>		
TYPE: Neat cement-bentonite		
<b>RISER CASING</b>		
DIAMETER: 2"		
TYPE: Sch 40 PVC		
TOP OF SEAL	10.5	33.60
<b>ANNULAR SEAL</b>		
TYPE: 3/8" bentonite pellets		
TOP OF FILTER PACK	12.5	31.60
<b>SLOW SAND PACK</b>		
TYPE: 30/65 mesh filter sand		
14		30.10
<b>FILTER PACK</b>		
TYPE: 20/30 mesh filter sand		
BOTTOM OF RISER/ TOP OF SCREEN	16	28.10
<b>SCREEN</b>		
DIAMETER: 3" x 2"		
TYPE: Sch 40 U-Pack		
OPENING WIDTH: 0.010 slot; 1/8" spacing		
OPENING TYPE: Slotted		
BOTTOM OF SCREEN	21	23.10
BOTTOM OF CASING	21.3	22.80
BOTTOM OF HOLE	21.3	22.80

5/24/10 Water Depth: 20.19'

**NOTE:**

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

HOLE DIA: 8.5"

SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

PROJECT Grumman Rd Parcel A Inv.

WELL NO. GWC-22

SITE Grumman Road Ash Landfill

LOCATION Port Wentworth, GA

DATE STARTED 5/7/2010

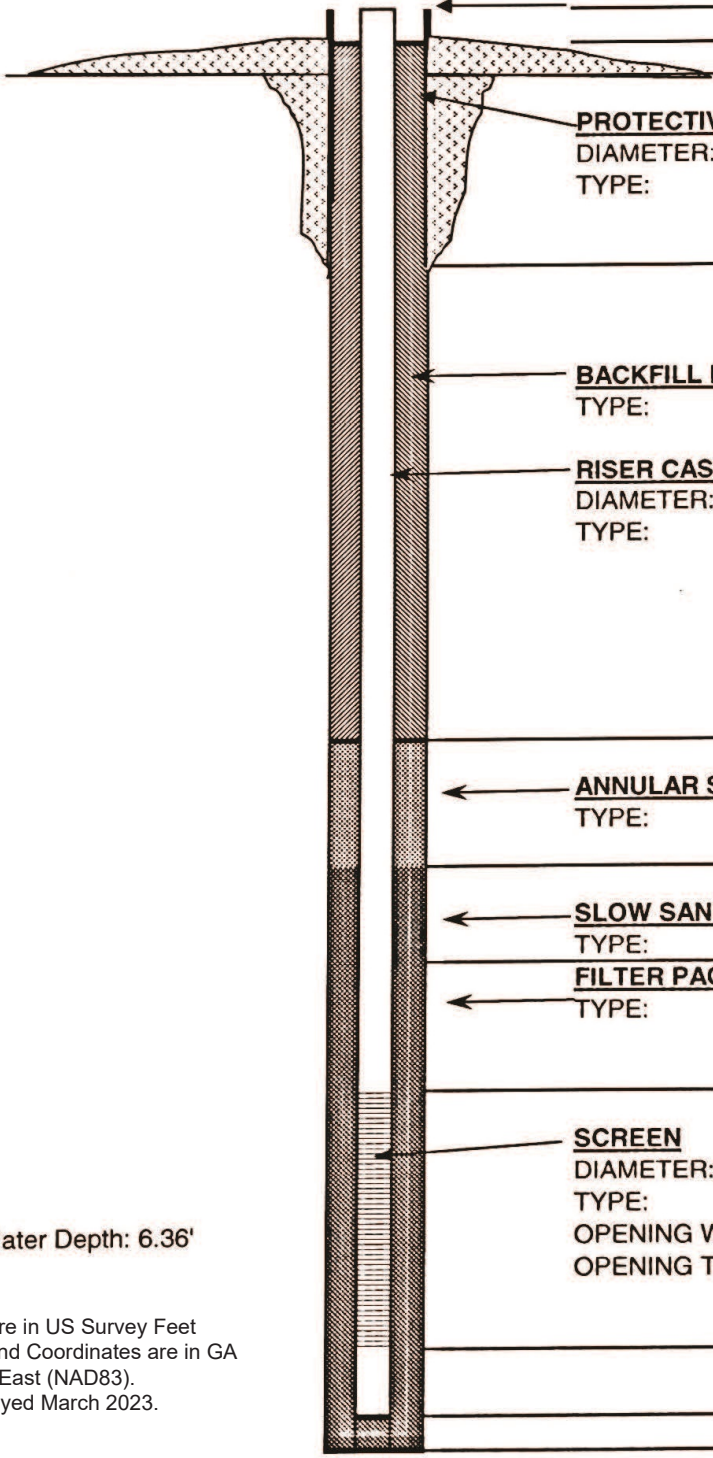
ENDED

5/7/2010

PREPARED

N: 780712.09, E: 960063.85

	DEPTH	ELEVATION
TOP OF CASING	-3.04	46.25
TOP OF CONCRETE	-0.06	43.27
GROUND SURFACE	0	43.21
<b>PROTECTIVE CASING</b>		
DIAMETER:	6"	
TYPE:	Anodized aluminum	
BOTTOM OF PROTECTIVE CASING	1	42.21
<b>BACKFILL MATERIAL</b>		
TYPE:	3/8" bentonite pellets	
<b>RISER CASING</b>		
DIAMETER:	2"	
TYPE:	Sch 40 PVC	
TOP OF SEAL	7	36.21
<b>ANNULAR SEAL</b>		
TYPE:	3/8" bentonite pellets	
TOP OF FILTER PACK	9	34.21
<b>SLOW SAND PACK</b>		
TYPE:	30/65 mesh filter sand	
TOP OF FILTER PACK	10	33.21
<b>FILTER PACK</b>		
TYPE:	20/30 mesh filter sand	
BOTTOM OF RISER/ TOP OF SCREEN	10.9	32.31
<b>SCREEN</b>		
DIAMETER:	3" x 2"	
TYPE:	Sch 40 U-Pack	
OPENING WIDTH:	0.010 slot; 1/8" spacing	
OPENING TYPE:	Slotted	
BOTTOM OF SCREEN	15.9	27.31
BOTTOM OF CASING	16.2	27.01
BOTTOM OF HOLE	16.2	27.01



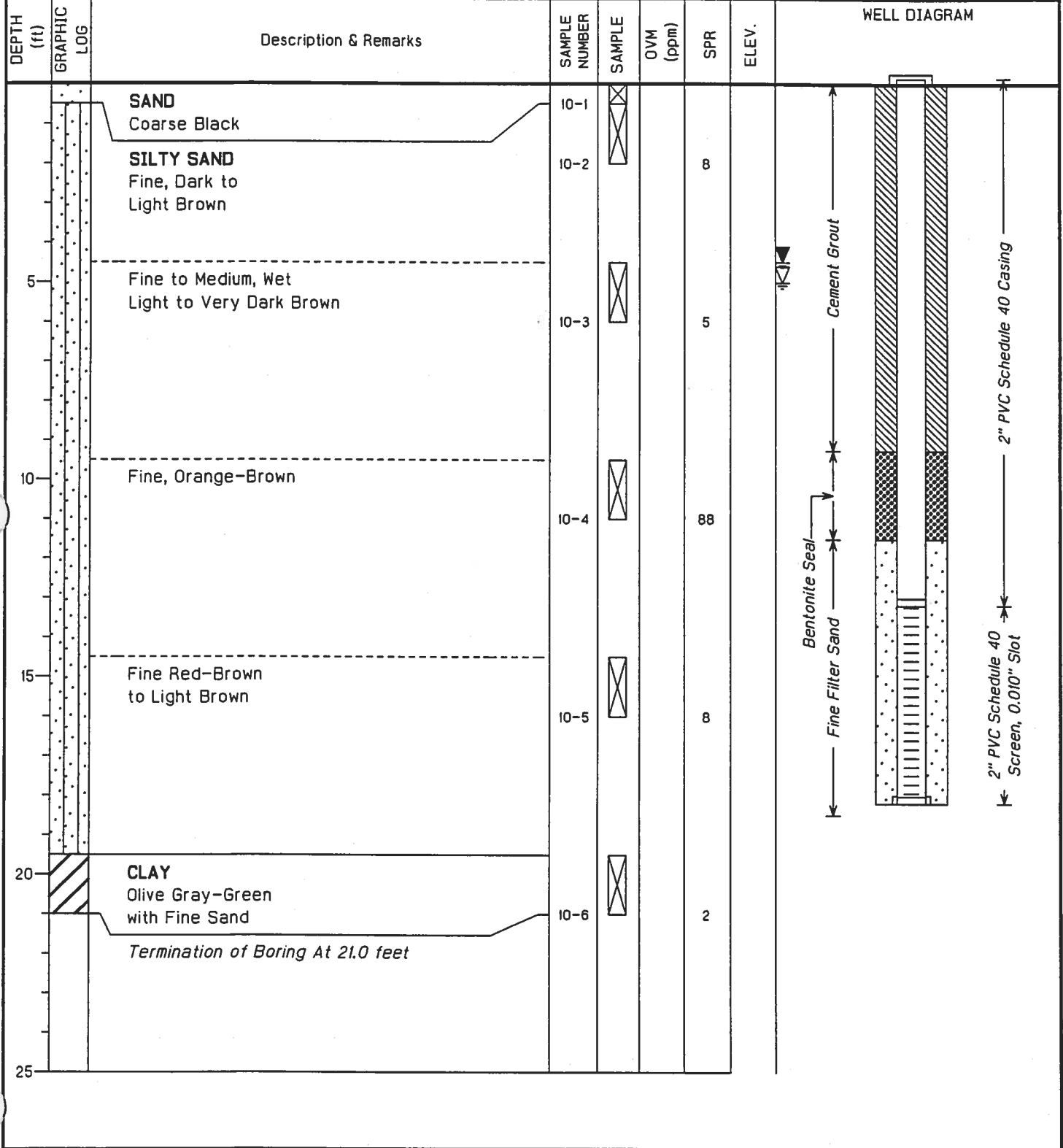
5/24/10 Water Depth: 6.36'

**NOTE:**

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

HOLE DIA: 8.5"

PROJECT NO. : 1144-98-185	ELEVATION: 44.05	<b>NOTES:</b> N: 780703.08, E: 960037.03 Top of casing: 46.77. Ground surface: 44.05. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 21.0 FEET	
DATE DRILLED: 07-24-98	WATER LEVEL: 5.0 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	







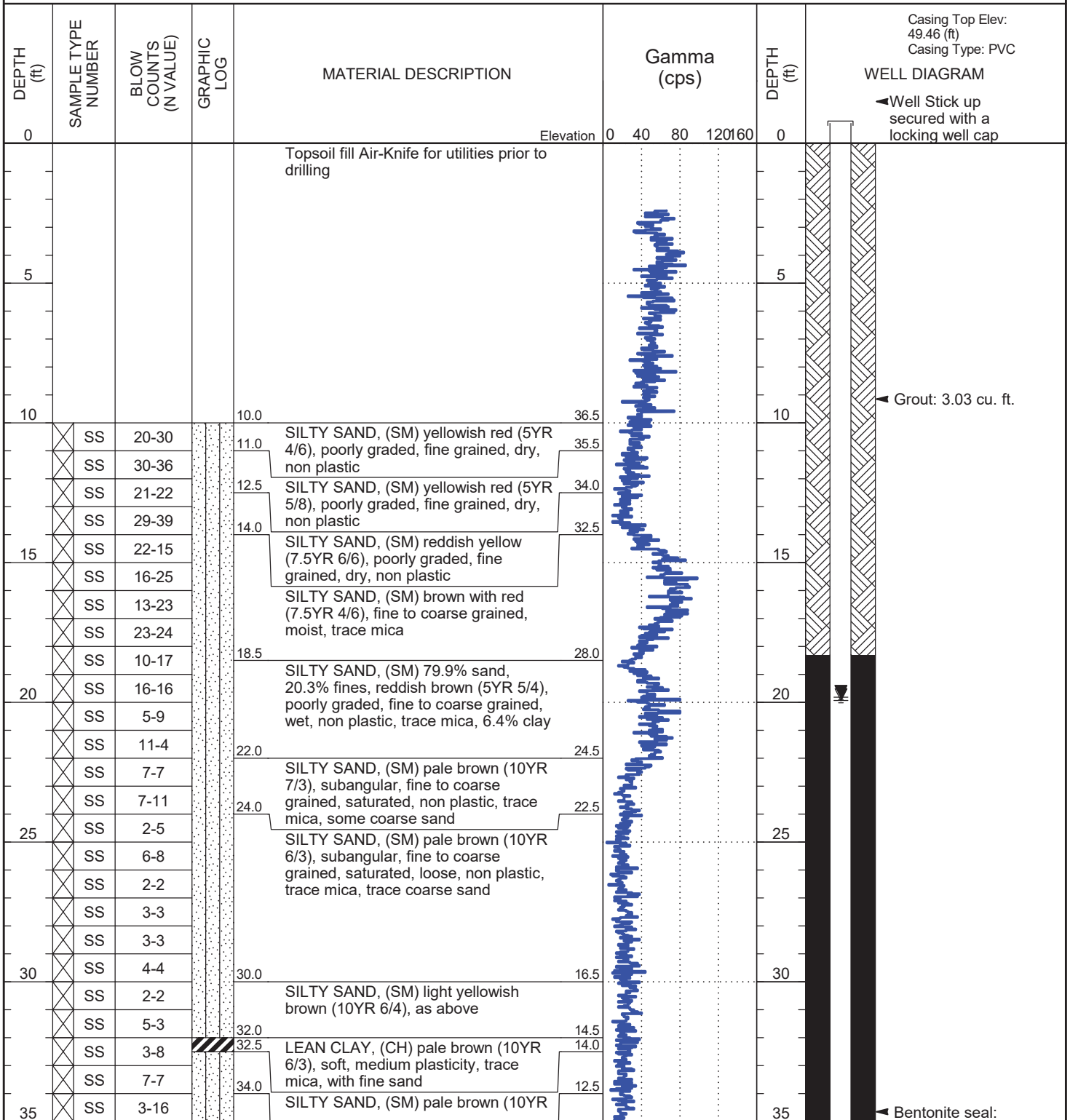
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 770-594-5998

# BORING NUMBER MW-23D

**CLIENT** Georgia Power  
**PROJECT NUMBER** I054-116  
**DATE STARTED** 12/15/20 **COMPLETED** 12/17/20  
**DRILLING CONTRACTOR** Cascade  
**DRILLING METHOD** Rotasonic  
**LOGGED BY** Jordan Berisford **CHECKED BY**  
**NOTES** N: 779279.75, E: 960955.66

**PROJECT NAME** Jordan Berisford  
**PROJECT LOCATION** Grumman Road  
**GROUND ELEVATION** 46.51 ft **HOLE SIZE** 6 inch  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** 19.82 ft / Elev 26.69 ft  
**AFTER DRILLING** 19.93 ft / Elev 26.58 ft

ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\GRUMMAN DRILLING.GPJ



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# BORING NUMBER MW-23D

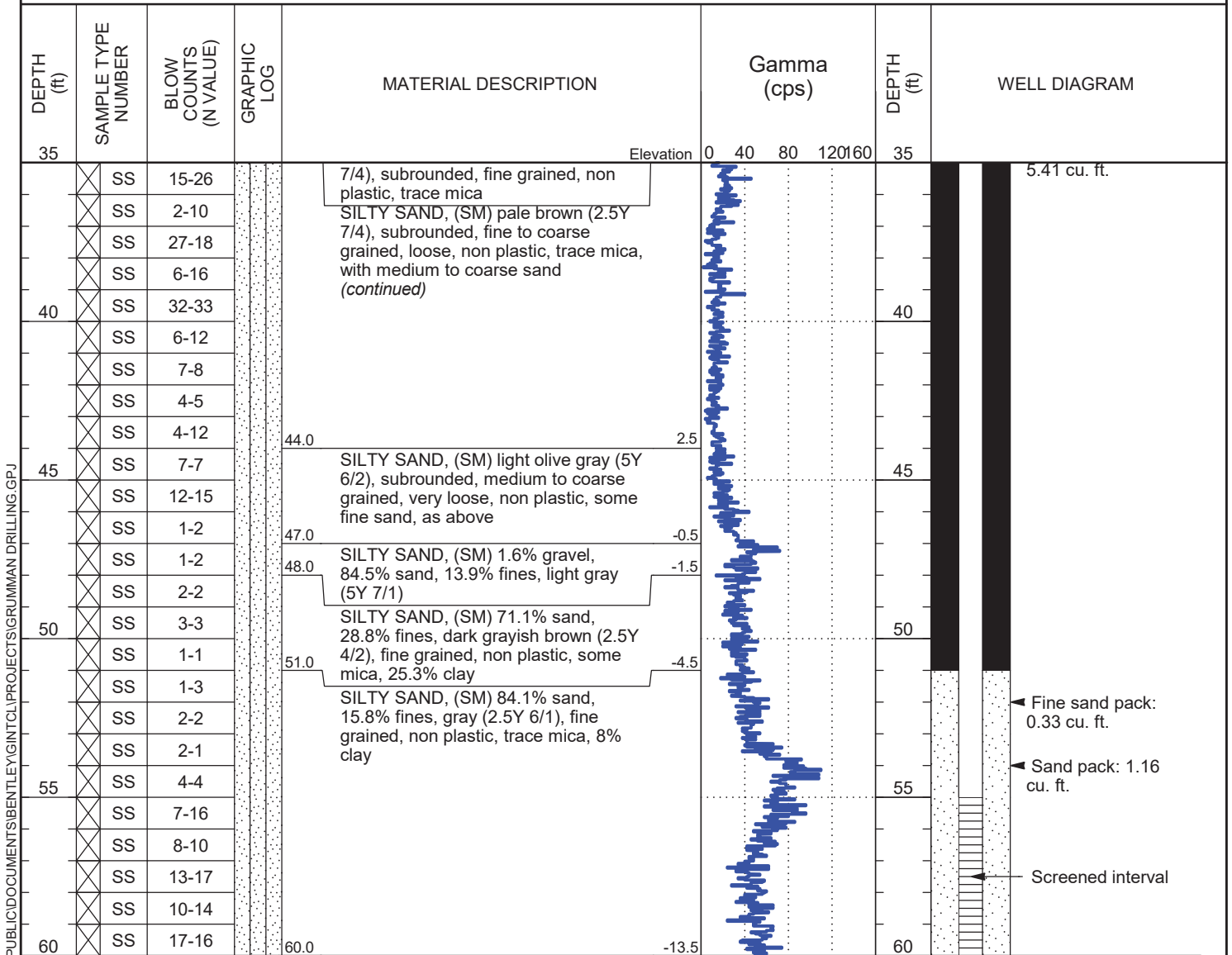
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 60.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\GRUMMAN DRILLING.GPJ

Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



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# BORING NUMBER MW-24D

**CLIENT** Georgia Power  
**PROJECT NUMBER** I054-116  
**DATE STARTED** 12/17/20 **COMPLETED** 1/5/21  
**DRILLING CONTRACTOR** Cascade  
**DRILLING METHOD** Rotasonic  
**LOGGED BY** Jordan Berisford **CHECKED BY**  
**NOTES** N: 779042.22, E: 960971.12

**PROJECT NAME** Jordan Berisford  
**PROJECT LOCATION** Grumman Road  
**GROUND ELEVATION** 44.67 ft **HOLE SIZE** 6 inch  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** 19.47 ft / Elev 25.20 ft  
**AFTER DRILLING** 19.58 ft / Elev 25.09 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	Gamma (cps)	DEPTH (ft)	WELL DIAGRAM
0				Topsoil fill Air-Knife for utilities prior to drilling	Elevation 0 40 80 120 160	0	Casing Top Elev: 47.86 (ft) Casing Type: PVC Well Stick up secured with a locking well cap
5						5	
10	SS 1-3	1-3		SILTY SAND, (SM) pale brown (2.5Y 7/3), fine grained, dry, loose, non plastic		10	Grout: 2.15 cu. ft.
	SS 4-7	4-7					
	SS 11-16	11-16					
	SS 11-13	11-13					
15	SS 8-8	8-8				15	
	SS 8-8	8-8					
	SS 8-3	8-3					
	SS 4-3	4-3					
20	SS 2-3	2-3		SILTY SAND, (SM) 65.4% sand, 34.6% fines, pale brown (2.5Y 7/4), fine grained, wet, loose, non plastic, 9.7% clay		20	
	SS 5-8	5-8					
	SS 1-1	1-1					
	SS 1-1	1-1					
	SS 0-1	0-1					
	SS 1-1	1-1					
25	SS 1-6	1-6		SILTY SAND, (SM) yellowish brown (10YR 5/4), trace mica, some clay		25	
	SS 6-9	6-9					
	SS 2-5	2-5		SILTY SAND, (SM) yellowish brown (10YR 5/8), as above			
	SS 6-8	6-8					
	SS 6-6	6-6					
30	SS 10-11	10-11		SILTY SAND, (SM) light yellowish brown (2.5Y 6/4), as above		30	
	SS 3-6	3-6					
	SS 6-8	6-8					
	SS 8-9	8-9		SILTY SAND, (SM) light yellowish brown (2.5Y 6/4), subrounded, fine to coarse grained, wet, loose, non plastic, trace mica, with clay			
	SS 12-20	12-20					
35	SS 7-11	7-11		SILTY SAND, (SM) light gray (2.5Y 7/1), well rounded, fine to medium		35	Bentonite seal: 6.62 cu. ft.

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ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ



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# BORING NUMBER MW-24D

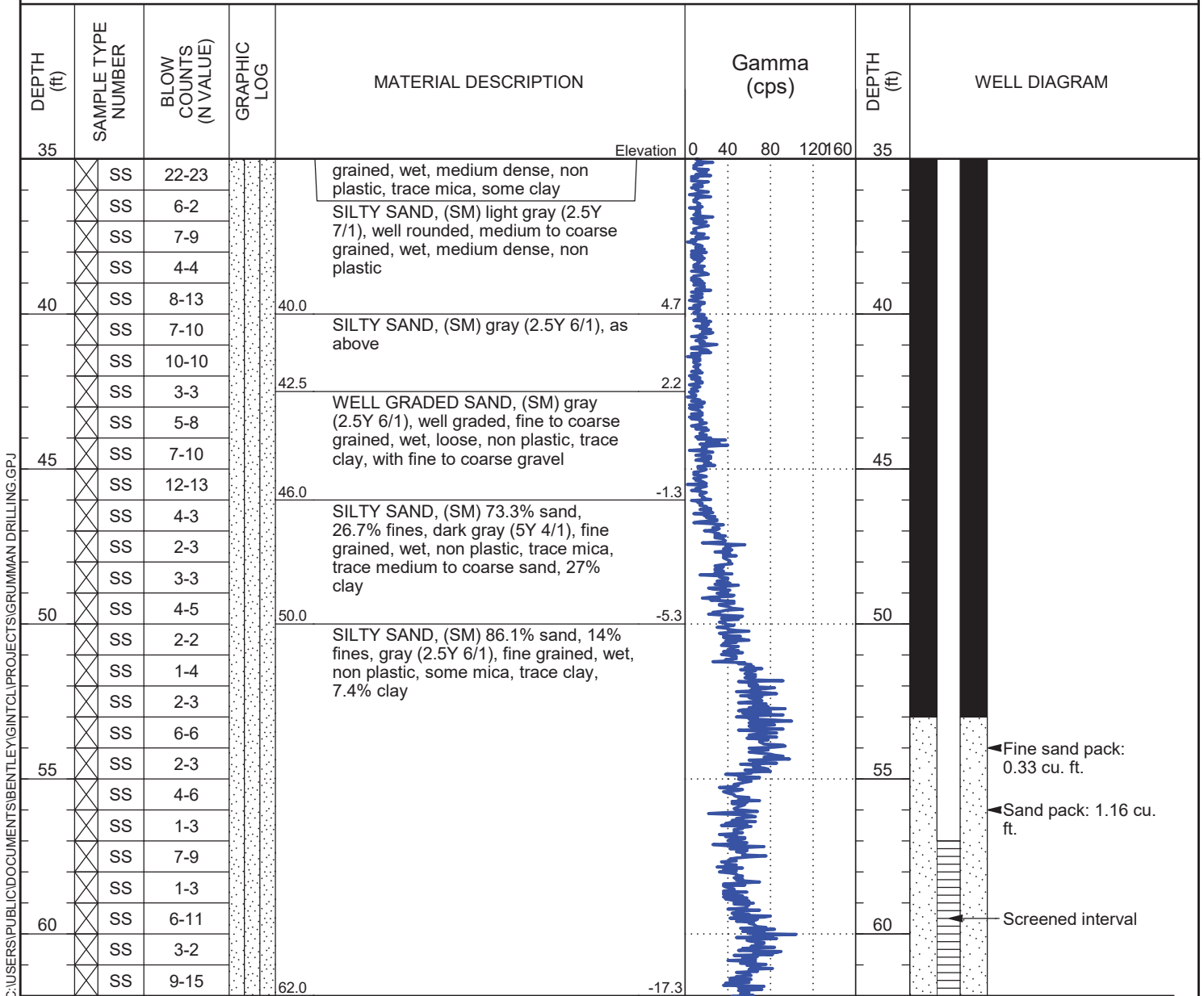
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 62.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ

Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



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# BORING NUMBER MW-25D

**CLIENT** Georgia Power  
**PROJECT NAME** Jordan Berisford  
**PROJECT NUMBER** I054-116  
**PROJECT LOCATION** Grumman Road  
**DATE STARTED** 1/5/21 **COMPLETED** 1/6/21  
**GROUND ELEVATION** 44.70 ft **HOLE SIZE** 6 inch  
**DRILLING CONTRACTOR** Cascade  
**GROUND WATER LEVELS:**  
**DRILLING METHOD** Rotosonic **AT TIME OF DRILLING** ---  
**LOGGED BY** Jordan Berisford **CHECKED BY** \_\_\_\_\_  
**AT END OF DRILLING** 18.91 ft / Elev 25.79 ft  
**NOTES** N: 778944.28, E: 960654.43 **AFTER DRILLING** 17.95 ft / Elev 26.75 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	Gamma (cps)	DEPTH (ft)	WELL DIAGRAM
0				Topsoil fill Air-Knife for utilities prior to drilling	Elevation 0 40 80 120 160	0	Casing Top Elev: 47.67 (ft) Casing Type: PVC Well Stick up secured with a locking well cap
5						5	
10				10.0 SILTY SAND, (SM) brown (7.5YR 5/8), fine grained, dry, medium dense, non plastic, with silt 34.7		10	Grout: 3.11 cu. ft.
	SS 4-13			12.0 SILTY SAND, (SM) yellowish red (5YR 5/6), fine grained, dry, medium dense, non plastic, trace mica, with silt 32.7			
	SS 19-22			14.0 SILTY SAND, (SM) brown (7.5YR 4/6), as above 30.7			
15				17.0 SILTY SAND, (SM) pale brown (2.5Y 7/3), as above 27.7		15	
	SS 1-1			18.0 Drillers lost sample 26.7			
	SS 2-4			20.0 SILTY SAND, (SC) pale brown (2.5Y 7/3), as above 24.7		20	
	SS 8-19			20.5 24.2			
	SS 25-29			21.0 23.7			
	SS 2-3			24.0 CLAYEY SAND, (SM) pale brown (2.5Y 7/3), fine grained, moist, soft, medium plasticity, trace coarse sand, with silt 20.7			
20				24.0 SILTY SAND, (SM) 83% sand, 16.9% fines, pale brown (2.5Y 7/3), fine grained, wet, loose, non plastic, trace mica, with silt, 8.8% clay 20.7		20	
	SS 1-4						
	SS 6-7						
	SS 1-2						
	SS 4-5						
25				30.0 SILTY SAND, (SM) pale brown (2.5Y 7/4), fine grained, loose, non plastic, with clay 14.7		25	
	SS 2-2						
	SS 4-7						
	SS 1-1						
	SS 2-3						
	SS 2-2						
30				32.0 SILTY SAND, (SM) light gray (2.5Y 7/1), fine to coarse grained, wet, very loose, non plastic 12.7		30	
	SS 2-6						
	SS 5-7						
	SS 7-9						
	SS 2-3						
	SS 2-3						
35						35	

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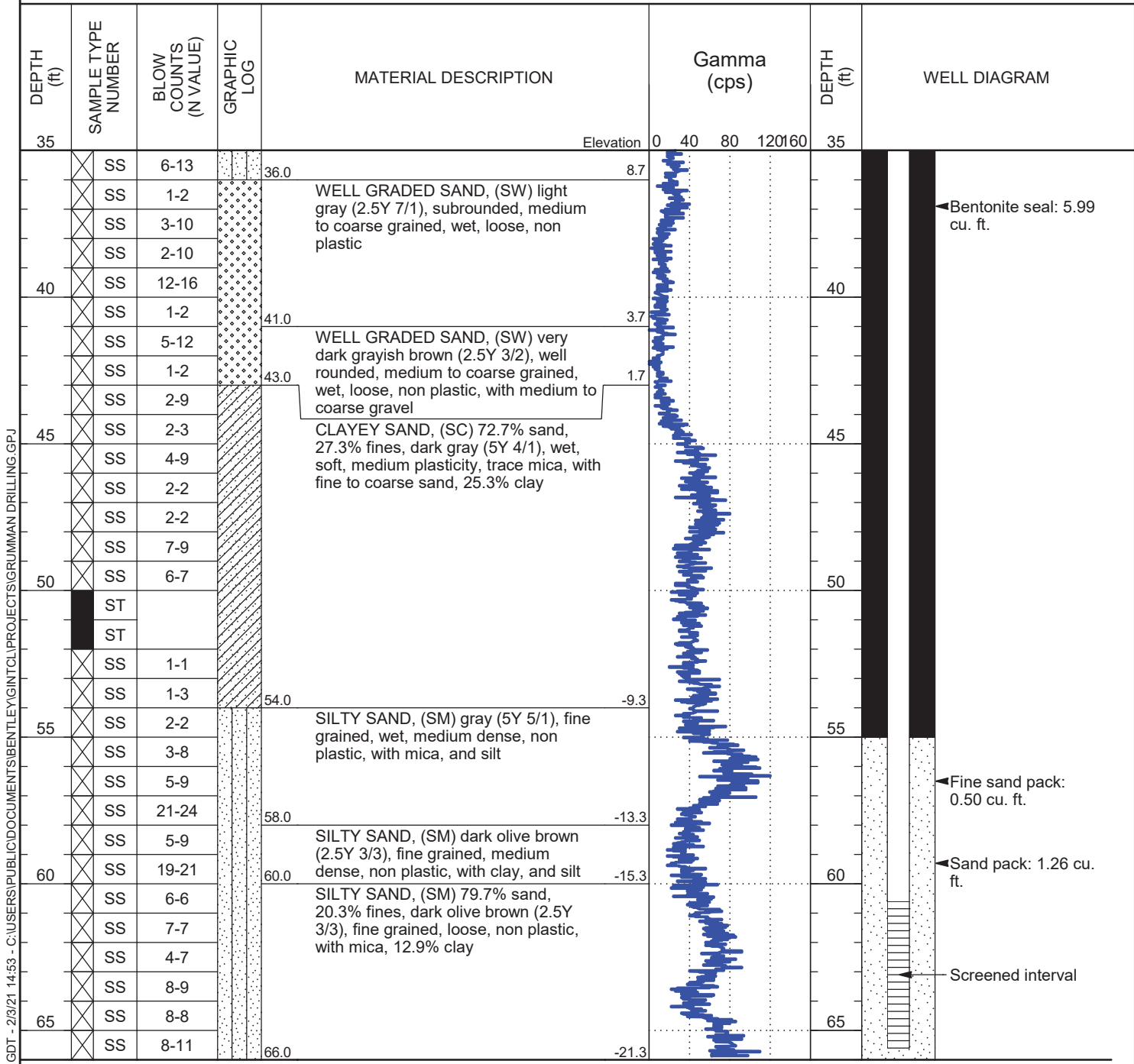
# BORING NUMBER MW-25D

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 66.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ

Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



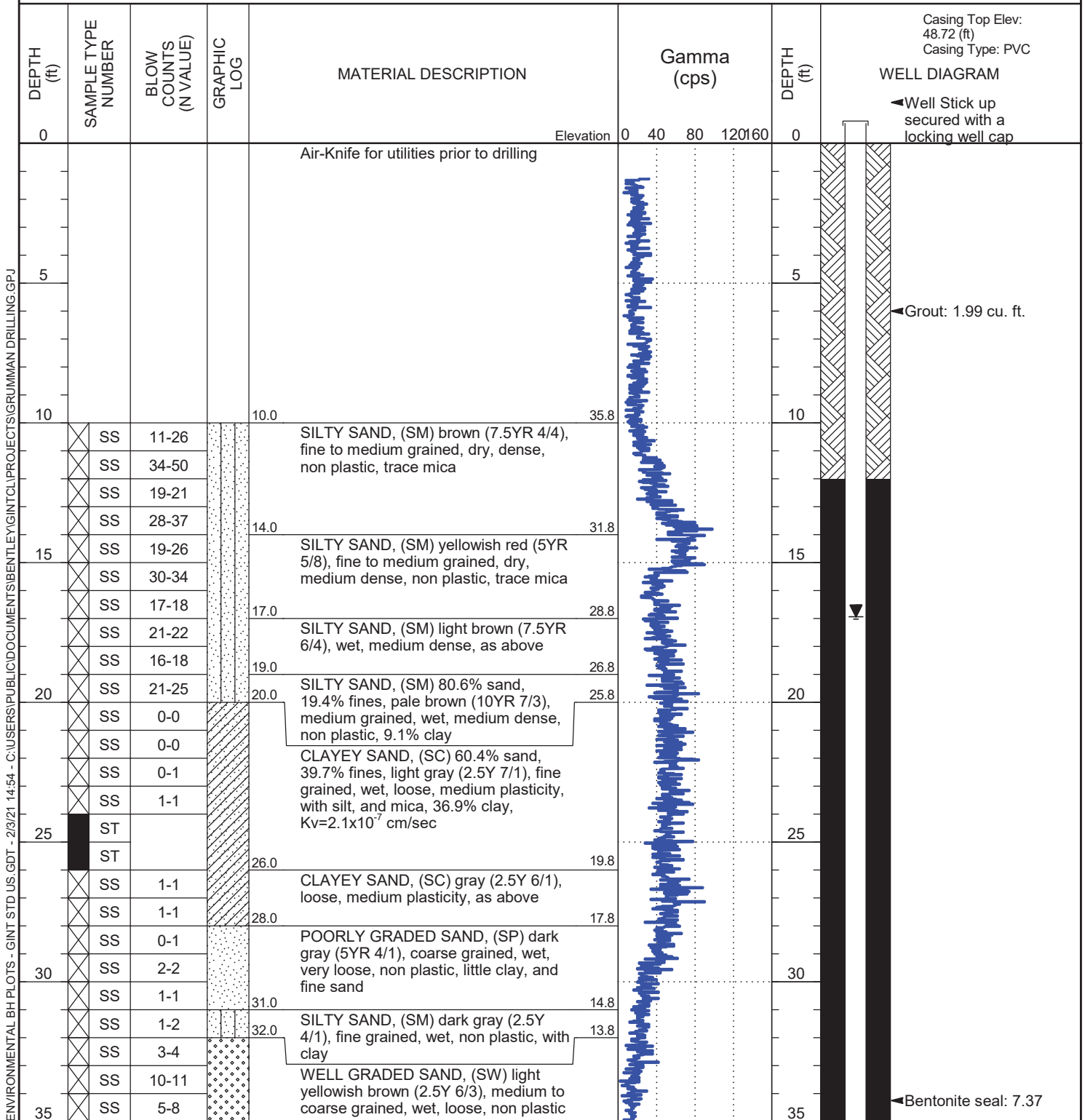


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# BORING NUMBER MW-26D

**CLIENT** Georgia Power  
**PROJECT NUMBER** I054-116  
**DATE STARTED** 1/8/21 **COMPLETED** 1/9/21  
**DRILLING CONTRACTOR** Cascade  
**DRILLING METHOD** Rotasonic  
**LOGGED BY** Jordan Berisford **CHECKED BY**  
**NOTES** N: 779993.34, E: 960774.89

**PROJECT NAME** Jordan Berisford  
**PROJECT LOCATION** Grumman Road  
**GROUND ELEVATION** 45.77 ft **HOLE SIZE** 6 inch  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** 16.94 ft / Elev 28.83 ft  
**AFTER DRILLING** 16.93 ft / Elev 28.84 ft



(Continued Next Page)

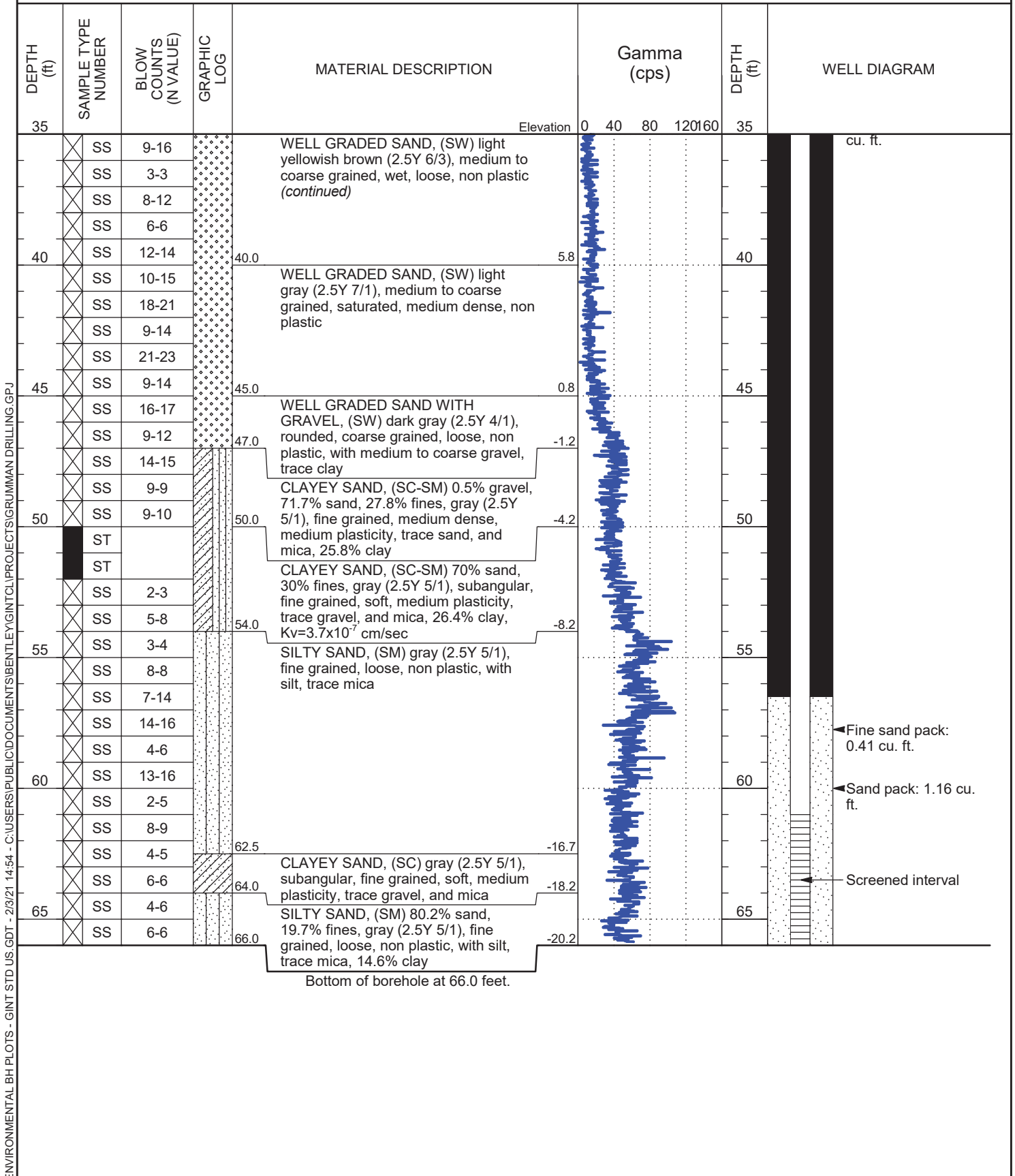


CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

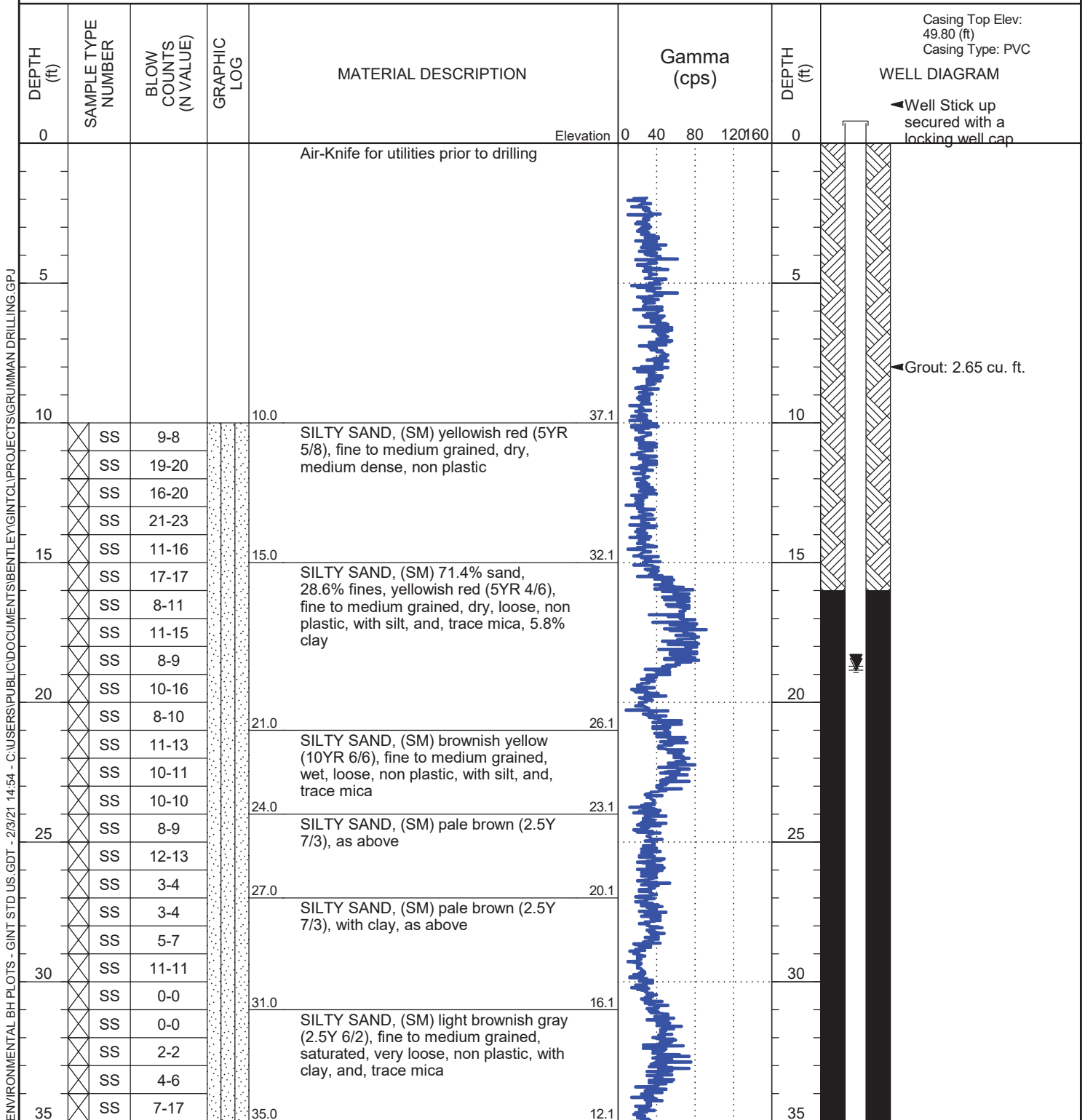


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# BORING NUMBER MW-27D

**CLIENT** Georgia Power  
**PROJECT NUMBER** I054-116  
**DATE STARTED** 1/7/21 **COMPLETED** 1/8/21  
**DRILLING CONTRACTOR** Cascade  
**DRILLING METHOD** Rotasonic  
**LOGGED BY** Jordan Berisford **CHECKED BY**  
**NOTES** N: 779558.89, E: 960874.59

**PROJECT NAME** Jordan Berisford  
**PROJECT LOCATION** Grumman Road  
**GROUND ELEVATION** 47.06 ft **HOLE SIZE** 6 inch  
**GROUND WATER LEVELS:**  
**AT TIME OF DRILLING** ---  
**AT END OF DRILLING** 18.71 ft / Elev 28.35 ft  
**AFTER DRILLING** 18.85 ft / Elev 28.21 ft



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ENVIRONMENTAL BH PLOTS - GINT STD US\_GDT - 2/3/21 14:54 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ



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# BORING NUMBER MW-27D

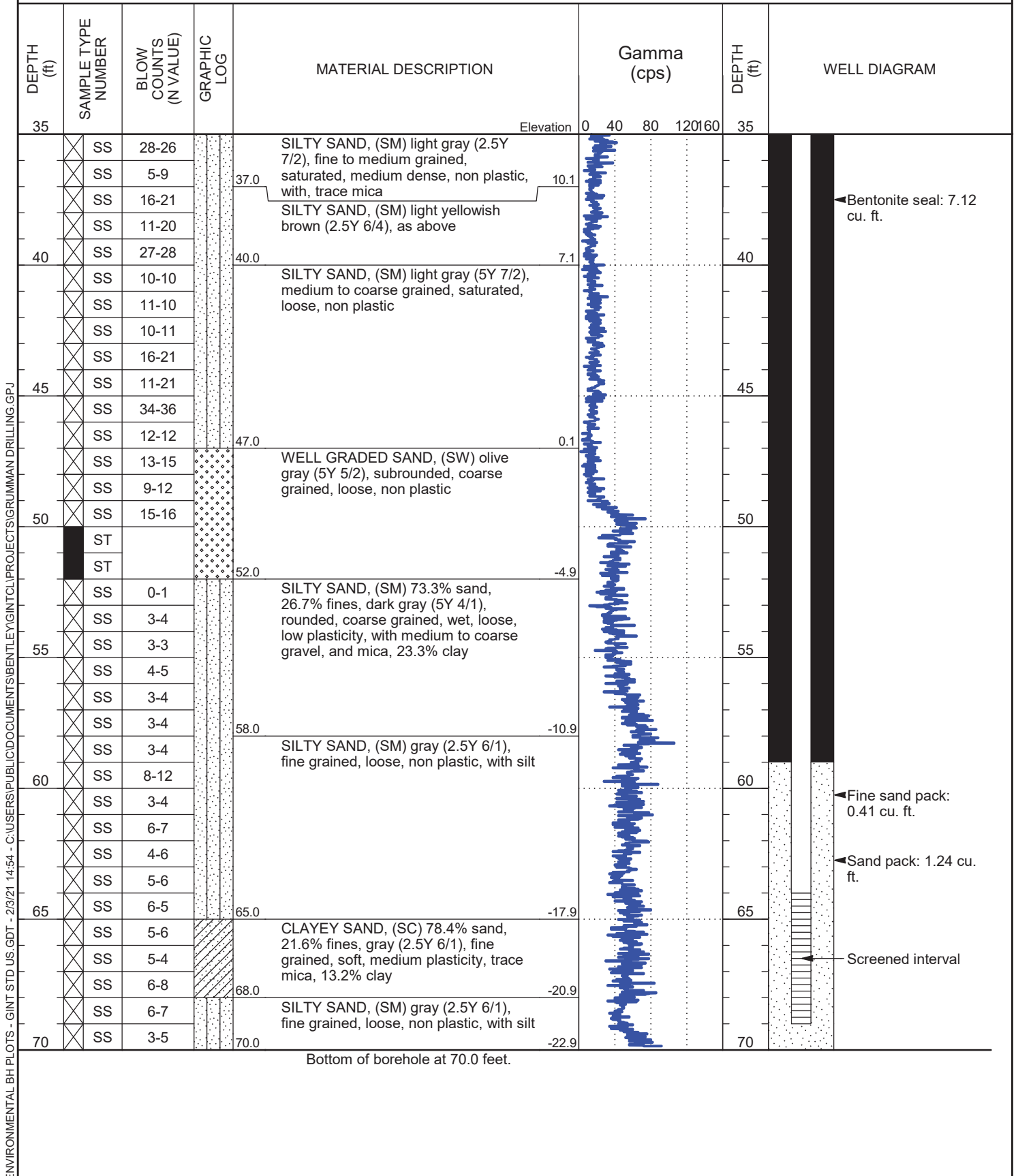
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



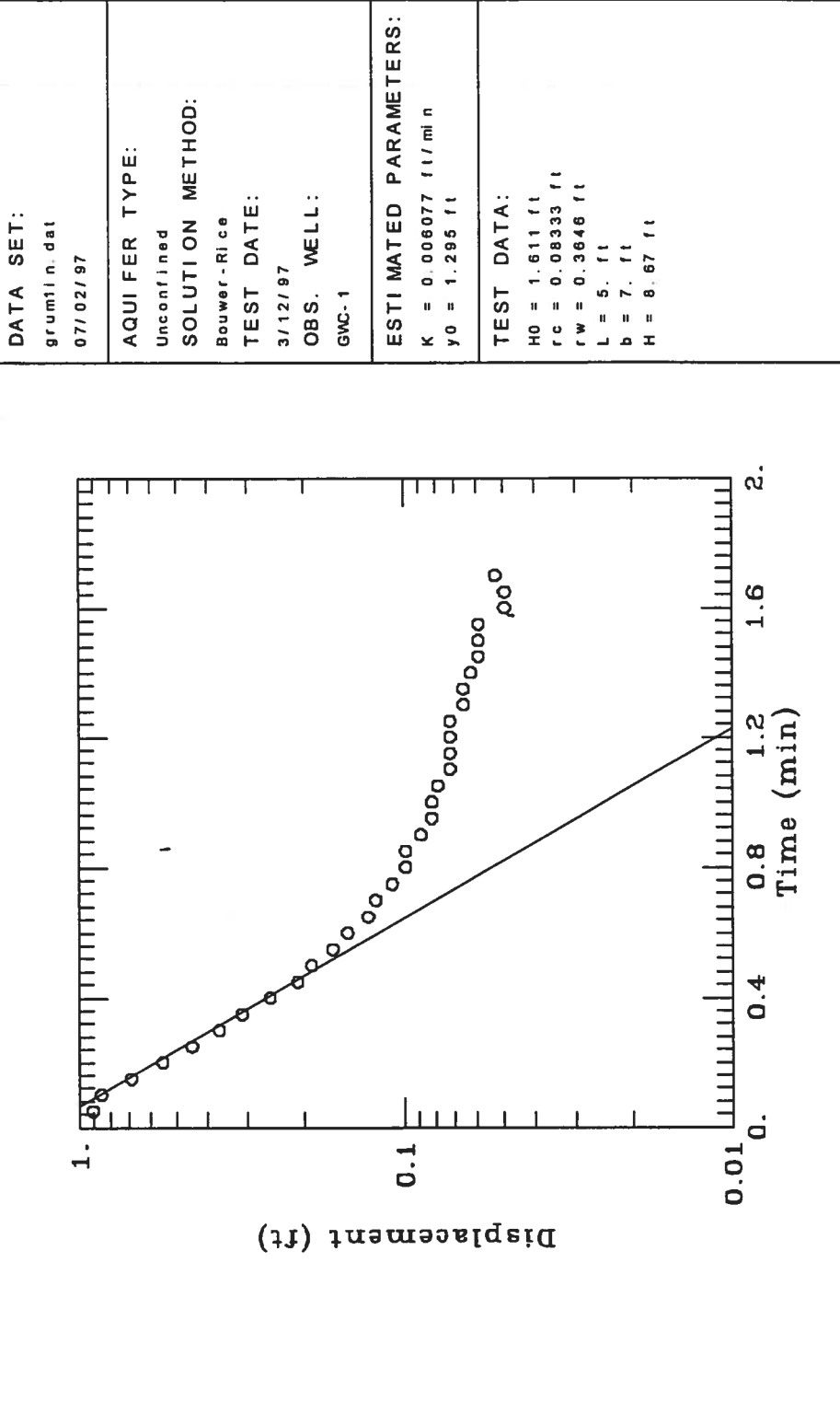
**APPENDIX B**  
**Hydraulic Conductivity Testing Results**

Southern Company Services

Client: Savannah Electric & Power

Location: Grumman Road Monofill

### Grumman Road GWC-1 Slug In



DATA SET:  
grum11 n. dat  
07/02/97

AQUIFER TYPE:  
Unconfined  
SOLUTION METHOD:  
Bouwer-Rice  
TEST DATE:  
3/12/97  
OBS. WELL:  
GWC-1

ESTIMATED PARAMETERS:  
K = 0.006077 ft/min  
y0 = 1.295 ft

TEST DATA:  
H0 = 1.611 ft  
rc = 0.08333 ft  
rw = 0.3646 ft  
L = 5. ft  
b = 7. ft  
H = 8.67 ft

Southern Company Services

Client: Savannah Electric & Power

Location: Grumman Road Monofill

### Grumman Road GWC-1 Slug Out

DATA SET:  
grumfou1.dat  
07/02/97

AQUIFER TYPE:

Unconfined

SOLUTION METHOD:

Bouwer-Rice

TEST DATE:

03/12/97

OBS. WELL:

GWC-1

ESTIMATED PARAMETERS:

K = 0.008349 ft/min

y0 = 1.314 ft

TEST DATA:

H0 = 1.44 ft

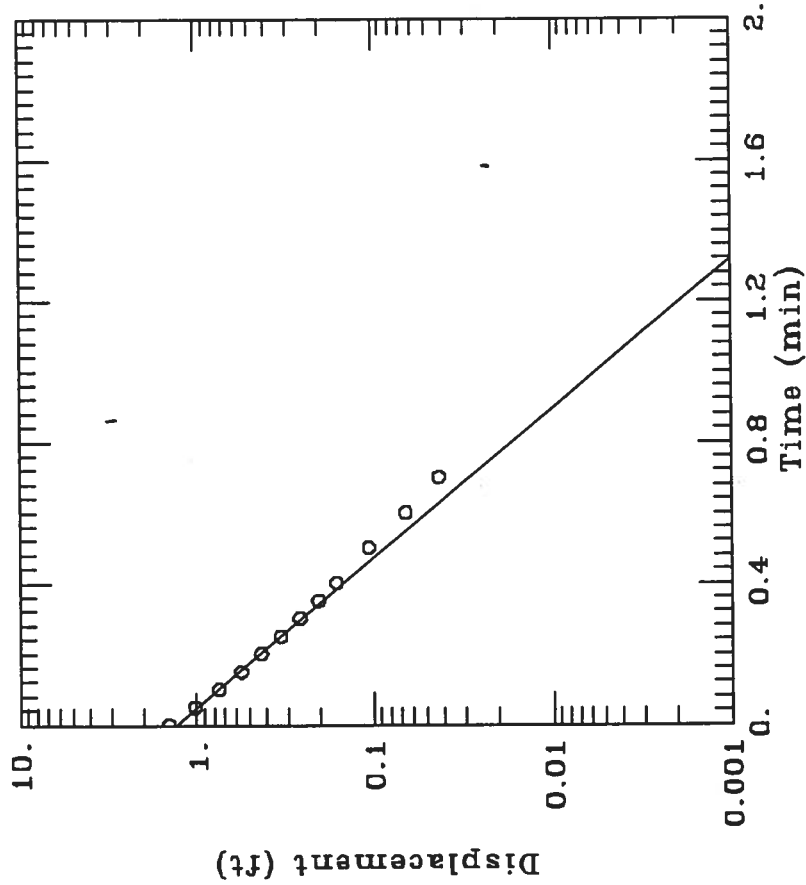
rc = 0.08333 ft

rw = 0.3848 ft

L = 5. ft

b = 7. ft

H = 8.67 ft

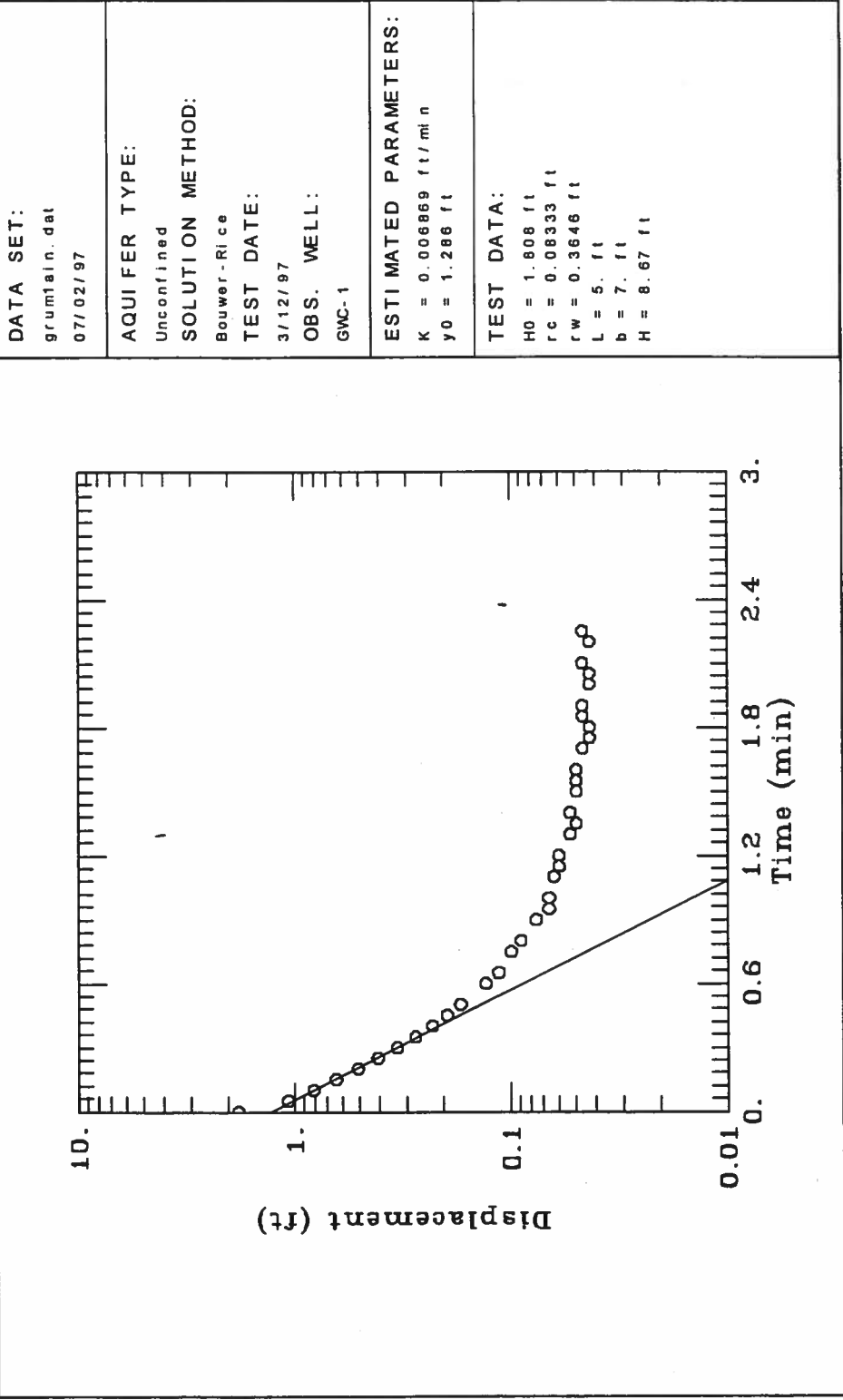


Southern Company Services

Client: Savannah Electric & Power

Location: Grumman Road Monofill

### Grumman Road GWC-1 Slug In



DATA SET:  
grumtain.dat  
07/02/97

AQUIFER TYPE:  
Unconfined

SOLUTION METHOD:  
Bouwer-Rice

TEST DATE:  
3/12/97

OBS. WELL:  
GWC-1

ESTIMATED PARAMETERS:  
K = 0.006869 ft/min  
y0 = 1.286 ft

TEST DATA:  
H0 = 1.808 ft  
rc = 0.08333 ft  
rw = 0.3648 ft  
L = 5. ft  
b = 7. ft  
H = 8.67 ft



Southern Company Services

Client: Savannah Electric & Power

Location: Grumman Road Monofill

### Grumman Road GWC-1 Slug Out

DATA SET:  
grumtaol.dat  
07/02/97

AQUIFER TYPE:  
Unconfined

SOLUTION METHOD:  
Bouwer-Rice

TEST DATE:  
3/12/97

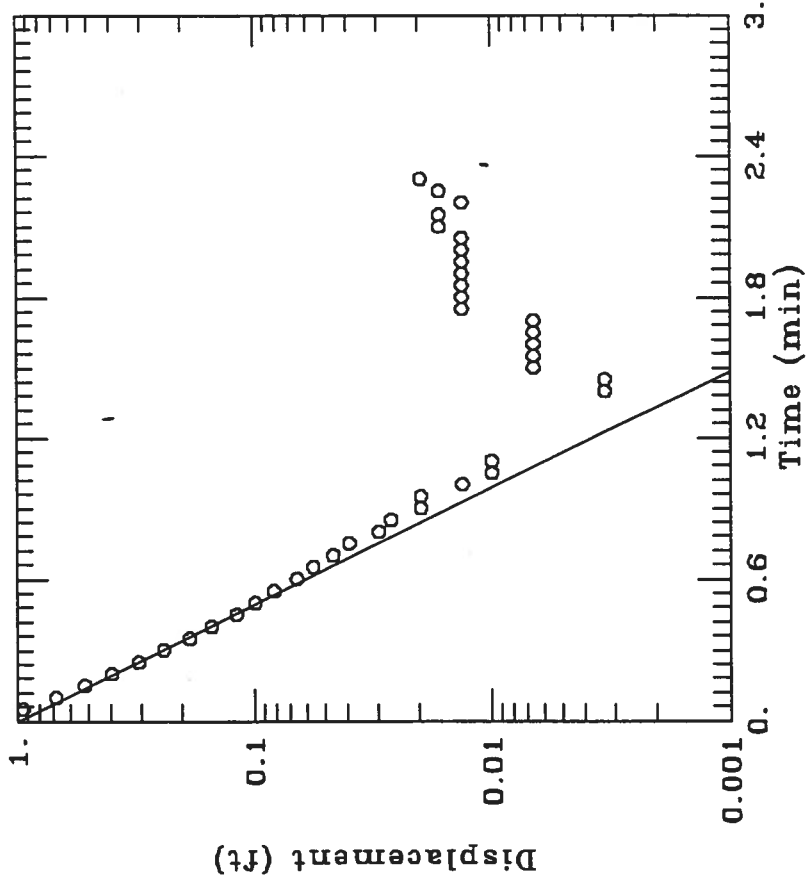
OBS. WELL:  
GWC-1

ESTIMATED PARAMETERS:

$K = 0.007139 \text{ ft/min}$   
 $y_0 = 0.9871 \text{ ft}$

TEST DATA:

$H_0 = 1.339 \text{ ft}$   
 $rc = 0.08333 \text{ ft}$   
 $rw = 0.3846 \text{ ft}$   
 $L = 5. \text{ ft}$   
 $b = 7. \text{ ft}$   
 $H = 8.67 \text{ ft}$



Southern Company Services

Client: Savannah Electric & Power

Location: Grumman Road Monofill

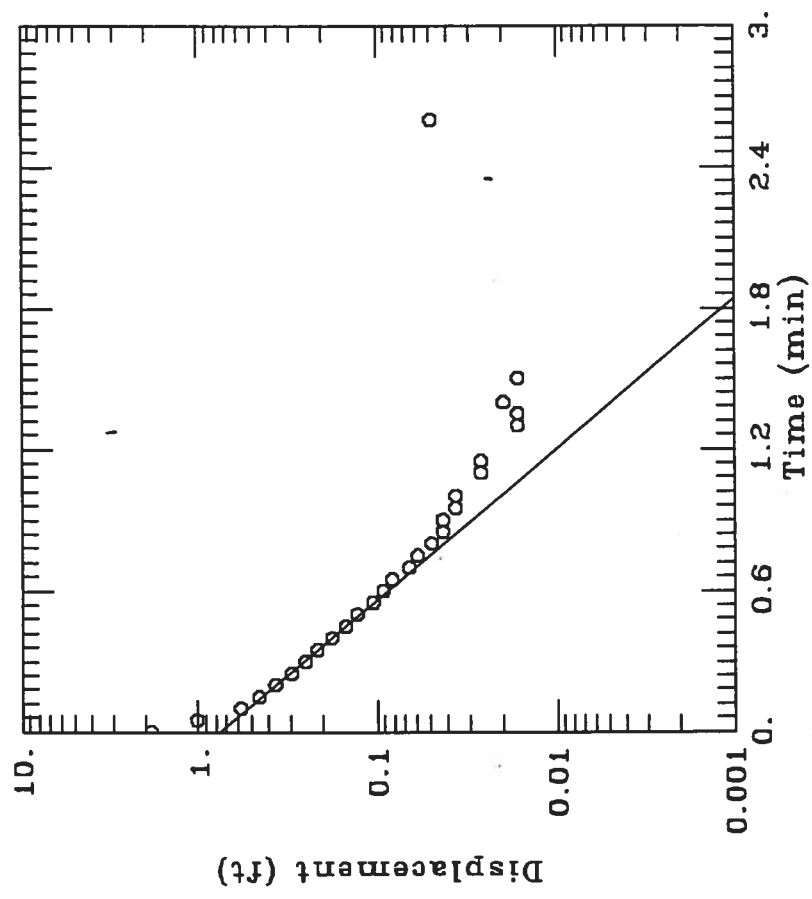
### Grumman Road GWC-2 Slug In

DATA SET:  
grum2sln.dat  
07/02/97

AQUIFER TYPE:  
Unconfined  
SOLUTION METHOD:  
Bouwer-Rice  
TEST DATE:  
3/12/97  
OBS. WELL:  
GWC-2

ESTIMATED PARAMETERS:  
K = 0.005861 ft/mln  
y0 = 0.753 ft

TEST DATA:  
H0 = 1.857 ft  
rc = 0.08333 ft  
rw = 0.3646 ft  
L = 5. ft  
b = 6. ft  
H = 11.3 ft



Southern Company Services      Client: Savannah Electric & Power  
 Location: Grumman Road Monofill

Grumman Road GWC-2 Slug Out

DATA SET:  
 grum2aot.dat  
 07/02/97

AQUIFER TYPE:  
 Unconfined

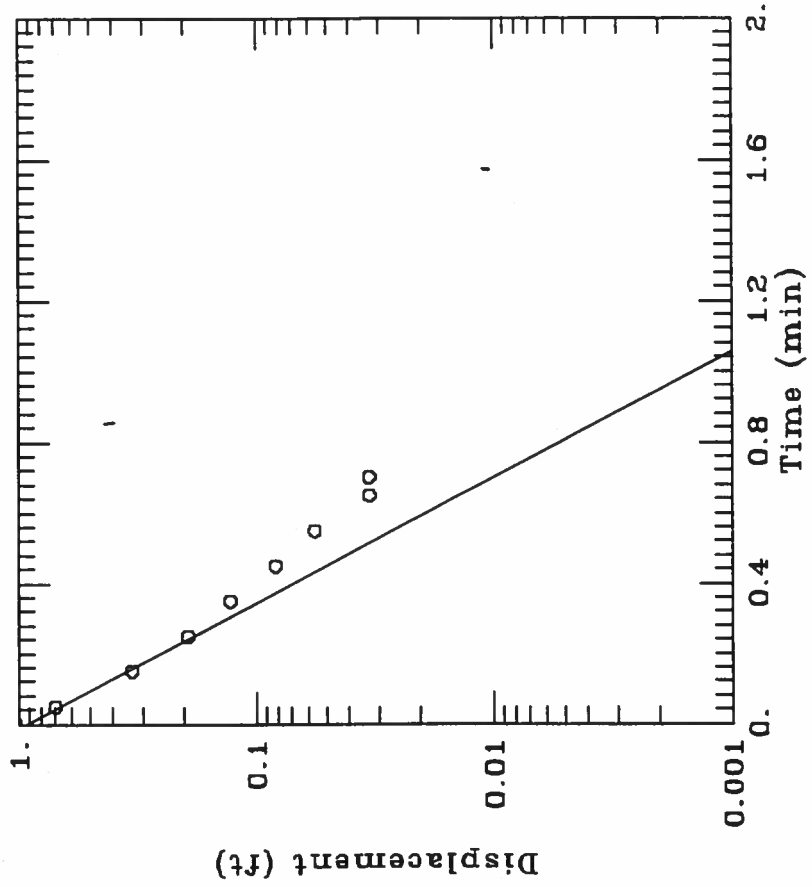
SOLUTION METHOD:  
 Bouwer-Rice

TEST DATE:  
 3/12/97

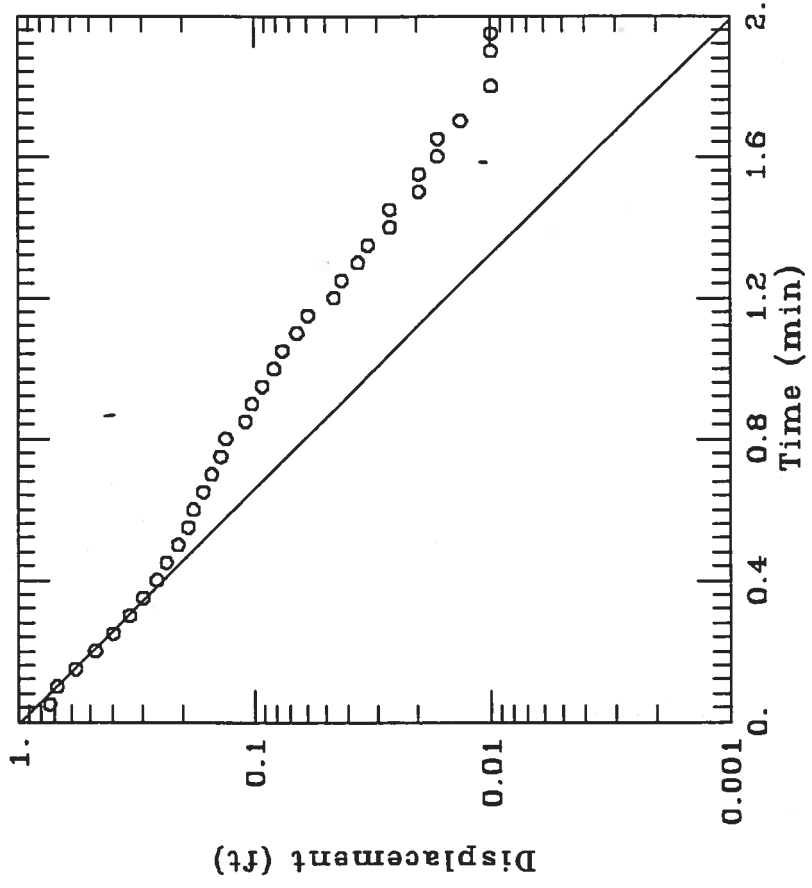
OBS. WELL:  
 GWC-2

ESTIMATED PARAMETERS:  
 $K = 0.01057 \text{ ft/min}$   
 $Y_0 = 0.9322 \text{ ft}$

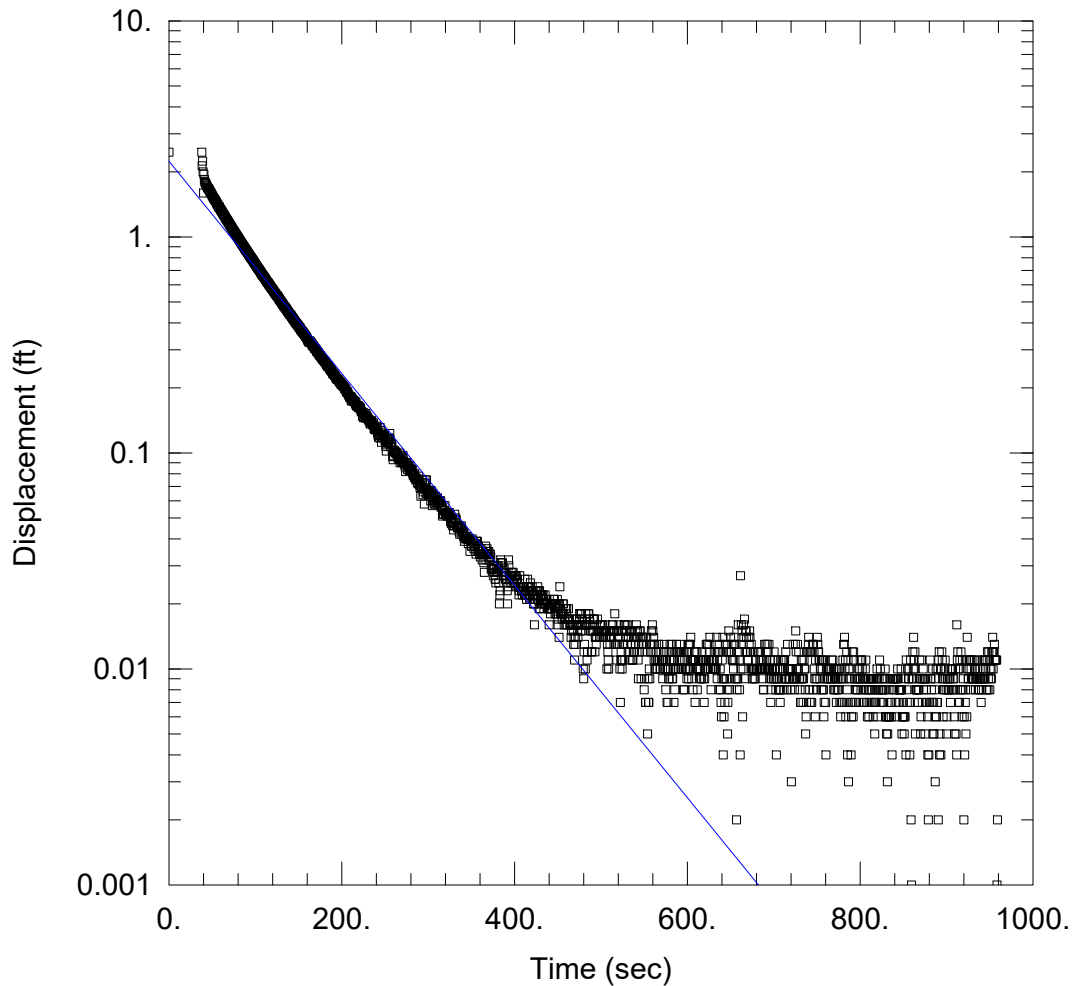
TEST DATA:  
 $H_0 = 1.03 \text{ ft}$   
 $rc = 0.08333 \text{ ft}$   
 $rw = 0.3646 \text{ ft}$   
 $L = 5. \text{ ft}$   
 $b = 6. \text{ ft}$   
 $H = 11.3 \text{ ft}$



Southern Company Services	Client: Savannah Electric & Power Location: Grumman Road Monofill
Grumman Road GWC-2 Slug In	
DATA SET: grum2i n. dat 07/02/97	AQUIFER TYPE: Unconfined SOLUTION METHOD: Bouwer-Rice TEST DATE: 3/12/97 OBS. WELL: GWC-2
ESTIMATED PARAMETERS: $K = 0.005629 \text{ ft/min}$ $\gamma_0 = 0.9661 \text{ ft}$	TEST DATA: $H_0 = 1.45 \text{ ft}$ $r_c = 0.08333 \text{ ft}$ $r_w = 0.3646 \text{ ft}$ $L = 5. \text{ ft}$ $b = 6. \text{ ft}$ $H = 11.3 \text{ ft}$







### WELL TEST ANALYSIS

Data Set: P:\...\GWB-4R-IN-2.aqt  
 Date: 05/12/21

Time: 16:29:20

### PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWB-4R  
 Test Date: 5/7/2021

### AQUIFER DATA

Saturated Thickness: 12.36 ft

Anisotropy Ratio ( $K_z/K_r$ ): 1.

### WELL DATA (GWB-4R)

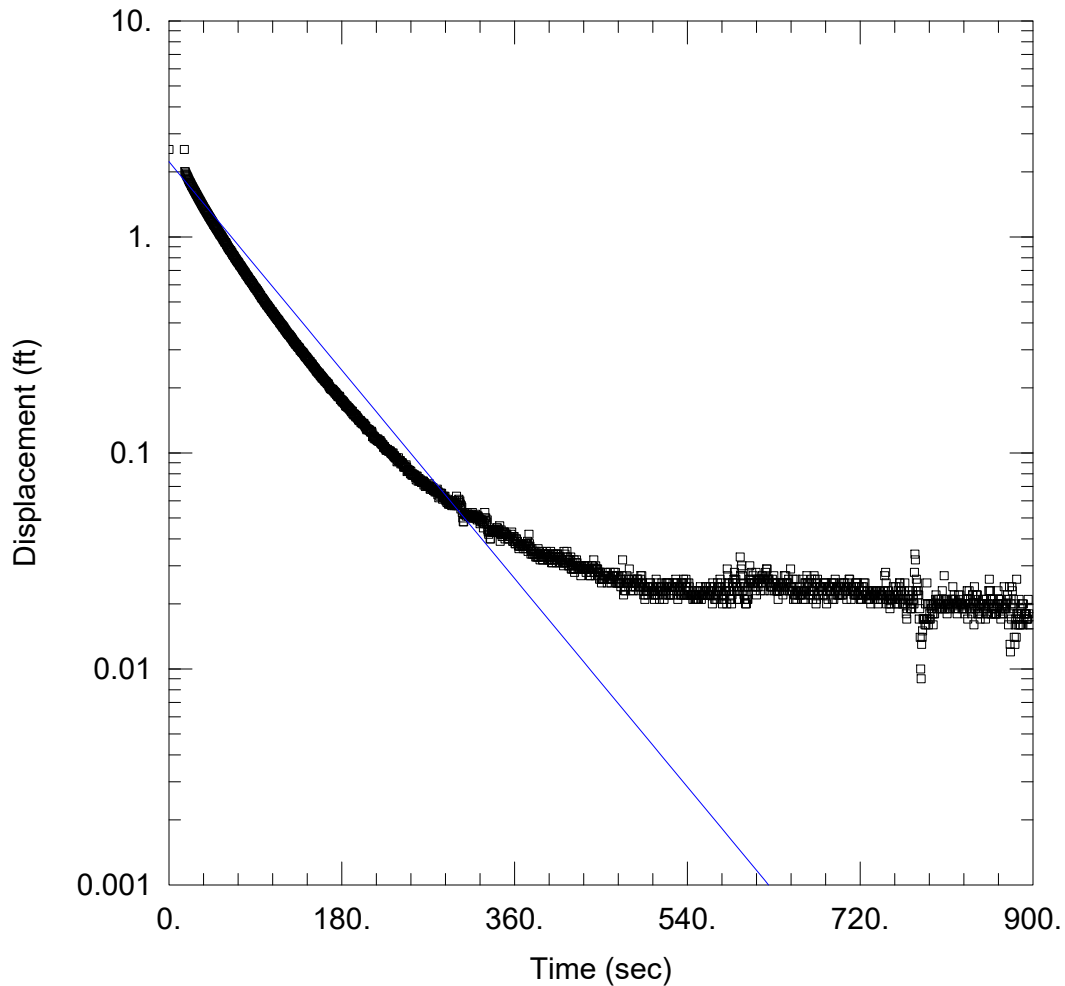
Initial Displacement: 2.468 ft  
 Total Well Penetration Depth: 12.36 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 12.36 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

### SOLUTION

Aquifer Model: Unconfined  
 $K = 0.003202$  cm/sec

Solution Method: Bower-Rice  
 $y_0 = 2.24$  ft



WELL TEST ANALYSIS

Data Set: P:\...\GWB-4R-OUT-2.aqt  
 Date: 05/12/21

Time: 16:28:37

PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWB-4R  
 Test Date: 5/7/2021

AQUIFER DATA

Saturated Thickness: 12.35 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GWB-4R)

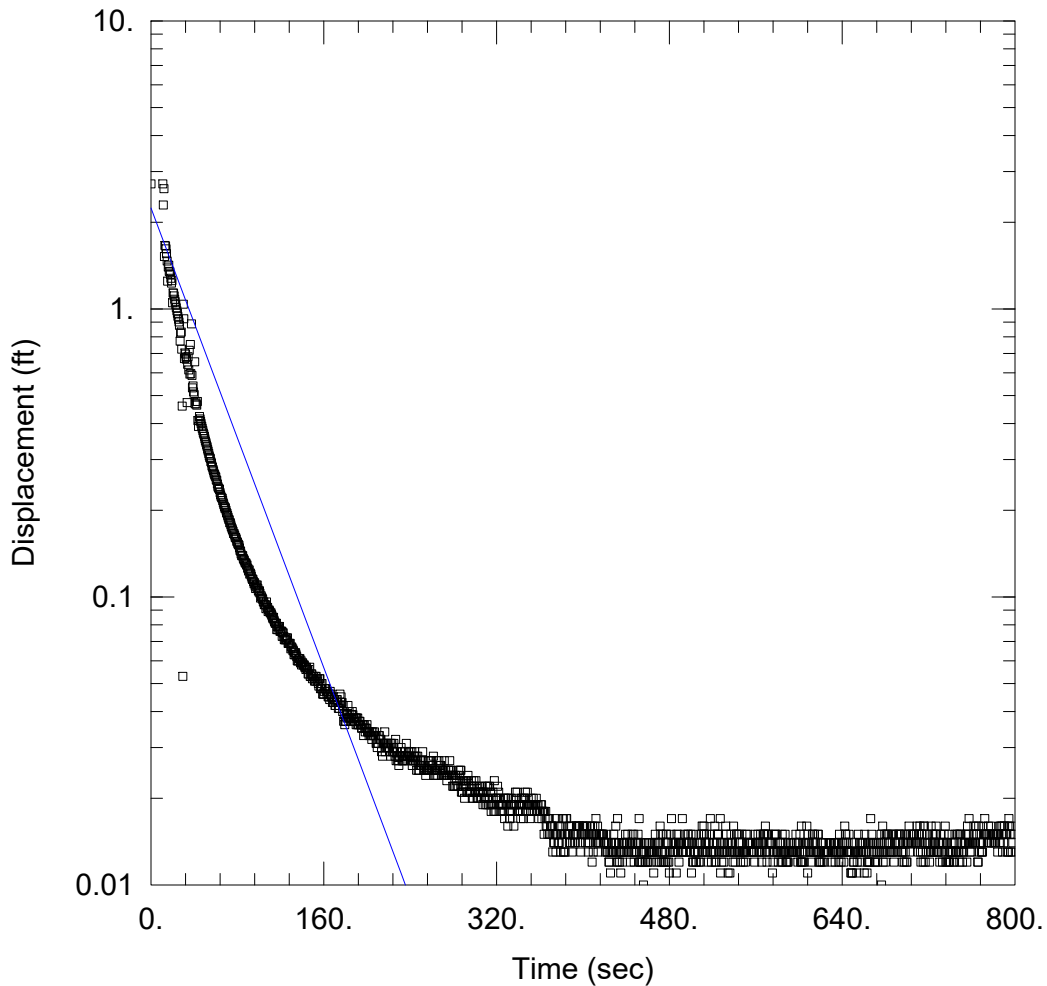
Initial Displacement: 2.541 ft  
 Total Well Penetration Depth: 12.35 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 12.35 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined  
 K = 0.003494 cm/sec

Solution Method: Bower-Rice  
 y0 = 2.23 ft



WELL TEST ANALYSIS

Data Set: P:\...\GWB-6R-IN.aqt  
 Date: 05/12/21

Time: 16:27:50

PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWB-6R  
 Test Date: 5/7/2021

AQUIFER DATA

Saturated Thickness: 16.7 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GWB-6R)

Initial Displacement: 2.718 ft  
 Total Well Penetration Depth: 16.7 ft  
 Casing Radius: 0.08333 ft

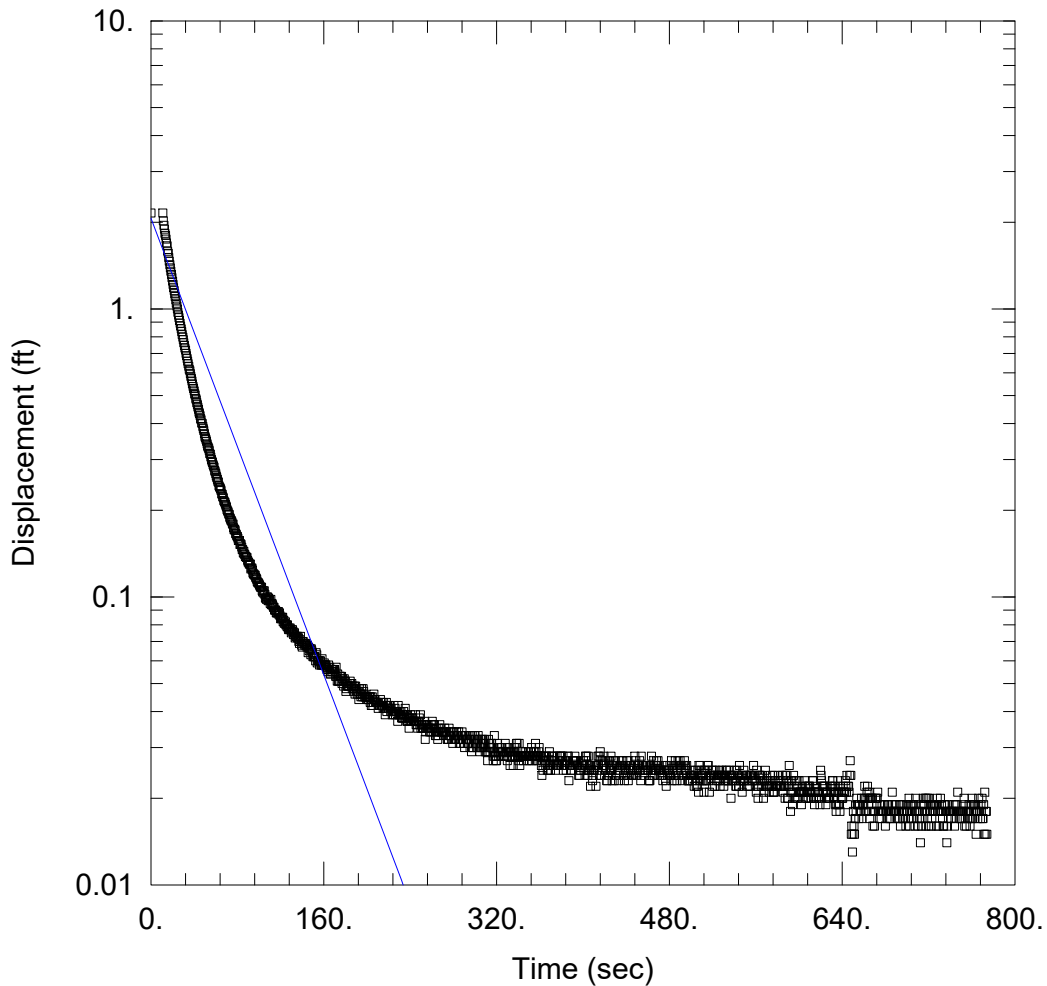
Static Water Column Height: 16.7 ft  
 Screen Length: 10. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined  
 K = 0.00379 cm/sec

Solution Method: Bower-Rice  
 y0 = 2.239 ft





### WELL TEST ANALYSIS

Data Set: P:\...\GWB-6R-OUT.aqt  
 Date: 05/12/21

Time: 16:27:18

### PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWB-6R  
 Test Date: 5/6/2021

### AQUIFER DATA

Saturated Thickness: 16.71 ft

Anisotropy Ratio (Kz/Kr): 1.

### WELL DATA (GWB-6R)

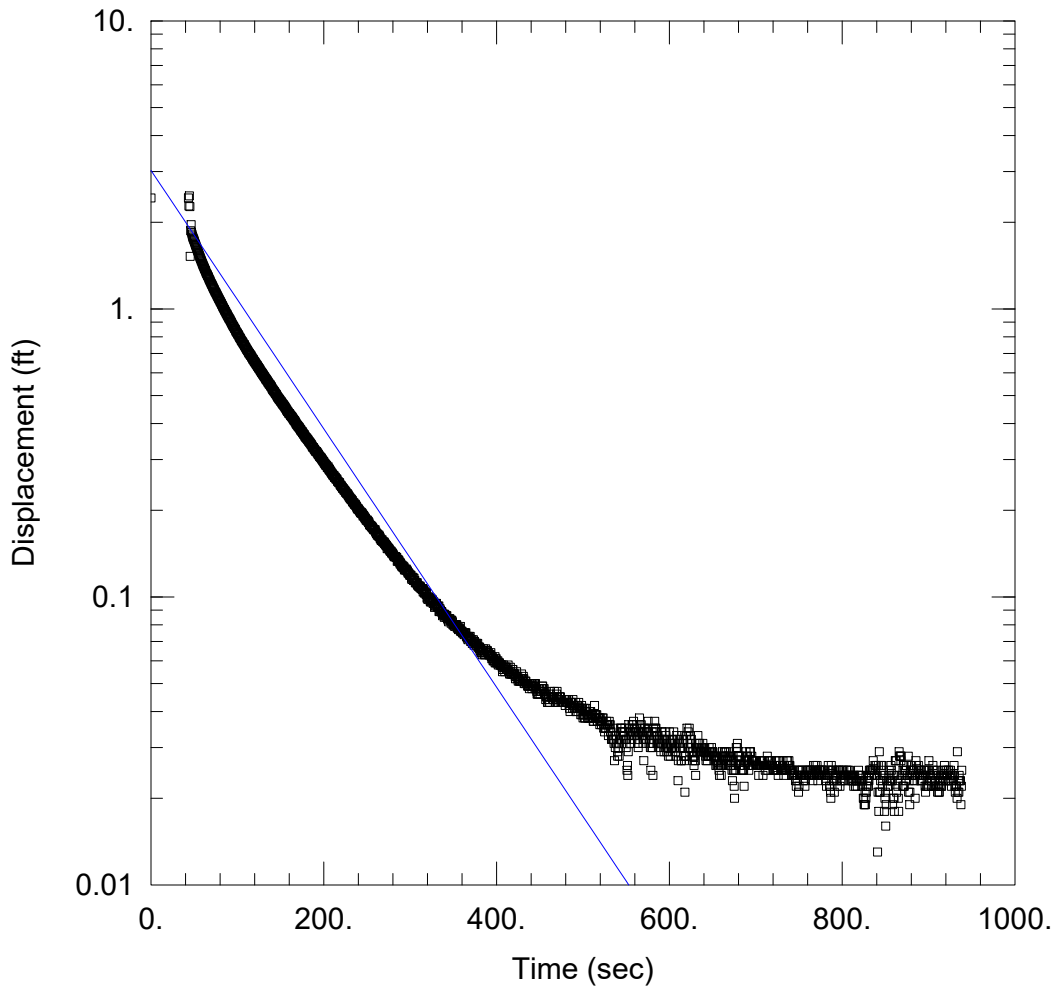
Initial Displacement: 2.152 ft  
 Total Well Penetration Depth: 16.71 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 16.71 ft  
 Screen Length: 10. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

### SOLUTION

Aquifer Model: Unconfined  
 K = 0.003765 cm/sec

Solution Method: Bower-Rice  
 y0 = 2.063 ft



### WELL TEST ANALYSIS

Data Set: P:\...\GWC-13-IN.aqt  
 Date: 05/12/21

Time: 16:26:44

### PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-13  
 Test Date: 5/7/2021

### AQUIFER DATA

Saturated Thickness: 11.43 ft

Anisotropy Ratio (Kz/Kr): 1.

### WELL DATA (GWC-13)

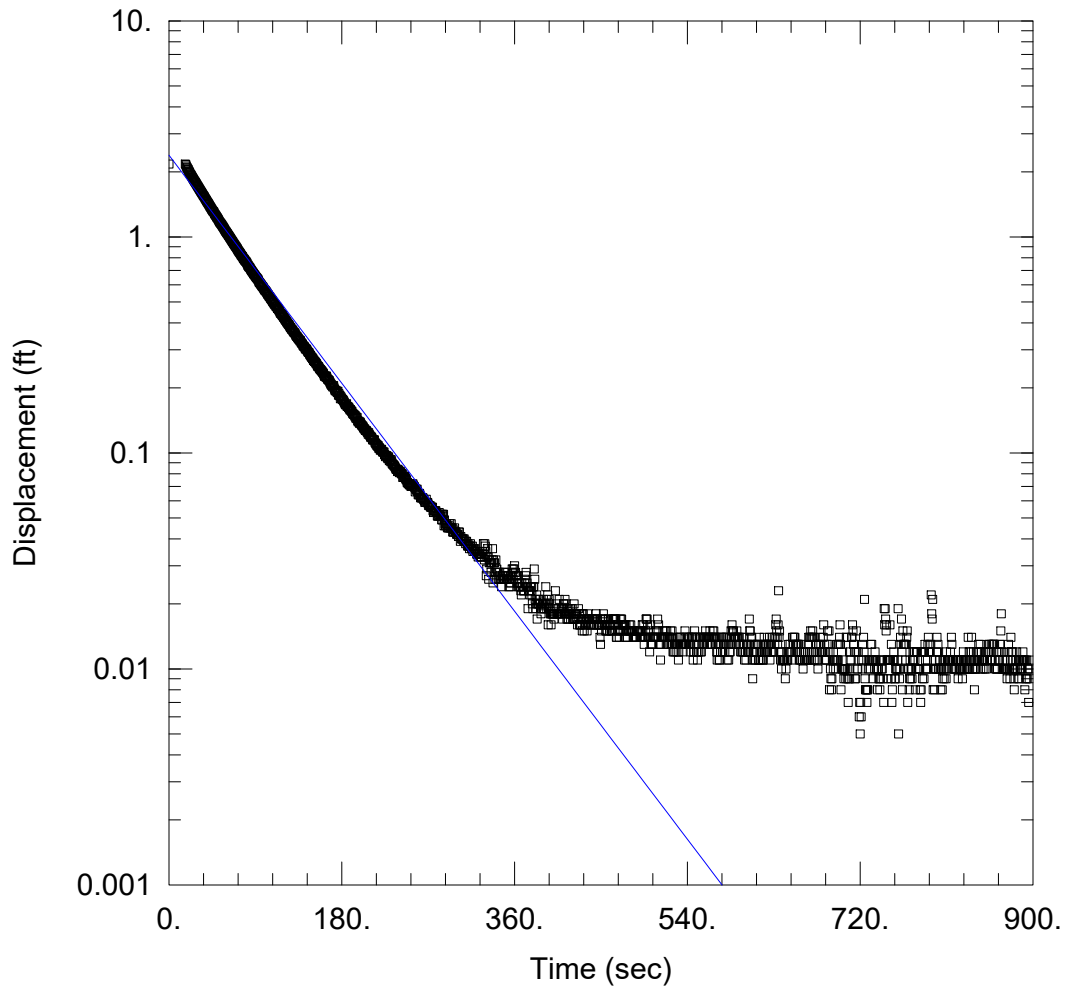
Initial Displacement: 2.429 ft  
 Total Well Penetration Depth: 11.43 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 11.43 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

### SOLUTION

Aquifer Model: Unconfined  
 K = 0.002877 cm/sec

Solution Method: Bower-Rice  
 y0 = 3.027 ft



WELL TEST ANALYSIS

Data Set: P:\...\GWC-13-OUT.aqt  
 Date: 05/12/21

Time: 16:25:24

PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-13  
 Test Date: 5/7/2021

AQUIFER DATA

Saturated Thickness: 11.41 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GWC-13)

Initial Displacement: 2.175 ft  
 Total Well Penetration Depth: 11.41 ft  
 Casing Radius: 0.08333 ft

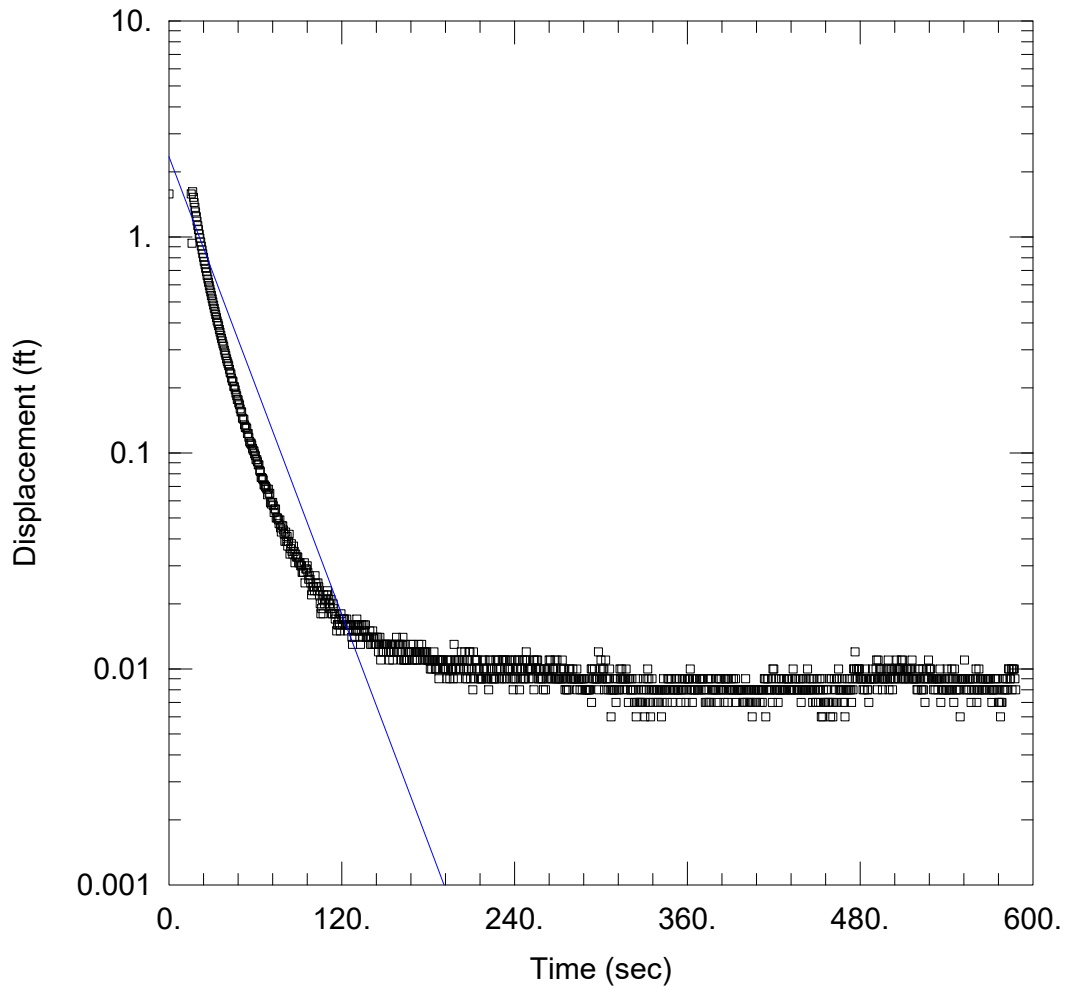
Static Water Column Height: 11.41 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined  
 K = 0.003759 cm/sec

Solution Method: Bower-Rice  
 y0 = 2.388 ft





WELL TEST ANALYSIS

Data Set: P:\...\GWC-15-IN.aqt  
 Date: 05/12/21

Time: 16:24:44

PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-15  
 Test Date: 5/6/2021

AQUIFER DATA

Saturated Thickness: 7.89 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GWC-15)

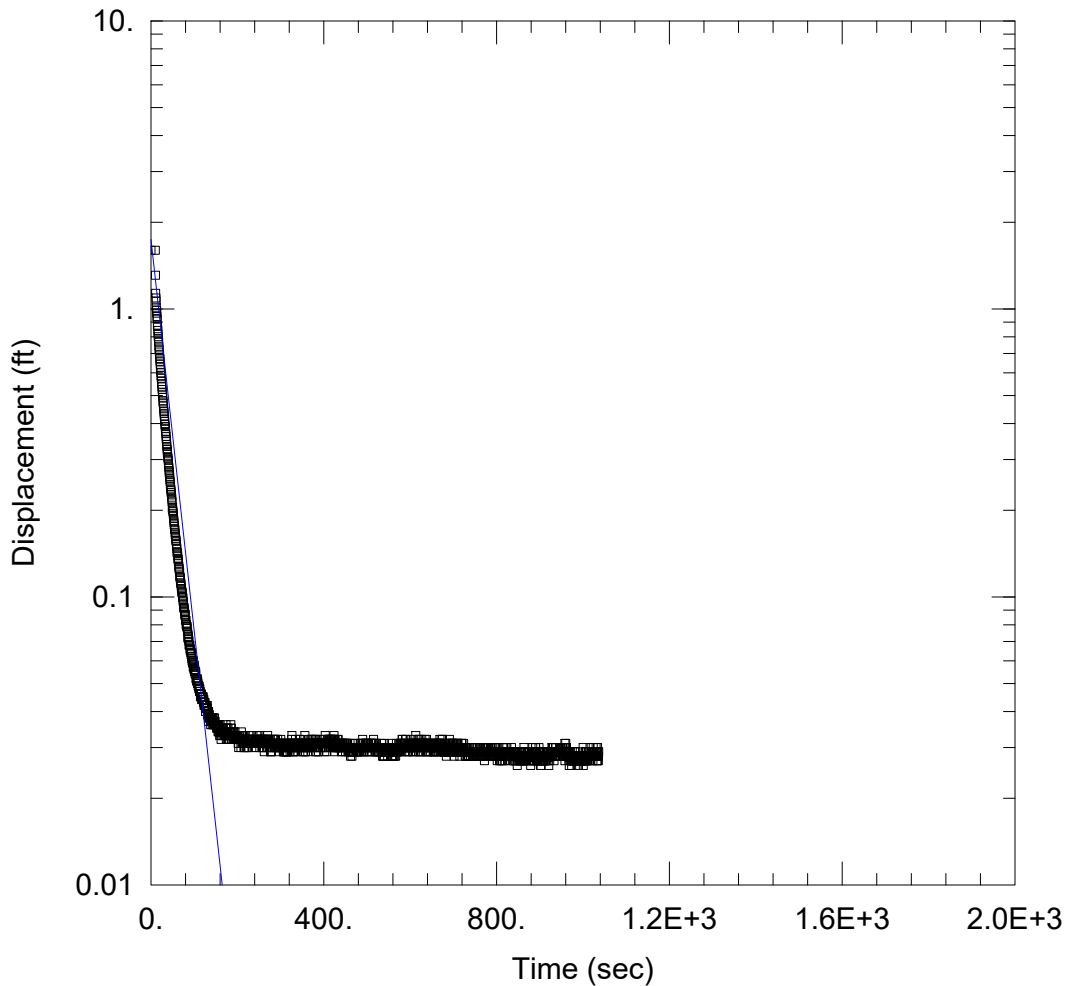
Initial Displacement: 1.58 ft  
 Total Well Penetration Depth: 7.89 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 7.89 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined  
 K = 0.0104 cm/sec

Solution Method: Bower-Rice  
 y0 = 2.352 ft



### WELL TEST ANALYSIS

Data Set: P:\...\GWC-15-OUT.aqt  
 Date: 05/12/21

Time: 16:23:55

### PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-15  
 Test Date: 5/6/2021

### AQUIFER DATA

Saturated Thickness: 7.89 ft

Anisotropy Ratio (Kz/Kr): 1.

### WELL DATA (GWC-15)

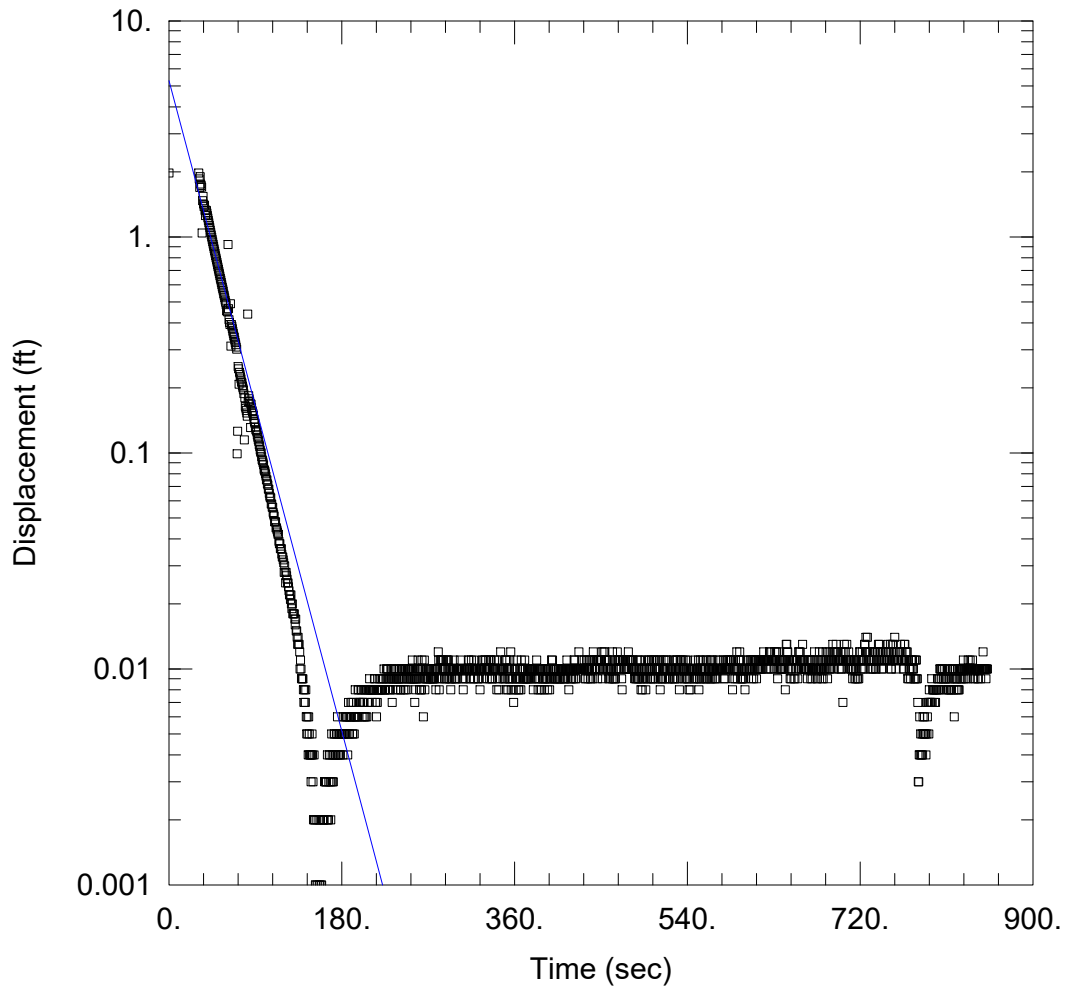
Initial Displacement: 1.598 ft  
 Total Well Penetration Depth: 7.89 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 7.89 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

### SOLUTION

Aquifer Model: Unconfined  
 K = 0.008006 cm/sec

Solution Method: Bouwer-Rice  
 y0 = 1.742 ft



### WELL TEST ANALYSIS

Data Set: P:\...\GWC-16-IN.aqt  
 Date: 05/12/21

Time: 16:23:07

### PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-16  
 Test Date: 5/6/2021

### AQUIFER DATA

Saturated Thickness: 7.87 ft

Anisotropy Ratio (Kz/Kr): 1.

### WELL DATA (GWC-16)

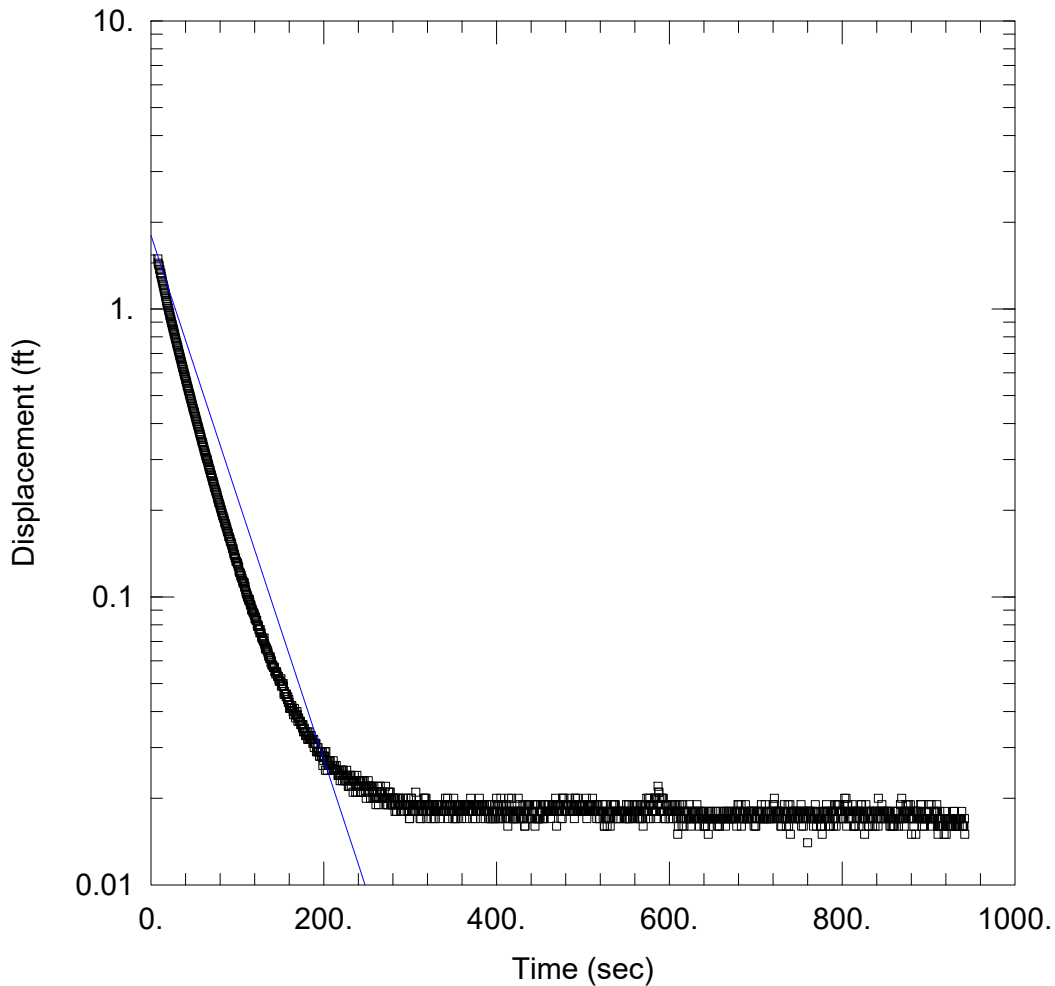
Initial Displacement: 1.976 ft  
 Total Well Penetration Depth: 7.87 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 7.87 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

### SOLUTION

Aquifer Model: Unconfined  
 K = 0.009851 cm/sec

Solution Method: Bower-Rice  
 y0 = 5.292 ft



WELL TEST ANALYSIS

Data Set: P:\...\GWC-16-OUT.aqt  
 Date: 05/12/21

Time: 16:21:28

PROJECT INFORMATION

Company: Atlantic Coast Consulting  
 Client: Georgia Power  
 Project: I054-110  
 Location: Grumman Road  
 Test Well: GWC-16  
 Test Date: 5/6/2021

AQUIFER DATA

Saturated Thickness: 7.87 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GWC-16)

Initial Displacement: 1.491 ft  
 Total Well Penetration Depth: 7.87 ft  
 Casing Radius: 0.08333 ft

Static Water Column Height: 7.87 ft  
 Screen Length: 5. ft  
 Well Radius: 0.33 ft  
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined  
 K = 0.005357 cm/sec

Solution Method: Bower-Rice  
 y0 = 1.8 ft





**TIMELY  
ENGINEERING  
SOIL  
TESTS, LLC**

1874 Forge Street Tucker, GA 30084  
Phone: 770-938-8233  
Fax: 770-923-8973  
Web: [www.test-llc.com](http://www.test-llc.com)



Tested By: EB  
Date: 01/15/21  
Checked By: *EB*

Client Pr. #	-
Pr. Name	Grumman Road Landfill
Sample ID	37027MW26D
Location	MW-26D

Lab. PR. #	2108-04-1
S. Type	UD
Depth/Elev.	24-26'
Add. Info	-

**ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous  
Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)**

Initial Sample Data (Before Test)				Test Data				Final Data (After Test)			
Height	3.113 in	7.91 cm	Speed	12	Average Height of Sample	2.821 in	7.17 cm	Dry Density	96.9 pcf		
Diameter	2.865 in	7.28 cm	Board Number	3	Average Diameter of Sample	2.871 in	7.29 cm	Vol. of Voids	127.10 cm <sup>3</sup>		
Area	6.45 in <sup>2</sup>	41.59 cm <sup>2</sup>	Cell Number	54	Area	6.47 in <sup>2</sup>	41.77 cm <sup>2</sup>	Vol. of Solids	172.17 cm <sup>3</sup>		
Volume	328.87 cm <sup>3</sup>	0.0116 ft <sup>3</sup>	Flow Pump Number	4B	Volume	299.27 cm <sup>3</sup>	0.0106 ft <sup>3</sup>	Void Ratio	0.74		
Mass	606.70 g	1.34 lb	Flow Pump Rate*	5.60E-05 cm <sup>3</sup> /sec	Mass	597.30 g	1.32 lb	Saturation	104.2 %		
Specific Gravity	2.700 (Assumed)		B - Value	0.95	<b>Moisture Content</b>						
Dry Density	88.2 pcf		Cell Pressure	85.0 psi	Mass of wet sample & tare	678.40 g					
<b>Moisture Content</b>				Back Pressure	80.0 psi	Mass of dry sample & tare	546.00 g				
Mass of wet sample & tare	606.70 g		Confining (Effective) Pressure	5.0 psi	Mass of tare	81.30 g					
Mass of dry sample & tare	464.70 g		Max Head	48.53 cm	% Moisture	28.5					
Mass of tare	0.00 g		Min Head	47.83 cm							
% Moisture	30.6		Maximum Gradient	6.77							
			Minimum Gradient	6.68							

TIME FUNCTION			Δ t (sec)	READING DP, (psi)	Head (cm)	Gradient	Temp. T <sub>x</sub> (°C)	PERMEABILITY (cm/sec)		
DATE	HOUR	MIN						@ T <sub>x</sub>	R <sub>T</sub>	@ 20 °C
01/15/21	8	5	-	0.69	48.53	6.77	18.5	-	-	-
01/15/21	8	10	300	0.68	47.83	6.68	18.5	1.99E-07	1.038	2.07E-07
01/15/21	8	15	300	0.69	48.53	6.77	18.5	1.99E-07	1.038	2.07E-07
01/15/21	8	20	300	0.68	47.83	6.68	18.5	1.99E-07	1.038	2.07E-07
01/15/21	8	25	300	0.69	48.53	6.77	18.5	1.99E-07	1.038	2.07E-07
01/15/21	8	30	300	0.68	47.83	6.68	18.5	1.99E-07	1.038	2.07E-07
01/15/21	8	35	300	0.69	48.53	6.77	18.5	1.99E-07	1.038	2.07E-07

Note: Deaired Water Used for Permeability Test.

DESCRIPTION	USCS
Gray Clayey Sand	(ASTM D2487;2488)
	SC

REMARKS

Reported Average Hydraulic Conductivity*				2.1E-07	cm/sec
Flow pump ID #	1043	Balance ID #	142/598	Differential Pressure Meter ID #	1045/1049
Thermometer ID #	409/985	Oven ID #	495/758	Board Pressure Meter ID #	1041
Syringe ID #	1046			Pore Pressure Meter ID #	26/27

\*Constant Rate of Flow System (Flow Pump with Calibrated Syringe for Inflow and Calibrated Graduated Pipette for outflow) is capable to maintain a constant rate of inflow & outflow through the fully saturated sample with accuracy +/-5%. Flow Pump Rate issued for calculations of HC (ASTM STP 977) results at steady Differential Pressure (DP) Readings at the range of +/-5%. Permeation was stopped after HC versus Time (see table above) showed no significant upward or downward trend.



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Web: [www.test-llc.com](http://www.test-llc.com)



Tested By: EB  
Date: 01/15/21  
Checked By: *EB*

Client Pr. #	-
Pr. Name	Grumman Road Landfill
Sample ID	37028MW26D
Location	MW-26D

Lab. PR. #	2108-04-1
S. Type	UD
Depth/Elev.	50-52'
Add. Info	-

**ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)**

Initial Sample Data (Before Test)				Test Data				Final Data (After Test)			
Height	3.029 in	7.69 cm	Speed	12	Average Height of Sample	3.019 in	7.67 cm				
Diameter	2.854 in	7.25 cm	Board Number	11	Average Diameter of Sample	2.838 in	7.21 cm				
Area	6.40 in <sup>2</sup>	41.27 cm <sup>2</sup>	Cell Number	9	Area	6.33 in <sup>2</sup>	40.81 cm <sup>2</sup>				
Volume	317.54 cm <sup>3</sup>	0.0112 ft <sup>3</sup>	Flow Pump Number	4A	Volume	312.95 cm <sup>3</sup>	0.0111 ft <sup>3</sup>				
Mass	573.80 g	1.27 lb	Flow Pump Rate*	5.60E-05 cm <sup>3</sup> /sec	Mass	571.10 g	1.26 lb				
Specific Gravity	2.700 (Assumed)		B - Value	0.95	Dry Density		82.3 pcf				
Dry Density	81.1 pcf		Cell Pressure	95.0 psi	Vol. of Voids		160.11 cm <sup>3</sup>				
			Back Pressure	80.0 psi	Vol. of Solids		152.84 cm <sup>3</sup>				
			Confining (Effective) Pressure	15.0 psi	Void Ratio		1.05				
			Max Head	30.25 cm	Saturation		98.9 %				
			Min Head	29.54 cm							
			Maximum Gradient	3.94							
			Minimum Gradient	3.85							

Moisture Content		
Mass of wet sample & tare	573.80 g	
Mass of dry sample & tare	412.60 g	
Mass of tare	0.00 g	
% Moisture	39.1	

Moisture Content		
Mass of wet sample & tare	638.00 g	
Mass of dry sample & tare	479.60 g	
Mass of tare	67.00 g	
% Moisture	38.4	

TIME FUNCTION			Δ t (sec)	READING DP, (psi)	Head (cm)	Gradient	Temp. T <sub>x</sub> (°C)	PERMEABILITY (cm/sec)		
DATE	HOUR	MIN						@ T <sub>x</sub>	R <sub>T</sub>	@ 20 °C
01/15/21	8	5	-	0.43	30.25	3.94	18.5	-	-	-
01/15/21	8	10	300	0.42	29.54	3.85	18.5	3.52E-07	1.038	3.65E-07
01/15/21	8	15	300	0.43	30.25	3.94	18.5	3.52E-07	1.038	3.65E-07
01/15/21	8	20	300	0.42	29.54	3.85	18.5	3.52E-07	1.038	3.65E-07
01/15/21	8	25	300	0.43	30.25	3.94	18.5	3.52E-07	1.038	3.65E-07
01/15/21	8	30	300	0.42	29.54	3.85	18.5	3.52E-07	1.038	3.65E-07
01/15/21	8	35	300	0.43	30.25	3.94	18.5	3.52E-07	1.038	3.65E-07

Note: Deaired Water Used for Permeability Test.

DESCRIPTION	USCS
Gray Silty Sand	(ASTM D2487;2488)
	SM

REMARKS

Flow pump ID #	1043	Balance ID #	142/598	Differential Pressure Meter ID #	1044/1048
Thermometer ID #	409/985	Oven ID #	495/758	Board Pressure Meter ID #	776
Syringe ID #	1047			Pore Pressure Meter ID #	26/27

\*Constant Rate of Flow System (Flow Pump with Calibrated Syringe for Inflow and Calibrated Graduated Pipette for outflow) is capable to maintain a constant rate of inflow & outflow through the fully saturated sample with accuracy +/-5%. Flow Pump Rate issued for calculations of HC (ASTM STP 977) results at steady Differential Pressure (DP) Readings at the range of +/-5%. Permeation was stopped after HC versus Time (see table above) showed no significant upward or downward trend.

**APPENDIX C**  
**2017 – 2022 Historical Potentiometric Maps and Water  
Level Data**





Summary of Groundwater Elevations  
Plant Kraft - Grumman Road Landfill  
April 2017 Sampling Event

Monitoring Well ID	Easting	Northing	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWC-1	960863.11	779575.92	28.2	50.66	18.64	32.02
GWC-2	960353.46	779433.71	31.4	49.32	15.67	33.65
GWC-3	960937.79	779372.24	22.9	49.77	20.15	29.62
GWC-4	960787.12	779981.81	26.4	49.04	14.35	34.69
GWC-5	960708.41	780302.10	26.7	48.51	10.07	38.44
GWC-6	960637.36	780582.98	22.7	48.28	7.59	40.69
GWA-7	960553.50	780890.03	21.2	47.28	5.98	41.30
GWA-8	960454.37	781167.74	20.8	47.71	8.07	39.64
GWC-9	959954.04	781009.34	27.4	47.18	8.38	38.80
GWC-10	960029.58	780705.70	20.6	47.39	8.10	39.29
GWC-11	960114.94	780354.78	22.6	49.38	11.52	37.86
GWC-12	960174.45	780101.21	26.7	47.44	11.73	35.71
GWC-13	960267.60	779739.94	23.8	47.78	13.02	34.76
GWC-14	960422.62	779114.58	27.0	50.67	18.88	31.79
GWC-15	960659.14	778950.24	26.8	48.08	18.90	29.18
GWC-16	960955.52	779036.32	28.2	47.78	20.23	27.55
GWC-17	960041.42	781421.98	23.2	44.14	5.84	38.30
GWC-20	960956.17	779293.88	25.0	49.31	20.77	28.54
GWC-21	960947.95	779030.32	23.8	47.09	20.68	26.41
GWC-22	960063.57	780712.08	18.6	46.39	7.45	38.94



**ACC**  
ATLANTIC COAST CONSULTING, INC.  
630 Colonial Park Dr.  
Suite 110  
Roswell, GA 30075  
o 770.594.5998  
www.atlcc.net

PROJECT:  
PLANT KRAFT GRUMMAN ROAD LANDFILL

120 GULFSTREAM ROAD  
FORT WENTWORTH, GEORGIA

REVISIONS

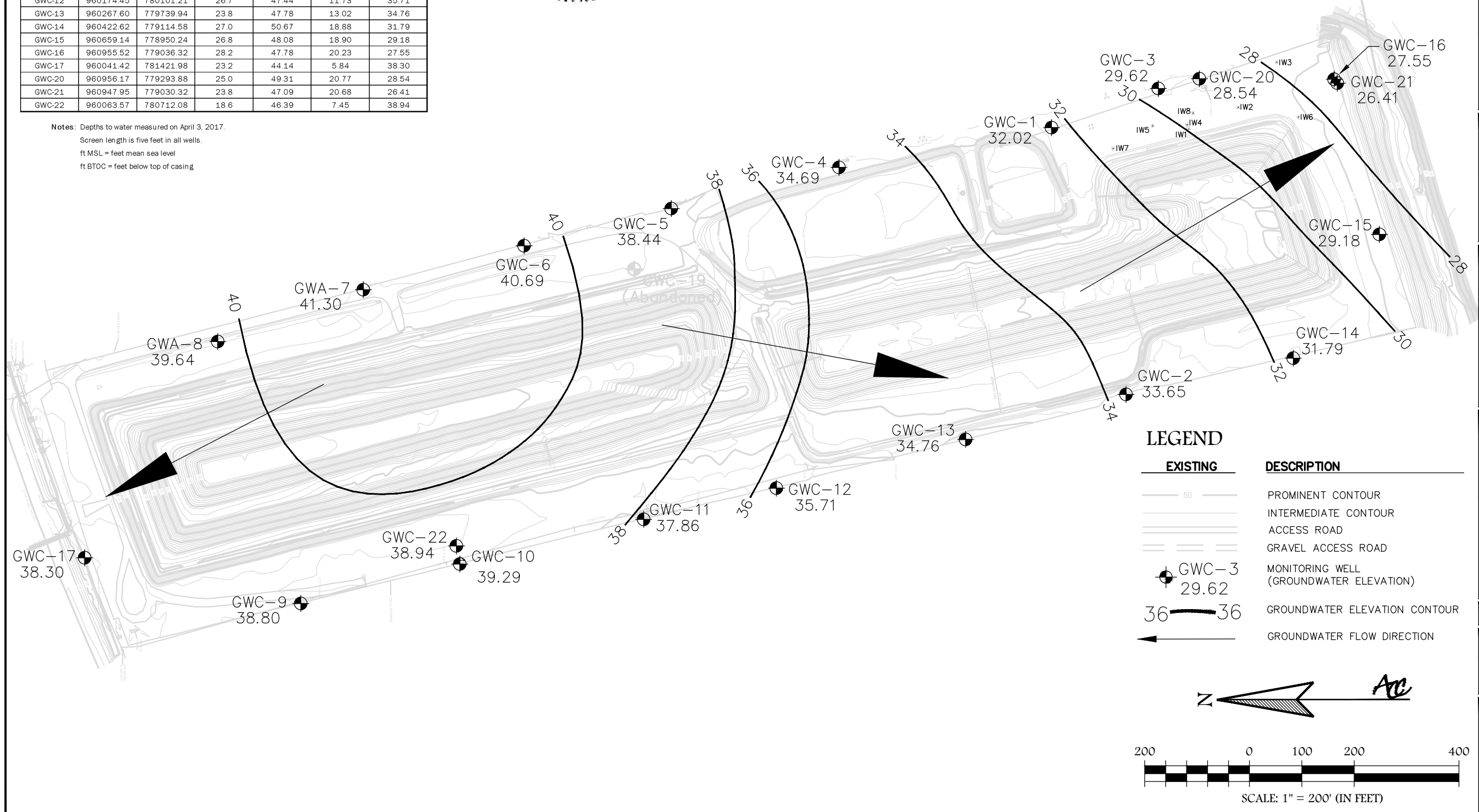
NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

PROJECT NUMBER:  
I054-103  
August 2017

APRIL 2017  
POTENTIOMETRIC SURFACE MAP

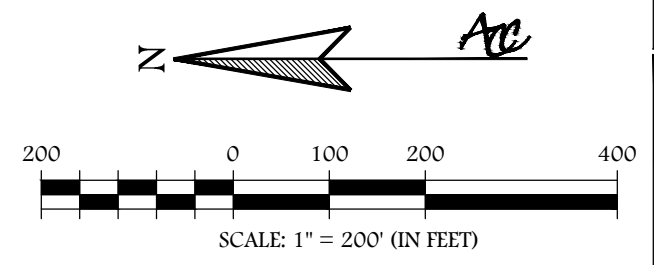
FIGURE C-2



Notes: Depths to water measured on April 3, 2017.  
Screen length is five feet in all wells.  
ft MSL = feet mean sea level  
ft BTOC = feet below top of casing

**LEGEND**

EXISTING	DESCRIPTION
— 50 —	PROMINENT CONTOUR
— — —	INTERMEDIATE CONTOUR
— — — —	ACCESS ROAD
— — — — —	GRAVEL ACCESS ROAD
⊕ GWC-3 29.62	MONITORING WELL (GROUNDWATER ELEVATION)
36 — 36	GROUNDWATER ELEVATION CONTOUR
←	GROUNDWATER FLOW DIRECTION



Summary of Groundwater Elevations  
 Plant Kraft - Grumman Road Landfill  
 July 2017 Sampling Event

Monitoring Well ID	Eastings	Northing	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWC-1	960863.11	779575.92	28.2	50.66	17.72	32.94
GWC-2	960353.46	779433.71	31.4	49.32	14.30	35.02
GWC-3	960937.79	779372.24	22.9	49.77	19.33	30.44
GWC-4	960787.12	779981.81	26.4	49.04	13.66	35.38
GWC-5	960708.41	780302.10	26.7	48.51	9.71	38.80
GWC-6	960637.36	780582.98	22.7	48.28	7.24	41.04
GWA-7	960553.50	780890.03	21.2	47.28	5.27	42.01
GWA-8	960454.37	781167.74	20.8	47.71	6.32	41.39
GWC-9	959954.04	781009.34	27.4	47.18	6.82	40.36
GWC-10	960029.58	780705.70	20.6	47.39	7.01	40.38
GWC-11	960114.94	780354.78	22.6	49.38	9.73	39.65
GWC-12	960174.45	780101.21	26.7	47.44	9.92	37.52
GWC-13	960267.60	779739.94	23.8	47.78	12.50	35.28
GWC-14	960422.62	779114.58	27.0	50.67	17.66	33.01
GWC-15	960659.14	778950.24	26.8	48.08	18.11	29.97
GWC-16	960955.52	779036.32	28.2	47.78	23.57	24.21
GWC-17	960041.42	781421.98	23.2	44.14	4.87	39.27
GWC-20	960956.17	779293.88	25.0	49.31	21.05	28.26
GWC-21	960947.95	779030.32	23.8	47.09	19.27	27.82
GWC-22	960063.57	780712.08	18.6	46.39	6.04	40.35

Notes: Depths to water measured on July 10, 2017.  
 Screen length is five feet in all wells.  
 ft MSL = feet mean sea level  
 ft BTOC = feet below top of casing  
 \* Not used to construct potentiometric surface



ATLANTIC COAST CONSULTING, INC.  
 630 Colonial Park Dr.  
 Suite 110  
 Roswell, GA 30075  
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 www.atlcc.net

PROJECT:  
 GRUMMAN ROAD ASH DISPOSAL FACILITY

120 GULFSTREAM ROAD  
 FORT WENTWORTH, GEORGIA

REVISIONS

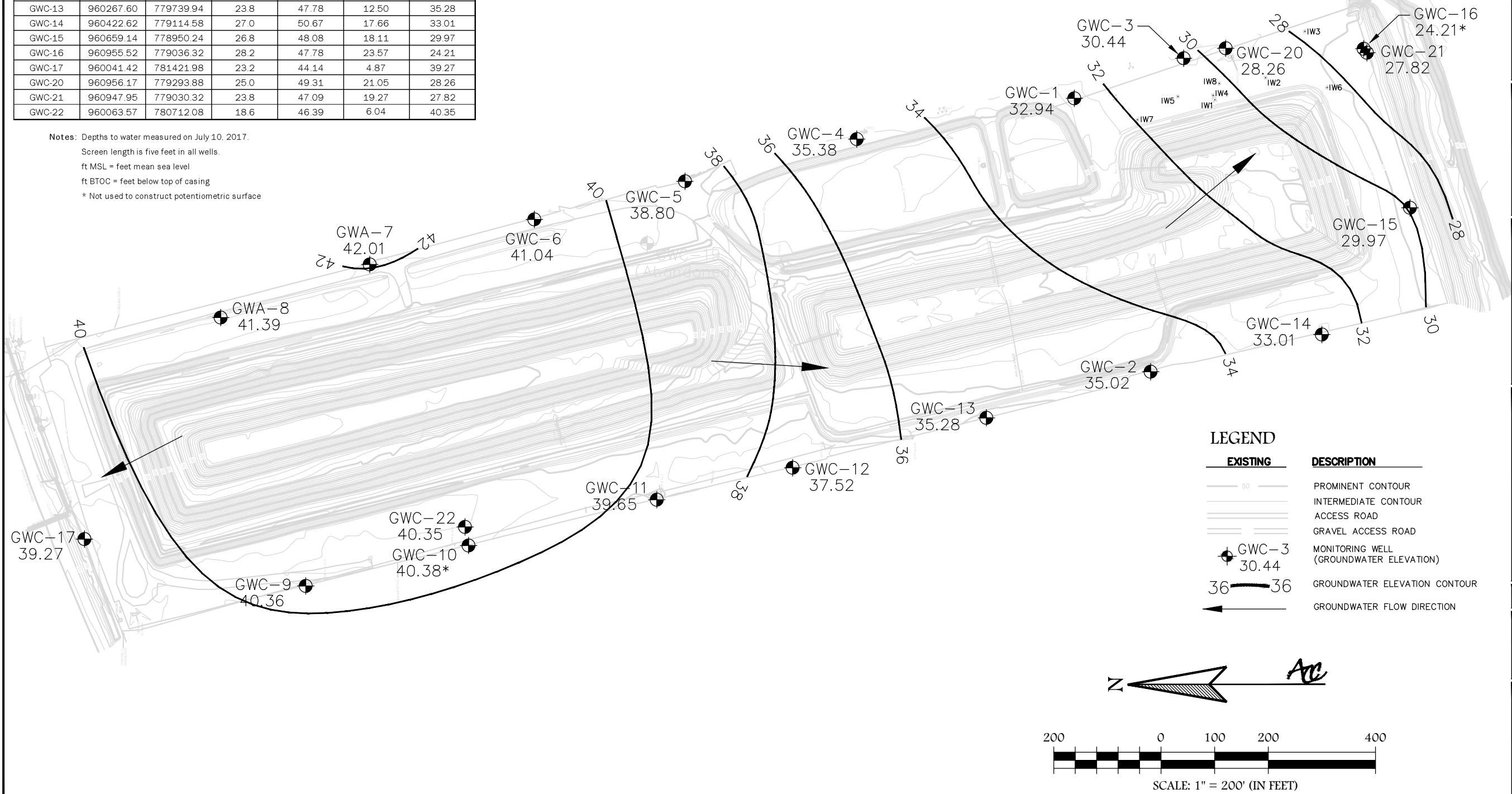
NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

PROJECT NUMBER:  
 I054-103  
 October 2017

JULY 2017  
 POTENTIOMETRIC  
 SURFACE MAP

FIGURE C-3



Summary of Groundwater Elevations  
Plant Kraft - Grumman Road Landfill  
October 2017 Sampling Event

Monitoring Well ID	Easting	Northing	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWC-1	960863.11	779575.92	28.2	50.66	18.00	32.66
GWC-2	960353.46	779433.71	31.4	49.32	14.45	34.87
GWC-3	960937.79	779372.24	22.9	49.77	19.63	30.14
GWC-4	960787.12	779981.81	26.4	49.04	13.35	35.69
GWC-5	960708.41	780302.10	26.7	48.51	10.52	37.99
GWC-6	960637.36	780582.98	22.7	48.28	7.79	40.49
GWA-7	960553.50	780890.03	21.2	47.28	5.74	41.54
GWA-8	960454.37	781167.74	20.8	47.71	7.41	40.30
GWC-9	959954.04	781009.34	27.4	47.18	9.81	37.37
GWC-10	960029.58	780705.70	20.6	47.39	9.27	38.12
GWC-11	960114.94	780354.78	22.6	49.38	12.99	36.39
GWC-12	960174.45	780101.21	26.7	47.44	10.41	37.03
GWC-13	960267.60	779739.94	23.8	47.78	11.99	35.79
GWC-14	960422.62	779114.58	27.0	50.67	17.67	33.00
GWC-15	960659.14	778950.24	26.8	48.08	18.24	29.84
GWC-16	960955.52	779036.32	28.2	47.78	19.90	27.88
GWC-17	960041.42	781421.98	23.2	44.14	5.95	38.19
GWC-20	960956.17	779293.88	25.0	49.31	20.19	29.12
GWC-21	960947.95	779030.32	23.8	47.09	19.69	27.40
GWC-22	960063.57	780712.08	18.6	46.39	NA	NA

Notes: Depths to water measured on October 2, 2017.  
Screen length is five feet in all wells.  
ft MSL = feet mean sea level  
ft BTOC = feet below top of casing



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PROJECT:  
GRUMMAN ROAD ASH DISPOSAL FACILITY

120 GULFSTREAM ROAD  
FORT WENTWORTH, GEORGIA

REVISIONS

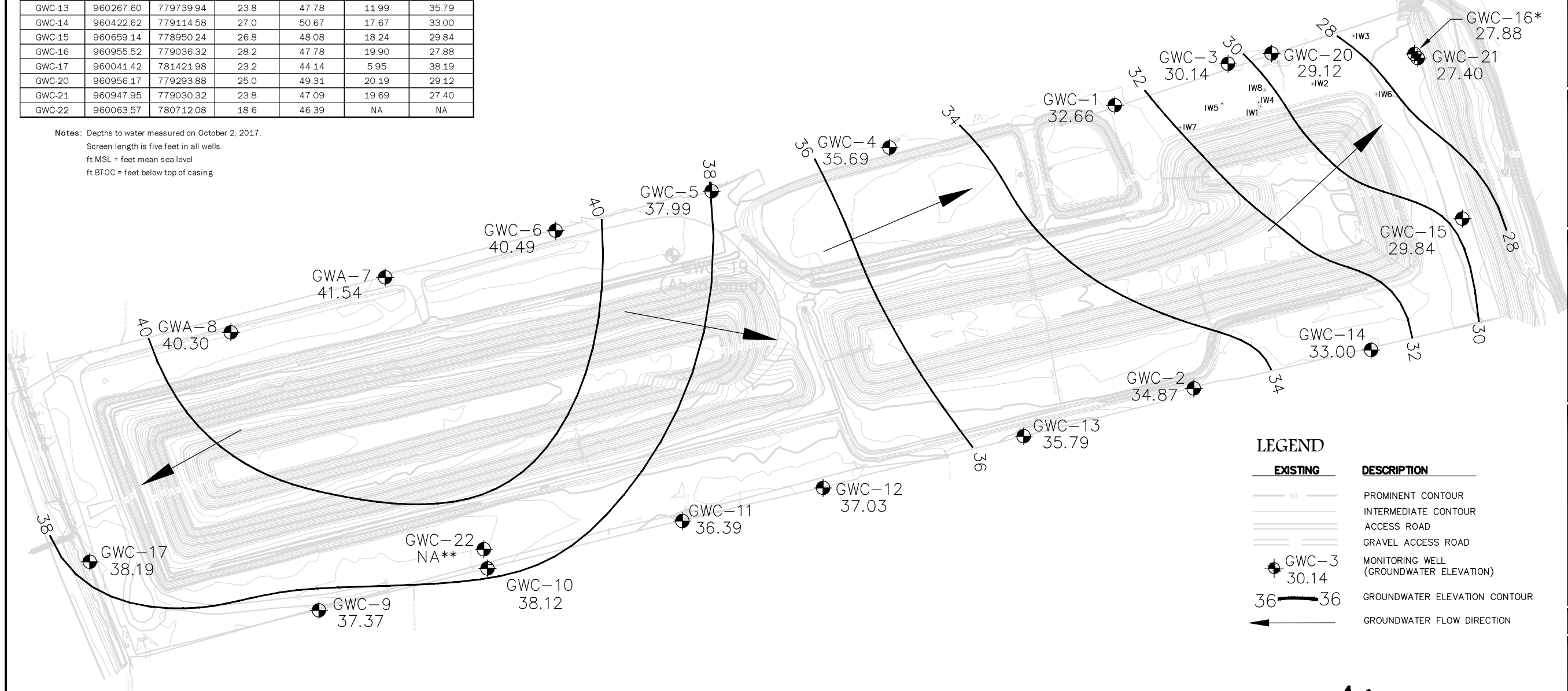
NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

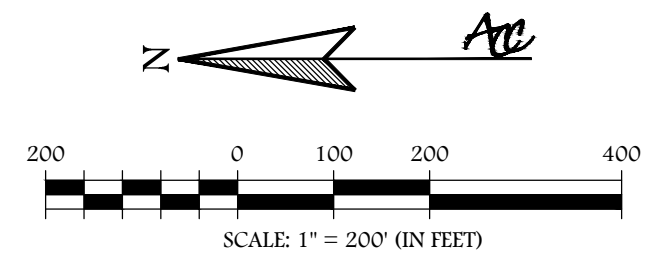
PROJECT NUMBER:  
I054-103  
November 2017

OCTOBER 2017  
POTENTIOMETRIC  
SURFACE MAP

FIGURE C-4



NOTES:  
\* NOT USED TO CONSTRUCT WATER TABLE CONTOUR MAP  
\*\* DAMAGED AT TIME OF SAMPLING; UNABLE TO MEASURE DEPTH-TO-WATER.



Summary of Groundwater Elevations  
 Plant Kraft - Grumman Road Landfill  
 January 2018 Sampling Event

Monitoring Well ID	Easting	Northing	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWA-7	960553.50	780890.03	21.2	47.28	6.76	40.52
GWA-8	960454.37	781167.74	20.8	47.71	8.93	38.78
GWC-1	960863.11	779575.92	28.2	50.66	18.95	31.71
GWC-2	960353.46	779433.71	31.4	49.32	16.53	32.79
GWC-3	960937.79	779372.24	22.9	49.77	20.22	29.55
GWC-4	960787.12	779981.81	26.4	49.04	14.74	34.30
GWC-5	960708.41	780302.10	26.7	48.51	10.63	37.88
GWC-6	960637.36	780582.98	22.7	48.28	8.38	39.90
GWC-9	959954.04	781009.34	27.4	47.18	8.90	38.28
GWC-10	960029.58	780705.70	20.6	47.39	8.97	38.42
GWC-11	960114.94	780354.78	22.6	49.38	14.30	35.08
GWC-12	960174.45	780101.21	26.7	47.44	12.70	34.74
GWC-13	960267.60	779739.94	23.8	47.78	13.90	33.88
GWC-14	960422.62	779114.58	27.0	50.67	19.33	31.34
GWC-15	960659.14	778950.24	26.8	48.08	19.25	28.83
GWC-16	960955.52	779036.32	28.2	47.78	20.58	27.20
GWC-17	960041.42	781421.98	23.2	44.14	6.02	38.12
GWC-20	960956.17	779293.88	25.0	49.31	21.00	28.31
GWC-21	960947.95	779030.32	23.8	47.09	20.50	26.59
GWC-22	960063.57	780712.08	18.6	46.72	8.11	38.61



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PROJECT:  
**GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL**

120 GULFSTREAM ROAD  
 FORT WENTWORTH, GEORGIA

REVISIONS

NO.	DATE	DESCRIPTION

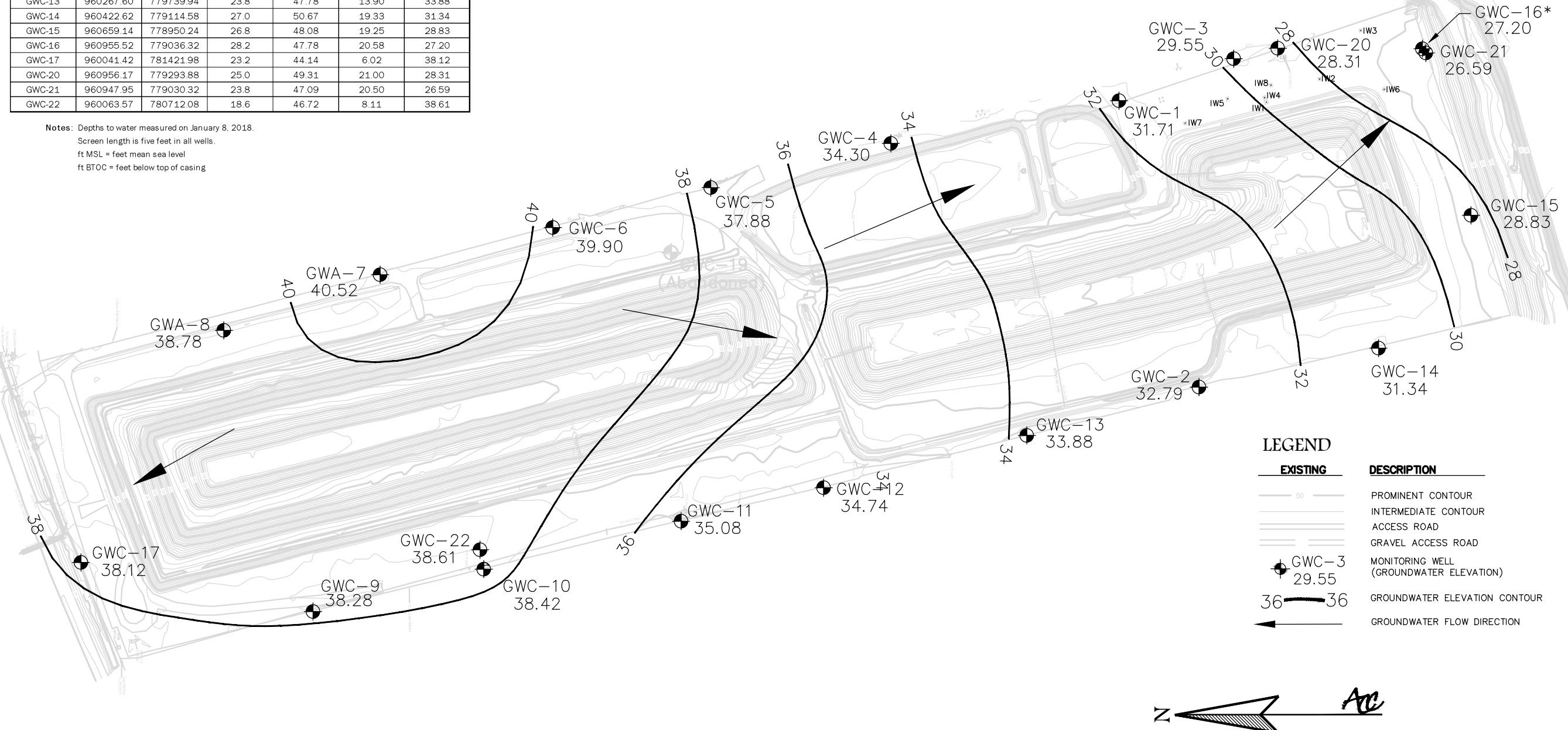
Drawn by: MM Checked by: EP

PROJECT NUMBER:  
 I054-103  
 February 2018

JANUARY 2018  
 POTENTIOMETRIC  
 SURFACE MAP

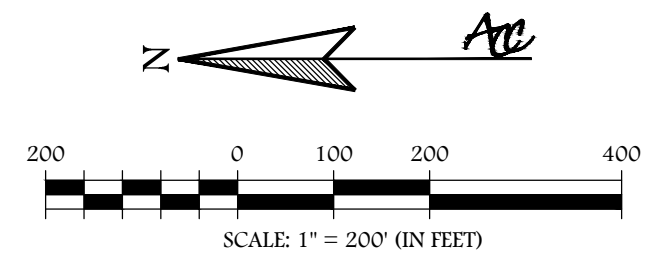
FIGURE C-5

Notes: Depths to water measured on January 8, 2018.  
 Screen length is five feet in all wells.  
 ft MSL = feet mean sea level  
 ft BTOC = feet below top of casing



**LEGEND**

EXISTING	DESCRIPTION
— 50 —	PROMINENT CONTOUR
— 30 —	INTERMEDIATE CONTOUR
— — —	ACCESS ROAD
— — —	GRAVEL ACCESS ROAD
● GWC-3 29.55	MONITORING WELL (GROUNDWATER ELEVATION)
36 — 36	GROUNDWATER ELEVATION CONTOUR
→	GROUNDWATER FLOW DIRECTION



NOTES:  
 \* NOT USED TO CONSTRUCT WATER TABLE CONTOUR MAP



Summary of Groundwater Elevations  
Plant Kraft - Grumman Road Landfill  
July 2018 Sampling Event

Monitoring Well ID	Easting	Northing	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWA-7	960553.50	780890.03	21.2	47.28	7.11	40.17
GWA-8	960454.37	781167.74	20.8	47.71	8.94	38.77
GWC-1	960863.11	779575.92	28.2	50.66	19.26	31.40
GWC-2	960353.46	779433.71	31.4	49.32	16.72	32.60
GWC-3	960937.79	779372.24	22.9	49.77	20.47	29.30
GWC-4	960787.12	779981.81	26.4	49.04	14.97	34.07
GWC-5	960708.41	780302.10	26.7	48.51	11.18	37.33
GWC-6	960637.36	780582.98	22.7	48.28	8.93	39.35
GWC-9	959954.04	781009.34	27.4	47.18	9.69	37.49
GWC-10	960029.58	780705.70	20.6	47.39	9.77	37.62
GWC-11	960114.94	780354.78	22.6	49.38	13.18	36.20
GWC-12	960174.45	780101.21	26.7	47.44	13.01	34.43
GWC-13	960267.60	779739.94	23.8	47.78	14.32	33.46
GWC-14	960422.62	779114.58	27.0	50.67	19.56	31.11
GWC-15	960659.14	778950.24	26.8	48.08	19.29	28.79
GWC-16	960955.52	779036.32	28.2	47.78	20.05	27.73
GWC-17	960041.42	781421.98	23.2	44.14	7.29	36.85
GWC-20	960956.17	779293.88	25.0	49.31	21.11	28.20
GWC-21	960947.95	779030.32	23.8	47.09	20.54	26.55
GWC-22	960063.57	780712.08	18.6	46.72	9.84	36.88

Notes: Depths to water measured on July 9, 2018.  
Screen length is five feet in all wells.  
ft MSL = feet mean sea level  
ft BTOC = feet below top of casing



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PROJECT:  
**GRUMMAN ROAD ASH DISPOSAL FACILITY**

120 GULFSTREAM ROAD  
FORT WENTWORTH, GEORGIA

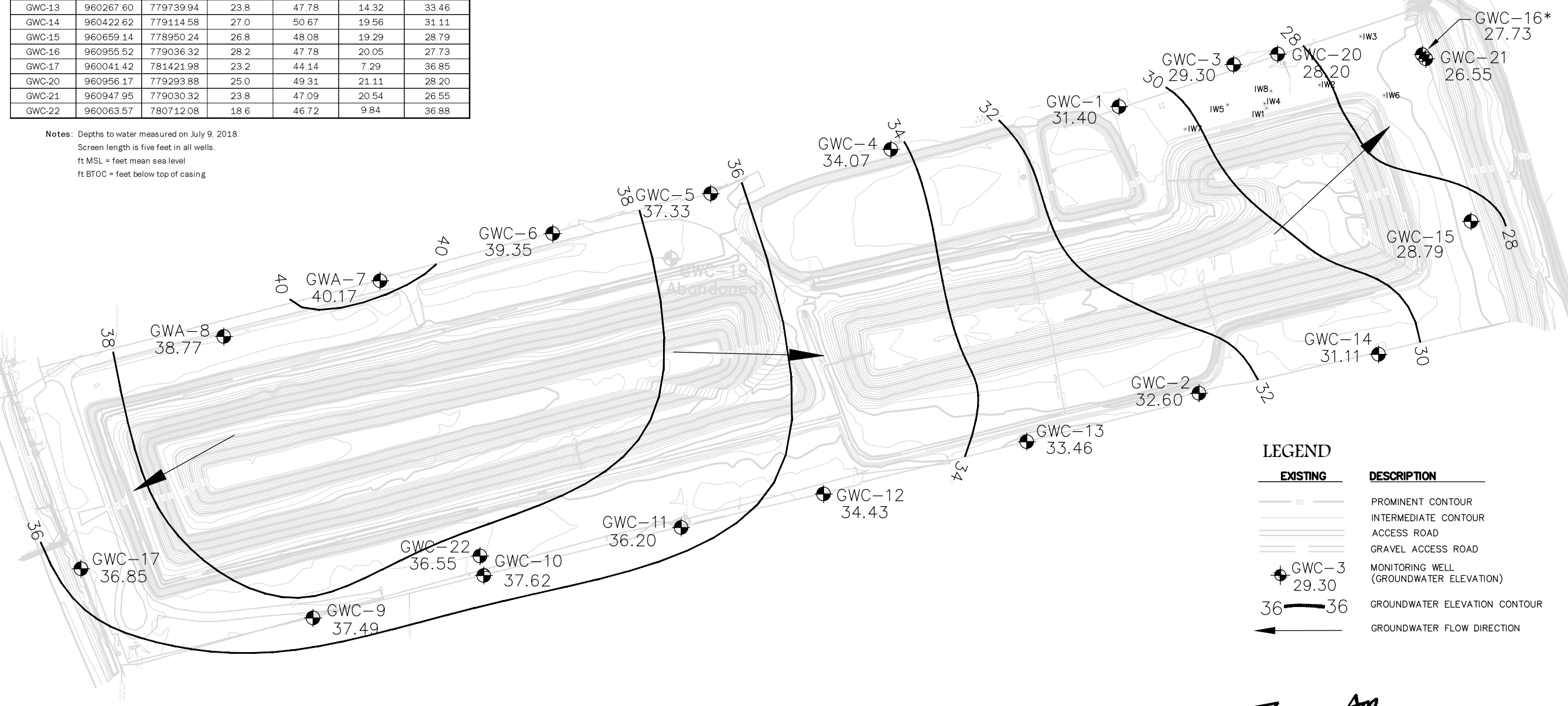
REVISIONS


Drawn by: **MM** Checked by: **EP**

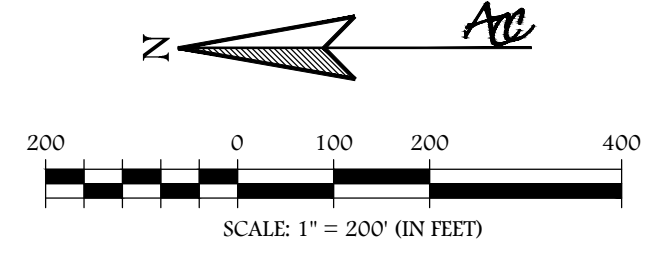
PROJECT NUMBER:  
**I054-110**  
September 2018

**JULY 2018 POTENTIOMETRIC SURFACE MAP**

FIGURE **C-6**



NOTES:  
\* NOT USED TO CONSTRUCT WATER TABLE CONTOUR MAP



**Groundwater Elevations and Well Depths  
Grumman Road Landfill January 2019**

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (MSL)	Depth to Water (feet)	Groundwater Elevation (MSL)
GWA-7	21.2	47.10	6.42	40.68
GWA-8	20.8	46.84	8.40	38.44
GWC-1	28.2	50.30	18.55	31.75
GWC-2	31.4	49.15	15.74	33.41
GWB-4R	23.3	45.86	10.99	34.87
GWB-5R	26.5	47.82	9.55	38.27
GWB-6R	22.7	47.40	7.42	39.98
GWC-9	27.4	47.11	8.73	38.38
GWC-11	22.6	49.38	12.65	36.73
GWC-12	26.7	47.48	12.02	35.46
GWC-13	23.8	47.82	14.34	33.48
GWC-14	27.0	50.67	18.55	32.12
GWC-15	26.8	48.12	18.63	29.49
GWC-16	28.2	47.79	19.92	27.87
GWC-17	23.2	44.09	5.66	38.43
GWC-20	25.0	50.03	20.51	29.52
GWC-21	23.8	47.94	19.85	28.09
GWC-22	18.6	46.72	8.29	38.43

- Notes:**
1. ft btoc - feet below top of casing.
  2. MSL = Mean Sea Level (NGVD 1929).
  3. Depths to water measured on January 15, 2019.



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**PROJECT:**  
**GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL**

120 GULFSTREAM ROAD  
 FORT WENTWORTH, GEORGIA

**REVISIONS**

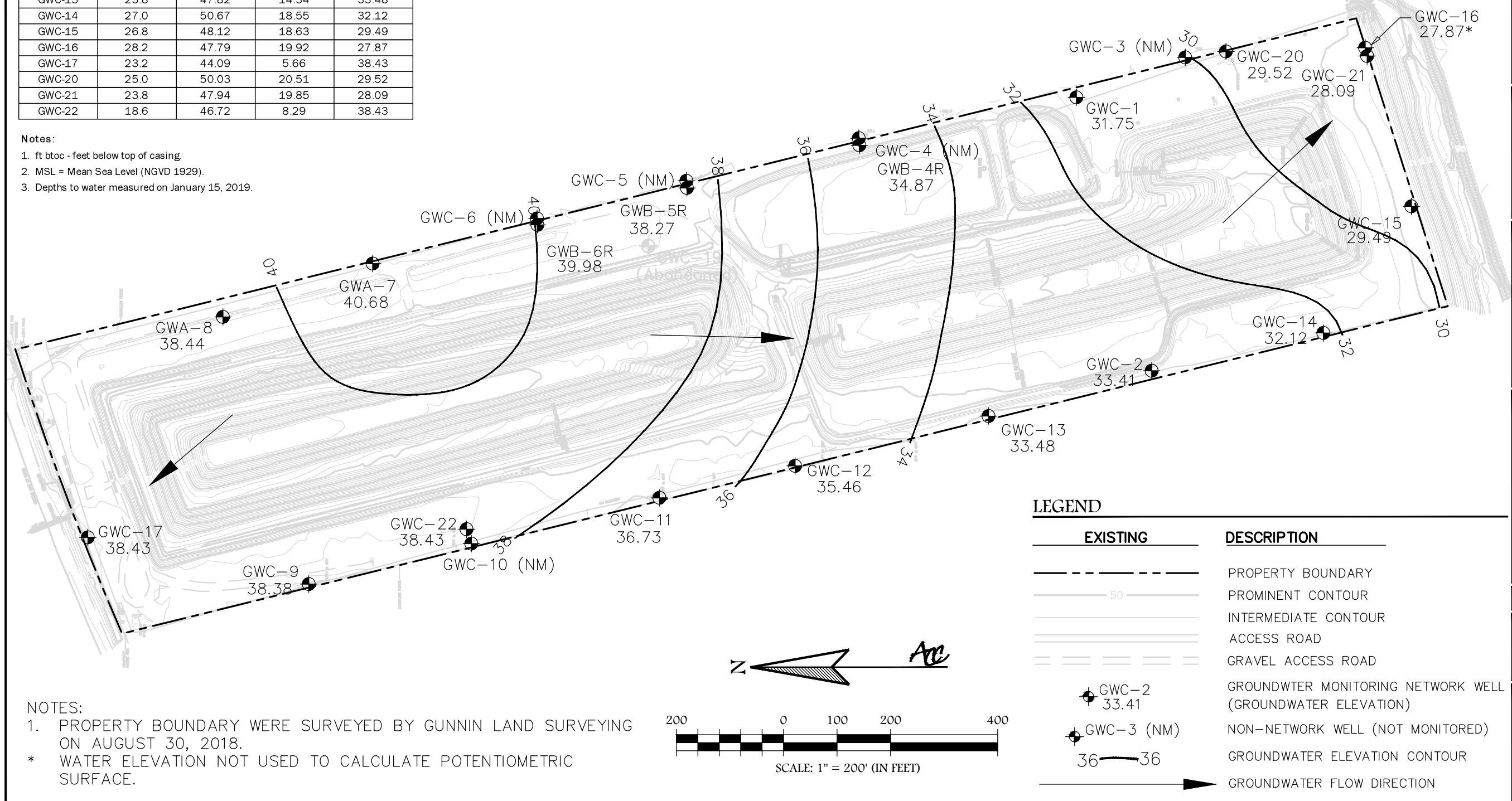
NO.	DATE	DESCRIPTION

Drawn by: **MM**      Checked by: **EP**

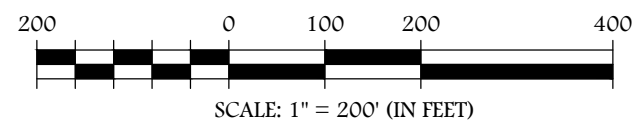
**PROJECT NUMBER:**  
**I054-110**  
 April 2019

**JANUARY 2019 POTENTIOMETRIC SURFACE MAP**

**FIGURE C-7**



- NOTES:**
1. PROPERTY BOUNDARY WERE SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  - \* WATER ELEVATION NOT USED TO CALCULATE POTENTIOMETRIC SURFACE.





**Groundwater Elevations and Well Depths  
Grumman Road Landfill March 2019**

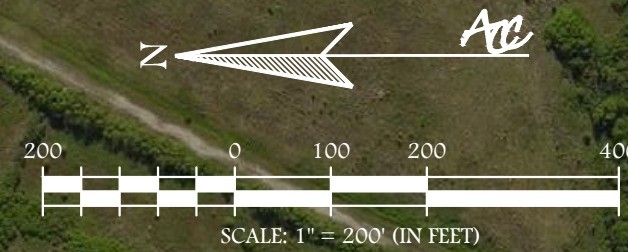
Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (MSL)	Depth to Water (feet)	Groundwater Elevation (MSL)
GWA-7	21.2	47.10	6.48	40.62
GWA-8	20.8	46.84	9.90	36.94
GWB-4R	23.3	45.86	11.23	34.63
GWB-5R	26.5	47.82	9.97	37.85
GWB-6R	22.7	47.40	7.75	39.65
GWC-1	28.2	50.30	18.94	31.36
GWC-2	31.4	49.15	NA	NA
GWC-9	27.4	47.11	9.26	37.85
GWC-11	22.6	49.38	9.55	39.83
GWC-12	26.7	47.48	12.88	34.60
GWC-13	23.8	47.82	12.66	35.16
GWC-14	27.0	50.67	19.19	31.48
GWC-15	26.8	48.12	18.97	29.15
GWC-16	28.2	47.79	20.34	27.45
GWC-17	23.2	44.09	6.65	37.44
GWC-20	25.0	50.03	20.84	29.19
GWC-21	23.8	47.94	20.28	27.66
GWC-22	18.6	46.72	8.75	37.97

- Notes:
1. ft btoc - feet below top of casing.
  2. MSL = Mean Sea Level (NGVD 1929).
  3. Depths to water measured on March 25, 2019.

**LEGEND**

- | EXISTING | DESCRIPTION   |
|----------|---|
|          | PROPERTY BOUNDARY   |
|          | GROUNDWATER MONITORING NETWORK WELL (GROUNDWATER ELEVATION) |
|          | NON-NETWORK WELL (NOT MONITORED)                            |
|          | GROUNDWATER ELEVATION CONTOUR                               |
|          | GROUNDWATER FLOW DIRECTION                                  |

- NOTES:
1. PROPERTY BOUNDARY WERE SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. NA = WATER LEVEL WAS UNABLE TO BE MEASURED.
  - \* WATER ELEVATION NOT USED TO CALCULATE POTENTIOMETRIC SURFACE.



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PROJECT:  
**GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL**

120 GULFSTREAM ROAD  
 FORT WENTWORTH, GEORGIA

REVISIONS

NO.	DATE	DESCRIPTION

Drawn by: MM      Checked by: EP

PROJECT NUMBER:  
 I054-110  
 June 2019



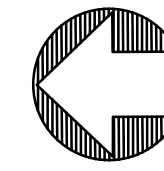
MARCH 2019  
 POTENTIOMETRIC SURFACE MAP



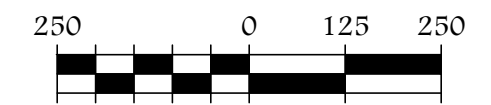
Groundwater Elevations and Well Depths  
Grumman Road Landfill August 2019

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.2	47.10	7.01	40.09
GWA-8	20.8	46.84	9.03	37.81
GWB-4R	23.3	45.86*	11.54	34.32
GWB-5R	26.5	47.82	10.58	37.24
GWB-6R	22.7	47.40	8.46	38.94
GWC-1	28.2	50.30	19.31	30.99
GWC-2	31.4	NA*	19.53	NA*
GWC-9	27.4	47.11	10.11	37.00
GWC-11	22.6	49.38	13.83	35.55
GWC-12	26.7	47.48	13.79	33.69
GWC-13	23.8	47.82	14.34	33.48
GWC-14	27.0	50.67	19.65	31.02
GWC-15	26.8	48.12	19.31	28.81
GWC-16	28.2	47.79	20.70	27.09
GWC-17	23.2	44.09	6.52	37.57
GWC-20	25.0	50.03	21.06	28.97
GWC-21	23.8	47.94	20.55	27.39
GWC-22	18.6	46.72	9.49	37.23

- Notes:
1. ft btoc - feet below top of casing.
  2. SD indicates feet relative to Site Datum.
  3. Depths to water measured on August 26, 2019.
  4. \* - New completions installed and resurveyed after the April 2020 monitoring event. New TOC elevation for GWB-4R is 49.58 SD; GWC-2 is 51.84 SD.
  5. NA indicates not available.



ATLANTIC COAST CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GWC-1 31.96 GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	GWC-3 (NM) NON-NETWORK WELL (NOT MONITORED)
	36 — 36 GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. WATER LEVEL FROM GWC-16 NOT USED TO CALCULATE POTENTIOMETRIC SURFACE.

PROJECT

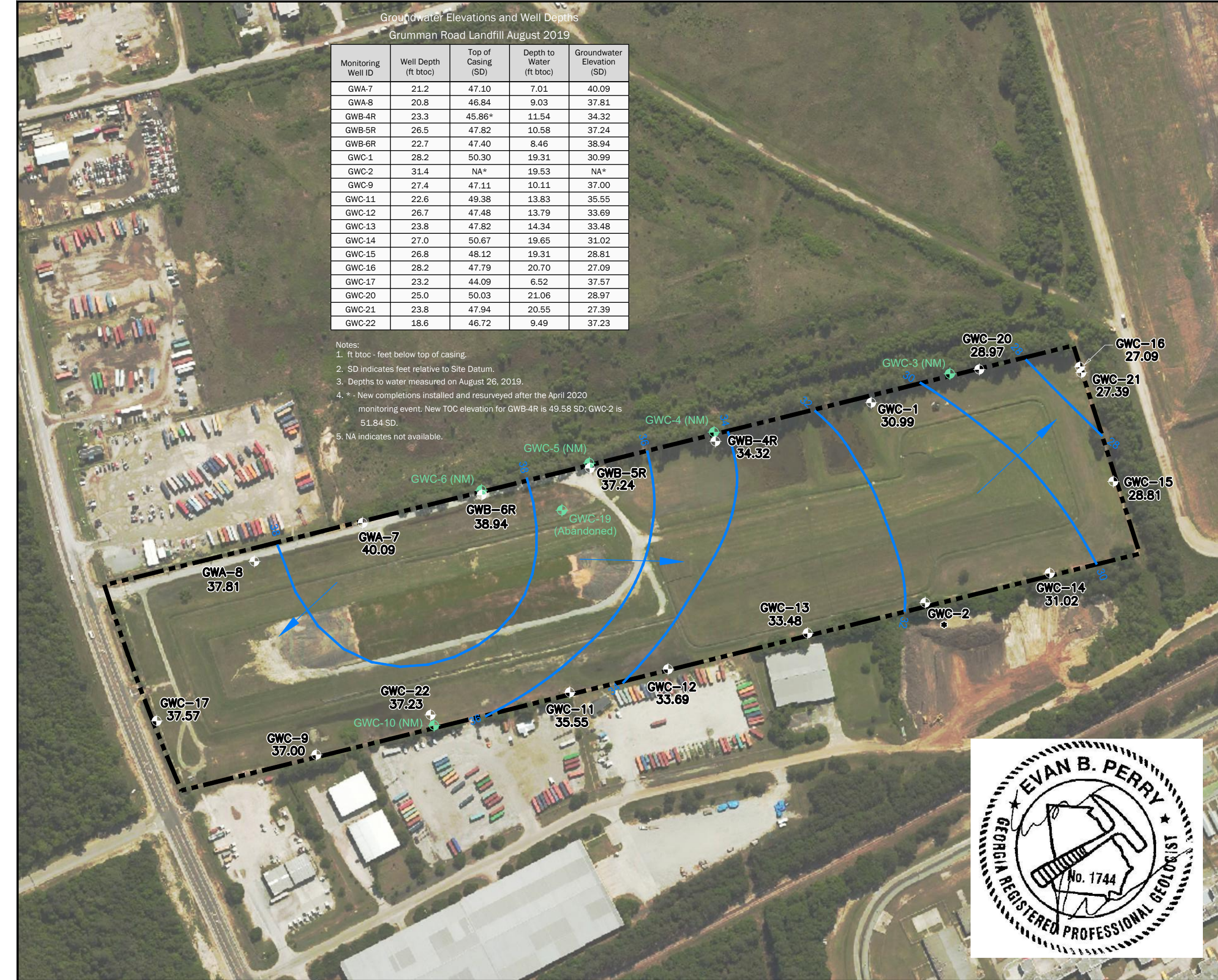


GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

AUGUST 2019 POTENTIOMETRIC SURFACE MAP

PROJECT NO. I054-110 JUNE 2020

DRAWN BY:	MM	FIGURE:	C-9
CHECKED BY:	EP		

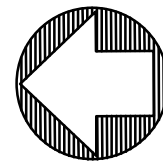




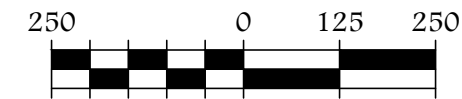
Groundwater Elevations and Well Depths  
Grumman Road Landfill October 2019

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.2	47.10	7.37	39.73
GWA-8	20.8	46.84	8.81	38.03
GWB-4R	23.3	45.86*	11.85	34.01
GWB-5R	26.5	47.82	10.88	36.94
GWB-6R	22.7	47.40	8.50	38.90
GWC-1	28.2	50.30	19.55	30.75
GWC-2	31.4	NA*	19.94	NA*
GWC-9	27.4	47.11	10.33	36.78
GWC-11	22.6	49.38	14.15	35.23
GWC-12	26.7	47.48	13.60	33.88
GWC-13	23.8	47.82	14.76	33.06
GWC-14	27.0	50.67	19.92	30.75
GWC-15	26.8	48.12	19.54	28.58
GWC-16	28.2	47.79	20.92	26.87
GWC-17	23.2	44.09	7.35	36.74
GWC-20	25.0	50.03	21.39	28.64
GWC-21	23.8	47.94	20.85	27.09
GWC-22	18.6	46.72	9.64	37.08

- Notes:
1. ft btoc - feet below top of casing.
  2. SD indicates feet relative to Site Datum.
  3. Depths to water measured on October 2, 2019.
  4. \* - New completions installed and resurveyed after the April 2020 monitoring event. New TOC elevation for GWB-4R is 49.58 SD; GWC-2 is 51.84 SD.
  5. NA indicates not available.



ATLANTIC COAST  
CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
--- (dashed line)	PROPERTY BOUNDARY
◆ (diamond with dot)	GROUNDWATER MONITORING NETWORK WELL
31.96	GROUNDWATER ELEVATION
◆ (diamond with cross)	NON-NETWORK WELL (NOT MONITORED)
36 (with cross)	GROUNDWATER ELEVATION CONTOUR
→ (blue arrow)	GROUNDWATER FLOW DIRECTION

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. WATER LEVEL FROM GWC-16 NOT USED TO CALCULATE POTENTIOMETRIC SURFACE.
  3. N/A = WATER LEVEL WAS UNABLE TO BE MEASURED.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

OCTOBER 2019 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. 1054-110

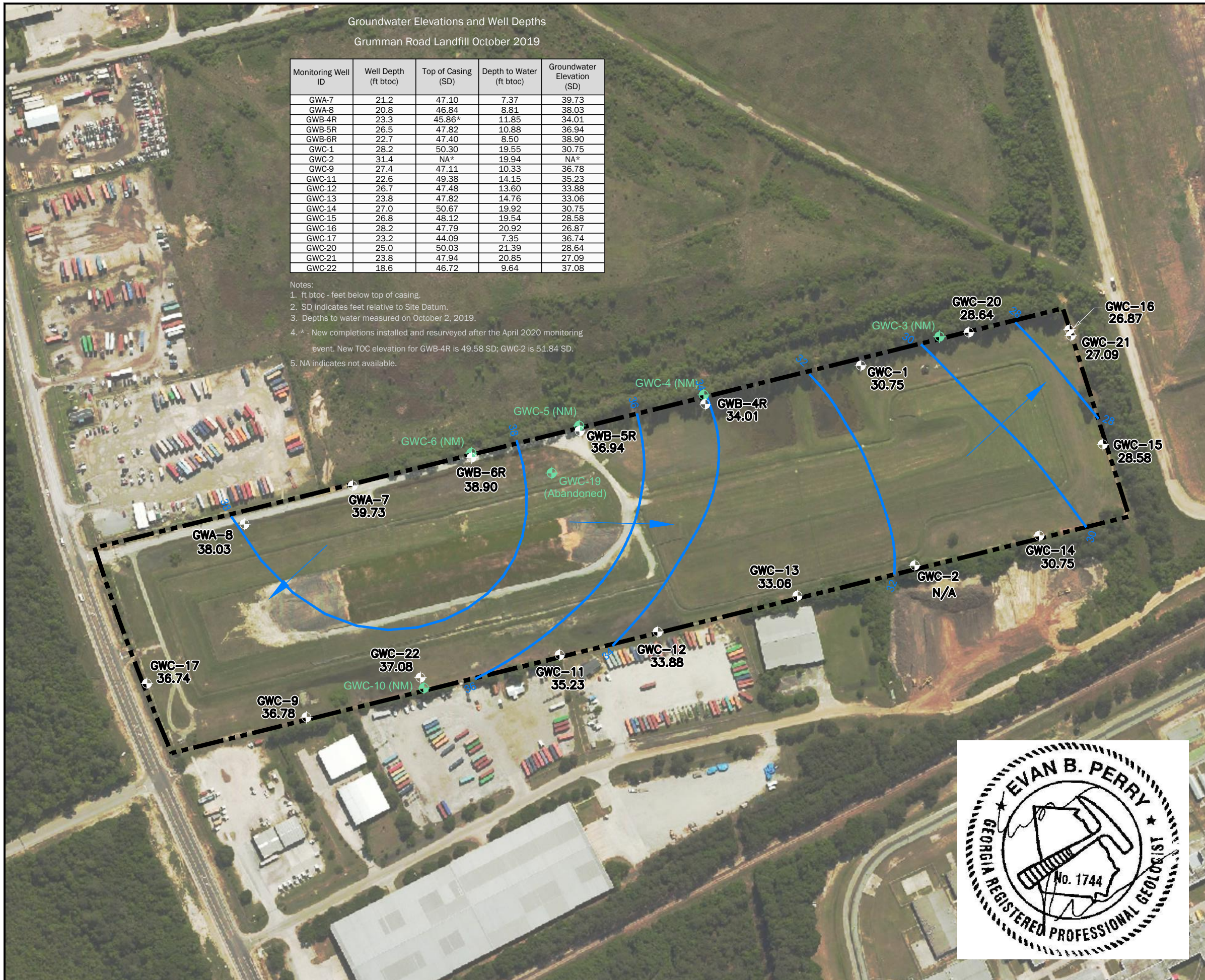
JUNE 2020

DRAWN BY: RW

FIGURE:

CHECKED BY: MM

C-10

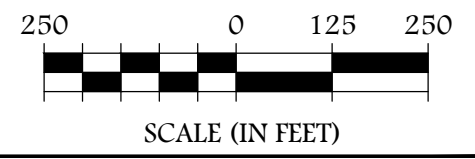




Groundwater Elevations and Well Depths  
Grumman Road Landfill April 2020

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.2	47.10	5.99	41.11
GWA-8	20.8	46.84	7.38	39.46
GWB-4R	23.3	45.86	10.83	35.03
GWB-5R	26.5	47.82	8.66	39.16
GWB-6R	22.7	47.40	7.12	40.28
GWC-1	28.2	50.30	18.34	31.96
GWC-2	31.4	NA*	17.44	NA*
GWC-9	27.4	47.11	7.66	39.45
GWC-11	22.6	49.38	10.71	38.67
GWC-12	26.7	47.48	10.70	36.78
GWC-13	23.8	47.82	12.06	35.76
GWC-14	27.0	50.67	17.97	32.70
GWC-15	26.8	48.12	18.45	29.67
GWC-16	28.2	47.79	19.97	27.82
GWC-17	23.2	44.09	6.81	37.28
GWC-20	25.0	50.03	20.55	29.48
GWC-21	23.8	47.94	19.86	28.08
GWC-22	18.6	46.72	7.12	39.60

- Notes:
1. ft btoc - feet below top of casing.
  2. SD Indicates feet relative to Site Datum.
  3. Depths to water measured on April 6, 2020.
  4. \* = New completions installed and resurveyed after the April 2020 monitoring event. New TOC elevation for GWB-4R is 49.58 SD, GWC-2 is 51.84 SD.
  5. NA Indicates Not Available.



**LEGEND:**

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	NON-NETWORK WELL (NOT MONITORED)
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. WATER LEVEL FROM GWC-16 NOT USED TO CALCULATE POTENTIOMETRIC SURFACE.
  3. N/A = WATER LEVEL WAS UNABLE TO BE MEASURED.

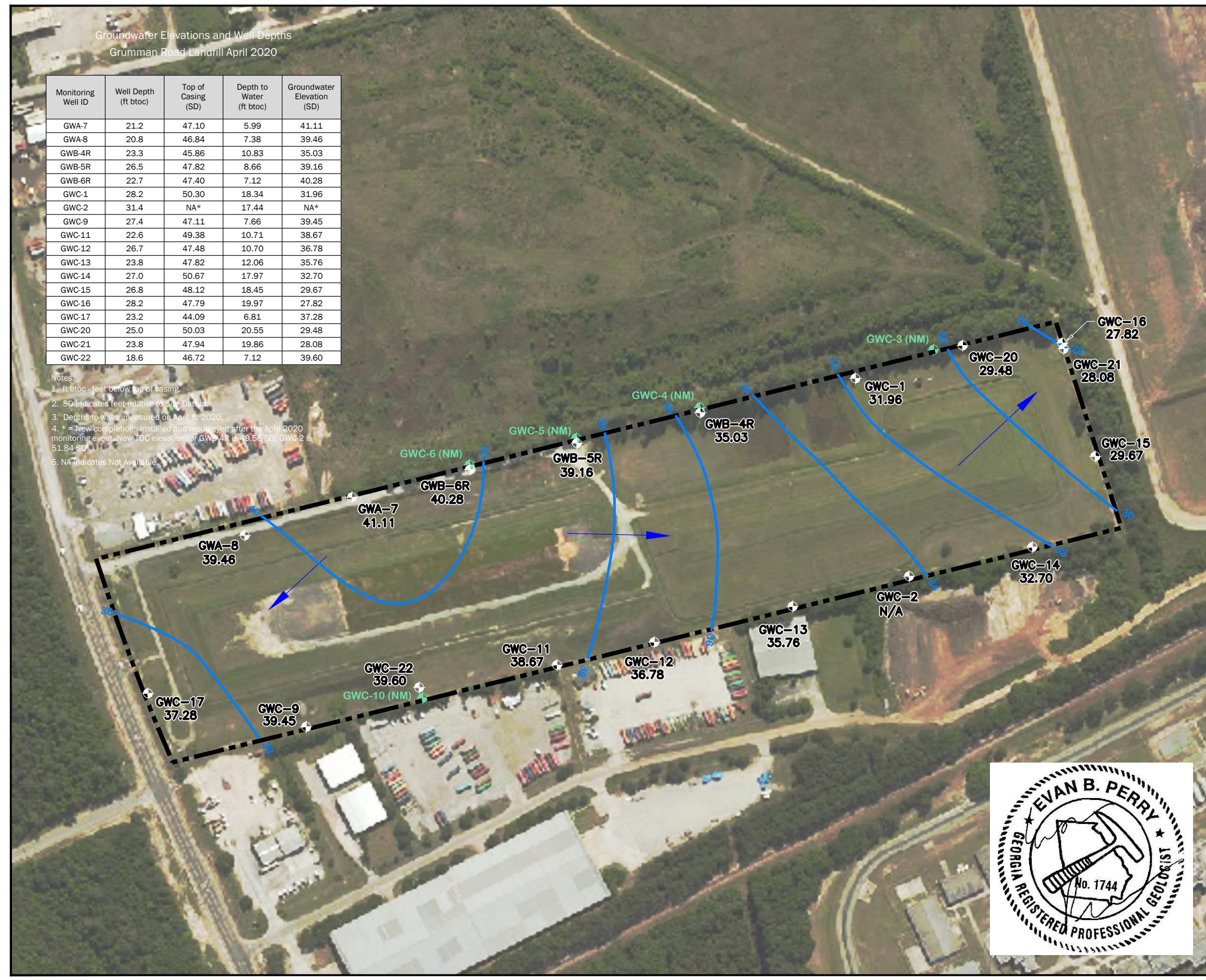
PROJECT

GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

APRIL 2020 POTENTIOMETRIC SURFACE  
MAP

PROJECT NO. I054-110 JUNE 2020

DRAWN BY:	RW	FIGURE:	C-11
CHECKED BY:	MM		

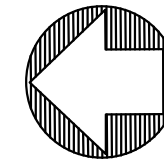




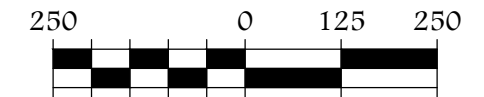
Groundwater Elevations and Well Depths  
Grumman Road Landfill August 2020

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.20	47.10	6.22	40.88
GWA-8	20.80	46.84	7.36	39.48
GWB-4R	27.00	49.58	14.97	34.61
GWB-5R	26.50	47.82	10.06	37.76
GWB-6R	22.70	47.40	7.80	39.60
GWC-1	28.20	50.30	19.16	31.14
GWC-2	32.73	51.84	19.23	32.61
GWC-9	27.40	47.11	8.70	38.41
GWC-11	22.60	49.38	12.66	36.72
GWC-12	26.70	47.48	12.49	34.99
GWC-13	23.80	47.82	13.89	33.93
GWC-14	27.00	50.70	19.51	31.19
GWC-15	26.80	48.12	19.28	28.84
GWC-16	28.20	47.79	20.71	27.08
GWC-17	23.50	44.09	6.42	37.67
GWC-20	25.59	50.03	21.19	28.84
GWC-21	25.54	47.94	20.64	27.30
GWC-22	19.21	46.72	8.41	38.31

Notes:  
1. ft btoc - feet below top of casing.  
2. SD indicates feet relative to Site Datum.  
3. Depths to water measured on August 17, 2020.



ATLANTIC COAST  
CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	NON-NETWORK WELL
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:
- PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  - WELLS GWC-3, GWC-4, GWC-5, AND GWC-6 WERE ABANDONED IN DECEMBER 2020.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

AUGUST 2020 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. I054-110

January 2021

DRAWN BY: JB

FIGURE:

CHECKED BY: MM

C-12

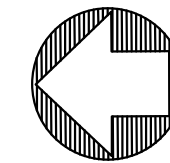




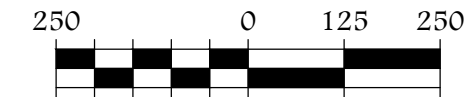
Groundwater Elevations and Well Depths  
Grumman Road Landfill September 2020

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.20	47.10	5.19	41.91
GWA-8	20.80	46.84	6.14	40.70
GWB-4R	27.00	49.58	14.11	35.47
GWB-5R	26.50	47.82	8.75	39.07
GWB-6R	22.70	47.40	6.22	41.18
GWC-1	28.20	50.30	18.28	32.02
GWC-2	32.73	51.84	18.06	33.78
GWC-9	27.40	47.11	7.40	39.71
GWC-11	22.60	49.38	11.26	38.12
GWC-12	26.70	47.48	11.13	36.35
GWC-13	23.80	47.82	12.43	35.39
GWC-14	27.00	50.70	18.53	32.17
GWC-15	26.80	48.12	18.63	29.49
GWC-16	28.20	47.79	19.88	27.91
GWC-17	23.50	44.09	4.60	39.49
GWC-20	25.59	50.03	20.49	29.54
GWC-21	25.54	47.94	19.73	28.21
GWC-22	19.21	46.72	7.25	39.47

- Notes:  
 1. ft btoc - feet below top of casing.  
 2. SD indicates feet relative to Site Datum.  
 3. Depths to water measured on September 28, 2020.



ATLANTIC COAST  
CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	NON-NETWORK WELL
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:  
 1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.  
 2. WELLS GWC-3, GWC-4, GWC-5, AND GWC-6 WERE ABANDONED IN DECEMBER 2020.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

SEPTEMBER 2020 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. I054-110

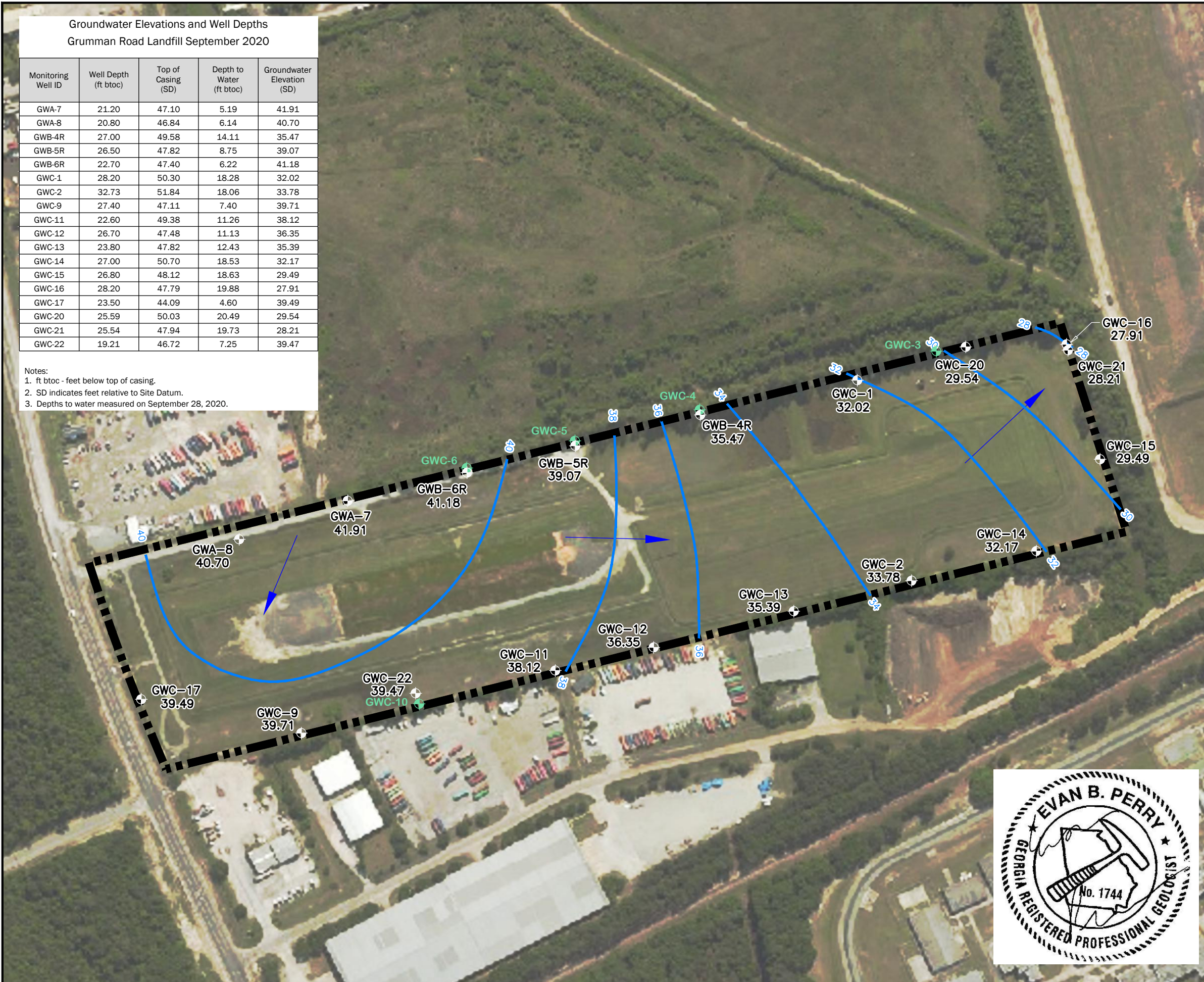
January 2021

DRAWN BY: JB

FIGURE:

CHECKED BY: MM

C-13



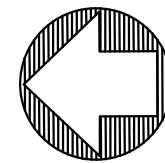


Groundwater Elevations and Well Depths

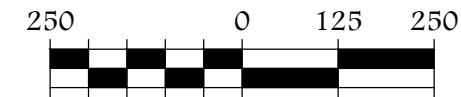
Grumman Road Landfill March 2021

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.20	47.10	5.04	42.06
GWA-8	20.80	46.84	6.00	40.84
GWB-4R	27.00	49.58	13.85	35.73
GWB-5R	26.50	47.82	8.81	39.01
GWB-6R	22.70	47.40	5.78	41.62
GWC-1	28.20	50.30	18.20	32.10
GWC-2	32.73	51.84	17.76	34.08
GWC-9	27.40	47.11	6.93	40.18
GWC-11	22.60	49.38	10.87	38.51
GWC-12	26.70	47.48	10.81	36.67
GWC-13	23.80	47.82	12.11	35.71
GWC-14	27.00	50.70	18.04	32.66
GWC-15	26.80	48.12	18.33	29.79
GWC-16	28.20	47.79	19.50	28.29
GWC-17	23.50	44.09	4.88	39.21
GWC-20	25.59	50.03	20.31	29.72
GWC-21	25.54	47.94	19.53	28.41
GWC-22	19.21	46.72	6.57	40.15
MW-23D	63.30	50.20	22.05	28.15
MW-24D	66.30	48.54	22.05	26.49
MW-25D	70.20	48.33	19.95	28.38
MW-26D	69.90	49.39	18.73	30.66
MW-27D	72.43	50.53	20.50	30.03

- Notes:
1. ft btoc - feet below top of casing.
  2. SD indicates feet relative to Site Datum.
  3. Depths to water measured on March 8, 2021.



ATLANTIC COAST CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	PIEZOMETER
	DELINEATION WELL
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. VERTICAL DELINEATION WELLS MW-23D, MW-24D, MW-25D, MW-26D, AND MW-27D WERE INSTALLED IN DECEMBER 2020 AND JANUARY 2021.
  3. NON-NETWORK WELLS GWC-3, GWC-4, GWC-5, AND GWC-6 WERE ABANDONED IN DECEMBER 2020.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

2021 ANNUAL GROUNDWATER MONITORING AND  
CORRECTIVE ACTION REPORT

MARCH 2021 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. I054-110

JULY 2021

DRAWN BY: RW

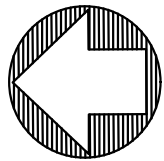
FIGURE:

CHECKED BY: MM

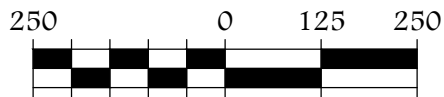
C-14







ATLANTIC COAST CONSULTING, INC.



SCALE (IN FEET)

**LEGEND:**

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1 31.96	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
⊕ GWC-10	PIEZOMETER
● MW-23D	DELINEATION WELL
36	GROUNDWATER ELEVATION CONTOUR
→	GROUNDWATER FLOW DIRECTION
▲ SWC-1	SURFACE WATER MONITORING POINT

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. VERTICAL DELINEATION WELLS MW-23D, MW-24D, MW-25D, MW-26D, AND MW-27D WERE INSTALLED IN DECEMBER 2020 AND JANUARY 2021.
  3. NON-NETWORK WELLS GWC-3, GWC-4, GWC-5, AND GWC-6 WERE ABANDONED IN DECEMBER 2020.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

SEPTEMBER 2021 POTENTIOMETRIC SURFACE MAP

PROJECT NO. I054-110 APRIL 2022

DRAWN BY: RW

FIGURE:

CHECKED BY: MM

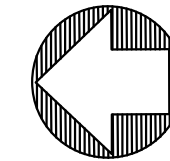
C-15



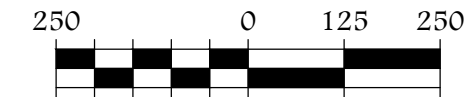
Groundwater Elevations and Well Depths  
Grumman Road Landfill February 2022

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.20	47.10	5.91	41.19
GWA-8	20.80	46.84	7.22	39.62
GWB-4R	27.00	49.58	14.54	35.04
GWB-5R	26.50	47.82	9.32	38.50
GWB-6R	22.70	47.40	6.90	40.50
GWC-1	28.20	50.30	18.77	31.53
GWC-2	32.73	51.84	18.87	32.97
GWC-9	27.40	47.11	8.44	38.67
GWC-11	22.60	49.38	12.30	37.08
GWC-12	26.70	47.48	12.29	35.19
GWC-13	24.53	48.21	14.03	34.18
GWC-14	27.00	50.70	19.12	31.58
GWC-15	26.80	48.12	19.03	29.09
GWC-16	28.20	47.79	20.29	27.50
GWC-17	23.50	44.09	5.99	38.10
GWC-20	25.59	50.03	20.79	29.24
GWC-21	25.54	47.94	20.23	27.71
GWC-22	19.21	46.72	8.02	38.70
MW-23D	63.30	50.20	22.62	27.58
MW-24D	66.30	48.54	22.51	26.03
MW-25D	70.20	48.33	20.62	27.71
MW-26D	69.90	49.39	19.51	29.88
MW-27D	72.43	50.53	21.26	29.27

- Notes:
1. ft btoc - feet below top of casing.
  2. SD indicates feet relative to Site Datum.
  3. Depths to water measured on January 31, 2022.



ATLANTIC COAST  
CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	GROUNDWATER MONITORING NETWORK WELL GROUNDWATER ELEVATION
	PIEZOMETER
	DELINEATION WELL
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

- NOTES:
1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
  2. VERTICAL DELINEATION WELLS MW-23D, MW-24D, MW-25D, MW-26D, AND MW-27D WERE INSTALLED IN DECEMBER 2020 AND JANUARY 2021.
  3. GWC-13 RESURVEYED BY GUNNIN LAND SURVEYING ON NOVEMBER 10, 2021.
  4. AERIAL IMAGERY IS PROVIDED BY ESRI, DATED FEBRUARY 21, 2021.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

2022 ANNUAL GROUNDWATER MONITORING AND  
CORRECTIVE ACTION REPORT

FEBRUARY 2022 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. I054-110

MARCH 2022

DRAWN BY: RW

FIGURE:

CHECKED BY: MM

C-16

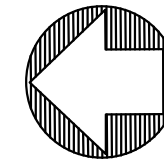




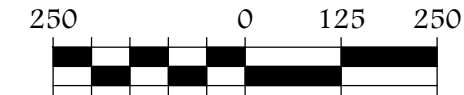
Groundwater Elevations and Well Depths  
Grumman Road Landfill August 2022

Monitoring Well ID	Well Depth (ft btoc)	Top of Casing (SD)	Depth to Water (ft btoc)	Groundwater Elevation (SD)
GWA-7	21.20	47.10	5.94	41.16
GWA-8	20.80	46.84	6.91	39.93
GWB-4R	27.00	49.58	14.58	35.00
GWB-5R	26.50	47.82	9.52	38.30
GWB-6R	22.70	47.40	7.10	40.30
GWC-1	28.20	50.30	18.86	31.44
GWC-2	32.73	51.84	19.44	32.40
GWC-9	27.40	47.11	8.93	38.18
GWC-11	22.60	49.38	13.14	36.24
GWC-12	26.70	47.48	12.67	34.81
GWC-13	24.53	48.21	14.43	33.78
GWC-14	27.00	50.70	19.52	31.18
GWC-15	26.80	48.12	19.28	28.84
GWC-16	28.20	47.79	20.51	27.28
GWC-17	23.50	44.09	5.26	38.83
GWC-20	25.59	50.03	20.95	29.08
GWC-21	25.54	47.94	20.27	27.67
GWC-22	19.21	46.72	9.13	37.59
MW-23D	63.30	50.20	22.84	27.36
MW-24D	66.30	48.54	22.65	25.89
MW-25D	70.20	48.33	20.90	27.43
MW-26D	69.90	49.39	19.87	29.52
MW-27D	72.43	50.53	21.55	28.98

- Notes:
1. ft btoc - feet below top of casing.
  2. SD indicates feet relative to Site Datum.
  3. Depths to water measured on August 29, 2022.



ATLANTIC COAST  
CONSULTING, INC.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	PROPERTY BOUNDARY
	DETECTION MONITORING WELL GROUNDWATER ELEVATION
	PIEZOMETER
	ASSESSMENT MONITORING WELL
	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION

NOTES:

1. PROPERTY BOUNDARY SURVEYED BY GUNNIN LAND SURVEYING ON AUGUST 30, 2018.
2. VERTICAL DELINEATION WELLS MW-23D, MW-24D, MW-25D, MW-26D, AND MW-27D WERE INSTALLED IN DECEMBER 2020 AND JANUARY 2021.
3. GWC-13 RESURVEYED BY GUNNIN LAND SURVEYING ON NOVEMBER 10, 2021.
4. AERIAL PHOTOGRAPHY DATED 2022 FROM MICROSOFT CORPORATION, MAXAR, CNES, DISTRIBUTION AIRBUS DS.

PROJECT



GEORGIA POWER COMPANY  
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

2022 SEMIANNUAL GROUNDWATER MONITORING  
AND CORRECTIVE ACTION REPORT

AUGUST 2022 POTENTIOMETRIC  
SURFACE MAP

PROJECT NO. I054-116

February 2023

DRAWN BY: RW

FIGURE:

CHECKED BY: MM

C-17





## Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWA-7	47.28	5.19	42.09	1/3/2017
GWA-7	47.28	6.16	41.12	4/3/2017
GWA-7	47.28	5.45	41.83	7/10/2017
GWA-7	47.10	5.74	41.36	10/2/2017
GWA-7	47.10	6.76	40.34	1/8/2018
GWA-7	47.10	7.11	39.99	7/9/2018
GWA-7	47.10	6.42	40.68	1/15/2019
GWA-7	47.10	6.48	40.62	3/25/2019
GWA-7	47.10	7.01	40.09	8/26/2019
GWA-7	47.10	7.37	39.73	10/7/2019
GWA-7	47.10	5.95	41.11	4/6/2020
GWA-7	47.10	6.22	40.88	8/17/2020
GWA-7	47.10	5.16	41.91	9/28/2020
GWA-7	47.10	5.04	42.06	3/8/2021
GWA-7	47.10	5.34	41.76	9/20/2021
GWA-7	47.10	5.91	41.19	1/31/2022
GWA-7	47.10	5.94	41.16	8/29/2022
GWA-8	47.71	7.51	39.33	1/3/2017
GWA-8	47.71	8.07	38.77	4/3/2017
GWA-8	47.71	7.19	40.52	7/10/2017
GWA-8	46.84	7.41	39.43	10/2/2017
GWA-8	46.84	8.93	37.91	1/8/2018
GWA-8	46.84	8.94	37.90	7/9/2018
GWA-8	46.84	8.40	38.44	1/15/2019
GWA-8	46.84	8.90	36.94	3/25/2019
GWA-8	46.84	9.03	37.81	8/26/2019
GWA-8	46.84	8.81	38.03	10/7/2019
GWA-8	46.84	7.38	39.46	4/6/2020
GWA-8	46.84	7.36	39.48	8/17/2020
GWA-8	46.84	6.14	40.70	9/28/2020
GWA-8	46.84	6.00	40.84	3/8/2021
GWA-8	46.84	6.06	40.78	9/20/2021
GWA-8	46.84	7.22	39.62	1/31/2022
GWA-8	46.84	6.91	39.93	8/29/2022
GWB-4R	49.58	10.99	38.59	1/15/2019
GWB-4R	49.58	11.15	38.35	3/25/2019
GWB-4R	49.58	11.54	38.04	8/26/2019
GWB-4R	49.58	11.85	37.73	10/7/2019
GWB-4R	49.58	10.83	38.75	4/6/2020
GWB-4R	49.58	14.97	34.61	8/17/2020
GWB-4R	49.58	14.11	35.47	9/28/2020
GWB-4R	49.58	14.11	35.47	10/1/2020
GWB-4R	49.58	13.85	35.73	3/8/2021
GWB-4R	49.58	13.20	36.38	9/20/2021

Notes:

1. SD indicates feet relative to Site Datum.
2. ft BTOC indicates feet below top of casing.

### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWB-4R	49.58	14.54	35.04	1/31/2022
GWB-4R	49.58	14.58	35.00	8/29/2022
GWB-5R	47.82	9.55	38.27	1/15/2019
GWB-5R	47.82	9.97	37.85	3/25/2019
GWB-5R	47.82	10.58	37.24	8/26/2019
GWB-5R	47.82	10.88	36.94	10/7/2019
GWB-5R	47.82	8.66	39.16	4/6/2020
GWB-5R	47.82	10.06	37.76	8/17/2020
GWB-5R	47.82	8.75	39.07	9/28/2020
GWB-5R	47.82	8.81	39.01	3/8/2021
GWB-5R	47.82	9.00	38.82	9/20/2021
GWB-5R	47.82	9.32	38.50	1/31/2022
GWB-5R	47.82	9.52	38.30	8/29/2022
GWB-6R	47.40	7.42	39.98	1/15/2019
GWB-6R	47.40	7.75	39.65	3/25/2019
GWB-6R	47.40	8.46	38.94	8/26/2019
GWB-6R	47.40	8.50	38.90	10/7/2019
GWB-6R	47.40	7.12	40.28	4/6/2020
GWB-6R	47.40	7.80	39.60	8/17/2020
GWB-6R	47.40	6.22	41.18	9/28/2020
GWB-6R	47.40	5.78	41.62	3/8/2021
GWB-6R	47.40	6.46	40.94	9/20/2021
GWB-6R	47.40	6.90	40.50	1/31/2022
GWB-6R	47.40	7.10	40.30	8/29/2022
GWC-1	50.66	18.84	31.82	1/3/2017
GWC-1	50.66	19.00	31.66	4/3/2017
GWC-1	50.66	18.08	32.58	7/10/2017
GWC-1	50.30	18.00	32.30	10/2/2017
GWC-1	50.30	18.95	31.35	1/8/2018
GWC-1	50.30	19.26	31.04	7/9/2018
GWC-1	50.30	18.55	31.75	1/15/2019
GWC-1	50.30	18.94	31.36	3/25/2019
GWC-1	50.30	19.31	30.99	8/26/2019
GWC-1	50.30	19.55	30.75	10/7/2019
GWC-1	50.30	18.34	31.96	4/6/2020
GWC-1	50.30	19.16	31.14	8/17/2020
GWC-1	50.30	18.28	32.02	9/28/2020
GWC-1	50.30	18.20	32.10	3/8/2021
GWC-1	50.30	18.41	31.89	9/20/2021
GWC-1	50.30	18.77	31.53	1/31/2022
GWC-1	50.30	18.86	31.44	8/29/2022
GWC-10	47.39	7.93	39.46	1/3/2017
GWC-10	47.39	8.10	39.29	4/3/2017
GWC-10	47.39	7.01	40.38	7/10/2017

Notes:

1. SD indicates feet relative to Site Datum.
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**Historical Groundwater Elevations  
Grumman Road**

<b>Monitoring Well ID</b>	<b>Top of Casing Elevation (SD)</b>	<b>Depth to Water (ft BTOC)</b>	<b>Groundwater Elevation (SD)</b>	<b>Date (m/d/yyyy)</b>
GWC-10	47.39	9.27	38.12	10/2/2017
GWC-10	47.39	8.97	38.42	1/8/2018
GWC-10	47.39	9.77	37.62	7/9/2018
GWC-11	49.38	11.35	38.03	1/3/2017
GWC-11	49.38	11.52	37.86	4/3/2017
GWC-11	49.38	9.73	39.65	7/10/2017
GWC-11	49.38	12.99	36.39	10/2/2017
GWC-11	49.38	14.30	35.08	1/8/2018
GWC-11	49.38	13.18	36.20	7/9/2018
GWC-11	49.38	12.65	36.73	1/15/2019
GWC-11	49.38	9.55	39.83	3/25/2019
GWC-11	49.38	13.83	35.55	8/26/2019
GWC-11	49.38	14.15	35.23	10/7/2019
GWC-11	49.38	10.71	38.67	4/6/2020
GWC-11	49.38	12.66	36.72	8/17/2020
GWC-11	49.38	11.26	38.12	9/28/2020
GWC-11	49.38	10.87	38.51	3/8/2021
GWC-11	49.38	11.58	37.80	9/20/2021
GWC-11	49.38	12.30	37.08	1/31/2022
GWC-11	49.38	13.14	36.24	8/29/2022
GWC-12	47.44	11.48	35.96	1/3/2017
GWC-12	47.44	11.69	35.75	4/3/2017
GWC-12	47.44	9.92	37.56	7/10/2017
GWC-12	47.44	10.37	37.07	10/2/2017
GWC-12	47.48	12.70	34.78	1/8/2018
GWC-12	47.48	13.01	34.47	7/9/2018
GWC-12	47.48	12.02	35.46	1/15/2019
GWC-12	47.48	12.88	34.60	3/25/2019
GWC-12	47.48	13.79	33.69	8/26/2019
GWC-12	47.48	13.60	33.88	10/7/2019
GWC-12	47.48	10.70	36.78	4/6/2020
GWC-12	47.48	12.45	34.99	8/17/2020
GWC-12	47.48	11.13	36.35	9/28/2020
GWC-12	47.48	10.81	36.67	3/8/2021
GWC-12	47.48	11.48	36.00	9/20/2021
GWC-12	47.48	12.29	35.19	1/31/2022
GWC-12	47.48	12.67	34.81	8/29/2022
GWC-13	47.78	12.97	34.81	1/3/2017
GWC-13	47.78	12.98	34.80	4/3/2017
GWC-13	47.78	12.46	35.32	7/10/2017
GWC-13	47.82	11.99	35.83	10/2/2017
GWC-13	47.82	13.90	33.92	1/8/2018
GWC-13	47.82	14.32	33.50	7/9/2018
GWC-13	47.82	14.34	33.48	1/15/2019

Notes:

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### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWC-13	47.82	12.66	35.16	3/25/2019
GWC-13	47.82	14.34	33.48	8/26/2019
GWC-13	47.82	14.76	33.06	10/7/2019
GWC-13	47.82	12.06	35.76	4/6/2020
GWC-13	47.82	13.91	33.93	8/17/2020
GWC-13	47.82	12.43	35.39	9/28/2020
GWC-13	47.82	12.11	35.71	3/8/2021
GWC-13	47.82	12.43	35.39	9/20/2021
GWC-13	47.82	14.03	33.79	1/31/2022
GWC-13	47.82	14.43	33.39	8/29/2022
GWC-14	50.67	18.59	32.08	1/3/2017
GWC-14	50.67	18.85	31.82	4/3/2017
GWC-14	50.67	17.63	33.04	7/10/2017
GWC-14	50.70	17.67	33.03	10/2/2017
GWC-14	50.70	19.33	31.37	1/8/2018
GWC-14	50.70	19.56	31.14	7/9/2018
GWC-14	50.70	18.55	32.15	1/15/2019
GWC-14	50.70	19.19	31.51	3/25/2019
GWC-14	50.70	19.65	31.05	8/26/2019
GWC-14	50.70	19.92	30.78	10/7/2019
GWC-14	50.70	17.97	32.73	4/6/2020
GWC-14	50.70	19.51	31.19	8/17/2020
GWC-14	50.70	18.53	32.17	9/28/2020
GWC-14	50.70	18.04	32.66	3/8/2021
GWC-14	50.70	18.53	32.17	9/20/2021
GWC-14	50.70	19.12	31.58	1/31/2022
GWC-14	50.70	19.52	31.18	8/29/2022
GWC-15	48.08	18.71	29.37	1/3/2017
GWC-15	48.08	18.90	29.22	4/3/2017
GWC-15	48.08	18.07	30.01	7/10/2017
GWC-15	48.12	18.24	29.88	10/2/2017
GWC-15	48.12	19.25	28.87	1/8/2018
GWC-15	48.12	19.29	28.83	7/9/2018
GWC-15	48.12	18.63	29.49	1/15/2019
GWC-15	48.12	18.97	29.15	3/25/2019
GWC-15	48.12	19.31	28.81	8/26/2019
GWC-15	48.12	19.54	28.58	10/7/2019
GWC-15	48.12	18.45	29.67	4/6/2020
GWC-15	48.12	19.28	28.84	8/17/2020
GWC-15	48.12	18.63	29.49	9/28/2020
GWC-15	48.12	18.33	29.79	3/8/2021
GWC-15	48.12	18.79	29.33	9/20/2021
GWC-15	48.12	19.03	29.09	1/31/2022
GWC-15	48.12	19.28	28.84	8/29/2022

Notes:

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### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWC-16	47.78	20.12	27.66	1/3/2017
GWC-16	47.78	20.22	27.56	4/3/2017
GWC-16	47.78	23.56	24.22	7/10/2017
GWC-16	47.78	19.89	27.89	10/2/2017
GWC-16	47.79	20.58	27.21	1/8/2018
GWC-16	47.79	20.05	27.74	7/9/2018
GWC-16	47.79	19.92	27.87	1/15/2019
GWC-16	47.79	20.34	27.45	3/25/2019
GWC-16	47.79	20.70	27.09	8/26/2019
GWC-16	47.79	20.92	26.87	10/7/2019
GWC-16	47.79	19.97	27.82	4/6/2020
GWC-16	47.79	20.71	27.08	8/17/2020
GWC-16	47.79	19.88	27.91	9/28/2020
GWC-16	47.79	19.50	28.29	3/8/2021
GWC-16	47.79	20.14	27.65	9/20/2021
GWC-16	47.79	20.29	27.50	1/31/2022
GWC-16	47.79	20.51	27.28	8/29/2022
GWC-17	44.14	5.15	38.99	1/3/2017
GWC-17	44.14	5.89	38.25	4/3/2017
GWC-17	44.14	4.92	39.22	7/10/2017
GWC-17	44.09	5.95	38.14	10/2/2017
GWC-17	44.09	6.02	38.07	1/8/2018
GWC-17	44.09	7.29	36.80	7/9/2018
GWC-17	44.09	5.66	38.43	1/15/2019
GWC-17	44.09	6.65	37.44	3/25/2019
GWC-17	44.09	6.52	37.57	8/26/2019
GWC-17	44.09	7.35	36.74	10/7/2019
GWC-17	44.09	6.81	37.28	4/6/2020
GWC-17	44.09	6.42	37.67	8/17/2020
GWC-17	44.09	4.60	39.49	9/28/2020
GWC-17	44.09	4.88	39.21	3/8/2021
GWC-17	44.09	4.37	39.72	9/20/2021
GWC-17	44.09	5.99	38.10	1/31/2022
GWC-17	44.09	5.26	38.83	8/29/2022
GWC-19	47.14	7.95	39.19	1/3/2017
GWC-2	49.32	12.75	36.57	1/3/2017
GWC-2	49.32	13.15	36.17	4/3/2017
GWC-2	49.32	11.78	37.54	7/10/2017
GWC-2	49.32	11.93	37.39	10/2/2017
GWC-2	49.32	14.01	35.31	1/8/2018
GWC-2	49.32	14.20	35.12	7/9/2018
GWC-2	49.15	13.05	36.10	1/15/2019
GWC-2	51.84	18.79	33.05	7/30/2019
GWC-2	51.84	19.53	32.31	8/26/2019

Notes:

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### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWC-2	51.84	19.94	31.90	10/7/2019
GWC-2	51.84	17.44	34.40	4/6/2020
GWC-2	51.84	19.23	32.61	8/17/2020
GWC-2	51.84	18.06	33.78	9/28/2020
GWC-2	51.84	17.76	34.08	3/8/2021
GWC-2	51.84	18.37	33.47	9/20/2021
GWC-2	51.84	18.87	32.97	1/31/2022
GWC-2	51.84	19.44	32.40	8/29/2022
GWC-20	49.31	19.82	29.49	1/3/2017
GWC-20	49.31	20.05	29.26	4/3/2017
GWC-20	49.31	20.33	28.98	7/10/2017
GWC-20	50.03	20.19	29.84	10/2/2017
GWC-20	50.03	21.00	29.03	1/8/2018
GWC-20	50.03	21.11	28.92	7/9/2018
GWC-20	50.03	20.51	29.52	1/15/2019
GWC-20	50.03	20.84	29.19	3/25/2019
GWC-20	50.03	21.06	28.97	8/26/2019
GWC-20	50.03	21.39	28.64	10/7/2019
GWC-20	50.03	20.55	29.48	4/6/2020
GWC-20	50.03	21.19	28.84	8/17/2020
GWC-20	50.03	20.49	29.54	9/28/2020
GWC-20	50.03	20.31	29.72	3/8/2021
GWC-20	50.03	20.47	29.56	9/20/2021
GWC-20	50.03	20.79	29.24	1/31/2022
GWC-20	50.03	20.95	29.08	8/29/2022
GWC-21	47.09	19.16	27.93	1/3/2017
GWC-21	47.09	19.83	27.26	4/3/2017
GWC-21	47.09	18.42	28.67	7/10/2017
GWC-21	47.94	19.69	28.25	10/2/2017
GWC-21	47.94	20.50	27.44	1/8/2018
GWC-21	47.94	20.54	27.40	7/9/2018
GWC-21	47.94	19.85	28.09	1/15/2019
GWC-21	47.94	20.28	27.66	3/25/2019
GWC-21	47.94	20.55	27.39	8/26/2019
GWC-21	47.94	20.85	27.09	10/7/2019
GWC-21	47.94	19.86	28.08	4/6/2020
GWC-21	47.94	20.64	27.30	8/17/2020
GWC-21	47.94	19.73	28.21	9/28/2020
GWC-21	47.94	19.53	28.41	3/8/2021
GWC-21	47.94	20.08	27.86	9/20/2021
GWC-21	47.94	20.23	27.71	1/31/2022
GWC-21	47.94	20.27	27.67	8/29/2022
GWC-22	46.39	6.91	39.48	1/3/2017
GWC-22	46.39	7.12	39.27	4/3/2017

Notes:

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### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWC-22	46.39	5.71	40.68	7/10/2017
GWC-22	46.72	3.25	43.47	10/2/2017
GWC-22	46.72	8.11	38.61	1/8/2018
GWC-22	46.72	9.84	36.88	7/9/2018
GWC-22	46.72	8.29	38.43	1/15/2019
GWC-22	46.72	8.75	37.97	3/25/2019
GWC-22	46.72	9.49	37.23	8/26/2019
GWC-22	46.72	9.64	37.08	10/7/2019
GWC-22	46.72	7.12	39.60	4/6/2020
GWC-22	46.72	8.41	38.31	8/17/2020
GWC-22	46.72	7.25	39.47	9/28/2020
GWC-22	46.72	6.57	40.15	3/8/2021
GWC-22	46.72	7.26	39.46	9/20/2021
GWC-22	46.72	8.02	38.70	1/31/2022
GWC-22	46.72	9.13	37.59	8/29/2022
GWC-3	49.77	19.87	29.90	1/3/2017
GWC-3	49.77	20.15	29.62	4/3/2017
GWC-3	49.77	19.33	30.44	7/10/2017
GWC-3	49.77	19.63	30.14	10/2/2017
GWC-3	49.77	20.22	29.55	1/8/2018
GWC-3	49.77	20.47	29.30	7/9/2018
GWC-4	49.04	13.70	35.34	1/3/2017
GWC-4	49.04	13.81	35.23	4/3/2017
GWC-4	49.04	13.12	35.92	7/10/2017
GWC-4	49.04	14.81	34.23	10/2/2017
GWC-4	49.04	14.20	34.84	1/8/2018
GWC-4	49.04	14.43	34.61	7/9/2018
GWC-5	48.51	9.85	37.97	1/3/2017
GWC-5	48.51	10.76	37.75	4/3/2017
GWC-5	48.51	10.40	38.11	7/10/2017
GWC-5	48.51	11.21	37.30	10/2/2017
GWC-5	48.51	11.32	37.19	1/8/2018
GWC-5	48.51	11.87	36.64	7/9/2018
GWC-6	48.28	7.91	40.37	1/3/2017
GWC-6	48.28	8.47	39.81	4/3/2017
GWC-6	48.28	8.12	40.16	7/10/2017
GWC-6	48.28	8.67	39.61	10/2/2017
GWC-6	48.28	9.26	39.02	1/8/2018
GWC-6	48.28	9.81	38.47	7/9/2018
GWC-9	47.18	8.13	39.05	1/3/2017
GWC-9	47.18	8.45	38.73	4/3/2017
GWC-9	47.18	6.89	40.29	7/10/2017
GWC-9	47.11	9.81	37.30	10/2/2017
GWC-9	47.11	8.90	38.21	1/8/2018

Notes:

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### Historical Groundwater Elevations Grumman Road

Monitoring Well ID	Top of Casing Elevation (SD)	Depth to Water (ft BTOC)	Groundwater Elevation (SD)	Date (m/d/yyyy)
GWC-9	47.11	9.69	37.42	7/9/2018
GWC-9	47.11	8.73	38.38	1/15/2019
GWC-9	47.11	9.26	37.85	3/25/2019
GWC-9	47.11	10.11	37.00	8/26/2019
GWC-9	47.11	10.33	36.78	10/7/2019
GWC-9	47.11	7.66	39.45	4/6/2020
GWC-9	47.11	8.70	38.41	8/17/2020
GWC-9	47.11	7.40	39.71	9/28/2020
GWC-9	47.11	7.86	39.25	10/1/2020
GWC-9	47.11	6.93	40.18	3/8/2021
GWC-9	47.11	7.94	39.17	9/20/2021
GWC-9	47.11	8.44	38.67	1/31/2022
GWC-9	47.11	8.93	38.18	8/29/2022
MW-23D	50.20	22.92	27.27	1/21/2021
MW-23D	50.20	22.05	28.15	3/8/2021
MW-23D	50.20	22.28	27.92	9/20/2021
MW-23D	50.20	22.62	27.58	1/31/2022
MW-23D	50.20	22.84	27.36	8/29/2022
MW-24D	48.54	29.61	25.77	1/21/2021
MW-24D	48.54	22.05	26.49	3/8/2021
MW-24D	48.54	22.22	26.32	9/20/2021
MW-24D	48.54	22.51	26.03	1/31/2022
MW-24D	48.54	22.65	25.89	8/29/2022
MW-25D	48.33	20.90	27.43	1/21/2021
MW-25D	48.33	19.95	28.38	3/8/2021
MW-25D	48.33	20.34	27.99	9/20/2021
MW-25D	48.33	20.62	27.71	1/31/2022
MW-25D	48.33	20.90	27.43	8/29/2022
MW-26D	49.39	19.87	29.52	1/21/2021
MW-26D	49.39	18.73	30.66	3/8/2021
MW-26D	49.39	18.97	30.42	9/20/2021
MW-26D	49.39	19.51	29.88	1/31/2022
MW-26D	49.39	19.87	29.52	8/29/2022
MW-27D	50.53	21.63	28.90	1/21/2021
MW-27D	50.53	20.50	30.03	3/8/2021
MW-27D	50.53	20.83	29.70	9/20/2021
MW-27D	50.53	21.26	29.27	1/31/2022
MW-27D	50.53	21.55	28.98	8/29/2022

Notes:

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