MONITORING
and
MAINTENANCE PLAN
for
CITY OF WAYNESBORO

Bates Road Landfill Site
Burke County, Georgia
EPD HSI #10322

TAX ID PARCEL #082A 022

PREPARED BY
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1.0 INTRODUCTION

1.1 Background

The City of Waynesboro in Burke County owns an old landfill site located at 333 Bates Road, east of Waynesboro off State Route 56. The site was operated as an open "city dump" for solid waste material up until the early 1970s. This site was essentially a location where solid waste material was placed and then burned. In the early 1970s, Georgia passed the Solid Waste Management Act which resulted in EPD working with communities to subsequently close all of the "open waste dumps" and creating landfills. By the mid-1970s, this site had been closed and capped in accordance with the Environmental Protection Division (EPD) requirements of the day.

In 1990s, EPA, under the CERCLA requirements, was initializing a cleanup of the defunct Atlas Chemical Company site in Waynesboro. Based on research information from the EPA contractor working on the Atlas site, there was reason to believe Atlas may have disposed of certain chemical waste at the City open dump site on Bates Road.

Atlas Chemical Company was a manufacturer of DDT along with other products and this old manufacturing site is now on EPA CERCLA or Superfund site. EPA authorized their contractor to perform limit testing of the soils and groundwater at the Bates Road landfill site. The work by the EPA Contractor ultimately resulted in the site being listed on the Georgia Hazardous Site Inventory (HSI). The City was notified of the listing and directed to install groundwater, soil and surface water monitoring systems and to perform sampling and testing of the groundwater, soils and surface water on and downgradient from the Bates Road site. Testing was for a host of parameters including DDT and its daughter products.

The landfill site of approximately 10 acres was identified to contain approximately 6.5 acres of waste envelope with a depth varying 2-3 feet below grade to upwards of 25-30 feet thick. The monitoring plan includes groundwater and surface water monitoring and shallow soil borings for soil sample.

After years of groundwater and surface water monitoring along with soil sample analysis and reporting the data to EPD, EPD authorized and subsequently approved a City proposed Corrective Action Plan to remediate the Bates Road Landfill site. The Corrective Action Plan included installing a clay cap and vegetative layer over the approximately 6.5 acre waste envelope. The Corrective Action Plan also included a final groundwater monitoring system consisting of a number of wells; methane monitoring system consisting of a number of wells and

surface watering monitoring points for various down gradient surface water sample locations. The plans also include upgradient wells and surface monitoring point.

Plans for the Corrective Action Plan that have been approved by EPD are available at the City or at the office of the Engineer in charge of the Project, Armentrout Matheny Thurmond, P.C., Charles S. Armentrout, P.E., 330 Research Drive, Suite A-240, Athens, Georgia, 30605, 706-548-8211. A copy is included in the appendix of this report. The Corrective Action Plan has been constructed and implemented in accordance with the EPD approval plans. An Environmental Covenant document has been developed and executed by EPD and the City and is recorded at the Burke County Clerk of Courts.

A final Compliance Status Report (CSR) was approved by EPD and is available in digital format from the City Manager's office. Following approval of the Compliance Status Report, EPD should delist this landfill form the Hazardous Site Inventory.

1.2 Purpose of Monitoring and Maintenance Plan

This Monitoring and Maintenance Plan is consistent with the implementation of the Corrective Action Plan and the Environmental Covenant document recorded in the Clerk of Superior Court of Burke County, Georgia and with the provisions and requirements shown in the EPD approved Compliance Status Report.

This Monitoring and Maintenance Plan is designed to meet the following objectives:

- Describe the procedures to be used to maintain the integrity and effectiveness of the cap that was installed over the approximately 6.5 acre waste envelope, including making any repairs as necessary.
- Describe the features necessary along with the frequency for sampling and analysis schedule for monitoring and maintaining the groundwater monitoring system.
- Describe the features necessary along with the frequency for sampling and analysis for monitoring the surface water sampling locations.
- Describe the features necessary along with the frequency for sampling and analysis schedule for monitoring and maintaining the methane monitoring system.
- Describe the features necessary to prevent surface water run-on and run-off from eroding or otherwise damaging the cap over the waste envelope.

The purpose of this Monitoring and Maintenance Plan is to outline in detail the requirements of the City to operate, maintain and monitor the site until such time that the EPD shall release the site from such obligations. This Monitoring and Maintenance Plan contains schedules to be kept by the City and anticipated time frame for release of such obligations by EPD.

This Monitoring and Maintenance Plan describes frequency of various site inspections and various monitoring activities to be carried out by the City of Waynesboro and their Engineer along with the reporting that must be provided to the EPD on a scheduled basis.

1.3 Site Information

The site contains approximately 10 acres of which approximately 6.5 acres constitutes the waste envelope and thus received the clay cap in accordance with the EPD approved Corrective Action Plan. The site is adjacent to agricultural and single family residential property on the north, east and west (across Bates Road). To the south is MacIntosh Creek, a tributary to Briar Creek in the Savannah River Basin. A portion of the site contains jurisdictional wetlands. Part of the waste envelope was found to be in these wetlands. Prior to construction of the Corrective Action Plan, the City obtained approval from the Corps of Engineers under the Nationwide Permit Program to encroach into the wetlands and install a cap over the portion of the waste envelope located in the wetlands. The Corps of Engineers authorized the construction activity under NWP 38. The Certificate of Compliance was submitted to the US Corps of Engineers on May 8, 2014. Copy of the Corps of Engineers authorization and the Certificate of Compliance are contained in Appendix "B".

A copy of the Environmental Covenant document that is recorded with the office of the Burke County Clerk of Superior Court is contained in Appendix "A". The Plat portion of the document is recorded in Plat Book 2020, Page(s) 58-58, File No. P2020000050 and a copy is contained in Figure 2.

The Plat reflects the "as-built" survey of the site at the completion of the construction of the Corrective Action Plan; that is the cap and monitoring systems. All coordinates shown for the site boundary, the approximate limitation of the waste envelope and cap and the various wells and surface water monitoring points are based on the Georgia State Plane Coordinate System and the elevations are on the NAVD 83 datum.

The complete set of the EPD approved Corrective Action Plans are contained in Appendix "C".

2.0 ENGINEERING CONTROLS

2.1 General

Purpose of the engineering controls is to prevent surface water and precipitation from entering into and penetrating the solid waste envelope. The concept is to keep the solid waste envelope essentially dry throughout its thickness, thus reducing or eliminating any migration down gradient of contaminants that may be within the waste envelope.

2.2 Clay Cap and Vegetative Layer

The clay cap and vegetative layer have been installed over the approximate 6.5 acre waste envelope area as shown on the approved Corrective Action Plan, and the plat shown in Figure 2. The waste envelope consists of approximately 6.5 acres of the total 10 acre site. The grade on the remainder of the 10 acres (approximately 3.5 acres) was essentially unchanged from the original topography except where it was blended with the 24" cover material (cap and vegetative layers) to garner a smooth transition.

2.3 Clay Cap

Clay Cap consists of 18" minimum thickness layer of impermeable clay soil with a maximum permeability of at least 10^{-5} cm/sec. Testing during construction indicated permeability values less than 10^{-5} cm/sec and as low as 10^{-7} cm/sec. The clay used for the cap was derived from the neighboring site owned by the City. Additional material, if needed for repair of the clay cap can be obtained from this site. Any repair of the clay cap should be tested to conform to the compaction requirements noted in this paragraph and shown on the Corrective Action Plan in Appendix C. If repairs are necessary compaction should be confirmed to achieve 10^{-5} to 10^{-7} cm/sec.

2.4 Vegetation Layer

At least 6" of top soil mixture was placed on the clay cap. This top soil mixture included top soil mixed with organic mulch material and various nutrients and lime all blended together prior to placement. This vegetation layer is thicker in areas to allow for a smoothing out of the surface topography. This top soil mixture shown on the Corrective Action Plan (Appendix C) should be used if the vegetation layer is damaged and must be repaired.

2.5 Final Vegetation

Bermuda grass is the final vegetative cover. This cover material should provide good soil erosion properties, yet prevent any root intrusion into the clay cap. If any brush or tree seedlings are identified on the site, they must be cut immediately to limit damage and penetration by their root system.

2.6 Stormwater Management and Run-off Control

Stormwater is designed to flow overland in all directions and there is no piping or inlet system. With a good Bermuda grass cover, there should be no stormwater rivulets created during heavy precipitation events.

Any rivulets created by run-off must be corrected immediately to minimize damage to the vegetation layer and the 18" thick clay cap.

2.7 Erosion Control

In theory, with proper inspection and oversight of the site, there should not be any need for erosion control on the site. Stormwater management has been designed with the concept to limit both short and long term erosion. Diversion berms and slope protection used during construction were left in place and should be inspected and repaired as necessary.

If there becomes a need for any on-site erosion control, follow the requirements shown in the erosion control plans in Appendix C, EPD Approved Corrective Action Plans.

Use only silt fence Type C and do not dig into the vegetation layer; install silt fence outside of the capped area. If siltation control is required on the capped area, use straw bales staked down firmly and reseed disturbed areas with Bermuda grass or Bermuda sod immediately to prevent further damage. Water the sod or grassed area daily and inspect weekly to confirm growth.

On slopes outside the capped area where erosion does occur, use slope matting after filling any rivulets with compacted soil. See the plans in Appendix C for installation of such.

3.0 MAINTENANCE AND INSPECTION PLAN AND ANNUAL REPORTING

The City is required to perform periodic inspections and all maintenance on the landfill site including the area within the cap and the area between the cap and the fence boundary. Inspections are to be performed by the City personnel within the Public Works Department. Yearly inspections are to be performed by the Public Works Department Director along with the City Engineering Consultant.

3.1 General

The design of this Monitoring and Maintenance Plan is predicated on the Bates Road Landfill site being inspected quarterly by a qualified person familiar with this plan and the site. This person must be familiar with the location and site conditions and be capable of developing the required report following the instructions below. The inspection person must have the proper tools as listed below:

- Handheld GPS unit accurate to 3 feet.
- Measuring tape – 100 feet or measuring wheel.
- Digital camera with a 3-4 megapixel lens.
- Scale for scaling on the drawings in the Appendix and Figure 2
- Lubricant for hinges and locks.
- Spray Paint – White as used for construction. Do Not use paints that are designated for various utilities.

3.2 Quarterly Inspections

Quarterly inspections can be performed by the Public Works Department Director or his designated staff person as long as he or she is qualified and understands what he or she is looking for. Qualifications are simple – this person must understand site conditions, erosion issues and be able to traverse the entire landfill site and document with comments and take adequate notes to construct a detailed inspection report. He or she must be capable of using the tools listed above.

3.3 Detail of Inspection

To Include:

a. Inspect all groundwater and methane wells. (See various sections of the Monitoring and Maintenance Plan and the Plat in Figure 2). Confirm all wells have the stainless steel top cover with lock in place and that well designation is clearly marked: concrete slab with nail in slab is in good condition and all vegetation is cleared around well such that it can be easily found. Take several photographs of each well documenting condition. These photographs are to be

used for comparison purposes in subsequent follow up inspections to assist in determining any future maintenance requirements.

b. Traverse the entire perimeter fence and photo document that fence is in good condition and all signs are in place and legible. Note where repairs are necessary, signs need to be replaced and other issues. Confirm gates are in good condition and lubricate hinges and all moving parts. Confirm locking system is in good repair and lubricate lock.
c. Crisscross the entire site generally pacing or using a GPS hand held unit and roller tape device. Using fence as a datum, mark where the limits of the capped area are located and using spray paint denote these limits on the ground.
d. Check the entire site for evidence of erosion noting especially any erosion occurring on the capped area and the slopped area to the east of the capped area. Photo document and mark on a copy of the Plat (Figure 2) where erosion is occurring. Use GPS unit to obtain approximate coordinates.
e. Check the areas outside the capped area for erosion and photo document and mark on a copy of the Plat (Figure 2) and obtain and log GPS coordinates. Coordinate locations with photographs.
f. Check the entire site for signs of any vegetation other than Bermuda grass and weeds. Mark with flagging any brush, tree seedlings or other vegetation that must be removed. Follow up to confirm the brush and tree seedlings are removed.
g. Check entire site, but most importantly the area to the west of the cap between the capped area and the fence at Bates Road and the private road to the north for any signs of distressed vegetation.
h. Quarterly inspection of the site must include noting of any distressed vegetation. If distressed vegetation is noted, then the City should proceed immediately to perform methane monitoring if it is believed the vegetation is stressed by subsurface methane gas leaking around the perimeter of the clay cap and the vegetation layer. It is doubtful that methane gas will leak up through the clay cap.
i. Print all photographs, no more than one photograph per sheet and label with date, name of photographer, name of site-"Bates Road Landfill" and what the photograph is intending to depict. Mark on a copy of the Plat (Figure 2) where the photograph was taken. Note any required follow-up action that is required.

j. Complete the quarterly inspection with a report using the forms in Appendix H along with the marked up copy of the Plat (Figure 2) and all the photographs taken on the property dated and noting the inspectors name and where the photographs were taken.

   Note any follow up work that must be done before the next quarterly inspection.

k. The next quarterly inspection must include field verification that all work items noted in the previous report were completed and field document with photographs what work was completed and any conditions that require additional attention.

l. Review the report, with all documents attached, with the Public Works Department Director and City Manager and revise as needed. Forward a copy to the City Consultant Engineer.

3.4 Annual Inspection

a. The Public Works Department Director and Consultant Engineer should review the quarterly reports. The fourth quarter inspection may be performed in conjunction with this annual inspection.
b. The Public Works Department Director and Consultant Engineer shall prepare an annual report with an executive summary listing all items regarding repairs and all repairs performed during the year. The annual report is to include all of the quarterly reports (four total) and any sampling and laboratory analysis performed during the year.
c. The yearly report shall be submitted to EPD by the City Manager by no later than the end of the first quarter of the next year.

3.5 Monitoring Frequency

a. This Monitoring and Maintenance Plan proposes for the City to perform groundwater, surface water and methane monitoring as described in Section 4, 5, and 6 herein and five year frequency with the first event to be conducted in the third quarter of 2021 and thence each five year after.
b. EPD reserves the right to require this frequency to be changed should exceedances in either groundwater or surface water parameters be detected and/or if methane is detected. EPD shall provide written directions to the City to modify the event frequency.
c. If sampling events conducted in 2021 and 2026 and assuming EPD does not issue any directive to sample more often and assuming no substantial changes in the various parameters that are laboratory analyzed, the City may request in writing to EPD that future sampling events be discontinued. EPD will act in good faith and within a reasonable time frame on this written request by the City.

4.0 GROUNDWATER MONITORING PLAN

This section presents the ground water monitoring plan for the Bates Road Landfill during the post-closure period. The plan establishes the frequency of, and locations for, monitoring. Appendix D includes a detailed groundwater sampling and analysis procedure. Appendix E contains the boring logs for the ten wells.

4.1 Purpose and Requirements

The Bates Road Landfill groundwater monitoring plan has been implemented to determine groundwater quality impacts. The ground water monitoring system was first implemented in circa 2000 and modified with the construction of the Corrective Action Plan. Groundwater monitoring results will be used to evaluate upgradient versus downgradient groundwater quality at the landfill until the site is released by EPD with no further monitoring or testing required.

4.2 Well Construction

Groundwater monitoring wells at the Bates Road Landfill are designed and constructed as monitoring wells under EPD requirements. See Appendix E for the logs of these wells.

4.3 Well Locations

Ten groundwater monitoring wells are installed at the Bates Road Landfill, one upgradient and nine downgradient. The well locations were selected and approved as part of the Corrective Action Plan. One of the groundwater monitoring wells is upgradient of the landfill and the other wells are downgradient. Table 4-1 gives location and construction information on the monitoring wells in place at the completion of the Corrective Action Plan. The Corrective Action Plan (Appendix C) shows the cross section of a typical groundwater monitoring well and Table 4-1 shows the specific construction infrastructure for each well.

In accordance with the final Compliance Status Report (CSR), wells MWA-1, MWA-5, MWB-13 and MWB-8 are not to be sampled but these four wells are to be left in place and each sampling event, these four wells are to be inspected and baled to establish level of groundwater; no samples are to be obtained unless written directions to do so are issued by EPD.

Table 4-1. Groundwater Monitoring Wells-All Wells are 3.25" Ø with 2" Slotted Screen

	Well ID	Type	Northing	Easting	Elevation Top of Slab	Screen Length (feet)	Borehole Depth (feet)	Depth to Ground water (feet) (at constr)	Depth to Top of Screen (feet)
*	MWA-5	Upgradient	1131396.42	716447.02	226.18	18.5	20	14	4
*	MWA-1	Downgradient	1130731.94	716424.54	223.30	12	45	39	30
	MWA-2	Downgradient	1131083.82	716251.84	249.78	11	30	25	19
	MWB-6	Downgradient	1131091.03	716651.36	212.41	10	15	9	5
*	MWB-8	Downgradient	1130483.97	716842.56	204.62	15	20	14	5
	MWB-11	Downgradient	1131044.12	716803.66	201.83	3.5	5	2	2
*	MWB-13	Downgradient	1131088.52	716926.73	198.92	10	15	8	3
	MWB-14	Downgradient-offsite	1131200.65	716676.57	211.75	10	15	12	3
	MWB-15	Downgradient	1130603.61	716871.15	201.04	11	15	5	2
	MWB-16	Downgradient	1130736.97	716929.94	193.44	3	8	2	5

***Note: Wells are not to be sampled during routine sampling events**

4.4 Groundwater Quality Sample Parameters

Groundwater samples for the six wells are to be submitted for laboratory analysis for the following EPA-approved methods: (Note: If directed in writing by EPD, the remaining four wells are to be sampled.)

- SW-846 Method 8260B-Volatile Organic Compounds (VOCs)
- SW-846 Method 6010B-Metals (including uranium)
- SW-846 Method 7470A-Mercury
- SW-846 Method 8270C-Semivolatile Organic Compounds

Inspection of the four wells (noted with the * in Table 4.1) is to include removal of the lock and verify that the vent is open; bail the wells and establish the level of groundwater all as described in Appendix D. Record data for each well and compare to information provided in Table 4.1 and Appendix E.

4.5 Sampling Procedures and Scheduling

Groundwater sampling will be conducted in accordance with the most current version of the "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document" (EPA/530/SW-86/055). Groundwater monitoring will include water levels measurements, conventional groundwater purging and sampling, quality control field samples, and proper equipment decontamination.

The city has the obligation to determine and confirm the consultant hired to perform the periodic purging and sampling of the wells is knowledgeable and complies with the Appendix D requirements. Sampling of wells is to be

performed at a frequency of one time in a five year period with the first set of sampling to be performed in the third quarter of 2021 and each five year period thereafter, until the City obtains a release from EPD that no further sampling events are required.

Detail procedures for sampling wells is contained in Appendix D which is provided as general information to the City. The City should not attempt to perform groundwater sampling in house; but should hire a qualified consultant. Appendix D documents should assist in this hiring.

Appendix E contains the logs from each well that is to be sampled. These logs should be provided to the hired consultant.

4.6 Laboratory Procedures Summary

Analytical methods and reporting limits (RLs), data reporting procedures, laboratory quality assurance and quality control procedures, and laboratory data validation and contractor validation procedures are to be conducted in accordance with EPA-approved methods. Groundwater samples will be submitted to an EPS-approved analytical laboratory for the analysis of parameters listed above.

4.7 Data Evaluation and Reporting

Groundwater monitoring results will be included in the annual Bates Road Landfill monitoring reports within the year the sampling and analysis are performed. Groundwater sampling and analysis are scheduled for once in 5 year frequency with the next analysis to be in the third quarter of 2021.

For the four wells that are not to be sampled, report the results of the inspection only.

5.0 SURFACE WATER MONITORING PLAN

As part of Bates Road Landfill post-closure monitoring, surface water will be monitored at designated locations shown on the plat designated as Figure 2. There are six locations (all off-site) where samples are to be obtained. Appendix F contains a more complete procedures for sampling surface water locations and is provided as guidance to the City. The City should hire a qualified consultant to perform this sampling. This sampling should not be attempted in house.

The City should be familiar with the Appendix F procedures. The City has the responsibility to determine and confirm that the consultant hired to perform the sampling and analysis of the surface water monitoring plan is knowledgeable and complies with the Appendix F requirements

5.1 Purpose and Requirements

The Bates Road Landfill surface water monitoring plan has been implemented to determine surface water quality impacts. Applicable surface water standards for which analysis are to be performed are shown below.

5.2 Sample Locations

Sampling for water quality is to be conducted at the locations shown on Figure 2 and listed as follows:

Table 5-1. Surface Water Monitoring Points (See Plat, Figure 2)

SW ID	Description	Northing	Easting	Elevation Top Of Ground	Notes
SW-3N	Culvert Inlet	1130398.89	717371.00	188.72	Off-site on Jenkins & Sello Property
SW-3S	Culvert Outlet	1130324.02	717340.32	186.50	Off-site on Jenkins & Sello Property
SW-4		1130936.34	717068.81	192.36	Off-site on Jenkins & Sello Property
SW-5		1130991.08	717333.30	187.41	Off-site on Jenkins & Sello Property
SW-6	Top 8" PVC (Pond Inlet)	1131107.43	716963.94	196.99	On Bates Road R/W North of Box Culvert
SW-7	Pond Outlet	1131029.88	717236.66	189.82	On Bates Road R/W North of Box Culvert

The six surface water sampling locations listed in Table 5-1 are to be sampled for each sampling event described in Paragraph 5.4. EPD may direct in writing additional surface water sampling locations and if so directed (in writing), the City shall add these locations to Table 5-1 noting the information for each per Table 5-1.

5.3 Surface Water Sample Parameters

The analytical results derived through the use of these methods for those analytes listed above will be reported.

Parameter	Method	
TSS Dried at 103-105°	SM2540D	Standard Methods Procedure
Hardness	SM2340B	Standard Methods, Tritration Method
Mercury	SW7470A	
Chlorine Pesticides	SW8081B	
Volatile Organics	SW8260B	
Metals	SW6010D	

5.4 Sampling Procedures, Scheduling and Reporting

Surface water sampling will be conducted in accordance with the most current version of the SAP. Surface water monitoring will include quality control field samples and proper equipment decontamination.

Surface water sampling and analysis of sites shown on Figure 2 are to be performed at a frequency of each five year period when the groundwater monitoring wells are sampled, beginning in the third quarter of 2021 with the next set of sampling and analysis to be in the third quarter of 2021 and each five years thereafter until the site is released by EPD with no further monitoring or testing required.

5.5 Laboratory Procedures Summary

Analytical methods and laboratory procedures, data reporting procedures, laboratory quality assurance and quality control procedures, and laboratory data validation and contractor validation procedures are to be conducted in accordance with EPA-approved methods and Standard Methods as applicable. Samples will be submitted to an EPA-approved analytical laboratory for the analysis listed in Section 5.3.

5.6 Reporting

Surface water sampling results will be included in the annual Bates Road Landfill monitoring report discussed in Section 7.0.

6.0 METHANE MONITORING PLAN

This section presents the methane monitoring plan for the Bates Road Landfill during the post-closure period. The plan established the frequency of, and locations for monitoring.

6.1 Purpose and Requirements

The Bates Road Landfill methane monitoring plan has been implemented to determine methane quality impacts. The methane monitoring system was first implemented in circa 2000 and modified with the construction of the Corrective Action Plan. The data from the 20 years of methane monitoring at this site has shown that no methane has been detected at the site in the 20 year period.

6.2 Well Locations

Six methane monitoring wells are installed at the Bates Road Landfill. The well locations were selected and approved as part of the Corrective Action Plan. One of the methane monitoring wells is upgradient of the landfill and the other wells are downgradient. Table 6-1 gives location and construction information on the monitoring wells in place at the completion of the Corrective Action Plan.

Appendix G contains a copy of the well boring logs for the six methane wells.

Table 6-1. Methane Monitoring Wells

Well ID	Type	Northing	Easting	Elevation Top of Slab	Screen Length (feet)	Borehole Depth (feet)	Depth to Ground water (ft.) (at constr)	Depth to Top of Screen (feet)
MM-5	Upgradient-NE Corner of Site	1131191.81	716059.22	243.63	30	34	31	4
MM-6	Upgradient-NW Corner of Site	1131416.17	716425.15	228.31	20	23	20	4
MM-1	Along Eastern Boundary of the Waste Envelope	1130661.48	716686.38	207.96	15	18	16	3.5
MM-2	Along Eastern Boundary of the Waste Envelope	1130739.84	716517.69	220.08	20	23	19	3.5
MM-3	Along Eastern Boundary of the Waste Envelope	1130870.49	716412.54	228.07	20	23	22	4
MM-4	Along Eastern Boundary of the Waste Envelope	1131053.07	716297.56	246.72	36	38.5	32	2

6.3 Monitoring Procedures

Each monitoring event will consist of the screening of monitoring wells and observations for stressed vegetation due to methane gas movement. There ae no on-site structures to observe for methane gas.

6.4 Monitoring Wells

a. Plan to sample methane monitoring wells between 12:00 PM and 6:00 PM when subsurface gas pressure are generally highest.
b. Check weather and barometric pressure (do not sample if it is raining) immediately when arriving at the site.
c. Calibrate the methane meter in accordance with manufacturer specification.
d. At each well, unlock the protective casing. Do not remove the well cap but attach the methane monitoring meter tubing to the quick connect or gas nozzle fitting. Wells should not be vented any period of time prior to monitoring.
e. Pump the sample into the meter per the manufacturer specification to obtain a representative sample for a minimum of 3 minutes.
f. Record the peak reading on the meter.
g. Disconnect the meter tubing from the quick connect or gas nozzle fitting and relock the protective casing.

6.5 Barhole Punches

While barhole punch sampling is not planned for this facility, they may be desired for the purpose of delineation if a migration problem should arise and therefore a procedure for performing barhole punch sampling is included. **Do not perform barhole punches within the capped area (See Figure 2).**

a. Arrive at site and check weather and barometric pressure (do not sample if it is raining).
b. Calibrate the methane meter in accordance with manufacturer specifications.
c. Using the barhole punch, drive the bar into the ground 3 to 5 feet.
d. Remove the bar carefully and plug the hole with a stopper or seal to confine the headspace.
e. Allow the gases in the hole to equilibrate approximately 30-60 minutes prior to sampling. (Note: If several barhole punches are to be performed, other holes may be prepared during the time of the equilibration period).
f. Ensure that it is after 12:00 PM and before 6:00 PM.
g. Remove the stopper and immediately insert the sample hose into the hole.
h. Seal the hole around the tubing to prevent the loss of gases.

i. Pump the sample into the meter per the manufacturer specification to obtain a representative sample for a minimum of 60 seconds or until readings have stabilized.
j. Record the peak reading on the meter.
k. Proceed to the next well or barhole punch location.

6.6 Monitoring for Landfill Gases in On-Site Structures – There are no on-site structures and no such structures should ever be present.

6.7 Monitoring for Vegetative Stress

Physical observations for indications of landfill gas migration must be included in routine landfill gas monitoring procedure. The landfill and surrounding areas need to be observed for physical signs of landfill gas migration including dead or dying grass and trees. Results of any observations are reported on EPD Form SWM-19 and submitted with routine monitoring results in the yearly report for the year in which methane monitoring is performed.

6.8 Monitoring Equipment

EPD required the use of a meter that will work in an oxygen-deficient atmosphere, as methane and other gases (predominantly carbon dioxide) will displace oxygen in the subsurface. Some meters that depend upon a flame to determine the concentration of methane will not operate properly in an oxygen-deficient environment. High carbon dioxide levels may affect readings for those meters that use a thermal filament. It is highly recommended that facilities using these types of meters also report carbon dioxide levels. If detected methane gas levels exceed 60%, EPD will require carbon dioxide monitoring be reported to assist in demonstrating the results have not been affected by the presence of carbon dioxide.

EPD may request a copy of the monitoring equipment owner's manual be provided by the owner/operator. If the monitoring equipment owner's manual is available on the manufacturer's webpage, the City need only provide the webpage address. Meters used for methane monitoring in Georgia MUST, at a minimum, be able to read methane concentrations in both percent by volume 0 – 100% methane and percent LEL. EPD will not accept the use of meters that the manufacturer has specifically indicated are not appropriate for landfill usage (such as the Bacharach Model H).

6.9 Monitoring Location Integrity

The physical condition of the methane monitoring locations needs to be noted in the quarterly inspection report by the City. Report the presence/absence of appropriate markers/labels, access, condition of well locks, etc. during each inspection. The locations are required to be maintained in accordance with the approved Methane Monitoring Plan for the facility as shown on the approved Correction Action Plan drawings. (Appendix C). See Appendix G for methane well boring logs.

6.10 Frequency of Methane Monitoring

The City is required to perform a methane monitoring event once in each 5 year frequency with the next event scheduled for the third quarter of 2021 and each 5 years thereafter until advised by EPD that no further monitoring of methane wells is required.

The City may perform the methane monitoring in house or hire a qualified consultant to do so. If the City performs the function, the person doing so should be familiar with the procedures and the reporting forms and the City must have the required meter.

Quarterly inspection of the site must include noting of any distressed vegetation. If distressed vegetation is noted, then the City should proceed immediately to perform methane monitoring if it is believed the vegetation is stressed by subsurface methane gas leaking through the clay cap and the vegetation layer.

If the clay cap is not penetrated by roots, erosion or other means, there should never be any vegetation stressed in the capped area. Methane gas can move laterally to outside of the capped area and rise to the surface.

7.0 REPORTING AND CONTACT INFORMATION

7.1 The annual Bates Road Landfill monitoring report, including quarterly inspections results, detail log of all site repairs and maintenance work, any groundwater monitoring data, any surface water monitoring data, and any methane monitoring data (if obtained that year) will be submitted as part of the annual report. Any maintenance actions during the year will be detailed in the report to include copy of field report documenting field issues that were addressed and how they were address. The annual Bates Road Landfill monitoring report will include at a minimum:

- Quarterly inspection forms;
- All work order repair and maintenance forms and reports for the year;
- Notations of problems, maintenance actions taken, and maintenance or repairs as a result of quarterly inspection;
- Any deviations from this Monitoring and Maintenance Plan and the rationale for such deviations;
- Summary of monitoring incidents performed that year;
- Figures with groundwater monitoring wells and methane monitoring wells and locations of problems or repairs relative to the wells; and
- Groundwater and surface water sampling chain of custody and laboratory report, if performed during that year.

During the year, the City Inspector will transmit completed inspection forms as they become available to the Engineer and the City Manager; in no case will they be submitted later than 1 month after the field activity is completed.

Groundwater, surface water and methane monitoring are scheduled to be performed on a once in 5 year frequency with the next event scheduled for third quarter 2021.

7.2 Contact Information

The point of contact and contact information for the Bates Road Landfill during the monitoring and maintenance phase is as follows:

Jerry Coalson, City Manager
City of Waynesboro
628 Myrick Street
Waynesboro, GA 30830
Telephone: 706-554-8000

Armentrout Matheny Thurmond, P.C.
330 Research Drive, Suite A-240
Athens, GA 30605
Telephone: 706-548-8211

Georgia Environmental Protection Division
Response and Remediation Program
Program Director
2 Martin Luther King Jr. Drive SE
Suite 1456, East Tower
Atlanta, GA 30334
Telephone: 404-362-2537

Figure 1

Monitoring & Maintenance Flowchart Responsibility Party

And Required Activity

FIGURE 1

CITY OF WAYNESBORO-BATES ROAD LANDFILL (HSI 10322) MAINTENANCE & MONITORING FLOWCHART

RESPONSIBLE PARTY AND REQUIRED ACTIVITY

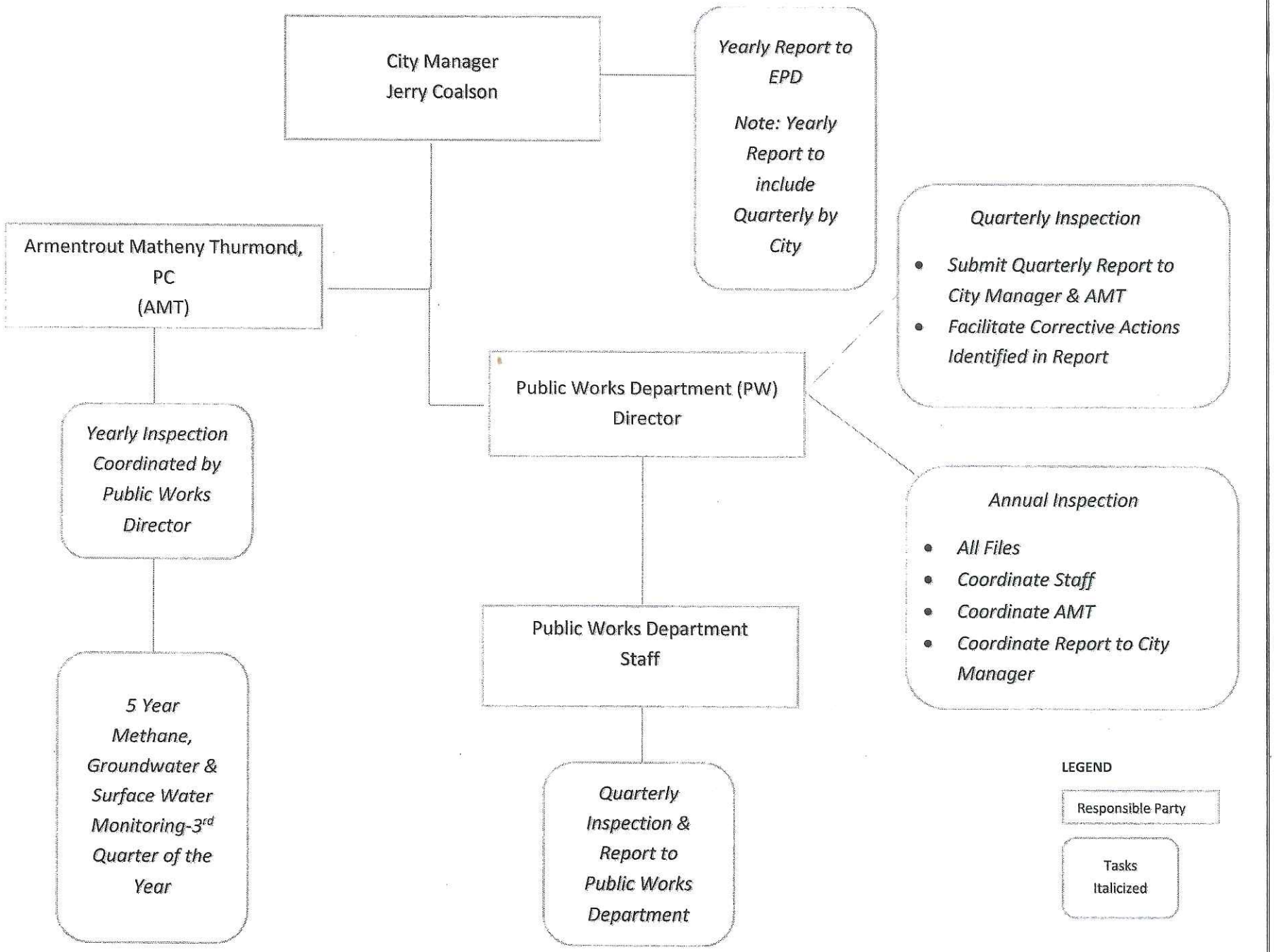
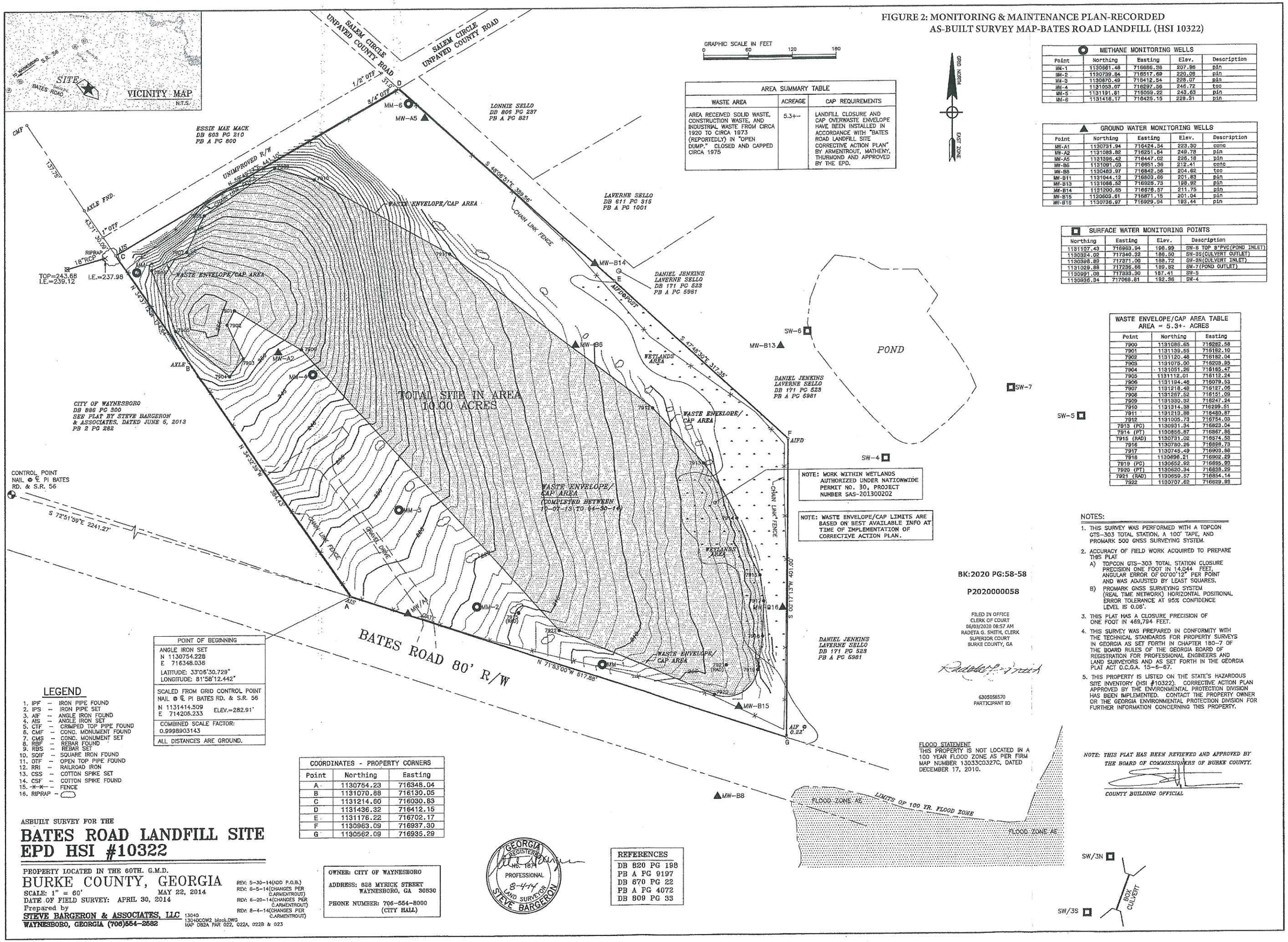


Figure 2

As-Built Survey Map for Bates Road Landfill

Recorded – BK: 2020; PG: 58-58

FIGURE 2: MONITORING & MAINTENANCE PLAN-RECORDED AS-BUILT SURVEY MAP-BATES ROAD LANDFILL (HSI 10322)



AREA SUMMARY TABLE		
WASTE AREA	ACREAGE	CAP REQUIREMENTS
AREA RECEIVED SOLID WASTE, CONSTRUCTION WASTE, AND INDUSTRIAL WASTE FROM CIRCA 1920 TO CIRCA 1973 (REPORTEDLY) IN "OPEN DUMP." CLOSED AND CAPPED CIRCA 1975	5.3+-	LANDFILL CLOSURE AND CAP OVERWASTE ENVELOPE HAVE BEEN INSTALLED IN ACCORDANCE WITH "BATES ROAD LANDFILL SITE CORRECTIVE ACTION PLAN" BY ARMENTROUT, MATHENY, THURMOND AND APPROVED BY THE EPD.

METHANE MONITORING WELLS				
Point	Northing	Easting	Elev.	Description
MM-1	1130661.48	716686.38	207.96	pin
MM-2	1130739.84	716517.69	220.08	pin
MM-3	1130870.49	716412.54	228.07	pin
MM-4	1131053.07	716297.56	246.72	top
MM-5	1131191.81	716059.22	243.63	pin
MM-6	1131416.17	716425.15	228.31	pin

GROUND WATER MONITORING WELLS				
Point	Northing	Easting	Elev.	Description
MW-A1	1130731.94	716424.54	223.30	conc
MW-A2	1131083.82	716251.84	249.78	pin
MW-A5	1131396.42	716447.02	226.18	pin
MW-B6	1131091.03	716651.36	212.41	conc
MW-B8	1130483.97	716842.56	204.62	top
MW-B11	1131044.12	716803.66	201.83	pin
MW-B13	1131086.52	716926.73	198.92	pin
MW-B14	1131200.65	716676.57	211.75	pin
MW-B15	1130603.61	716871.15	201.04	pin
MW-B16	1130736.97	716929.94	193.44	pin

SURFACE WATER MONITORING POINTS			
Northing	Easting	Elev.	Description
1131107.43	716863.94	198.89	SW-6 TOP 8"PVC(POND INLET)
1130324.02	717340.32	186.50	SW-3S(CULVERT OUTLET)
1130388.89	717371.00	188.72	SW-3N(CULVERT INLET)
1131029.88	717236.66	199.82	SW-7(POND OUTLET)
1130991.08	717333.30	187.41	SW-5
1130936.34	717060.81	192.36	SW-4

WASTE ENVELOPE/CAP AREA TABLE AREA = 5.3+- ACRES		
Point	Northing	Easting
7900	1131086.65	716282.58
7901	1131139.55	716182.10
7902	1131120.48	716182.04
7903	1131075.00	716209.93
7904	1131051.26	716185.47
7905	1131112.01	716112.24
7906	1131194.48	716079.53
7907	1131218.40	716127.05
7908	1131257.52	716151.09
7909	1131330.92	716247.24
7910	1131314.38	716299.51
7911	1131313.88	716483.87
7912	1131005.73	716754.03
7913 (PC)	1130931.34	716823.04
7914 (PT)	1130856.87	716867.86
7915 (RAD)	1130731.02	716974.53
7916	1130780.26	716898.73
7917	1130745.49	716903.88
7918	1130696.21	716902.29
7919 (PC)	1130652.92	716895.93
7920 (PT)	1130620.34	716838.29
7921 (RAD)	1130659.57	716854.14
7922	1130707.62	716829.93

NOTE: WORK WITHIN WETLANDS AUTHORIZED UNDER NATIONWIDE PERMIT NO. 30, PROJECT NUMBER SAS-201300202

NOTE: WASTE ENVELOPE/CAP LIMITS ARE BASED ON BEST AVAILABLE INFO AT TIME OF IMPLEMENTATION OF CORRECTIVE ACTION PLAN.

BK:2020 PG:58-58

P2020000058

FILED IN OFFICE
CLERK OF COURT
06/03/2020 08:57 AM
RADETA G. SMITH, CLERK
SUPERIOR COURT
BURKE COUNTY, GA

6305058570
PARTICIPANT ID

DANIEL JENKINS
LAVERNE SELLO
DB 171 PG 523
PB A PG 5981

FLOOD STATEMENT
THIS PROPERTY IS NOT LOCATED IN A 100 YEAR FLOOD ZONE AS PER FIRM MAP NUMBER 13033C0327C, DATED DECEMBER 17, 2010.

NOTES:

1. THIS SURVEY WAS PERFORMED WITH A TOPCON GTS-303 TOTAL STATION, A 100' TAPE, AND PROMARK 500 GNSS SURVEYING SYSTEM.
2. ACCURACY OF FIELD WORK ACQUIRED TO PREPARE THIS PLAT
   A) TOPCON GTS-303 TOTAL STATION CLOSURE PRECISION ONE FOOT IN 14,044 FEET, ANGULAR ERROR OF 00°00'12" PER POINT AND WAS ADJUSTED BY LEAST SQUARES.
   B) PROMARK GNSS SURVEYING SYSTEM (REAL TIME NETWORK) HORIZONTAL POSITIONAL ERROR TOLERANCE AT 95% CONFIDENCE LEVEL IS 0.08'.
3. THIS PLAT HAS A CLOSURE PRECISION OF ONE FOOT IN 469,794 FEET.
4. THIS SURVEY WAS PREPARED IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-7 OF THE BOARD RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN THE GEORGIA PLAT ACT O.C.G.A. 15-6-67.
5. THIS PROPERTY IS LISTED ON THE STATE'S HAZARDOUS SITE INVENTORY (HSI #10322). CORRECTIVE ACTION PLAN APPROVED BY THE ENVIRONMENTAL PROTECTION DIVISION HAS BEEN IMPLEMENTED. CONTACT THE PROPERTY OWNER OR THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION FOR FURTHER INFORMATION CONCERNING THIS PROPERTY.

NOTE: THIS PLAT HAS BEEN REVIEWED AND APPROVED BY THE BOARD OF COMMISSIONERS OF BURKE COUNTY.

COUNTY BUILDING OFFICIAL

POINT OF BEGINNING
ANGLE IRON SET N 1130754.228 E 716348.036 LATITUDE: 33°06'30.729" LONGITUDE: 81°58'12.442"
SCALED FROM GRID CONTROL POINT NAIL @ ℄ PI BATES RD. & S.R. 56 N 1131414.509 ELEV.=282.91' E 714206.233
COMBINED SCALE FACTOR: 0.9998903143
ALL DISTANCES ARE GROUND.

LEGEND

1. IPF – IRON PIPE FOUND
2. IPS – IRON PIPE SET
3. AIF – ANGLE IRON FOUND
4. AIS – ANGLE IRON SET
5. CTF – CRIMPED TOP PIPE FOUND
6. CMF – CONC. MONUMENT FOUND
7. CMS – CONC. MONUMENT SET
8. RBF – REBAR FOUND
9. RBS – REBAR SET
10. SQIF – SQUARE IRON FOUND
11. OTF – OPEN TOP PIPE FOUND
12. RRI – RAILROAD IRON
13. CSS – COTTON SPIKE SET
14. CSF – COTTON SPIKE FOUND
15. -x-x- FENCE
16. RIPRAP

COORDINATES - PROPERTY CORNERS		
Point	Northing	Easting
A	1130754.23	716348.04
B	1131070.88	716130.05
C	1131214.60	716030.83
D	1131436.32	716412.15
E	1131176.22	716702.17
F	1130963.09	716937.30
G	1130562.09	716935.29

ASBUILT SURVEY FOR THE

BATES ROAD LANDFILL SITE EPD HSI #10322

PROPERTY LOCATED IN THE 60TH. G.M.D.

BURKE COUNTY, GEORGIA

SCALE: 1" = 60' MAY 22, 2014

DATE OF FIELD SURVEY: APRIL 30, 2014

Prepared by

STEVE BARGERON & ASSOCIATES, LLC
WAYNESBORO, GEORGIA (706)554-2582

13040
13040CCW2 black.DWG
MAP 082A PAR 022, 022A, 022B & 023

REV: 5-30-14(ADD P.O.B.)
REV: 6-5-14(CHANGES PER C.ARMENTROUT)
REV: 6-20-14(CHANGES PER C.ARMENTROUT)
REV: 8-4-14(CHANGES PER C.ARMENTROUT)

OWNER: CITY OF WAYNESBORO
ADDRESS: 828 MYRICK STREET WAYNESBORO, GA 30830
PHONE NUMBER: 706-554-8000 (CITY HALL)

GEORGIA REGISTERED NO. 1874 PROFESSIONAL 8-4-14 LAND SURVEYOR STEVE BARGERON

REFERENCES
DB 820 PG 198
PB A PG 9197
DB 670 PG 22
PB A PG 4072
DB 809 PG 33

Appendix A

Environmental Covenant

After Recording Return to:
Armentrout Matheny Thurmond, P.C.
330 Research Drive, Suite A-240
Athens, GA 30605-2760

CROSS-REFERENCE:
County: _____
Deed Book: _____
Page(s): _____

Environmental Covenant

This instrument is an Environmental Covenant executed pursuant to the Georgia Uniform Environmental Covenants Act, O.C.G.A. § 44-16-1 *et seq.*, as may be amended from time to time (hereinafter "Act"). This Environmental Covenant is entered into by the entities executing this Environmental Covenant and subjects the property identified below to the activity and/or use limitations and other requirements. This Environmental Covenant further grants such other rights in favor of EPD and City of Waynesboro as set forth herein.

Fee Simple Owner(s)/Grantor(s):
City of Waynesboro
628 Myrick Street
Waynesboro, GA 30830-1472

Grantee/Holder with the power to enforce:
City of Waynesboro
628 Myrick Street
Waynesboro, GA 30830-1472

Grantee/Entity with express power to enforce:
State of Georgia
Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive, SE
Suite 1054, East Tower
Atlanta, GA 30334

Persons with Interests other than Fee Simple:
N/A

Property Subject

The property subject to this Environmental Covenant is a tract of 10.00 acres of real property located at 333 Bates Road, Waynesboro, Burke County, Georgia, which is further identified by the tax parcel ID number(s) below (hereinafter "Property"). The City of Waynesboro owned portions of the 10 acres and the remaining portions of the 10 acres Property were conveyed on June 16, 2011 to City of Waynesboro; such conveyance(s) are recorded in Deed Book 809, Pages 33-34; Deed Book 809, Pages 31-32; and Deed Book 820, Pages 198-199 of the Burke County deed records. The City of Waynesboro owns the entire property comprising the Bates Road Landfill. The Property is located in 60th Georgia Militia District of Burke County, Georgia.

The tax parcel of the Property is 082A 022 of Burke County, Georgia. Tax Parcel 082A 022 was created by combining previous parcels 082A 022, 082A 022A, 082A 022B and 082A 023.

A legal description of the Property is attached as Exhibit A and a Plat of the Property by Steve Bargeron (Certified Licensed Surveyor # GA 1847) is attached as Exhibit B.

Environmental Covenant Runs with the Land and is Perpetual

Pursuant to the Act, this Environmental Covenant shall run with the land and shall be perpetual unless terminated or amended pursuant to terms herein or in accordance with provisions of the Act. This Environmental Covenant shall be binding upon the City of Waynesboro, and all successors, assigns and transferees of any interest in the Property or any portion thereof.

Administrative Records

This Environmental Covenant imposes activity and/or use limitations and other requirements on the Property that arise under corrective action performed and/or being performed at the Bates Road Landfill facility/site. Records pertaining to this corrective action are available at the following EPD location(s):

Georgia Environmental Protection Division
Response and Remediation Program
2 MLK Jr. Drive, SE, Suite 1052 East Tower
Atlanta, GA 30334
Monday-Friday 8:00 AM to 4:30 PM, excluding state holidays

Notice: This Property has been listed on the State's Hazardous Site Inventory at HSI #10322 and has been designated as needing corrective action due to the presence of hazardous wastes, hazardous constituents, or hazardous substances regulated under state law. Contact the Property owner or the Georgia Environmental Protection Division for further information concerning this Property. This notice is provided in compliance with the Georgia Hazardous Site Response Act.

Activity and Use Limitations.

The Property is subject to the following activity and/or use limitations:

A. Real Property: The Property shall be used as non-residential property as defined in Rule 391-3-19-.02(2)(r). Use of the Property as residential property, as defined in Rule 391-3-19-.02(2)(r), is prohibited.

B. Groundwater: The use or extraction of groundwater beneath the Property for drinking water or any other non-remedial purpose is prohibited.

C. Interference with Remedy: Activities on the Property that may interfere with the remedy required by corrective action are prohibited, except for activities for inspection and maintenance, repair and/or replacement of required engineering controls and other proposed activities that have been approved in advance by EPD; approval of such other proposed activities must be requested from EPD in writing at least thirty (30) days prior to the start of such activity. Activities prohibited include, but are not limited to, drilling, digging, bulldozing, earthwork and/or placement of objects and/or equipment on or near the capped area(s) that deforms, stresses, breaks and/or pierces the capped area(s).

D. Monitoring and Maintenance Plan: Approved by EPD and is available at the City Manager's Office.

E. Registry: Pursuant to O.C.G.A. § 44-16-12, this Environmental Covenant and any amendment or termination thereof, may be contained in EPD's registry for environmental covenants.

F. Notice: The Owner of the Property shall give thirty (30) day advance written notice to EPD of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Corrective Action in accordance with the City of Waynesboro Monitoring and Maintenance Plan. The Owner of the Property must also give thirty (30) day advance written notice to EPD of the Owner's intent to change the use of the Property, apply for building permit(s), or propose any site work that would affect the Property.

G. Notice of Limitation in Future Conveyances: Each instrument hereafter conveying an interest in the Property subject to this Environmental Covenant shall contain a notice of the activity and use limitations set forth in this Environmental Covenant and shall provide the recorded location of the Environmental Covenant.

H. Monitoring: The groundwater detection-monitoring program detailed in the Monitoring and Maintenance Plan dated March 2020 shall be implemented to ensure continuous monitoring in accordance with the Corrective Action Plan.

I. Periodic Reporting: By no later than March 31, 2022 and thereafter annually following the effective date of this Environmental Covenant, the City of Waynesboro shall submit to EPD an Annual Report as specified in the Monitoring and Maintenance Plan including, but not limited to: groundwater detection-monitoring report results, maintenance and inspection activities, certification of non-residential use of the Property, and documentation stating whether or not the activity and use limitations in this Environmental Covenant are being abided by.

J. Activity and Use Limitation(s): The Property shall be used only for non-residential uses, as defined in Section 391-3-19-.02 of the Rules and defined in and allowed under the Burke County's zoning regulations as of the date of this Environmental Covenant. Any residential use on the Property shall be prohibited. Any activity on the Property that my result in the release or exposure to the regulated substances that were contained as part of the Corrective Action, or create a new exposure pathway, is prohibited. With the exception of work necessary for the maintenance, repair, or replacement of engineering controls, activities that are prohibited, in the capped areas include, but are not limited to the following: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar items, bulldozing or earthwork, planting of any trees, shrubs or allowing the growth of any trees or shrubs.

K. Permanent Markers: Permanent markers installed and maintained that delineate the restricted purposes shall be prohibited.

L. Recording of Environmental Covenant and Proof of Notification: Within thirty (30) days after the date of the Director's signature, the City of Waynesboro shall file this Environmental Covenant with the Recorder of Deeds for Burke County in which the Property is located, and send a file stamped copy of this Environmental

Covenant to EPD within thirty (30) days of recording. The City of Waynesboro shall also send a file stamped copy to each of the following: (1) each municipality, county, consolidated government, or other unit of local government in which real property on the date of the execution of the Environmental Covenant subject to the covenant is located, and (2) each owner in fee simple whose property abuts the property subject to the Environmental Covenant. Exhibit C contains a list of all property and entities abutting the Property at the date of execution of the Environmental Covenant.

M. Termination or Modification: The Environmental Covenant shall remain in full force and effect in accordance with O.C.G.A. § 44-5-60, unless and until the Director determines that the Property is in compliance with the Type 1 and 4 Risk Reduction Standards, as defined in Georgia Rules of Hazardous Site Response (Rules) Section 391-3-19-07 and removes the Property from the Hazardous Site Inventory, whereupon the Environmental Covenant may be amended or revoked in accordance with Section 391-3-19.08(7) of the Rules and O.C.G.A. § 44-16-1 *et seq.*

N. Severability: If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality and enforceability of the remaining provision shall not in any way be affected or impaired.

O. No Property Interest Created in EPD: This Environmental Covenant does not in any way create any interest by EPD in the Property that is subject to the Environmental Covenant. Furthermore, the act of approving this Environmental Covenant does not in any way create any interest by EPD in the Property in accordance with O.C.G.A. § 44-16-3(b).

Other Requirements.

The Property is subject to the following additional requirements:

A. Notice of Limitations and Requirements in Future Conveyances: Each instrument hereafter conveying any interest in the Property or any portion thereof that may affect the activity and use limitations described herein shall include a statement that the Property is subject to this Environmental Covenant (and any amendments thereto), the location (County, Deed Book and Page) in the deed records where this Environmental Covenant (and any amendments thereto) are recorded and a copy of this Environmental Covenant (and any amendments thereto).

B. Notice to EPD of Future Conveyances: Within thirty (30) days after each conveyance of a fee simple interest in the Property or any portion thereof, a notice shall be sent to EPD. The notice shall include the new owner's name, address, telephone number and other pertinent contact information, the date of the conveyance and the location (County, Deed Book and Page) where the conveyance is recorded, and, if the conveyance is a portion of the Property, a survey map showing the boundaries of the real property conveyed.

C. Notice of Change of Use: If such activity will materially affect any required monitoring or maintenance of any institutional or engineering controls described herein, the owner of the Property must provide to EPD thirty (30) days advance written notice of the Owner's intent to change the use of the Property, to apply for

a building permit for construction at the Property, or to perform any site work other than site work required in the Monitoring and Maintenance Plan.

Environmental Covenant Does Not Authorize Use Otherwise Prohibited

Pursuant to the Act, this Environmental Covenant shall not be construed to authorize a use of the Property that is otherwise prohibited by zoning, ordinance, local law or general law or by a recorded instrument that has priority over this Environmental Covenant.

Rights of Access and Enforcement

Authorized representatives of EPD and City of Waynesboro shall have the right to enter the Property at reasonable times in connection with implementation, compliance, or enforcement of this Environmental Covenant, including but not limited to the right to conduct inspections, examine related records, or to take samples.

This Environmental Covenant shall be enforceable by EPD, City of Waynesboro and other parties as provided in the Act. Such rights of access and enforcement herein shall not limit EPD's authority under other applicable law.

No Interest in Real Property in EPD

EPD's rights under this Environmental Covenant and the Act shall not be considered an interest in real property.

Representations and Warranties by Grantor(s).

City of Waynesboro represents and warrants that all of the following are true and correct:

A. City of Waynesboro holds fee simple title to the Property as described in Exhibits A and B.

B. City of Waynesboro has the authority to enter into this Environmental Covenant, has the authority to grant any rights granted by it within, has the ability to carry out the obligations described within and, based upon information and belief after reasonable inquiry, does not know of any anticipated material change in the practices, ownership, or authority of City of Waynesboro that will alter this representation and warranty.

C. This Environmental Covenant does not authorize a use of Property that is otherwise prohibited by a recorded instrument that has priority over the Environmental Covenant.

D. The execution and delivery of this Environmental Covenant and carrying out the obligations described within will not conflict with any of the provisions of the organizational documents, operating agreement of City of Waynesboro nor will it violate, contravene and/or constitute a breach or default under any agreement, contract, order or instrument to which City of Waynesboro is a party or by which City of Waynesboro may be bound.

E. The City of Waynesboro has identified all other parties that hold any interest (e.g. encumbrance) in the Property and notified such parties of the City of Waynesboro's intention to enter into this Environmental Covenant.

F. This Environmental Covenant will not materially violate, contravene, or constitute a material default under any other agreement, document or instrument to which City of Waynesboro is a party, by which City of Waynesboro may be bound or affected.

G. The City of Waynesboro has served each of the people or entities with an identical copy of this Environmental Covenant in accordance with O.C.G.A. § 44-16-4(d).

H. This Environmental Covenant does not authorize a use of the Property that is recorded instrument that has priority over this Environmental Covenant.

I. At least thirty (30) days prior to presenting this Environmental Covenant to EPD for execution, City of Waynesboro served a copy of the proposed final text of this Environmental Covenant on all persons or entities required to be noticed in accordance with O.C.G.A. § 44-16-7.

Submission of Required Documents and Communications

Documents and communications required by this Environmental Covenant shall be submitted to:

Georgia Environmental Protection Division
Branch Chief
Land Protection Branch
2 Martin Luther King Jr. Drive SE
Suite 1054 East Tower
Atlanta, GA 30334

With a copy to: N/A

EPD's Environmental Covenants Registry

This Environmental Covenant and any amendment thereto or termination thereof may be included in EPD's registry for environmental covenants.

Effective Date

This Environmental Covenant shall be effective on the date the fully executed Environmental Covenant is recorded in accordance with O.C.G.A. § 44-16-8(a).

Grantor has caused this Environmental Covenant to be executed, witnessed, and notarized in accordance with all requirements specified in the Act and any and all other applicable federal, state or local laws.

Signed in the presence of:

Valerie R Kirkland
Unofficial Witness *(Signature)*

Valerie R Kirkland
Unofficial Witness Name *(Print)*

City of Waynesboro
628 Myrick Street
Waynesboro, GA 30830
Unofficial Witness Address *(Print)*

For the Grantor:

City of Waynesboro
Name of Grantor *(Print)*

(Seal)
Mayor *(Signature)*

Gregory A. Carswell, Jr.
Name *(Print)*

ATTEST BY:

Jerry Coalson
City Manager

State of Georgia
County of Burke

This instrument was signed or attested before me this 11th day of June, 2020 by:

Tyronda Denise Dixon
Notary Name (Print)

☑ Personally Known
☐ Produced Identification

Tyronda Denise Dixon
Notary Public *(Signature)*

My Commission Expires: April 7, 2022

(NOTARY SEAL)

TYRONDA DENISE DIXON NOTARY PUBLIC BURKE COUNTY GEORGIA EXPIRES April 7, 2022

For the Grantee:

For the State of Georgia Environmental Protection Division, Department of Natural Resources, State of Georgia this _____ day of _____, 2020

Signed in the presence of:

_____
Unofficial Witness *(Signature)*

_____
Unofficial Witness Name *(Print)*

_____

_____
Unofficial Witness Address *(Print)*

_____(Seal)
(Signature)

Richard E. Dunn
Director

State of Georgia
County of Fulton

This instrument was signed or attested before me this ____ day of _____, 2020 by:

_____
Notary Name (Print)

☐ Personally Known
☐ Produced Identification

_____
Notary Public *(Signature)*

My Commission Expires:_____

(NOTARY SEAL)

Exhibit A
Legal Description of Property

Exhibit B
Plat of Property
by
Steve Bargeron
(Licensed Land Surveyor-GA #1871)

Exhibit C
List of Surrounding Properties
(Taken from Burke County Tax Assessors Office)

City of Waynesboro Bates Road Landfill Site, EPD HSI #10322
333 Bates Road,
Waynesboro, Burke County, Georgia 30830

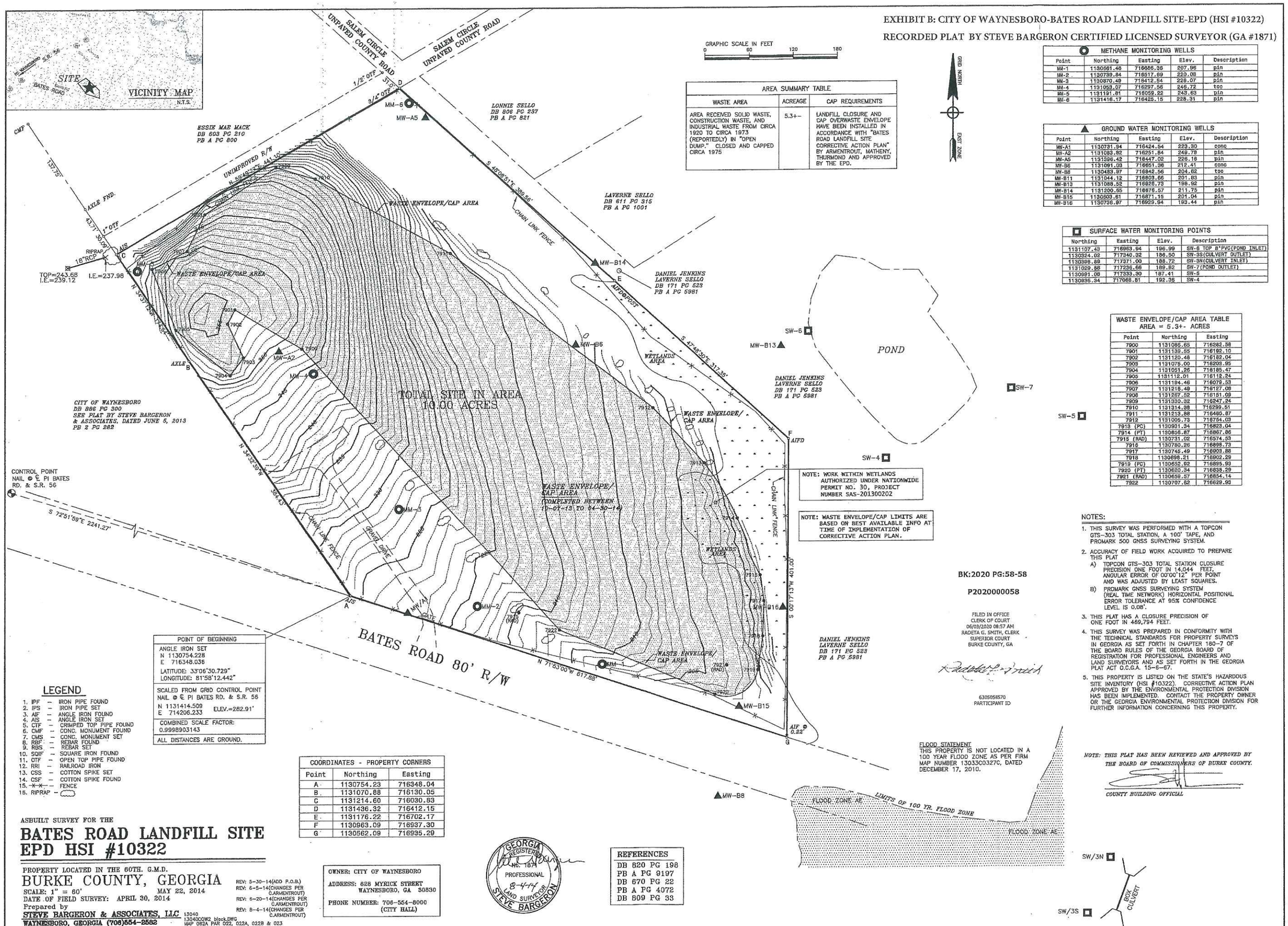
Environmental Covenant
Exhibit A - Legal Description

All that tract or parcel of land lying and being in the 60th G.M.D., Burke County, Georgia, containing 10.00 acres, more or less and being more particularly described as follows:

Beginning at the intersection of Bates Road and State Road 56, running thence South 72 degrees 51 minutes 59 seconds East, 2,241.27 feet to the Point of Beginning described as State Plane Coordinate N 1130754.228 , E 716348.036 and the southwest corner of the Waynesboro Bates Road Landfill, HSI # 10322; running thence North 34 degrees 32 minutes 39 seconds West for a distance of 384.43 feet to a found axle ; thence North 34 degrees 37 minutes 12 seconds West for a distance of 174.64 feet to an angle iron set; thence North 59 degrees 49 minutes 27 seconds East for a distance of 441.10 feet to a 3/4" pipe found ; thence South 48 degrees 06 minutes 51 seconds East for a distance of 389.56 feet to an angle iron found; thence South 47 degrees 48 minutes 30 seconds East for a distance of 317.35 feet to an angle iron found; thence South 00 degrees 17 minutes 13 seconds West for a distance of 401.00 feet to an angle iron found which is the Right of Way of Bates Road; thence North 71 degrees 53 minutes 00 seconds West, 617.88 feet along the Bates Road Right of Way to an angle iron set; said angle iron being the TRUE POINT OF BEGINNING.

EXHIBIT B: CITY OF WAYNESBORO-BATES ROAD LANDFILL SITE-EPD (HSI #10322)

RECORDED PLAT BY STEVE BARGERON CERTIFIED LICENSED SURVEYOR (GA #1871)



AREA SUMMARY TABLE		
WASTE AREA	ACREAGE	CAP REQUIREMENTS
AREA RECEIVED SOLID WASTE, CONSTRUCTION WASTE, AND INDUSTRIAL WASTE FROM CIRCA 1920 TO CIRCA 1973 (REPORTEDLY) IN "OPEN DUMP." CLOSED AND CAPPED CIRCA 1975	5.3+-	LANDFILL CLOSURE AND CAP OVERWASTE ENVELOPE HAVE BEEN INSTALLED IN ACCORDANCE WITH "BATES ROAD LANDFILL SITE CORRECTIVE ACTION PLAN" BY ARMENTROUT, MATHENY, THURMOND AND APPROVED BY THE EPD.

METHANE MONITORING WELLS				
Point	Northing	Easting	Elev.	Description
MM-1	1130661.48	716686.38	207.96	pin
MM-2	1130739.84	716517.69	220.08	pin
MM-3	1130870.49	716412.54	228.07	pin
MM-4	1131053.07	716297.56	246.72	top
MM-5	1131191.81	716059.22	243.63	pin
MM-6	1131416.17	716425.15	228.31	pin

GROUND WATER MONITORING WELLS				
Point	Northing	Easting	Elev.	Description
MW-A1	1130731.94	716424.54	223.30	conc
MW-A2	1131083.82	716251.84	249.78	pin
MW-A5	1131396.42	716447.02	226.18	pin
MW-B6	1131091.03	716651.96	212.41	conc
MW-B8	1130483.97	716842.56	204.62	top
MW-B11	1131044.12	716803.66	201.83	pin
MW-B13	1131088.52	716926.73	198.52	pin
MW-B14	1131200.65	716876.57	211.75	pin
MW-B15	1130503.61	716871.15	201.04	pin
MW-B16	1130736.97	716929.94	193.44	pin

SURFACE WATER MONITORING POINTS			
Northing	Easting	Elev.	Description
1131107.43	716963.94	196.99	SW-6 TOP 8"PVC(POND INLET)
1130324.02	717340.32	186.50	SW-3S(CULVERT OUTLET)
1130398.89	717371.00	188.72	SW-3N(CULVERT INLET)
1131029.88	717236.66	189.82	SW-7(POND OUTLET)
1130981.08	717333.30	187.41	SW-5
1130936.34	717068.81	192.36	SW-4

WASTE ENVELOPE/CAP AREA TABLE AREA = 5.3+- ACRES		
Point	Northing	Easting
7900	1131085.65	716282.58
7901	1131139.55	716192.10
7902	1131120.48	716182.04
7903	1131075.00	716208.95
7904	1131051.26	716185.47
7905	1131112.01	716112.24
7906	1131184.46	716079.53
7907	1131218.49	716127.08
7908	1131267.52	716151.09
7909	1131330.32	716247.24
7910	1131314.38	716299.51
7911	1131213.88	716480.87
7912	1131005.73	716754.03
7913 (PC)	1130951.34	716823.04
7914 (PT)	1130856.87	716867.86
7915 (RAD)	1130731.02	716574.53
7916	1130780.26	716898.73
7917	1130745.49	716903.88
7918	1130698.21	716902.29
7919 (PC)	1130652.82	716895.93
7920 (PT)	1130630.34	716838.29
7921 (RAD)	1130658.57	716854.14
7922	1130707.62	716829.93

NOTE: WORK WITHIN WETLANDS AUTHORIZED UNDER NATIONWIDE PERMIT NO. 30, PROJECT NUMBER SAS-201300202

NOTE: WASTE ENVELOPE/CAP LIMITS ARE BASED ON BEST AVAILABLE INFO AT TIME OF IMPLEMENTATION OF CORRECTIVE ACTION PLAN.

NOTES:

1. THIS SURVEY WAS PERFORMED WITH A TOPCON GTS-303 TOTAL STATION, A 100' TAPE, AND PROMARK 500 GNSS SURVEYING SYSTEM.
2. ACCURACY OF FIELD WORK ACQUIRED TO PREPARE THIS PLAT
   A) TOPCON GTS-303 TOTAL STATION CLOSURE PRECISION ONE FOOT IN 14,044 FEET, ANGULAR ERROR OF 00°00'12" PER POINT AND WAS ADJUSTED BY LEAST SQUARES.
   B) PROMARK GNSS SURVEYING SYSTEM (REAL TIME NETWORK) HORIZONTAL POSITIONAL ERROR TOLERANCE AT 95% CONFIDENCE LEVEL IS 0.08'.
3. THIS PLAT HAS A CLOSURE PRECISION OF ONE FOOT IN 469,794 FEET.
4. THIS SURVEY WAS PREPARED IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-7 OF THE BOARD RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN THE GEORGIA PLAT ACT O.C.G.A. 15-6-67.
5. THIS PROPERTY IS LISTED ON THE STATE'S HAZARDOUS SITE INVENTORY (HSI #10322). CORRECTIVE ACTION PLAN APPROVED BY THE ENVIRONMENTAL PROTECTION DIVISION HAS BEEN IMPLEMENTED. CONTACT THE PROPERTY OWNER OR THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION FOR FURTHER INFORMATION CONCERNING THIS PROPERTY.

BK:2020 PG:58-58

P2020000058

FILED IN OFFICE
CLERK OF COURT
06/03/2020 08:57 AM
RADETA G. SMITH, CLERK
SUPERIOR COURT
BURKE COUNTY, GA

6305058570
PARTICIPANT ID

NOTE: THIS PLAT HAS BEEN REVIEWED AND APPROVED BY THE BOARD OF COMMISSIONERS OF BURKE COUNTY.

COUNTY BUILDING OFFICIAL

FLOOD STATEMENT
THIS PROPERTY IS NOT LOCATED IN A 100 YEAR FLOOD ZONE AS PER FIRM MAP NUMBER 13033C0327C, DATED DECEMBER 17, 2010.

DANIEL JENKINS
LAVERNE SELLO
DB 171 PG 523
PB A PG 5981

POINT OF BEGINNING
ANGLE IRON SET N 1130754.228 E 716348.036 LATITUDE: 33°06'30.729" LONGITUDE: 81°58'12.442"
SCALED FROM GRID CONTROL POINT NAIL ⊕ ℄ PI BATES RD. & S.R. 56 N 1131414.509 ELEV.=282.91' E 714206.233 COMBINED SCALE FACTOR: 0.999890143
ALL DISTANCES ARE GROUND.

LEGEND

1. IPF – IRON PIPE FOUND
2. IPS – IRON PIPE SET
3. AIF – ANGLE IRON FOUND
4. AIS – ANGLE IRON SET
5. CTF – CRIMPED TOP PIPE FOUND
6. CMF – CONC. MONUMENT FOUND
7. CMS – CONC. MONUMENT SET
8. RBF – REBAR FOUND
9. RBS – REBAR SET
10. SQIF – SQUARE IRON FOUND
11. OTF – OPEN TOP PIPE FOUND
12. RRI – RAILROAD IRON
13. CSS – COTTON SPIKE SET
14. CSF – COTTON SPIKE FOUND
15. -x-x- – FENCE
16. RIPRAP –

COORDINATES - PROPERTY CORNERS		
Point	Northing	Easting
A	1130754.23	716348.04
B	1131070.88	716130.05
C	1131214.60	716030.83
D	1131436.32	716412.15
E	1131176.22	716702.17
F	1130963.09	716937.30
G	1130562.09	716935.29

ASBUILT SURVEY FOR THE

BATES ROAD LANDFILL SITE
EPD HSI #10322

PROPERTY LOCATED IN THE 60TH. G.M.D.

BURKE COUNTY, GEORGIA

SCALE: 1" = 60' MAY 22, 2014

DATE OF FIELD SURVEY: APRIL 30, 2014

REV: 5-30-14(ADD P.O.B.)
REV: 6-5-14(CHANGES PER CJARMENTROUT)
REV: 6-20-14(CHANGES PER CJARMENTROUT)
REV: 8-4-14(CHANGES PER CJARMENTROUT)

Prepared by

STEVE BARGERON & ASSOCIATES, LLC 13040
WAYNESBORO, GEORGIA (706)554-2582 13040COW2_block.DWG
MAP 082A PAR 022, 022A, 022B & 023

OWNER: CITY OF WAYNESBORO
ADDRESS: 628 MYRICK STREET WAYNESBORO, GA 30830
PHONE NUMBER: 706-554-6000 (CITY HALL)

GEORGIA REGISTERED NO. 1871 PROFESSIONAL 8-4-14 LAND SURVEYOR STEVE BARGERON

REFERENCES
DB 820 PG 198
PB A PG 9197
DB 670 PG 22
PB A PG 4072
DB 609 PG 33

City of Waynesboro Bates Road Landfill, EPD HSI# 10322
333 Bates Road
Waynesboro, Burke County, Georgia 30830

Environmental Covenant
Exhibit C - List of Surrounding Properties
That Abuts the Bates Road Landfill

Tax Parcel #	Owner's Name	Physical	Mailing Address	City	State	Zip Code
082A 100	City of Waynesboro	Bates Road, Waynesboro, GA 30830	628 Myrick St.	Waynesboro	GA	30830
082A 021	Essie Mae Mack	202 Salem Circle, Waynesboro, GA 30830	P O Box 216	Waynesboro	GA	30830
082A 036	Lonnie Sello	Salem Circle, Waynesboro, GA 30830	176 Salem Circle	Waynesboro	GA	30830
082A 039	Laverne Sello	Salem Circle, Waynesboro, GA 30830	176 Salem Circle	Waynesboro	GA	30830
082 090	Daniel Jenkins and Laverne Sello	Bates Road, Waynesboro, GA 30830	176 Salem Circle	Waynesboro	GA	30830

Data taken from Burke County Tax Assessors as of 11/06/19

Appendix B

USACE Permit and Certificate of Compliance

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

REPLY TO
ATTENTION OF:

JULY 10 2013

Regulatory Division
SAS-2013-00202

Mr. Jerry Coalson
City of Waynesboro
628 Myrick Street
Waynesboro, Georgia 30830

Dear Mr. Coalson:

I refer to the Pre-Construction Notification submitted on April 29, 2013, requesting verification for use of Nationwide Permit (NWP) No. 38 for impacts to 0.28 acre of wetland. The project involves placement of an impermeable earthen cap over a cell within the old Bates Road Landfill. The project site is located approximately 0.5 mile east of the intersection of Georgia Route 56 and Bates Road, near Waynesboro, Burke County, Georgia (Latitude 33.1093, Longitude -81.9697). The request was submitted on your behalf by AMT Engineers, Architects and Planners. This project has been assigned number SAS-2013-00202 and it is important that you refer to this number in all communication concerning this matter.

We have completed a preliminary Jurisdictional Determination (JD) for the site pursuant to our March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." I have enclosed a "JD Check Sheet," which summarizes the JD, delineation verification and appeals process.

The wetlands/other waters on the subject property may be waters of the United States within the jurisdiction of Section 404 of the Clean Water Act (33 United States Code 1344). The placement of dredged or fill material into any waterways and/or their adjacent wetlands or mechanized land clearing of those wetlands could require prior Department of the Army authorization pursuant to Section 404.

We have completed coordination with other federal and state agencies as described in Part C (31)(d) of our NWP Program, published in the February 12, 2012, Federal Register, Vol. 77, No. 34, Pages 10184-10290 (77 FR). The NWPs and Savannah District's Regional Conditions for NWPs can be found on our website at http://www.sas.usace.army.mil/Missions/Regulatory/Permitting/GeneralPermits/NationwidePermits.aspx. During our coordination procedure, no adverse comments regarding the proposed work were received.

As a result of our evaluation of your project, we have determined that the proposed activity is authorized under NWP 38, as described in Part B of the NWP Program. Your use of this NWP is valid only if:

a. The activity is conducted in accordance with the information submitted and meets the conditions applicable to the NWP, as described at Part C of the NWP Program and the Savannah District's Regional Conditions for NWPs.

b. Prior to the commencement of permitted work in streams, wetlands or other waters of the United States, you shall purchase 2.4 wetland mitigation credits from AA Shaw Mitigation Bank and submit documentation of this credit purchase to the U.S. Army Corps of Engineers. The credit purchase documentation must reference the Corps file number assigned to this project. If all or a portion of the required credits are not available from AA Shaw Mitigation Bank, you must obtain written approval from the Corps prior to purchasing any credits from an alternate mitigation bank.

c. You shall obtain and comply with all appropriate federal, state, and local authorizations required for this type of activity. A stream buffer variance may be required. Variances are issued by the Director of the Georgia Environmental Protection Division (Georgia EPD), as defined in the Georgia Erosion and Sedimentation Control Act of 1975, as amended. It is our understanding that you may obtain information concerning variances at the Georgia EPD's website at www.gaepd.org or by contacting the Watershed Protection Branch at (404) 675-6240.

d. All work conducted under this permit shall be located, outlined, designed, constructed and operated in accordance with the minimal requirements as contained in the Georgia Erosion and Sedimentation Control Act of 1975, as amended. Utilization of plans and specifications as contained in the "Manual for Erosion and Sediment Control, First Edition, 2002," published by the Georgia Soil and Water Conservation Commission or their equivalent, will aid in achieving compliance with the aforementioned minimal requirements.

e. You shall install and maintain erosion and sediment control measures in upland areas of the project site, in accordance with the Georgia Erosion and Sedimentation Control Act of 1975, as amended, to minimize the introduction of sediment into and the erosion of streams, wetlands and other waters of the United States. This permit does not authorize installation of check-dams, weirs, riprap, bulkheads or other erosion control measures in streams, wetlands or other waters of the United States. Authorization would be required from the Corps prior to installing any erosion control measures in waters of the United States.

f. You shall install and maintain erosion and sediment control measures for all fill material that is authorized to be discharged in streams, wetlands and other waters of the United States, in accordance with the Georgia Erosion and Sedimentation Control Act of 1975, as amended, and permanently stabilize fill areas at the earliest practicable date.

g. You shall notify the Corps, in writing; at least 10 days in advance of commencement of work authorized by this permit.

h. You fill out and sign the enclosed certification and return it to our office within 30 days of completion of the activity authorized by this permit.

This proposal was reviewed in accordance with Section 7 of the Endangered Species Act. Based on the information we have available, we have determined that the project would have no effect on any threatened or endangered species nor any critical habitat for such species. Authorization of an activity by a NWP does not authorize the "take" of threatened or endangered species. In the absence of separate authorization, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. See Part (C) of 77 FR for more information.

This verification is valid until the NWP is modified, reissued or revoked. All of the existing NWPs are scheduled to expire on March 18, 2017. It is incumbent upon you to remain informed of changes to the NWPs. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

This authorization should not be construed to mean that any future projects requiring Department of the Army authorization would necessarily be authorized. Any new proposal, whether associated with this project or not, would be evaluated on a case-by-case basis. Any prior approvals would not be a determining factor in making a decision on any future request.

Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, I recommend that you coordinate with us prior to proceeding with the work.

This communication does not relieve you of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state or local authorities. It does not affect your liability for any damages or claims that may

arise as a result of the work. It does not convey any property rights, either in real estate or material, or any exclusive privileges. It also does not affect your liability for any interference with existing or proposed federal projects. If the information you have submitted and on which the Corps bases its determination/ decision of authorization under the NWP is later found to be in error, this determination may be subject to modification, suspension, or revocation.

A copy of this letter is being provided to the following party: Mr. Charles S. Armentrout, P.E., AMT Engineers, Architects and Planners, 330 Research Drive, Suite A-240, Athens, Georgia 30605.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our website at http://per2.nwp.usace.army.mil/survey.html and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

If you have any questions, please contact me at 912-652-5349.

Sincerely,

K. Brian Moore
Regulatory Specialist, Coastal Branch

Enclosures

Regulatory Division

CERTIFICATION OF COMPLIANCE
WITH
DEPARTMENT OF THE ARMY
NWP 12

PERMIT FILE NUMBER: SAS-2013-00481

PERMITTEE ADDRESS: Mr. Jerry Coalson
City of Waynesboro
628 Myrick Street
Waynesboro, Georgia 30830

LOCATION OF WORK: The project site is located approximately 0.5 mile east of the intersection of Georgia Route 56 and Bates Road, near Waynesboro, Burke County, Georgia (Latitude 33.1093, Longitude -81.9697).

PROJECT DESCRIPTION: The project involves the placement of an impermeable earthen cap over a cell within the old Bates Road Landfill.

ACRES AND/OR LINEAR FEET OF WATERS OF THE US IMPACTED: 0.28 acre of wetland

DATE WORK IN WATERS OF US COMPLETED: 5-8-14

COMPENSATORY MITIGATION REQUIRED: 2.4 wetland credits from AA Shaw Mitigation Bank

DATE MITIGATION COMPLETED OR PURCHASED (include name of bank): 7-19-13
BANK: A.A. Shaw Wetland Mitigation Bank, Guyton, Georgia

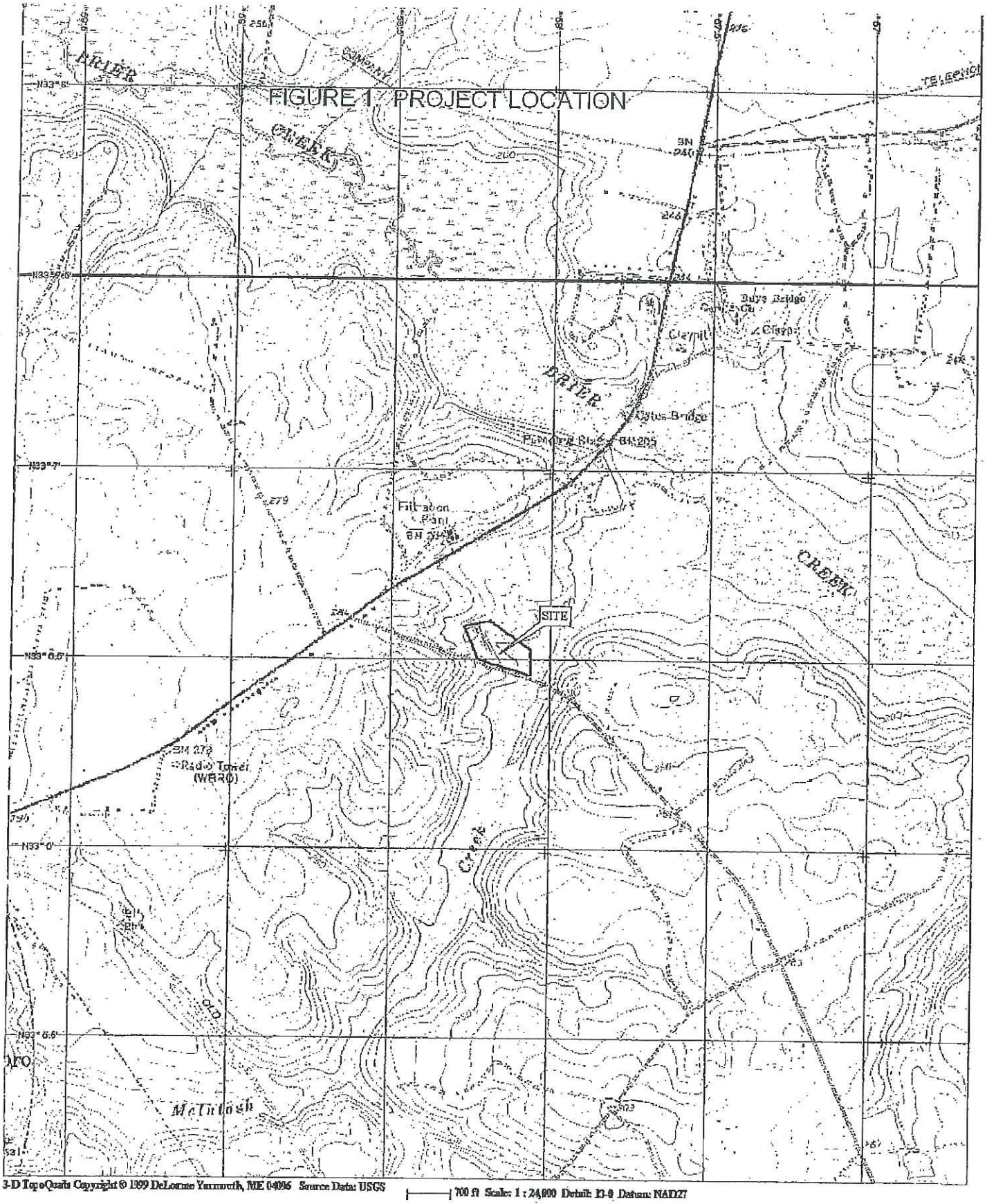
I understand that the permitted activity is subject to a US Army Corps of Engineers' Compliance Inspection. If I fail to comply with the permit conditions at Part C of the Nationwide Permit Program, published in the February 12, 2012, Federal Register, Vol. 77, No.34, Pages 10184-10290, it may be subject to suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit as well as any required mitigation (if applicable) has been completed in accordance with the terms and conditions of the said permit.

Signature of Permittee

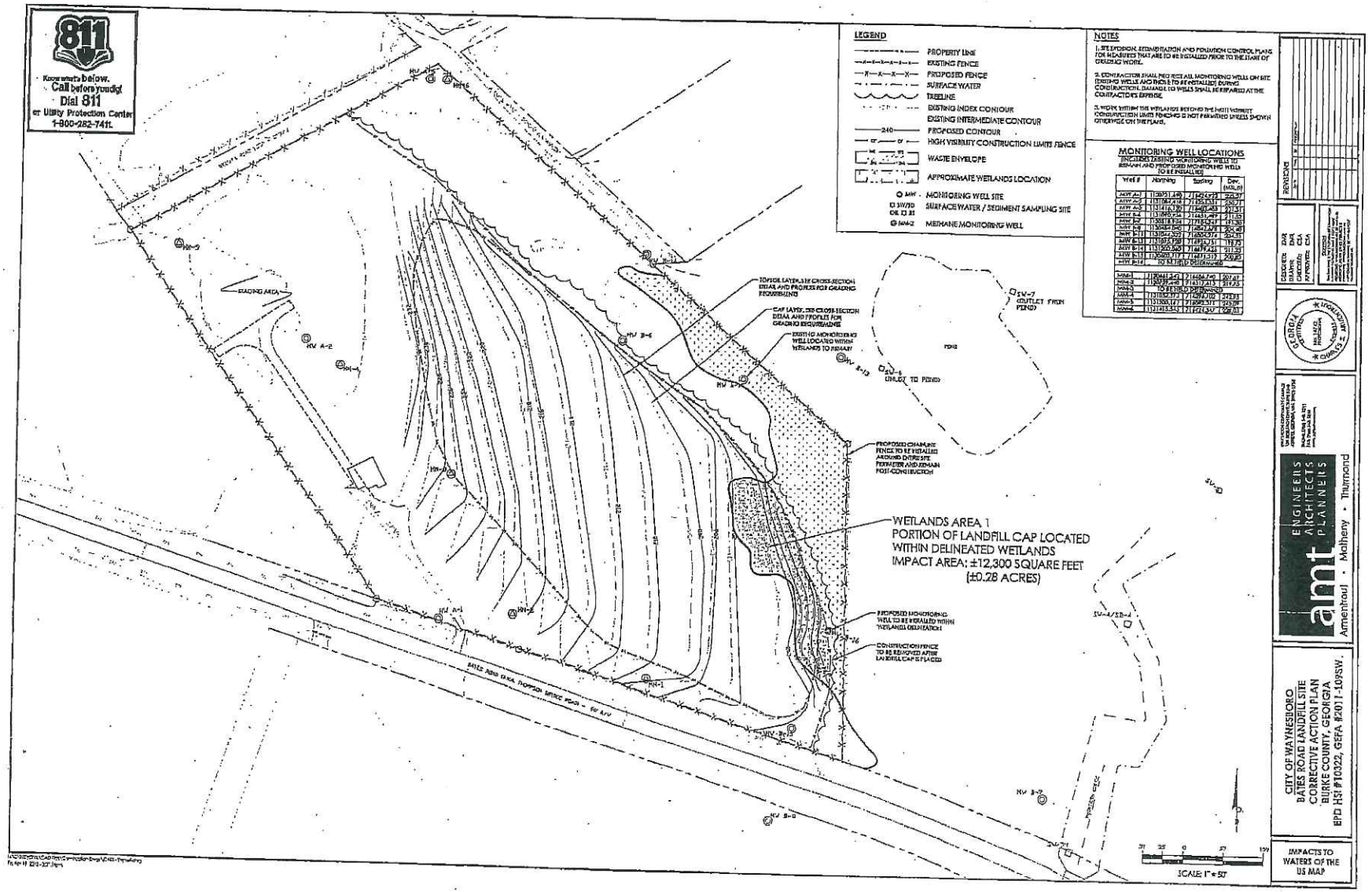
7-19-13
Date

FIGURE 1 PROJECT LOCATION



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

700 ft Scale: 1 : 24,000 Detail: 13-0 Datum: NAD27



Attachment 7

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, US ARMY CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

REPLY TO
ATTENTION OF:

JURISDICTION DELINEATION CHECK SHEET
USACE FILE NUMBER: SAS-2013-00202
DATE: July 8, 2013

A. SECTION 1 - PRELIMINARY JURISDICTIONAL DETERMINATIONS

1. JURISDICTIONAL DETERMINATION (JD). A "preliminary JD" form was completed for the site in accordance with the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." The form details whether streams, wetlands and/or other waters present on the site may be subject to the jurisdiction of the US Army Corps of Engineers (USACE). In summary, the USACE has determined the following with regard to waters present on the site:

_____ There may be navigable waters of the United States (US) within Rivers and Harbors Act (RHA) jurisdiction present.

__X__ There may be waters of the United States within Clean Water Act (CWA) jurisdiction present.

2. DELINEATION VERIFICATION. With regard to the location and extent of potentially jurisdictional areas present on the site, the USACE has made the following determinations:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

__X__ Drawings submitted with a Pre-Construction Notification (or other application) depict the approximate location/boundaries of all potentially jurisdictional waters on the project site. The USACE has verified the accuracy of the depicted boundaries of potentially jurisdictional waters in only the immediate vicinity of waters to be impacted. A complete jurisdictional delineation request, including a jurisdictional waters survey, would be required in order for the USACE to consider final verification of all other jurisdictional boundaries on the project site.

__X__ The drawing entitled "Wetlands Survey, Armentrout, Matheny, Thurmond, Old Waynesboro Landfill," dated 4/8/13 is an acceptable sketch of the approximate location/boundaries of all the potentially jurisdictional waters in the project area. This sketch can be used for initial real estate planning; projects with temporary impacts to waters; projects involving minor amounts of fill in waters. A complete jurisdictional delineation request, including a jurisdictional waters survey, would be required in order for the USACE to consider final verification of all other jurisdictional boundaries on the project site.

3. APPEALS OF PRELIMINARY JURISDICTIONAL DETERMINATIONS: The preliminary JD is a "non-binding" written indication that there may be waters of the US on a parcel. Preliminary JDs are advisory in nature and may not be appealed (See 33 CFR 331.2)." If you are not in agreement with this preliminary JD, then you may request an approved jurisdictional determination for your project site or review area.

B. SECTION - EXPANDED PRELIMINARY JURISDICTIONAL DETERMINATIONS:

1. JURISDICTIONAL DETERMINATION (JD). An "expanded preliminary JD" form was completed for the site in accordance with the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." The form details whether streams, wetlands and/or other waters present on the site may be subject to the jurisdiction of the USACE. In summary, the USACE has determined the following with regard to waters present on the site:

_____ There may be navigable waters of the United States (US) within Rivers and Harbors Act (RHA) jurisdiction present.

_____ There may be waters of the US within Clean Water Act (CWA) jurisdiction present.

2. DELINEATION VERIFICATION. With regard to the location and extent of potentially jurisdictional areas present on the site, the USACE has made the following determinations:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

_____ The Global Positioning System (GPS) delineation entitled "_____", dated _____, is an accurate delineation of the location/boundaries of all the potentially jurisdictional waters on the site. If you have not already done so, I recommend that you place a statement on this delineation to the effect that, **"WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE POTENTIALLY UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00202. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE WATERS WITHOUT PROPER AUTHORIZATION."** This delineation will remain valid for a period of 5 years unless new information warrants revision prior to that date.

_____ The survey entitled "_____", dated _____, and signed by Registered Land Surveyor _____, is an accurate delineation of the location/boundaries of all the potentially jurisdictional waters on the site. If you have not already done so, I recommend that you place a statement on the final surveyed property plat to the effect

that, **"WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE POTENTIALLY UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00202. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE WATERS WITHOUT PROPER AUTHORIZATION."** This delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date.

3. APPEALS OF PRELIMINARY JURISDICTIONAL DETERMINATIONS: The expanded preliminary JD is a "non-binding" written indication that there may be waters of the US on a parcel. Expanded Preliminary JDs are advisory in nature and may not be appealed (See 33 CFR. 331.2)." If you are not in agreement with this expanded Preliminary JD, then you may request an approved jurisdictional determination for your project site or review area.

C. SECTION 3 - APPROVED DETERMINATIONS: As defined in Regulatory Guidance Letter 08-02, an approved JD is an official Savannah District determination that jurisdictional "waters of the United States" or "navigable waters of the United States," or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the Clean Water Act (CWA) and/or the Rivers and Harbors Act (RHA).

1. JURISDICTIONAL DETERMINATION (JD). An "approved JD" form was completed for the site pursuant to the June 5, 2007, "US Army Corps of Engineers (USACE) JD Form Instructional Guidebook." The form details whether streams, wetlands and/or other waters present on the site are subject to the jurisdiction of the USACE. In summary, the USACE has determined the following with regard to waters present on the site:

_____ There are navigable waters of the (US) within (RHA) jurisdiction present.

_____ There are waters of the US within (CWA) jurisdiction present.

_____ There are non-jurisdictional waters of the US located in the project area.

_____ There are no jurisdictional waters of the US located in the project area.

2. APPROVED DETERMINATION - ISOLATED, NON-JURISDICTIONAL WATERS. If Appendix E of the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers" was submitted, you have requested that the USACE verify the presence of isolated, non-jurisdictional waters located at the project site or within the review area. The completed Appendix E form is available at https://sasweb.sas.usace.army.mil/JD/, under the above listed file number. You may also request that a printed copy of the form be mailed to you. This isolated, non-jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that

date. In summary, the USACE has determined the following with regard to isolated, non-jurisdictional waters that are present on the site:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

_____ There are isolated non-jurisdictional waters present that are not subject to CWA jurisdiction. Specifically, wetland(s) [letter of wetlands here], as identified on the exhibit entitled "_____" is/are isolated, non-jurisdictional wetlands. Department of the Army authorization, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), is not required for dredge and/or fill activities in these areas.

3. APPROVED DETERMINATION. (other than isolated, non-jurisdictional waters): If Appendix B of the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers" was submitted, you have requested that the USACE verify the presence of jurisdictional waters located at the project site or within the review area. The completed Appendix B form is available at https://sasweb.sas.usace.army.mil/JD/, under the above listed file number. You may also request that a printed copy of the form be mailed to you. This jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date. In summary, the USACE has determined the following with regard to isolated, non-jurisdictional waters that are present on the site:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

_____ The Global Positioning System (GPS) delineation entitled "_____", dated _____, is an accurate delineation of all the jurisdictional boundaries on the site. If you have not already done so, I recommend that you place a statement on this delineation to the effect that, **"JURISDICTIONAL WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00202. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE JURISDICTIONAL AREAS WITHOUT PROPER AUTHORIZATION."** This approved jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date.

_____ The survey entitled "_____", dated _____, and signed by Registered Land Surveyor _____, is an accurate delineation of all the jurisdictional boundaries on the site. If you have not already done so, I recommend that you

place a statement on the final surveyed property plat to the effect that, **"JURISDICTIONAL WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00202. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE JURISDICTIONAL AREAS WITHOUT PROPER AUTHORIZATION."** This approved jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date.

4. APPEALS FOR APPROVED JURISDICTIONAL DETERMINATIONS: You may request an administrative appeal for any approved geographic jurisdictional determination under USACE regulations at 33 Code of Federal Regulation (CFR) Part 331. Enclosed you will find a Notification of Administrative Appeal Options and Process and Request for Appeal (RFA) Form.

If you request to appeal this/these determination(s) you must submit a completed RFA form to the South Atlantic Division Office at the following address:

US Army Corps of Engineers, South Atlantic Division
Attention: CESAD-PDS-O, Administrative Appeal Review Officer
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801

In order for a RFA to be accepted by the USACE, the USACE must determine that it is complete, that it meets the criteria for appeal under 33 CFR, part 331.5, and that it has been received by the Division Office within 60 days of the date of this form. It is not necessary to submit an RFA form to the Division Office if you do not object to this jurisdictional determination.

D. SECTION 4 - APPLIES TO ALL OF THE ABOVE.

- US DEPARTMENT OF AGRICULTURE (USDA) PROGRAM PARTICIPANTS. This delineation/determination has been conducted to identify the limits of USACE CWA jurisdiction for this site. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Attachments:

_____ Verified Survey of Jurisdictional Streams, Wetlands and/or Other Waters

_____ Verified GPS Delineation of Jurisdictional Streams, Wetlands and/or Other Waters

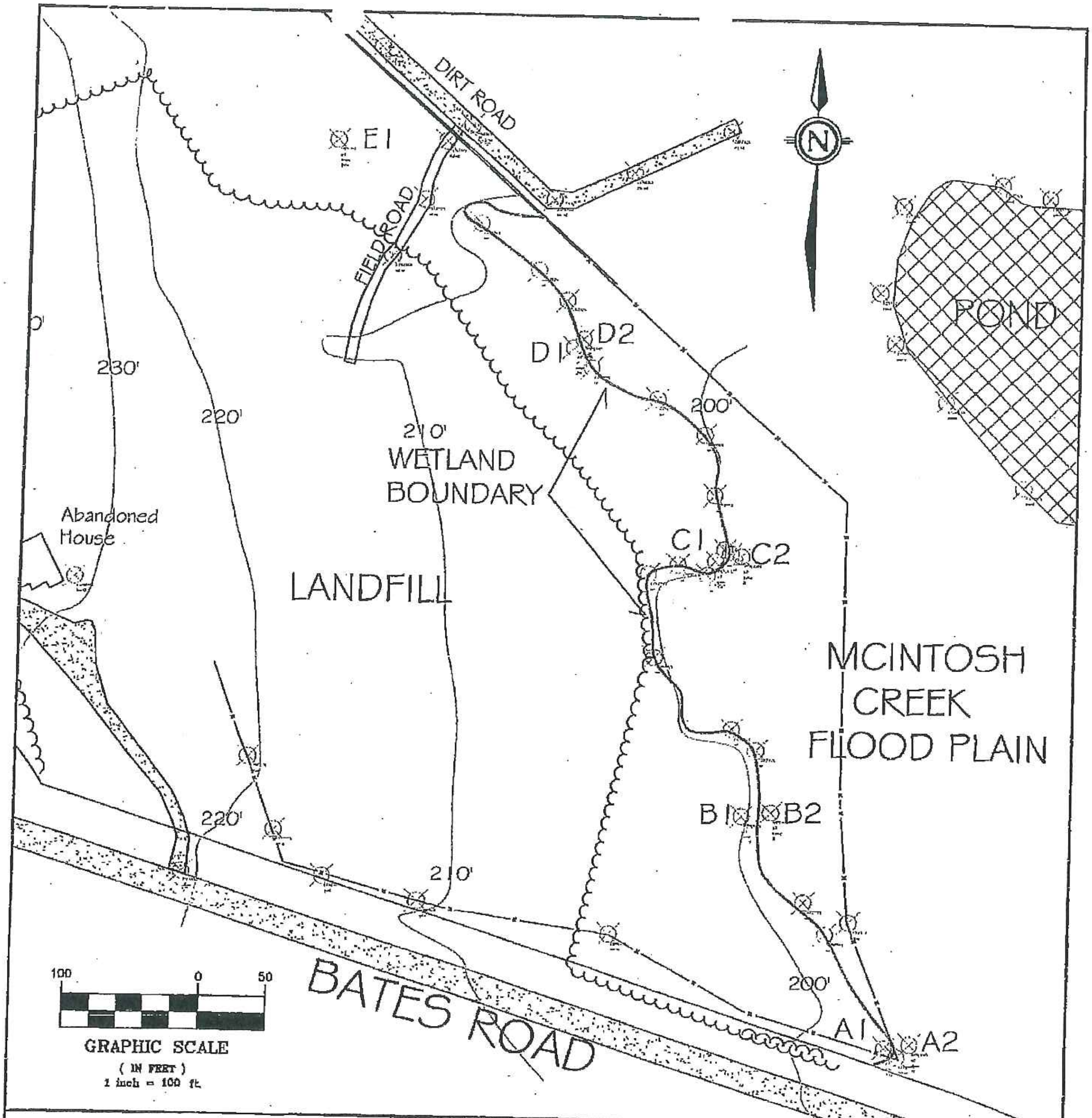
__X__ Drawing of Approximate Location of Streams, Wetlands and/or Other Waters

_____ Approved Jurisdictional Determination Form(s)

__X__ Notification of Administrative Appeal Options and Process and Request for Appeal Form

K. Brian Moore
Regulatory Specialist, Coastal Branch

July 8, 2013
DATE



WETLANDS SURVEY
ARMENTROUT, MATHENY, THURMOND
OLD WAYNESBORO LANDFILL
+/-300 BATES ROAD
WAYNESBORO, GA

No.	Revision/Issue	Date
	BY: P.Freshley	4/8/13

Date: 4/8/13

Scale: 1: 100

FIG
2

LandTec Southeast, Inc.
Soil & Water Consultants

1901 Cedar Road
Watkinsville, GA 30677
(706) 769-1717
(706) 769-1790 fax
landtec@ bellsouth.net

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mr. Jerry Coalson City of Waynesboro	File Number: SAS-2013-00202	Date: July 8, 2013
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. The division engineer must receive this form within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II: REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: Mr. Brian Moore US Army Corps of Engineers, Savannah District 100 W. Oglethorpe Avenue Savannah, Georgia 31401-3640 912-652-5349	If you only have questions regarding the appeal process you may also contact: Administrative Appeal Review Officer CESAD-PDS-O US Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

Appendix C

EPD Approved Corrective Action Plan Drawings

CITY OF WAYNESBORO

BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

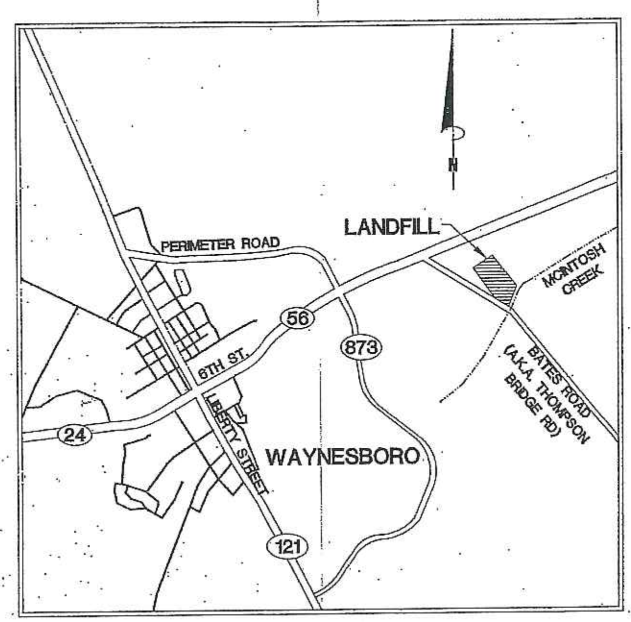
PAULINE JENKINS, MAYOR
JERRY COALSON, CITY MANAGER

NOTE: CONTRACTOR IS REQUIRED TO KEEP A COPY OF ALL CONSTRUCTION DOCUMENTS (PLANS, SPECIFICATIONS, ETC.) ON SITE AT ALL TIMES.

SHEET INDEX

	SHEET	SHEET NUMBER	SHEET NAME
LANDFILL	C-100	1	COVER SHEET
	C-101	2	NOT USED
	C-200	3	EXISTING CONDITIONS
	C-201	4	MOBILIZATION PLAN
	C-300	5	SITE PLAN
	C-400	6	GRADING PLAN - BRIDGING LAYER
	C-401	7	GRADING PLAN - CAP LAYER
	C-402	8	GRADING PLAN - TOPSOIL LAYER
	C-403	9	GRADING PLAN - SECTIONS
	C-500	10	GENERAL DETAILS
	C-501	11	MONITORING WELL DETAILS
	C-600	12	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - INITIAL PHASE
	C-601	13	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - INTERMEDIATE PHASE
	C-602	14	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN - FINAL PHASE
	C-603	15	EROSION, SEDIMENTATION AND POLLUTION CONTROL DETAILS AND VEGETATIVE PLAN
	C-604	16	EROSION, SEDIMENTATION AND POLLUTION CONTROL CHECKLIST AND CONSTRUCTION SCHEDULE
	C-605	17	COMPREHENSIVE MONITORING PLAN

Know what's below.
Call before you dig!
Dial 811
or Utility Protection Center
1-800-282-7411.



VICINITY MAP
N.T.S.
SITE LOCATED IN 60TH G.M.D.,
CITY OF WAYNESBORO, BURKE COUNTY, GEORGIA

NOTE: THIS PROJECT WILL RESULT IN LAND DISTURBANCE GREATER THAN 1 ACRE, THEREFORE AN NOTICE OF INTENT MUST BE FILED WITH GEORGIA EPD AT LEAST 14 DAYS PRIOR TO START OF CONSTRUCTION.

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION AND CONTROL.

BY: CHARLES S. ARMENTROUT, P.E. GEORGIA REGISTERED P.E. NO. 014742

REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

FEB 04 2013

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matthery • Thurmond

CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

COVER SHEET
C-100
SHEET 1 OF 17

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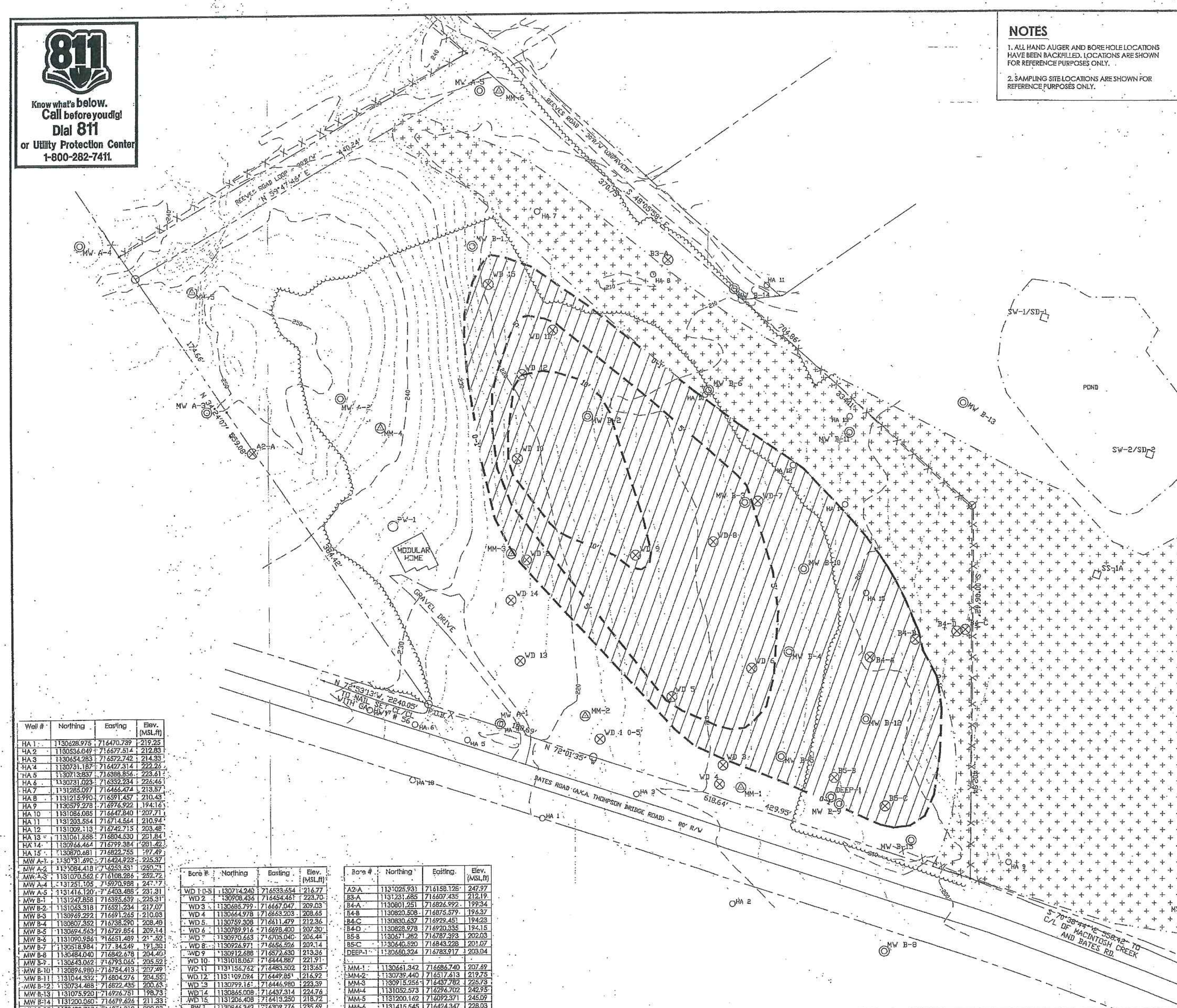

NOTES

1. ALL HAND AUGER AND BORE HOLE LOCATIONS HAVE BEEN BACKFILLED. LOCATIONS ARE SHOWN FOR REFERENCE PURPOSES ONLY.

2. SAMPLING SITE LOCATIONS ARE SHOWN FOR REFERENCE PURPOSES ONLY.

LEGEND

- PROPERTY LINE
- 240 INDEX CONTOUR
- INTERMEDIATE CONTOUR
- FENCE
- TREE LINE
- SURFACE WATER
- 10' ESTIMATED EXTENT OF WASTE ENVELOPE (10')
- 5' ESTIMATED EXTENT OF WASTE ENVELOPE (5')
- 0-1' ESTIMATED EXTENT OF WASTE ENVELOPE (0-1')
- APPROXIMATE WETLANDS DELINEATION
- HA HAND AUGER SITE
- MW MONITORING WELL SITE
- PW-1 PRIVATE WELL SAMPLING SITE
- SW/SD OR SS SURFACE WATER / SEDIMENT SAMPLING SITE
- WD 4 BORE HOLE SITE
- MM-2 METHANE MONITORING WELL

Well #	Northing	Easting	Elev. (MSL,ft)
HA 1	1130628.975	716470.739	219.25
HA 2	1130536.049	716677.514	212.83
HA 3	1130654.283	716572.742	214.33
HA 4	1130731.187	716427.314	222.26
HA 5	1130713.837	716388.856	223.61
HA 6	1130731.023	716332.234	226.46
HA 7	1131285.097	716466.474	213.57
HA 8	1131215.990	716591.457	210.43
HA 9	1130579.278	716976.922	194.16
HA 10	1131086.085	716647.840	207.71
HA 11	1131203.554	716714.564	210.94
HA 12	1131009.113	716742.715	203.48
HA 13	1131061.658	716804.530	201.84
HA 14	1130966.464	716799.384	201.42
HA 15	1130870.681	716822.755	197.49
MW A-1	1130731.690	716424.923	225.37
MW A-2	1130084.418	716253.531	250.73
MW A-3	1131070.562	716108.286	252.72
MW A-4	1131251.105	715970.988	247.[illegible]7
MW A-5	1131416.120	716403.486	231.31
MW B-1	1131247.858	716395.639	225.31
MW B-2	1131063.318	716521.234	217.07
MW B-3	1130969.292	716691.265	210.03
MW B-4	1130807.352	716738.290	208.40
MW B-5	1130694.563	716729.854	209.14
MW B-6	1131090.956	716651.489	21[illegible].52
MW B-7	1130518.984	717[illegible]34.249	191.30
MW B-8	1130484.040	716842.678	204.40
MW B-9	1130643.062	716793.065	205.52
MW B-10	1130896.980	716754.413	207.49
MW B-11	1131044.332	716804.276	204.55
MW B-12	1130734.488	716822.435	200.63
MW B-13	1131075.920	716926.751	198.73
MW B-14	1131200.060	716679.626	211.33
MW B-15	1130603.717	716871.312	200.83

Bore #	Northing	Easting	Elev. (MSL,ft)
WD 1 0-5	1130714.240	716533.654	216.77
WD 2	1130908.436	716454.461	223.70
WD 3	1130685.799	716667.047	209.03
WD 4	1130664.978	716663.203	208.65
WD 5	1130759.308	716611.479	212.36
WD 6	1130789.916	716698.400	207.30
WD 7	1130970.663	716705.040	206.44
WD 8	1130926.971	716656.526	209.14
WD 9	1130912.688	716572.630	213.36
WD 10	1131018.067	716444.887	221.91
WD 11	1131156.762	716483.502	213.65
WD 12	1131109.094	716449.851	216.92
WD 13	1130799.161	716446.980	223.39
WD 14	1130865.008	716437.314	224.76
WD 15	1131206.408	716413.250	218.72
PW 1	1130946.342	716309.776	235.69

Bore #	Northing	Easting	Elev. (MSL,ft)
A2-A	1131025.931	716158.128	247.97
B3-A	1131231.685	716607.435	212.19
B4-A	1130801.251	716826.992	199.34
B4-B	1130820.508	716875.579	196.37
B4-C	1130830.637	716929.451	194.23
B4-D	1130828.978	716920.335	194.15
B5-B	1130671.282	716787.393	202.03
B5-C	1130640.520	716843.228	201.07
DEEP-1	1130650.324	716783.917	203.04
MM-1	1130661.342	716686.740	207.69
MM-2	1130739.440	716517.613	219.75
MM-3	1130915.256	716437.782	225.73
MM-4	1131052.573	716296.702	242.95
MM-5	1131200.162	716092.371	245.09
MM-6	1131415.545	716424.347	228.03

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REVISIONS

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 14742 CHARLES S. ARMENTROUT
FEB 04 2013

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matheny • Thurmond
OAKBROOK CORPORATE CAMPUS
330 RESEARCH DRIVE, SUITE A240
ATHENS, GEORGIA, USA 30605-2760
PHONE: (706) 548.8211
FAX: (706) 548.1814
www.amtathens.com

CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

EXISTING CONDITIONS
C-200
SHEET 3 OF 17

811

Know what's below.
Call before you dig!
Dial 811
or Utility Protection Center
1-800-282-7411.

LEGEND

Symbol	Description
— - - — - - —	PROPERTY LINE
- - - 240 - - -	INDEX CONTOUR
	INTERMEDIATE CONTOUR
—x—x—x—x—x—x—	FENCE
(scalloped line)	TREE LINE
— · — · —	SURFACE WATER
—— CF —— CF ——	HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
WE (hatched) WE	WASTE ENVELOPE
(+ pattern)	APPROXIMATE WETLANDS LOCATION
◎ MW	MONITORING WELL SITE
O PW-1	PRIVATE WELL SAMPLING SITE
□ SW/SD OR □ SS	SURFACE WATER / SEDIMENT SAMPLING SITE
MM-2	METHANE MONITORING WELL

NOTES

1. EROSION, SEDIMENTATION AND POLLUTION CONTROL MEASURES ARE TO BE INSTALLED PER THE ES&PC PLAN PRIOR TO THE START OF DEMOLITION WORK.

2. LOCATION OF UTILITIES ARE APPROXIMATE AND MAY NOT BE COMPLETE. VERIFY SITE CONDITIONS AND LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION BY CONTACTING THE UTILITIES PROTECTION CENTER OF GEORGIA. ANY STRUCTURES THAT ARE DISCOVERED AND DO NOT APPEAR ON THE PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND UNDER NO CIRCUMSTANCES SHALL BE DISTURBED.

3. COORDINATE WITH APPROPRIATE UTILITY COMPANY FOR ALL UTILITY SERVICES TO BE REMOVED OF ABANDONED. CONTRACTOR TO CONFIRM THAT UTILITY SERVICE LINES ARE NOT CONNECTED TO ANY BUILDING OTHER THAN THOSE ON THE PROJECT SITE.

4. DAMAGE TO FACILITIES NOT DESIGNATED AS TO BE DEMOLISHED SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

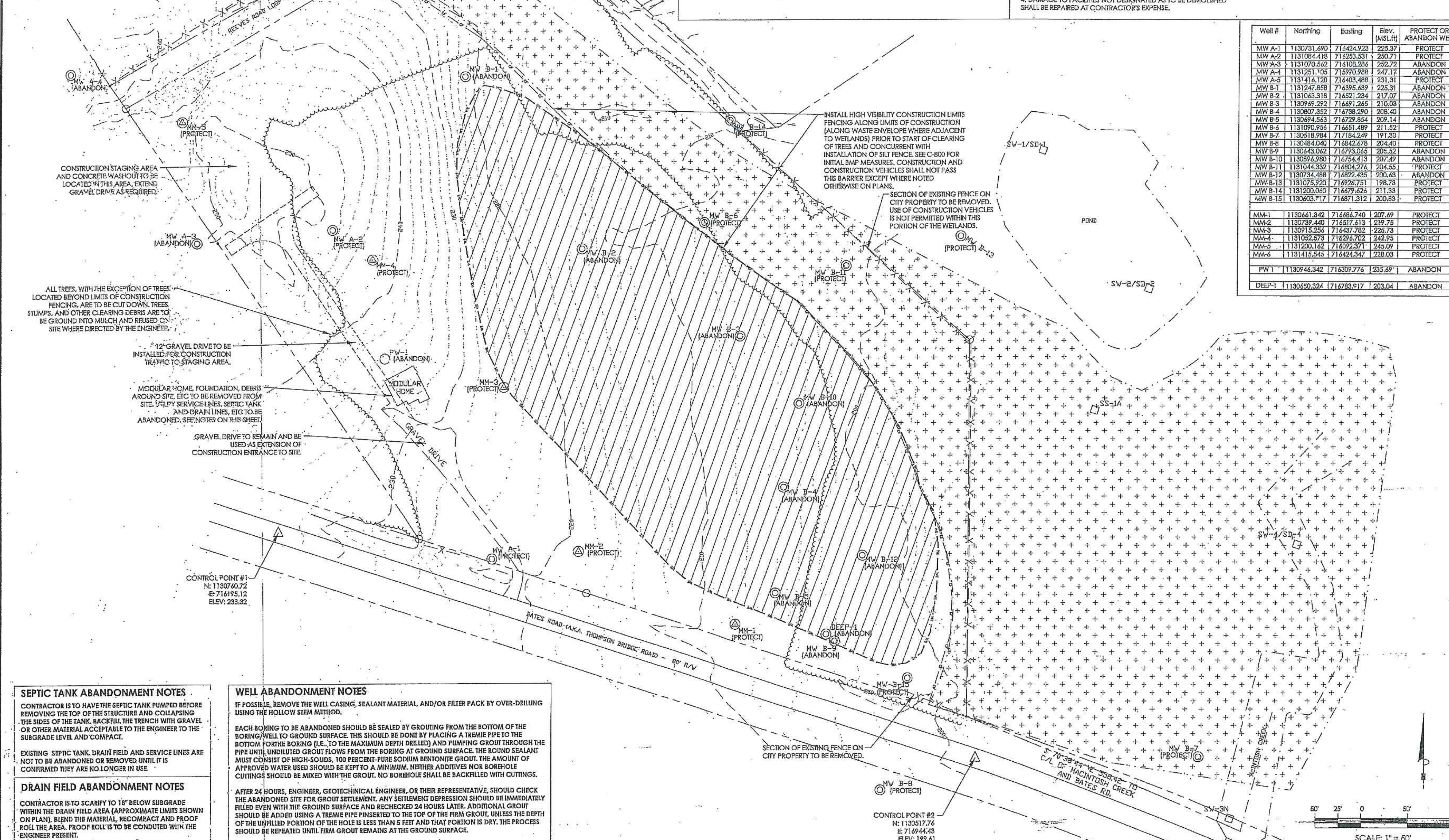
5. ALL DEBRIS AND EXCAVATED AND DEMOLISHED MATERIALS NOT SUITABLE FOR FILL SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF. NO DEMOLISHED MATERIALS SHALL BE BURIED ON SITE. GRIND ALL TREES, STUMPS, AND OTHER CLEARING DEBRIS INTO MULCH. MULCH AND FILL SUITABLE FOR REUSE SHALL BE STORED ON-SITE WHERE DESIGNATED BY THE ENGINEER.

6. SAMPLING SITE LOCATIONS ARE SHOWN FOR REFERENCE PURPOSES ONLY.

7. WELLS THAT ARE LISTED IN THE CHART BELOW AS TO BE ABANDONED SHALL BE ABANDONED PRIOR TO COVER PLACEMENT AND IN ACCORDANCE WITH EPD REQUIREMENTS AND NOTES SHOWN ON THIS SHEET. DAMAGE TO WELLS LISTED AS TO BE PROTECTED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

8. PROHIBIT PEDESTRIAN ACCESS TO THE PROJECT SITE.

Well #	Northing	Easting	Elev. (MSL.ft)	PROTECT OR ABANDON WELL
MW A-1	1130731.690	716424.923	225.37	PROTECT
MW A-2	1131084.418	716253.531	250.71	PROTECT
MW A-3	1131070.562	716108.286	252.72	ABANDON
MW A-4	1131251.105	715970.988	247.17	ABANDON
MW A-5	1131416.120	716403.488	231.31	PROTECT
MW B-1	1131247.858	716395.639	225.31	ABANDON
MW B-2	1131063.318	716521.234	217.07	ABANDON
MW B-3	1130969.292	716691.265	210.03	ABANDON
MW B-4	1130807.352	716738.290	208.40	ABANDON
MW B-5	1130694.563	716729.854	209.14	ABANDON
MW B-6	1131090.956	716651.489	211.52	PROTECT
MW B-7	1130518.984	717184.249	191.30	PROTECT
MW B-8	1130484.040	716842.678	204.40	PROTECT
MW B-9	1130643.062	716793.065	205.52	ABANDON
MW B-10	1130896.980	716754.413	207.49	ABANDON
MW B-11	1131044.332	716804.276	204.55	PROTECT
MW B-12	1130734.488	716822.435	200.63	ABANDON
MW B-13	1131075.920	716926.751	198.73	PROTECT
MW B-14	1131200.060	716679.626	211.33	PROTECT
MW B-15	1130603.717	716871.312	200.83	PROTECT
MM-1	1130661.342	716686.740	207.69	PROTECT
MM-2	1130739.440	716517.613	219.75	PROTECT
MM-3	1130915.256	716437.782	225.73	PROTECT
MM-4	1131052.573	716296.702	242.95	PROTECT
MM-5	1131200.162	716092.371	245.09	PROTECT
MM-6	1131415.545	716424.347	228.03	PROTECT
PW 1	1130946.342	716309.776	235.69	ABANDON
DEEP-1	1130650.324	716783.917	203.04	ABANDON



SEPTIC TANK ABANDONMENT NOTES

CONTRACTOR IS TO HAVE THE SEPTIC TANK PUMPED BEFORE REMOVING THE TOP OF THE STRUCTURE AND COLLAPSING THE SIDES OF THE TANK. BACKFILL THE TRENCH WITH GRAVEL OR OTHER MATERIAL ACCEPTABLE TO THE ENGINEER TO THE SUBGRADE LEVEL AND COMPACT.

EXISTING SEPTIC TANK, DRAIN FIELD AND SERVICE LINES ARE NOT TO BE ABANDONED OR REMOVED UNTIL IT IS CONFIRMED THEY ARE NO LONGER IN USE.

DRAIN FIELD ABANDONMENT NOTES

CONTRACTOR IS TO SCARIFY TO 18" BELOW SUBGRADE WITHIN THE DRAIN FIELD AREA (APPROXIMATE LIMITS SHOWN ON PLAN), BLEND THE MATERIAL, RECOMPACT AND PROOF ROLL THE AREA. PROOF ROLL IS TO BE CONDUTED WITH THE ENGINEER PRESENT.

WELL ABANDONMENT NOTES

IF POSSIBLE, REMOVE THE WELL CASING, SEALANT MATERIAL, AND/OR FILTER PACK BY OVER-DRILLING USING THE HOLLOW STEM METHOD.

EACH BORING TO BE ABANDONED SHOULD BE SEALED BY GROUTING FROM THE BOTTOM OF THE BORING/WELL TO GROUND SURFACE. THIS SHOULD BE DONE BY PLACING A TREMIE PIPE TO THE BOTTOM FORTHE BORING (I.E., TO THE MAXIMUM DEPTH DRILLED) AND PUMPING GROUT THROUGH THE PIPE UNTIL UNDILUTED GROUT FLOWS FROM THE BORING AT GROUND SURFACE. THE ROUND SEALANT MUST CONSIST OF HIGH-SOLIDS, 100 PERCENT-PURE SODIUM BENTONITE GROUT. THE AMOUNT OF APPROVED WATER USED SHOULD BE KEPT TO A MINIMUM. NEITHER ADDITIVES NOR BOREHOLE CUTTINGS SHOULD BE MIXED WITH THE GROUT. NO BOREHOLE SHALL BE BACKFILLED WITH CUTTINGS.

AFTER 24 HOURS, ENGINEER, GEOTECHINICAL ENGINEER, OR THEIR REPRESENTATIVE, SHOULD CHECK THE ABANDONED SITE FOR GROUT SETTLEMENT. ANY SETTLEMENT DEPRESSION SHOULD BE IMMEDIATELY FILLED EVEN WITH THE GROUND SURFACE AND RECHECKED 24 HOURS LATER. ADDITIONAL GROUT SHOULD BE ADDED USING A TREMIE PIPE PINSERTED TO THE TOP OF THE FIRM GROUT, UNLESS THE DEPTH OF THE UNFILLED PORTION OF THE HOLE IS LESS THAN 5 FEET AND THAT PORTION IS DRY. THE PROCESS SHOULD BE REPEATED UNTIL FIRM GROUT REMAINS AT THE GROUND SURFACE.

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Tue, Feb 05 2013 - 9:38:04am

REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED No. 14732 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT
FEB 04 2013

amt
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CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

MOBILIZATION PLAN

C-201
SHEET 4 OF 17

811
Know what's below.
Call before you dig!
Dial 811
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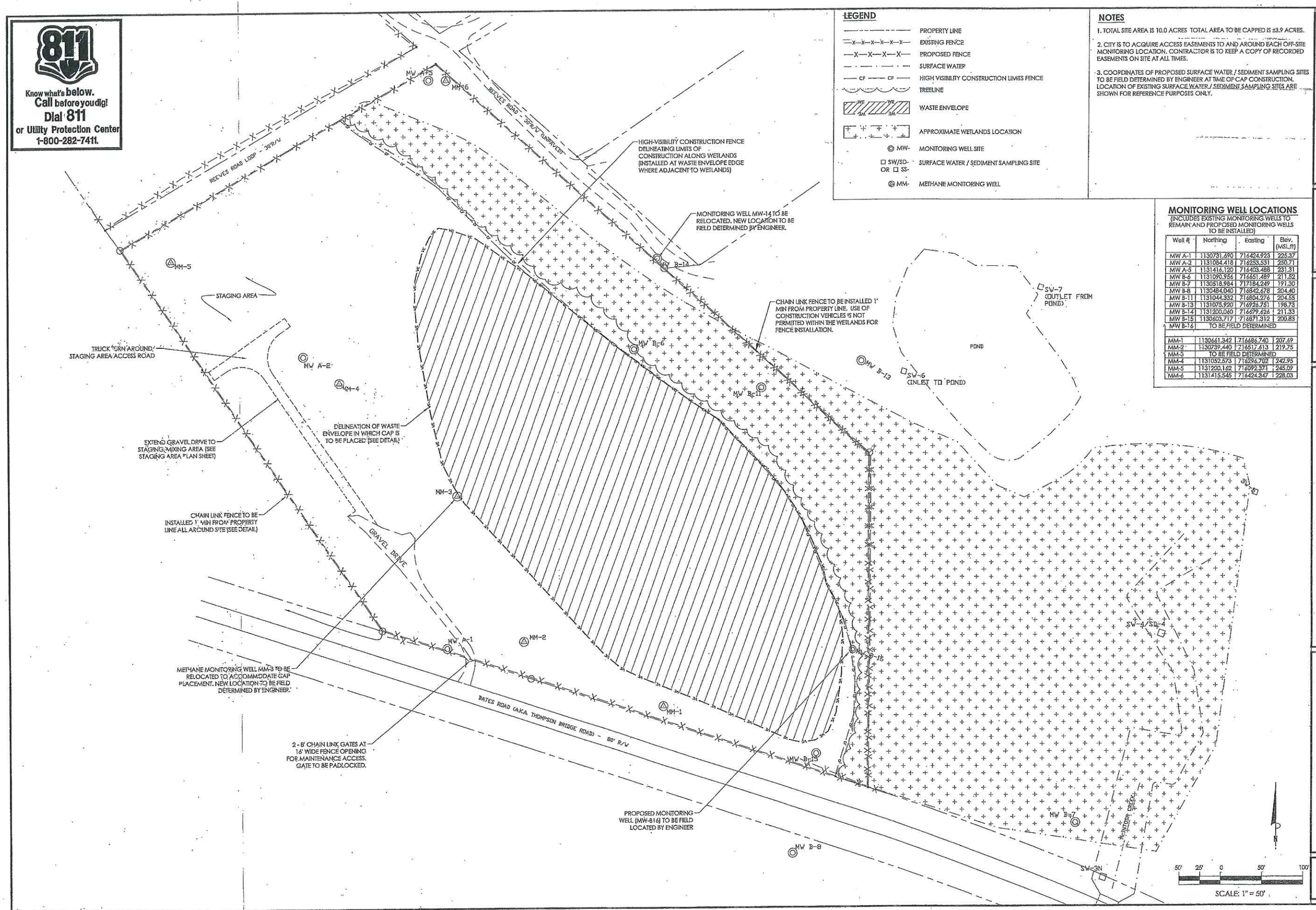

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- PROPOSED FENCE
- SURFACE WATER
- HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
- TREELINE
- WASTE ENVELOPE
- APPROXIMATE WETLANDS LOCATION
- MW- MONITORING WELL SITE
- SW/SD- OR SS- SURFACE WATER / SEDIMENT SAMPLING SITE
- MM- METHANE MONITORING WELL

NOTES

1. TOTAL SITE AREA IS 10.0 ACRES TOTAL AREA TO BE CAPPED IS ±3.9 ACRES.
2. CITY IS TO ACQUIRE ACCESS EASEMENTS TO AND AROUND EACH OFF-SITE MONITORING LOCATION. CONTRACTOR IS TO KEEP A COPY OF RECORDED EASEMENTS ON SITE AT ALL TIMES.
3. COORDINATES OF PROPOSED SURFACE WATER / SEDIMENT SAMPLING SITES TO BE FIELD DETERMINED BY ENGINEER AT TIME OF CAP CONSTRUCTION. LOCATION OF EXISTING SURFACE WATER / SEDIMENT SAMPLING SITES ARE SHOWN FOR REFERENCE PURPOSES ONLY.

MONITORING WELL LOCATIONS

(INCLUDES EXISTING MONITORING WELLS TO REMAIN AND PROPOSED MONITORING WELLS TO BE INSTALLED)

Well #	Northing	Easting	Elev. (MSL,ft)
MW A-1	1130731.690	716424.923	225.37
MW A-2	1131084.416	716255.551	250.71
MW A-5	1131416.120	716403.488	231.31
MW B-6	1131090.956	716651.489	211.52
MW B-7	1130518.984	717184.249	191.30
MW B-8	1130484.040	716842.678	204.40
MW B-11	1131044.332	716804.276	204.55
MW B-13	1131075.920	716926.751	198.73
MW B-14	1131200.040	716679.626	211.33
MW B-15	1130603.717	716871.312	200.83
MW B-16	TO BE FIELD DETERMINED		
MM-1	1130661.342	716686.740	207.69
MM-2	1130739.440	716517.613	219.75
MM-3	TO BE FIELD DETERMINED		
MM-4	1131052.573	716296.702	242.95
MM-5	1131200.162	716092.371	245.09
MM-6	1131415.545	716424.347	228.03

REVISIONS

NO.	BY	DESCRIPTION
DATE		
1 FEBRUARY 2013	BMR	EPD COMMENTS/EDITS

DESIGNED: BMR
DRAWN: BMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT FEB 04 2013

OAKBROOK CORPORATE CAMPUS
3715 NORTHCREST ROAD, SUITE 10
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PHONE (706) 548-8211
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www.amtathens.com

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CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

SITE PLAN
C-300
SHEET 5 OF 17

811

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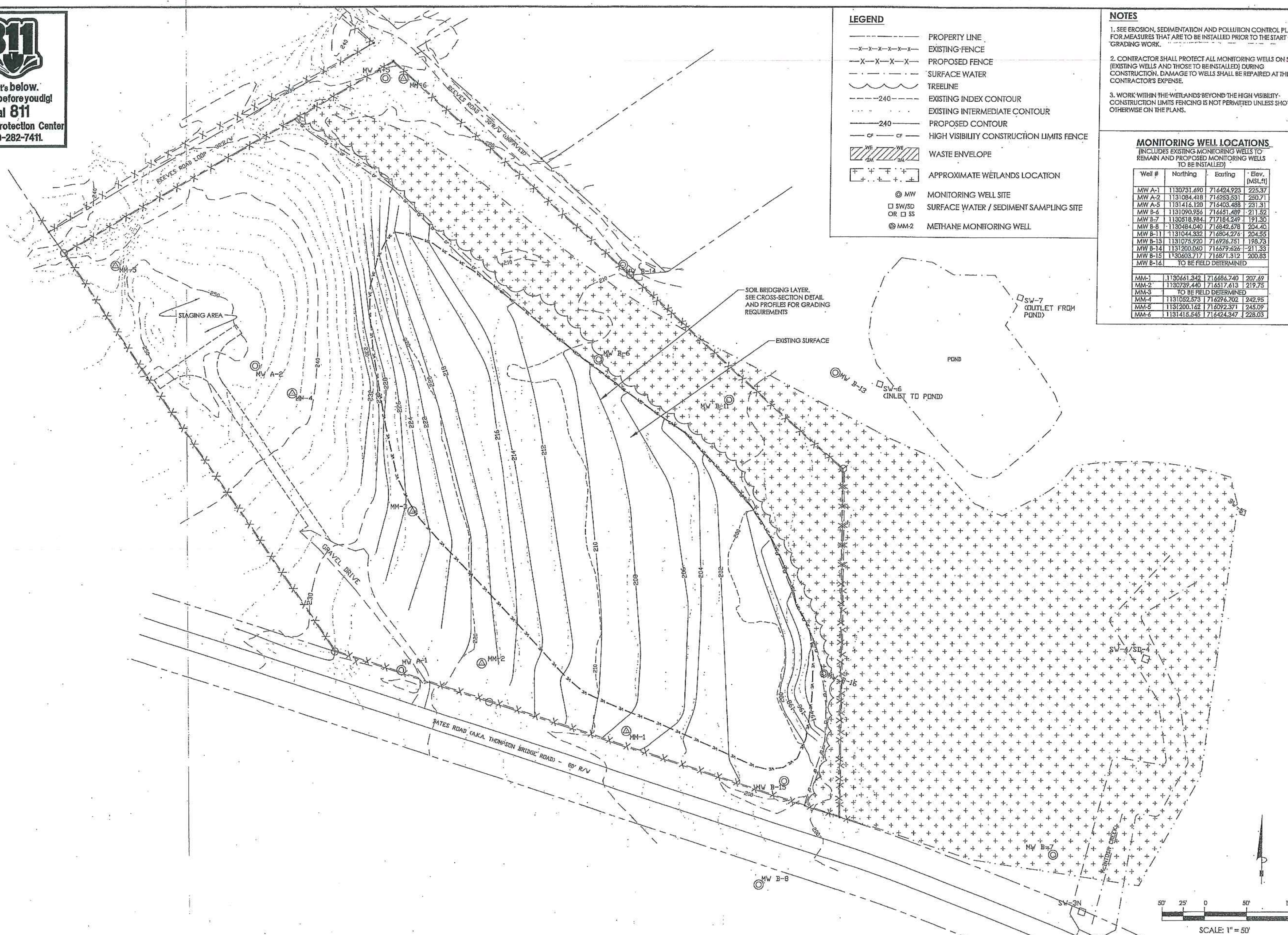

LEGEND

— - - — - - —	PROPERTY LINE
—x—x—x—x—x—x—	EXISTING FENCE
—X—X—X—X—	PROPOSED FENCE
— · — · — · —	SURFACE WATER
(scalloped line)	TREELINE
- - - - 240 - - - -	EXISTING INDEX CONTOUR
· · · · · · ·	EXISTING INTERMEDIATE CONTOUR
——— 240 ———	PROPOSED CONTOUR
—— CF —— CF ——	HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
(hatched, WE)	WASTE ENVELOPE
(+ + +)	APPROXIMATE WETLANDS LOCATION
◎ MW	MONITORING WELL SITE
□ SW/SD OR □ SS	SURFACE WATER / SEDIMENT SAMPLING SITE
MM-2	METHANE MONITORING WELL

NOTES

1. SEE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS FOR MEASURES THAT ARE TO BE INSTALLED PRIOR TO THE START OF GRADING WORK.

2. CONTRACTOR SHALL PROTECT ALL MONITORING WELLS ON SITE (EXISTING WELLS AND THOSE TO BE INSTALLED) DURING CONSTRUCTION. DAMAGE TO WELLS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

3. WORK WITHIN THE WETLANDS BEYOND THE HIGH VISIBILITY CONSTRUCTION LIMITS FENCING IS NOT PERMITTED UNLESS SHOWN OTHERWISE ON THE PLANS.

MONITORING WELL LOCATIONS

(INCLUDES EXISTING MONITORING WELLS TO REMAIN AND PROPOSED MONITORING WELLS TO BE INSTALLED)

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REVISIONS

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED No. 14742 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT
FEB 04 2013

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CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

GRADING PLAN
(BRIDGING LAYER)
C-400
SHEET 6 OF 17

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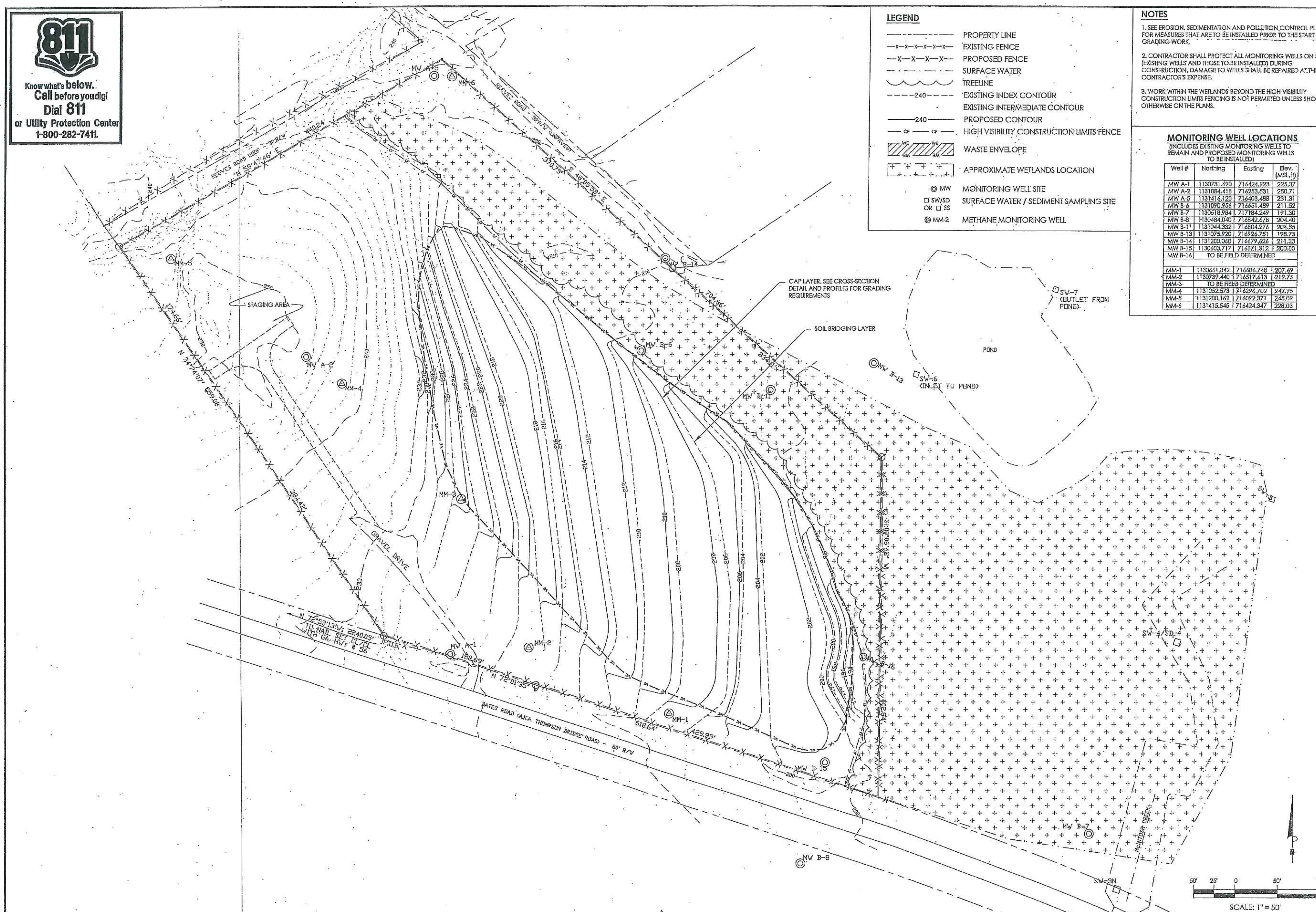

LEGEND

————————	PROPERTY LINE
—x—x—x—x—	EXISTING FENCE
—X—X—X—X—	PROPOSED FENCE
— · — · —	SURFACE WATER
︶︶︶	TREELINE
----240----	EXISTING INDEX CONTOUR
- - - -	EXISTING INTERMEDIATE CONTOUR
——240——	PROPOSED CONTOUR
—CF—CF—	HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
WE ▨ WE	WASTE ENVELOPE
+ + +	APPROXIMATE WETLANDS LOCATION
◎ MW	MONITORING WELL SITE
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◎ MM-2	METHANE MONITORING WELL

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REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

CHARLES S. ARMENTROUT
FEB 04 2013

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BATES ROAD LANDFILL SITE
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BURKE COUNTY, GEORGIA
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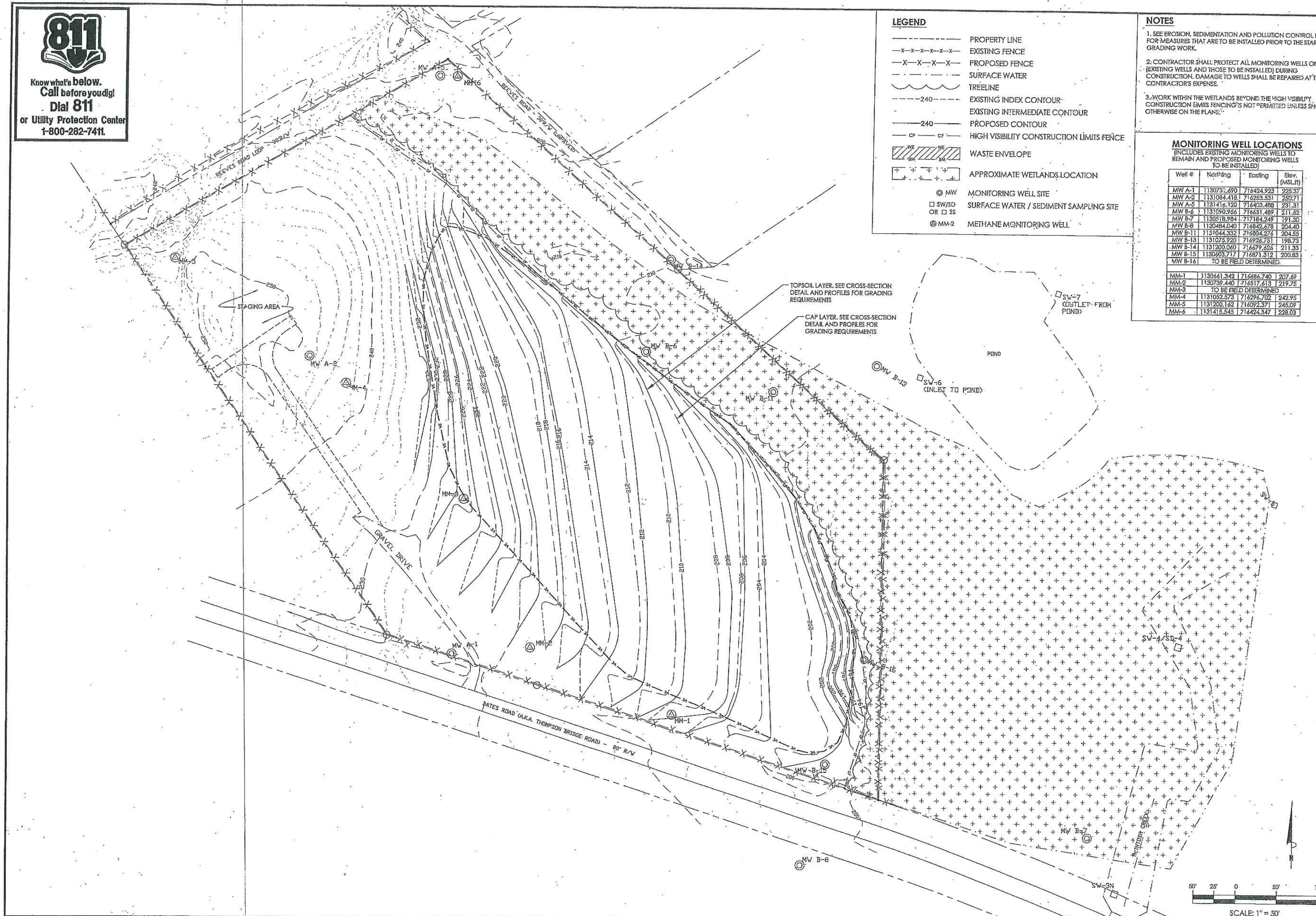
GRADING PLAN
(CAP LAYER)

C-401
SHEET 7 OF 17

Know what's **below.** Call before you dig! Dial 811 or Utility Protection Center 1-800-282-7411.



LEGEND

- PROPERTY LINE
- EXISTING FENCE
- PROPOSED FENCE
- SURFACE WATER
- TREELINE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED CONTOUR
- HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
- WASTE ENVELOPE
- APPROXIMATE WETLANDS LOCATION
- MW — MONITORING WELL SITE
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REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

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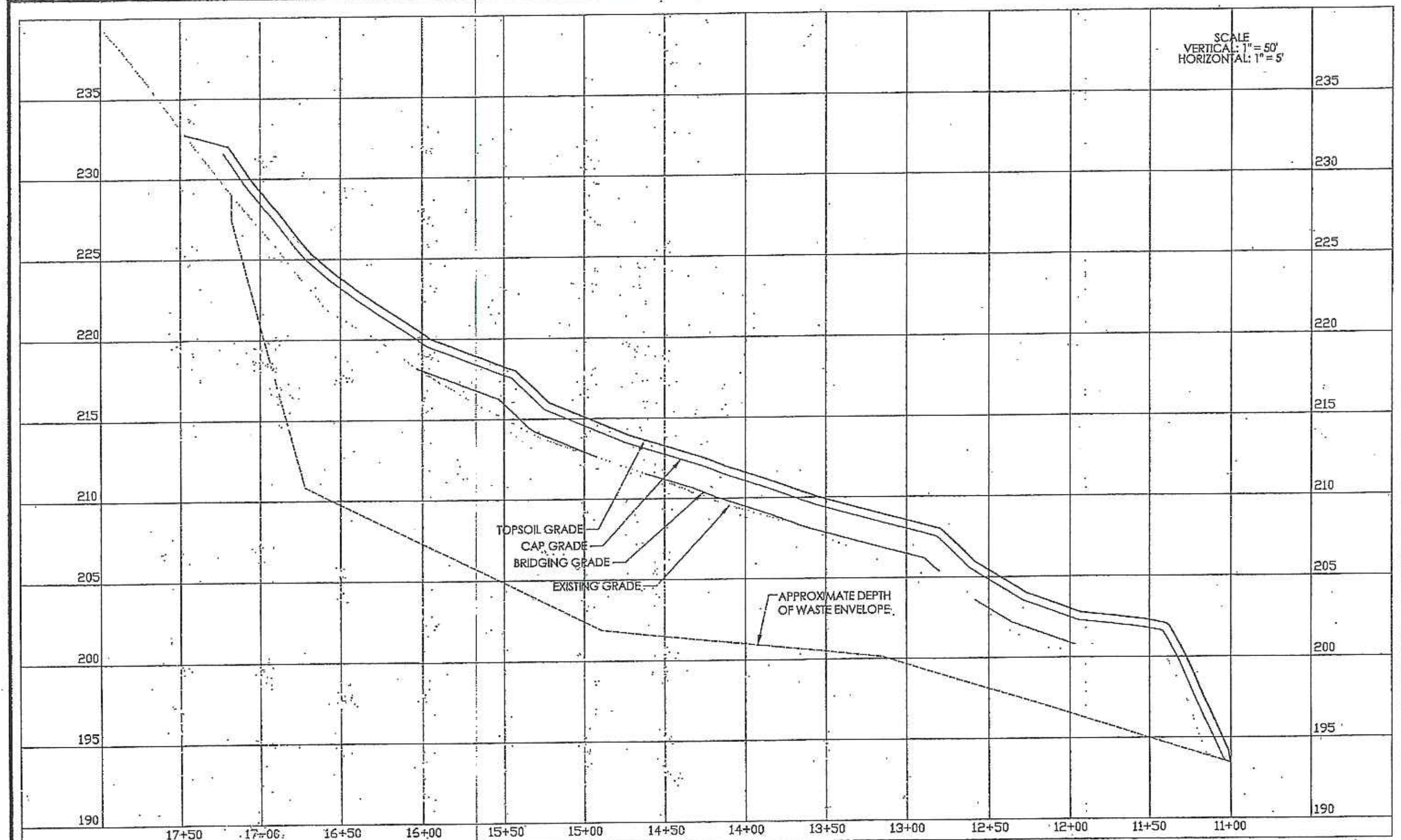
CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

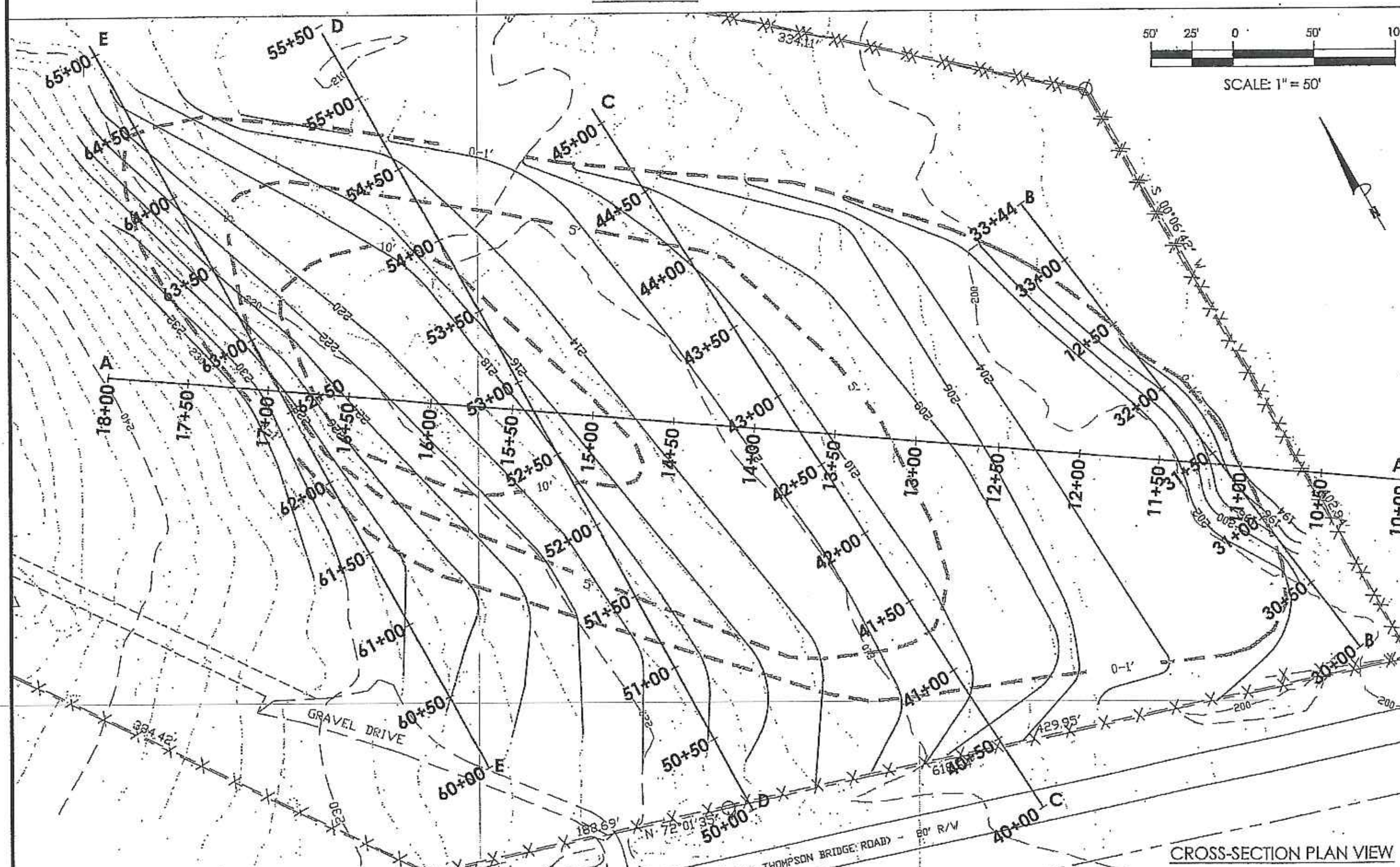
GRADING PLAN (TOPSOIL LAYER)

C-402

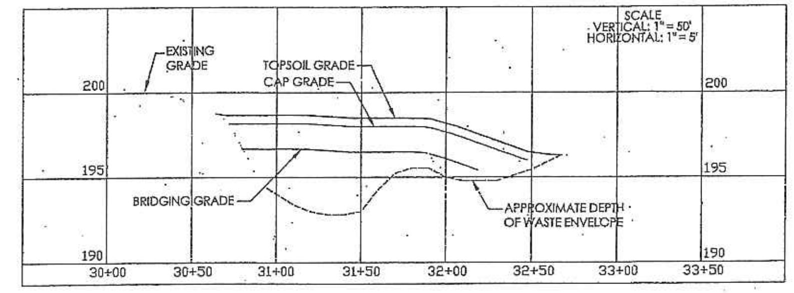
SHEET 8 OF 17



SECTION A-A



CROSS-SECTION PLAN VIEW



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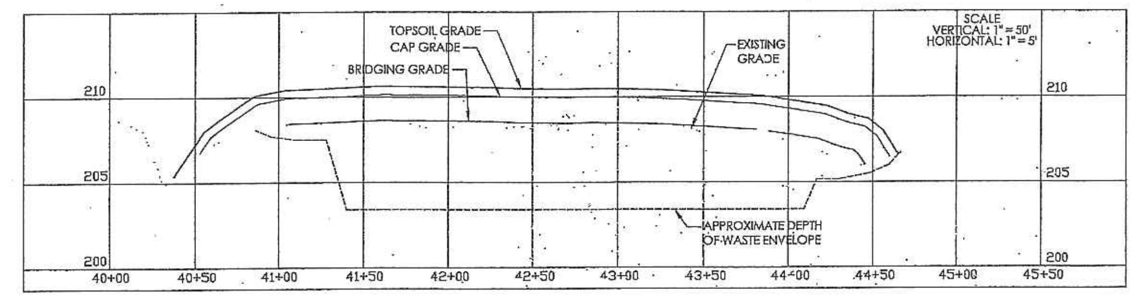

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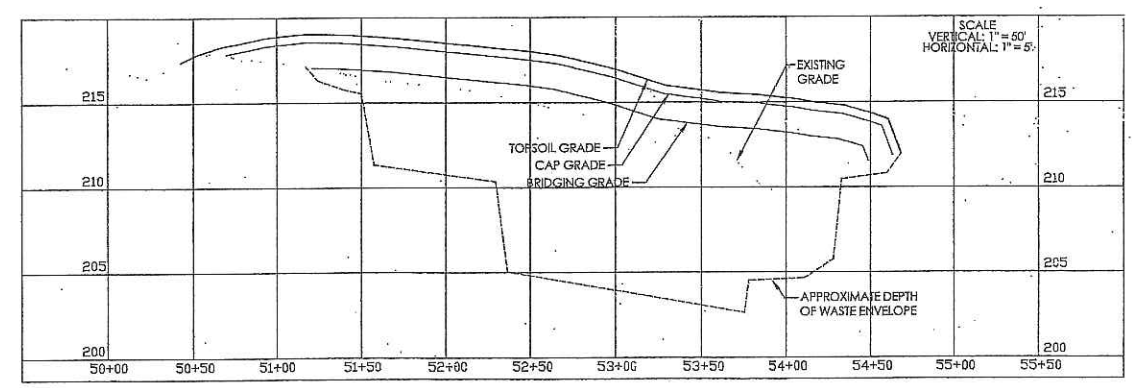

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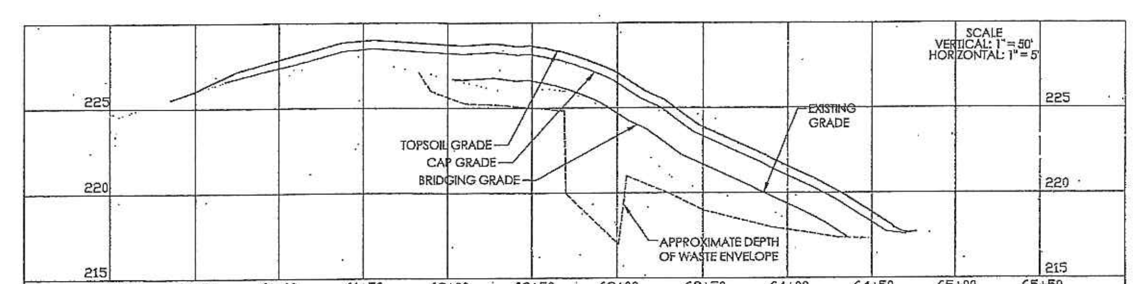

SECTION E-E

REVISIONS

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED No. 14742 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT FEB 04 2013

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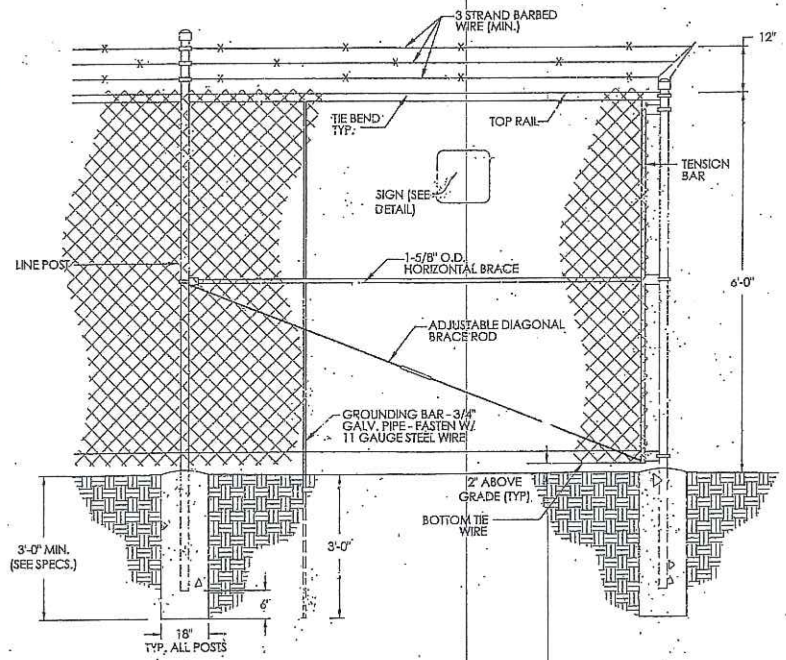
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

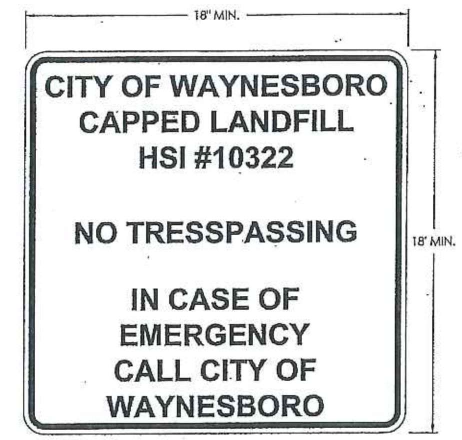
GRADING SECTIONS

C-403
SHEET 9 OF 17



CHAIN LINK FENCE DETAIL

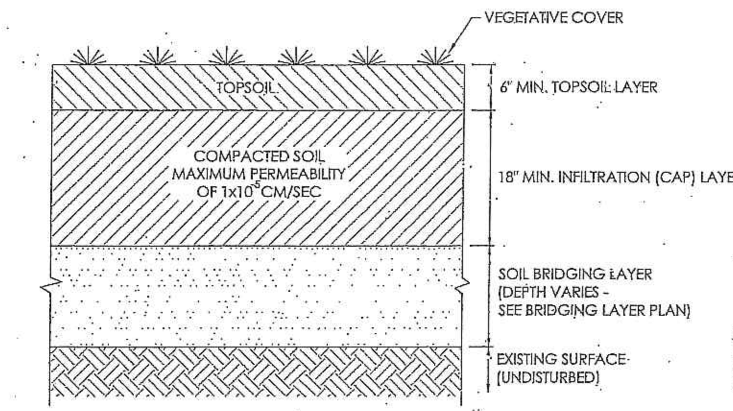
SCALE: N.T.S.



CHAIN LINK FENCE SIGN DETAIL

SCALE: N.T.S.

NOTES:
1. MATERIAL: ENGINEERING GRADE REFLECTIVE ALUMINUM
2. TEXT: 1" HIGH (MIN.) LETTERS, BLACK
3. BORDER: BLACK
4. BACKGROUND: WHITE
5. MOUNT TO GATES AND CHAIN LINK FENCE AT 100' INTERVALS, AT 4' ABOVE GRADE PER MANUFACTURER RECOMENDATION. APPROX. 30 SIGNS ARE TO BE INSTALLED.
6. 18"x18" ARE MINIMUM SIGN DIMENSIONS AND ARE PROVIDED FOR REFERENCE PURPOSES ONLY. ACTUAL SIGN DIMENSIONS TO BE DETERMINED BY CONTRACTOR AND VERIFIED BY ENGINEER DURING SHOP DRAWING PROCESS.



CLOSURE CAP CROSS-SECTION

SCALE: N.T.S.

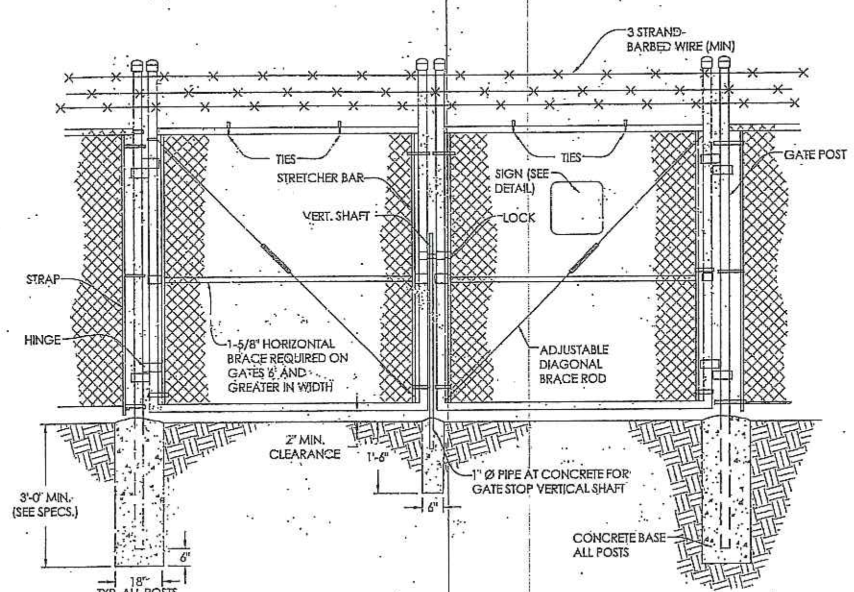
NOTES:
1. THE MOBILE HOME, ALL DRUMS, TIRES, ABANDONED CARS, BATTERIES, AND OTHER DEBRIS IS TO BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF PRIOR TO CAP PLACEMENT.

2. WELLS THAT ARE TO BE ABANDONED ARE TO BE ABANDONED PRIOR TO CAP PLACEMENT. SEE MOBILIZATION PLAN FOR LIST OF WELLS TO BE ABANDONED.

3. PROTECTION FOR WELLS THAT ARE TO REMAIN MUST BE IN PLACE PRIOR TO CAP PLACEMENT. SEE MOBILIZATION PLAN FOR LIST OF WELLS TO BE PROTECTED.

4. SOIL BRIDGING LAYER THICKNESS TO BE INCREASED AS REQUIRED TO MEET MINIMUM SLOPE OF 3% AT VEGETATIVE/TOPSOIL LAYER.

5. CAP PLACEMENT TO BE DONE IN ACCORDANCE WITH EPD GUIDANCE DOCUMENT "INSTALLATION OF THE FINAL COVER FOR AN UNLINED LANDFILL" AND THE PROJECT SPECIFICATIONS.



CHAIN LINK FENCE GATE DETAIL

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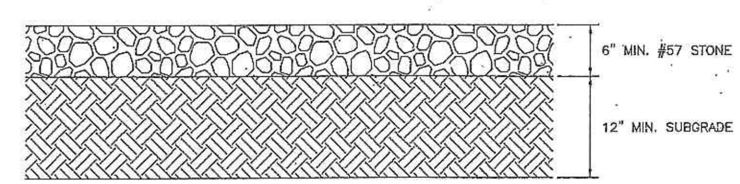

GRAVEL DRIVE DETAIL

SCALE: N.T.S.

NOTES:
1. DURING CONSTRUCTION THE GRAVEL DRIVE EXTENSION SHOWN ON THE PLANS SHALL SERVE AS AN EXTENSION OF THE CONSTRUCTION EXIT. COARSE AGGREGATE IS TO BE USED AS SHOWN ON THE CONSTRUCTION EXIT DETAIL. GEOTEXTILE UNDERLINER IS NOT REQUIRED FOR THE GRAVEL DRIVE EXTENSION.

2. CONSTRUCTION EXIT, GRAVEL DRIVE AND EXTENSION ARE TO REMAIN IN PLACE AT END OF PROJECT AND SHALL BE RECONDITIONED WITH #57 STONE APPLIED PER DETAIL SHOWN ABOVE.

REVISIONS

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED No. 14742 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT FEB 04 2013

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BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

GENERAL DETAILS
C-500
SHEET 10 OF 17

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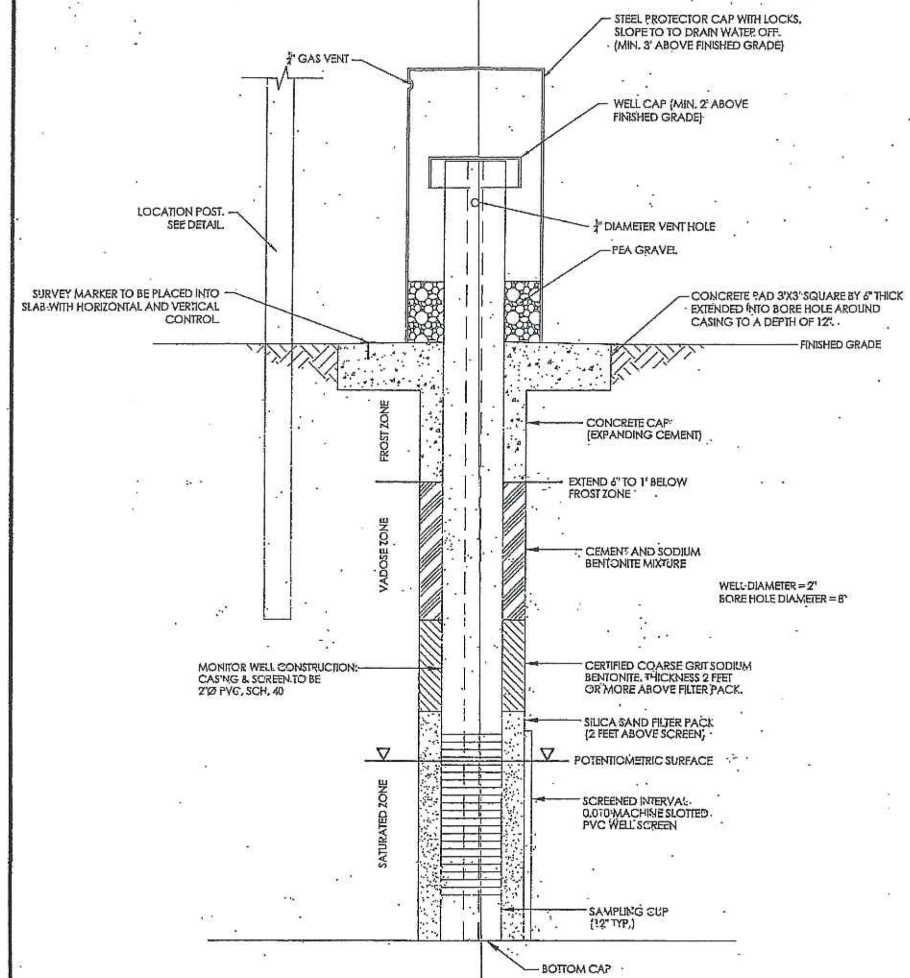
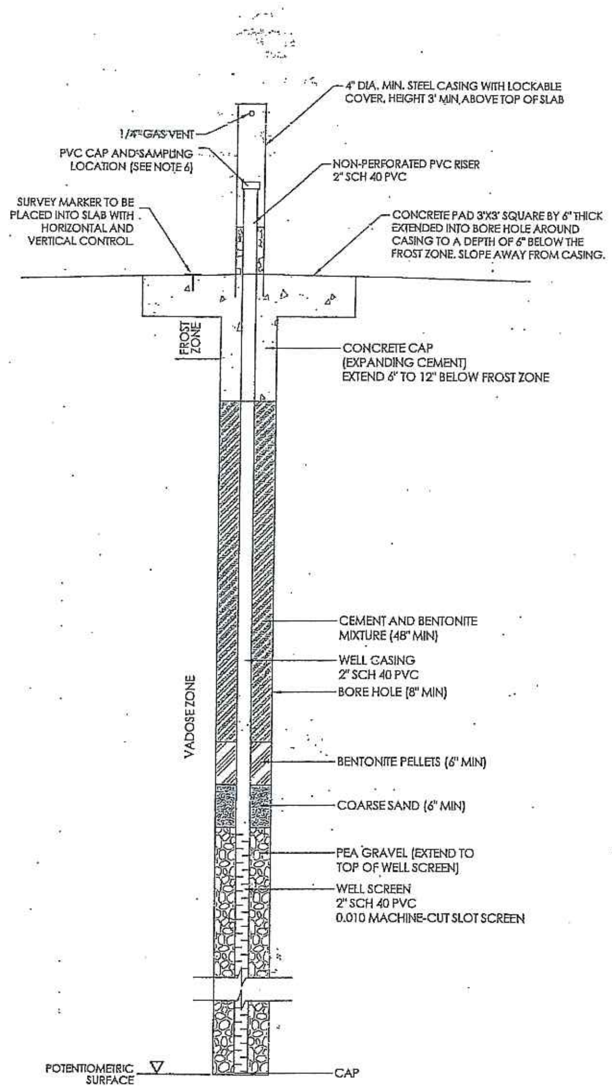


GROUND WATER MONITORING WELL CROSS SECTION

SCALE: N.T.S.

NOTES:

1. PLACE LOCATION POST BESIDE EACH WELL. SEE DETAIL.
2. WELLS SHALL BE INSTALLED BY DRILLING CONTRACTOR WITH A VALID BOND ON FILE WITH GA DEPARTMENT OF NATURAL RESOURCES.
3. WELL INSTALLATION TO BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL GEOLOGIST OR ENGINEER REGISTERED TO PRACTICE IN THE STATE OF GEORGIA.
4. PIPE JOINTS SHALL BE WATERTIGHT FOR THE ENTIRE LENGTH OF THE CASING.
5. ALL DRILLING EQUIPMENT AND TOOLS SHALL BE WASHED AND STEAM CLEANED IMMEDIATELY UPON COMPLETION OF EACH MONITORING WELL.



METHANE MONITORING WELL CROSS SECTION

SCALE: N.T.S.

NOTES:

1. PLACE LOCATION POST BESIDE EACH WELL. SEE DETAIL.
2. WELLS SHALL BE INSTALLED BY DRILLING CONTRACTOR WITH A VALID BOND ON FILE WITH GA DEPARTMENT OF NATURAL RESOURCES.
3. WELL INSTALLATION TO BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL GEOLOGIST OR ENGINEER REGISTERED TO PRACTICE IN THE STATE OF GEORGIA.
4. PIPE JOINTS SHALL BE WATERTIGHT FOR THE ENTIRE LENGTH OF THE CASING.
5. ALL DRILLING EQUIPMENT AND TOOLS SHALL BE WASHED AND STEAM CLEANED IMMEDIATELY UPON COMPLETION OF EACH MONITORING WELL.
6. SAMPLING POINT SAHLL BE A STOPCOCK VALVE OR QUICK CONNECT COUPLING ON THE CAP. THE STOPCOCK VALVE MUST BE EQUIPPED WITH FLEXIBLE TUBING AND A BARB CONNECTION THAT WILL FIT THE GAS METER'S INLET TUBE. THE STOPCOCK VALVE OR A QUICK CONNECT COUPLING MUST BE CLOSED BETWEEN MONITORING EVENTS.

BORING/MONITOR WELL CONSTRUCTION LOG

Armentrout Matheny Thurmond, P.C.
330 Research Drive, Suite A240
Athens, Georgia 30605
Phone:(706) 548-8211, Fax:(706) 548-1814

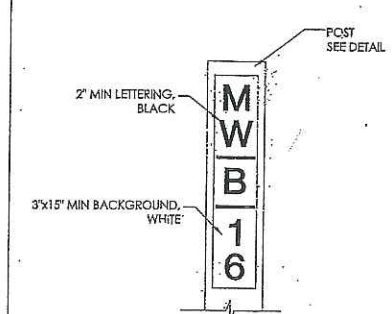
BORING LOG
SHEET __ OF __

Company Representative: ____
Project Name: ____ Project Number: ____
Boring/Monitor Well ID: ____ Drilling Date: ____ Logged By: ____
Drilling Contractor: ____
On-Site Personnel; Driller: ____ Helper(s): ____
Geologist or Engineer Observer: ____

DESCRIPTION	DEPTH (FEET)	SAMPLES #	BLOW/6"	PID/NOTES	NOTES
	0				
	5				
	10				
	15				
	20				
	25				

TYPICAL BORING/MONITORING LOG FORM

SCALE: N.T.S.

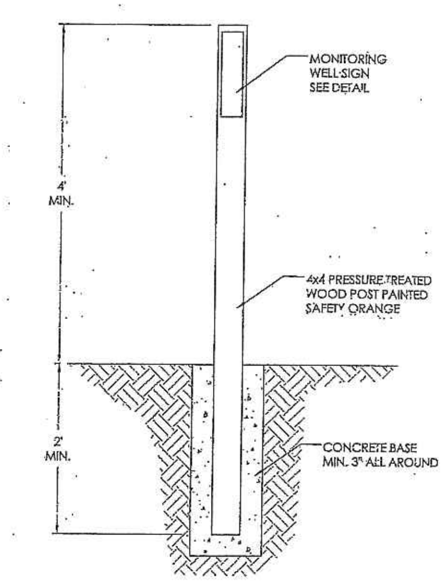


MONITORING WELL SIGN DETAIL

SCALE: N.T.S.

NOTE:

1. LETTERING SHALL DESIGNATE EACH GROUNDWATER MONITORING WELL AND METHANE MONITORING WELL LOCATION THE SAME AS IS SHOWN ON THE PLAN. SEE GRADING PLAN FOR LOCATIONS.
2. BACKGROUND IS TO BE PAINTED ON POST WITH STENCILED LETTERING OR PRINTED ON ALUMINUM SIGN AND MOUNTED TO POST PER MFG. RECOMENDATIONS.



MONITORING WELL LOCATION POST DETAIL

SCALE: N.T.S.

NOTE:

1. POST TO BE LOCATED WITHIN 1' OF THE CONCRETE PAD AROUND EXISTING AND PROPOSED GROUNDWATER AND METHANE MONITORING WELLS.

REVISIONS			
DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 14742 CHARLES S. ARMENTROUT
FEB 04 2013

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matheny • Thurmond
OAKBROOK CORPORATE CAMPUS
330 RESEARCH DRIVE, SUITE A240
ATHENS, GEORGIA, USA 30605-2760
PHONE: (706) 548.8211
FAX: (706) 548.1814
www.amtathens.com

CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

MONITORING WELL DETAILS
C-501
SHEET 11 OF 17

N:\...\CIVIL\CAD Files\Construction Dwgs\C501-Well Details.dwg

811 Know what's below. Call before you dig! Dial 811 or Utility Protection Center 1-800-282-7411.

INITIAL PHASE

- INSTALLATION OF BMPs (SILT FENCE, CONSTRUCTION EXIT, ETC).
- CLEARING OF DEBRIS ON SITE.
- CLEARING OF TREES AND BRUSH ON SITE. TREES AND MULCH TO BE GROUND INTO MULCH AND PLACED BETWEEN ROWS OF SILT FENCE.

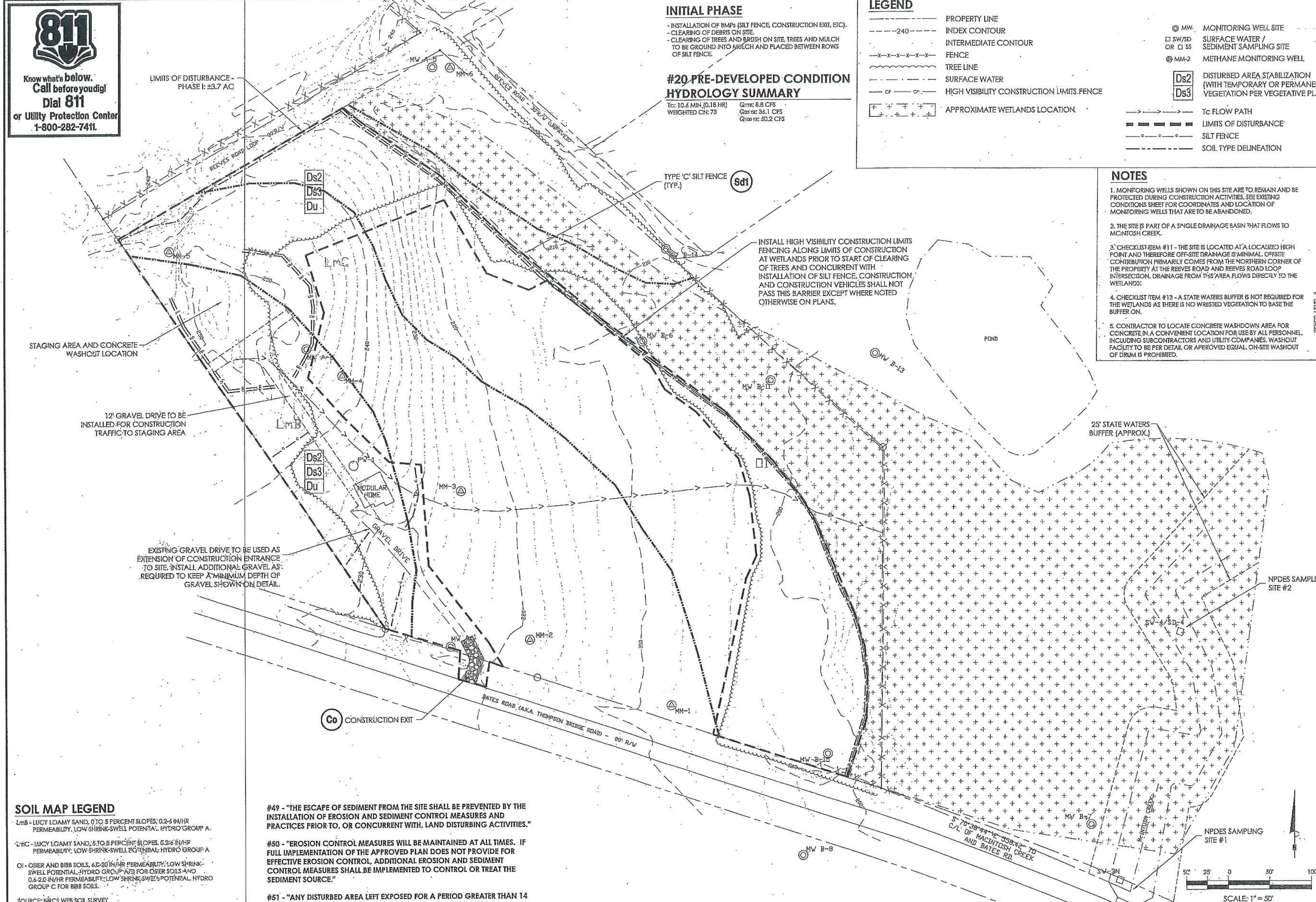
#20 PRE-DEVELOPED CONDITION HYDROLOGY SUMMARY

Tc: 10.6 MIN.(0.18 HR)
WEIGHTED CN: 73

Q_{1YR}: 8.8 CFS
Q_{25YR}: 36.1 CFS
Q_{100YR}: 50.2 CFS

LEGEND

- PROPERTY LINE
- 240 INDEX CONTOUR
- INTERMEDIATE CONTOUR
- FENCE
- TREE LINE
- SURFACE WATER
- CF HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
- APPROXIMATE WETLANDS LOCATION
- MW MONITORING WELL SITE
- SW/SD OR SS SURFACE WATER / SEDIMENT SAMPLING SITE
- MM-2 METHANE MONITORING WELL
- Ds2 / Ds3 DISTURBED AREA STABILIZATION (WITH TEMPORARY OR PERMANENT VEGETATION PER VEGETATIVE PLAN)
- Tc FLOW PATH
- LIMITS OF DISTURBANCE
- SILT FENCE
- SOIL TYPE DELINEATION



NOTES

1. MONITORING WELLS SHOWN ON THIS SITE ARE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION ACTIVITIES. SEE EXISTING CONDITIONS SHEET FOR COORDINATES AND LOCATION OF MONITORING WELLS THAT ARE TO BE ABANDONED.

2. THE SITE IS PART OF A SINGLE DRAINAGE BASIN THAT FLOWS TO MCINTOSH CREEK.

3. CHECKLIST ITEM #11 - THE SITE IS LOCATED AT A LOCALIZED HIGH POINT AND THEREFORE OFF-SITE DRAINAGE IS MINIMAL. OFFSITE CONTRIBUTION PRIMARILY COMES FROM THE NORTHERN CORNER OF THE PROPERTY AT THE REEVES ROAD AND REEVES ROAD LOOP INTERSECTION. DRAINAGE FROM THIS AREA FLOWS DIRECTLY TO THE WETLANDS.

4. CHECKLIST ITEM #13 - A STATE WATERS BUFFER IS NOT REQUIRED FOR THE WETLANDS AS THERE IS NO WRESTED VEGETATION TO BASE THE BUFFER ON.

5. CONTRACTOR TO LOCATE CONCRETE WASHDOWN AREA FOR CONCRETE IN A CONVENIENT LOCATION FOR USE BY ALL PERSONNEL, INCLUDING SUBCONTRACTORS AND UTILITY COMPANIES. WASHOUT FACILITY TO BE PER DETAIL OR APPROVED EQUAL. ON-SITE WASHOUT OF DRUM IS PROHIBITED.

SOIL MAP LEGEND

LmB - LUCY LOAMY SAND, 0 TO 5 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A.

LmC - LUCY LOAMY SAND, 5 TO 8 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A

OI - OSIER AND BIBB SOILS, 6.0-20 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A/D FOR OSIER SOILS AND 0.6-2.0 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP C FOR BIBB SOILS.

SOURCE: NRCS WEB SOIL SURVEY

#49 - "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES."

#50 - "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."

#51 - "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."

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Mon, Feb 04 2013 - 4:46:25pm

REVISIONS			
DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GSWCC LEVEL II
CERTIFICATION #0000009334
EXPIRES: 4/20/15

GEORGIA REGISTERED No. 14742 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT
FEB 04 2013

amt ENGINEERS ARCHITECTS PLANNERS
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CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN - INITIAL PHASE
C-600
SHEET 12 OF 17

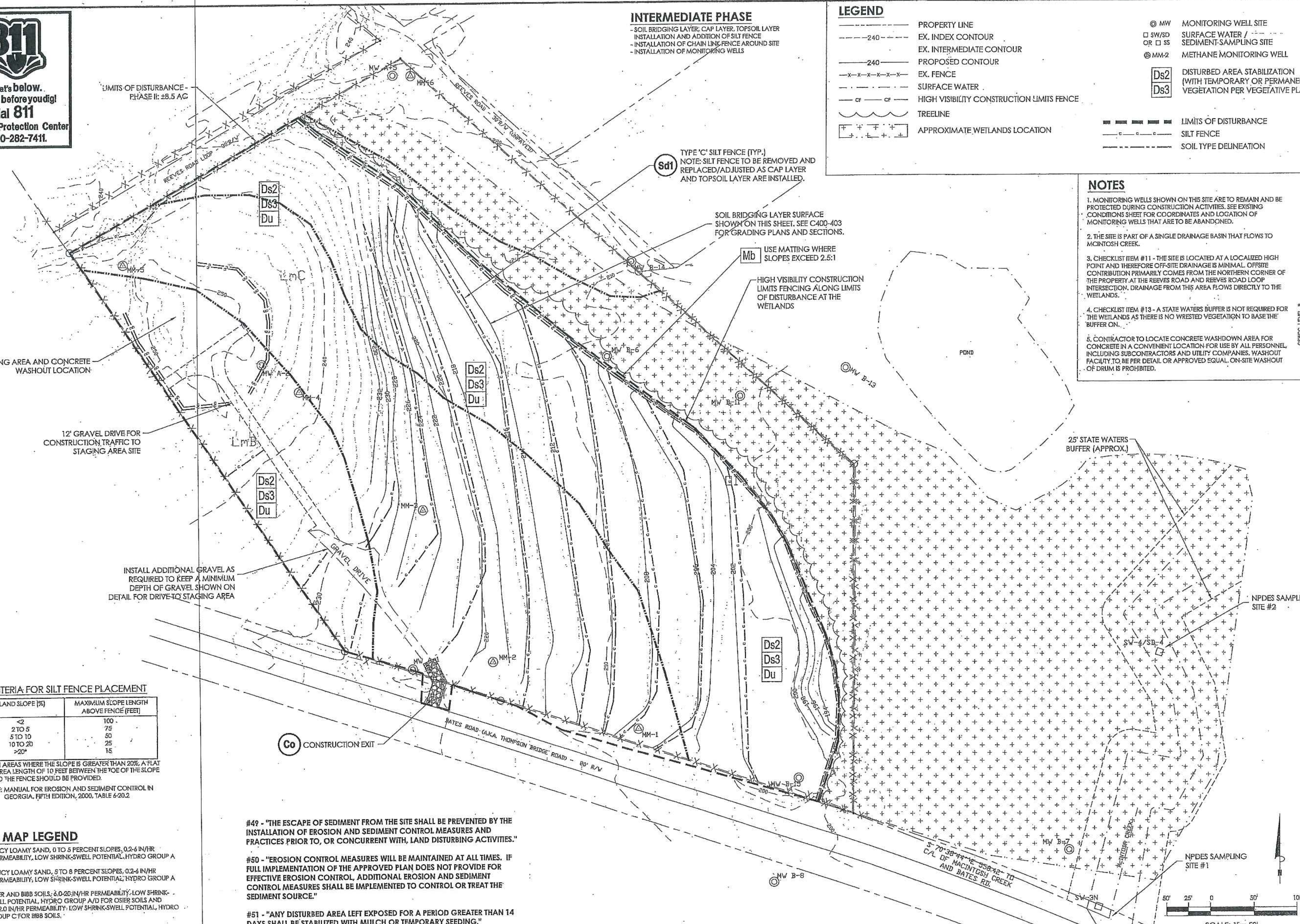
811 Know what's below. Call before you dig! Dial 811 or Utility Protection Center 1-800-282-7411.

INTERMEDIATE PHASE

- SOIL BRIDGING LAYER, CAP LAYER, TOPSOIL LAYER INSTALLATION AND ADDITION OF SILT FENCE
- INSTALLATION OF CHAIN LINK FENCE AROUND SITE
- INSTALLATION OF MONITORING WELLS

LEGEND

- PROPERTY LINE
- EX. INDEX CONTOUR (240)
- EX. INTERMEDIATE CONTOUR
- PROPOSED CONTOUR (240)
- EX. FENCE
- SURFACE WATER
- HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
- TREELINE
- APPROXIMATE WETLANDS LOCATION
- MW — MONITORING WELL SITE
- SW/SD OR SS — SURFACE WATER / SEDIMENT SAMPLING SITE
- MM-2 — METHANE MONITORING WELL
- Ds2 / Ds3 — DISTURBED AREA STABILIZATION (WITH TEMPORARY OR PERMANENT VEGETATION PER VEGETATIVE PLAN)
- LIMITS OF DISTURBANCE
- SILT FENCE
- SOIL TYPE DELINEATION



NOTES

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2. THE SITE IS PART OF A SINGLE DRAINAGE BASIN THAT FLOWS TO MCINTOSH CREEK.

3. CHECKLIST ITEM #11 - THE SITE IS LOCATED AT A LOCALIZED HIGH POINT AND THEREFORE OFF-SITE DRAINAGE IS MINIMAL. OFFSITE CONTRIBUTION PRIMARILY COMES FROM THE NORTHERN CORNER OF THE PROPERTY AT THE REEVES ROAD AND REEVES ROAD LOOP INTERSECTION. DRAINAGE FROM THIS AREA FLOWS DIRECTLY TO THE WETLANDS.

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5. CONTRACTOR TO LOCATE CONCRETE WASHDOWN AREA FOR CONCRETE IN A CONVENIENT LOCATION FOR USE BY ALL PERSONNEL, INCLUDING SUBCONTRACTORS AND UTILITY COMPANIES. WASHOUT FACILITY TO BE PER DETAIL OR APPROVED EQUAL. ON-SITE WASHOUT OF DRUM IS PROHIBITED.

GSWCC LEVEL II CERTIFICATION #0000009334 EXPIRES: 4/20/15

CRITERIA FOR SILT FENCE PLACEMENT

LAND SLOPE (%)	MAXIMUM SLOPE LENGTH ABOVE FENCE (FEET)
<2	100
2 TO 5	75
5 TO 10	50
10 TO 20	25
>20*	15

* IN AREAS WHERE THE SLOPE IS GREATER THAN 20%, A FLAT AREA LENGTH OF 10 FEET BETWEEN THE TOE OF THE SLOPE TO THE FENCE SHOULD BE PROVIDED.

SOURCE: MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, FIFTH EDITION, 2000, TABLE 6-20.2

SOIL MAP LEGEND

LmB - LUCY LOAMY SAND, 0 TO 5 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A

LmC - LUCY LOAMY SAND, 5 TO 8 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A

OI - OSIER AND BIBB SOILS, 6.0-20 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A/D FOR OSIER SOILS AND 0.6-2.0 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP C FOR BIBB SOILS.

SOURCE. NRCS WEB SOIL SURVEY

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#51 - "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."

SCALE: 1" = 50'

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA PROFESSIONAL ENGINEER No. 14742 CHARLES S. ARMENTROUT FEB 04 2013

amt ENGINEERS ARCHITECTS PLANNERS
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CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN - INTERMEDIATE PHASE

C-601

SHEET 13 OF 17

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Mon, Feb 04 2013 - 4:49:17pm

FINAL PHASE

- FINAL STABILIZATION OF SITE
- REMOVE TEMPORARY BMPs (SILT FENCE, CONCRETE WASH DOWN AREA, ETC.)

#20 POST-DEVELOPED CONDITION HYDROLOGY SUMMARY

Tc: 10.2 MIN (0.17 HR)
WEIGHTED CN: 67

Q_{1YR}: 6.05 CFS
Q_{25YR}: 30.25 CFS
Q_{100YR}: 42.8 CFS

NOTE: STORM FLOWS ARE REDUCED IN THE POST DEVELOPED CONDITION BY THE IMPROVEMENT OF GROUND COVER ON THE SITE.

LEGEND

- PROPERTY LINE
- 240 EX. INDEX CONTOUR
- EX. INTERMEDIATE CONTOUR
- 240 PROPOSED CONTOUR
- EX. FENCE
- SURFACE WATER
- CF HIGH VISIBILITY CONSTRUCTION LIMITS FENCE
- TREELINE
- APPROXIMATE WETLANDS LOCATION
- MW MONITORING WELL SITE
- SW/SD OR SS SURFACE WATER / SEDIMENT SAMPLING SITE
- MM-2 METHANE MONITORING WELL
- Ds2 / Ds3 DISTURBED AREA STABILIZATION (WITH TEMPORARY OR PERMANENT VEGETATION PER VEGETATIVE PLAN)
- Tc FLOW PATH
- LIMITS OF DISTURBANCE
- C SILT FENCE
- SOIL TYPE DELINEATION

NOTES

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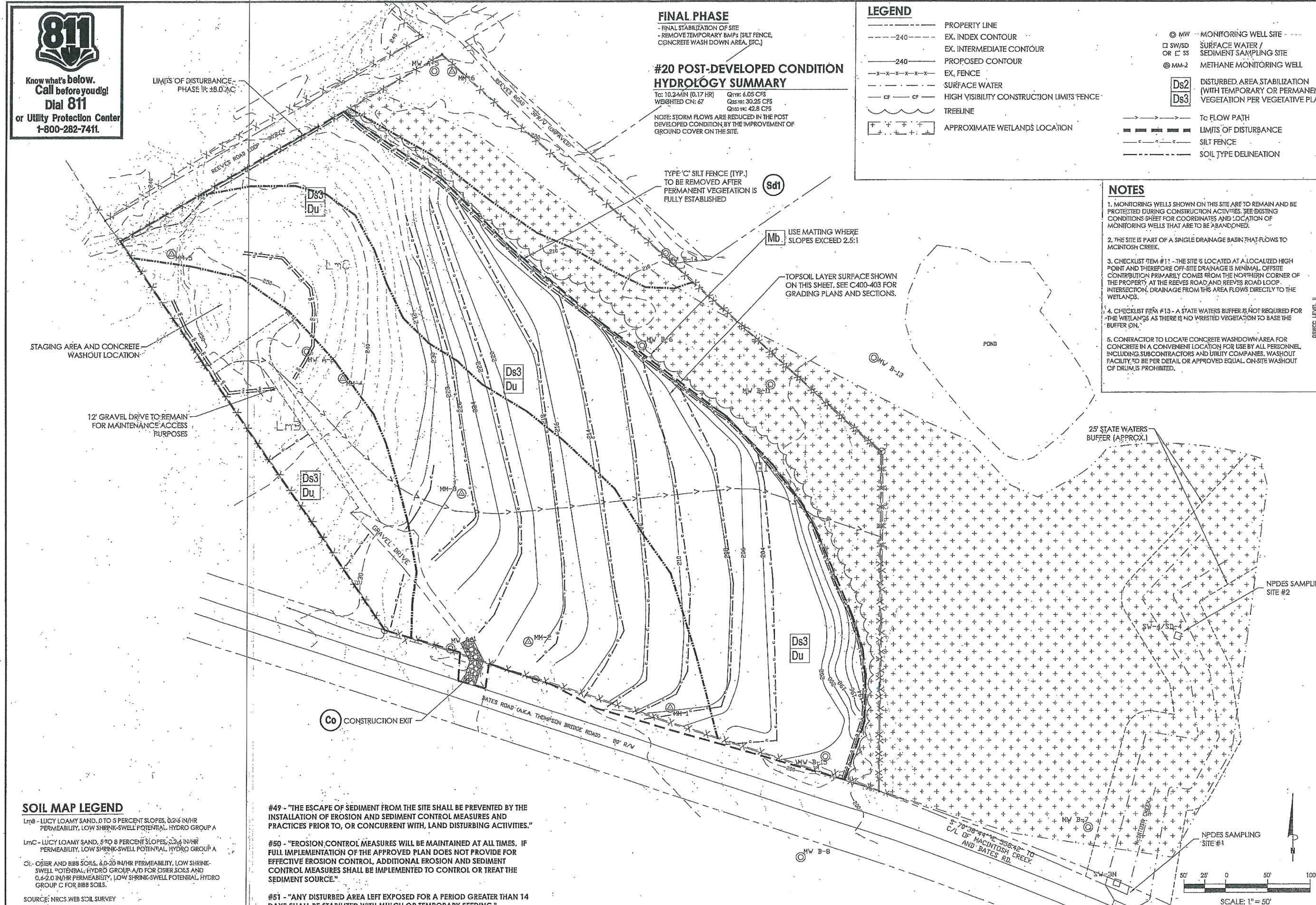

SOIL MAP LEGEND

LmB - LUCY LOAMY SAND, 0 TO 5 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A

LmC - LUCY LOAMY SAND, 5 TO 8 PERCENT SLOPES, 0.2-6 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A

OL - OSIER AND BIBB SOILS, 6.0-20 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP A/D FOR OSIER SOILS AND 0.6-2.0 IN/HR PERMEABILITY, LOW SHRINK-SWELL POTENTIAL, HYDRO GROUP C FOR BIBB SOILS.

SOURCE: NRCS WEB SOIL SURVEY

#49 - "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES."

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#51 - "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."

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GSWCC LEVEL II CERTIFICATION #0000009334

amt ENGINEERS ARCHITECTS PLANNERS
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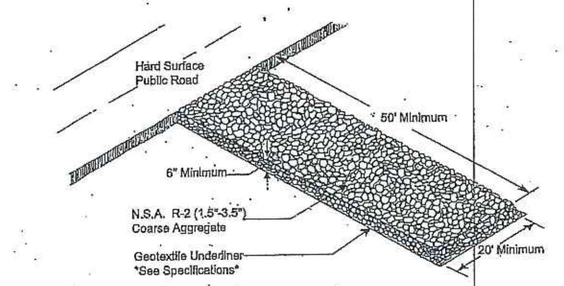
CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN - FINAL PHASE
C-602
SHEET 14 OF 17



MAINTENANCE: THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 1.5-3.5 INCH STONE. AS CONDITIONS DEMAND, AND REPAIR AND / OR CLEAN OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

AGGREGATE SIZE: SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5 TO 3.5 INCH STONE).

PAD THICKNESS: 6 INCH MINIMUM

PAD WIDTH: AT A MINIMUM, SHOULD EQUAL FULL WIDTH OF ALL POINTS OF VEHICULAR EGRESS, BUT NOT LESS THAN 20 FEET WIDE.

CONCRETE & TIRE WASHING: WHEELS MUST BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. HOSE BIB AND HOSE SHALL BE MADE AVAILABLE AND IN SERVICE AT THE TIRE WASH AREA. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON SITE.

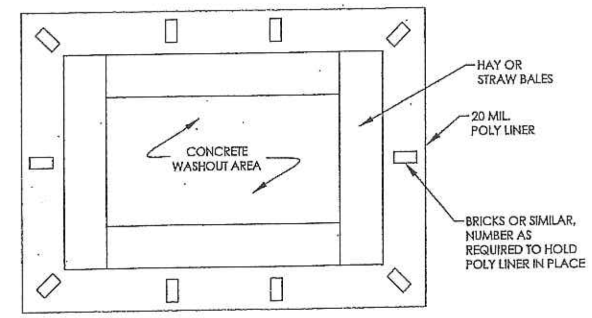
LOCATION: THE EXIT SHALL BE LOCATED SO AS TO PREVENT SEDIMENT FROM LEAVING THE SITE.

(Co) CRUSHED STONE CONSTRUCTION EXIT

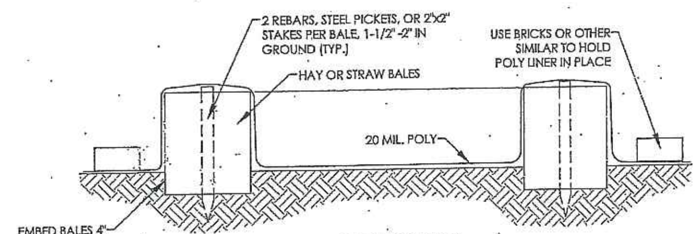
Figure 6-11.1

NOTES:

1. CONCRETE WASHOUT AREA TO BE ADEQUATELY SIZED BY CONTRACTOR TO HANDLE WASHOUT EVENTS.
2. CONCRETE WASHOUT IS TO BE ALLOWED TO FULLY DRY BEFORE CONCRETE IS REMOVED FROM LINER AND LEGALLY DISPOSED OF.
3. LINER, BRICKS, HAY/STRAW BALES, ETC. ARE TO BE REMOVED FROM THE SITE AT THE END OF CONSTRUCTION AND DISPOSED OF IN A LEGAL MANNER. THE EXCAVATED AREA FOR BALES IS TO BE FILLED IN TO MATCH EXISTING GRADE AND THE ENTIRE AREA IS TO STABILIZED BY A FULL STAND OF GRASS.
4. ALTERNATE CONCRETE WASHOUT MAY BE USED IF APPROVED BY THE ENGINEER.
5. WASHOUT OF THE DRUM IS NOT ALLOWED AT THE CONSTRUCTION SITE.



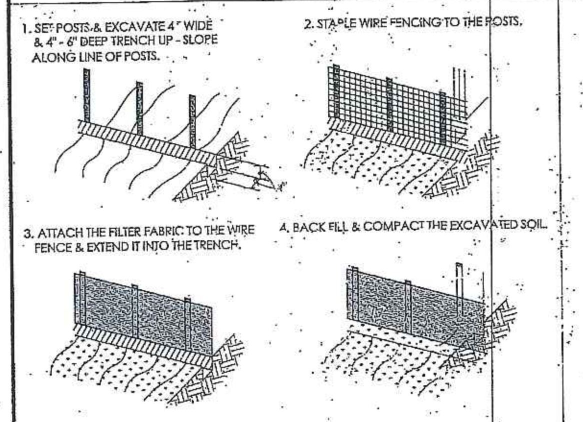
PLAN VIEW



SECTION VIEW

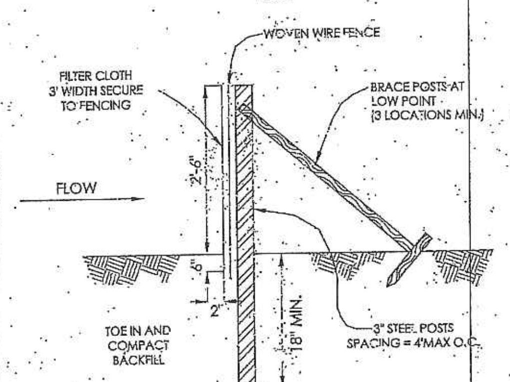
#27 - CONCRETE WASHOUT DETAIL

SCALE: N.T.S.



SILT FENCE CONSTRUCTION

N.T.S.



SILT FENCE- TYPE C

N.T.S.

NOTES:
1. SILT FENCE MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS UNLESS SPECIFICALLY SHOWN OTHERWISE.
2. BOTTOM EDGE OF THE FILTER FABRIC SHALL BE INSTALLED IN A TRENCH 3 INCHES WIDE BY 3 INCHES DEEP.
3. ALL SPLICES SHALL BE OVERLAPPED A MINIMUM OF 18 INCHES.

(Sd1) SILT FENCE- TYPE C

SCALE: N.T.S.

[Ds2] TEMPORARY VEGETATIVE PLAN COASTAL PLAIN REGION

SPECIES: RYEGRASS ANNUAL ***RATE: 40 LBS./ACRE DATES: 9/1 THRU 3/15	SPECIES: RYE ***RATE: 3 BUSHELS/ACRE DATES: 9/15 THRU 2/15
SPECIES: BROWN-TOP MILLET ***RATE: 40 LBS./ACRE DATES: 4/15 THRU 7/15	SPECIES: WEEPING LOVEGRASS ***RATE: 4 LBS./ACRE DATES: 3/15 THRU 6/15
SPECIES: SUDANGRASS ***RATE: 60 LBS./ACRE DATES: 4/1 THRU 9/1	SPECIES: WHEAT ***RATE: 3 BUSHELS/ACRE DATES: 9/1 THRU 1/1
***ALL RATES ARE FOR 'ALONE' APPLICATIONS.	

[Ds3] PERMANENT VEGETATIVE PLAN COASTAL PLAIN REGION

SPECIES: BERMUDA- HULLED ***RATE: 10 LBS./ACRE DATES: 3/1 THRU 6/15	SPECIES: BERMUDA- UNHULLED ***RATE: 10 LBS./ACRE DATES: 11/15 THRU 1/15
SPECIES: FESCUE, TALL ***RATE: 50 LBS./ACRE DATES: 9/1 THRU 10/15	SPECIES: BAHIA, PENSACOLA ***RATE: 60 LBS./ACRE DATES: ALL YEAR
***ALL RATES ARE FOR 'ALONE' APPLICATIONS.	

USE PERMANENT VEGETATION TO PROVIDE PERMANENT DUST CONTROL.

#24 - SEDIMENT STORAGE CALCULATIONS Sd1 - TYPE 'C' SILT FENCE

	PHASE I	PHASE II AND III
TOTAL AREA DRAINED	8.5 ACRES	8.5 ACRES
TOTAL AREA DISTURBED	3.7 ACRES	8.5 ACRES
TOTAL SEDIMENT STORAGE REQUIRED = AREA DISTURBED x 67 CY/AC	248 CY	570 CY
TOTAL LENGTH OF SILT FENCE	3140 L.F.	7100 L.F.
SEDIMENT VOLUME/FT (USE TYPE 'C': ASSUMES 3:1 SLOPE OF ACCUMULATION, HEIGHT OF SEDIMENT: 1.25 FT, SEDIMENT AREA: 2.34 S.F.)	0.0868 CY/FT	0.0868 CY/FT
TOTAL SEDIMENT STORAGE PROVIDED: SILT FENCE LENGTH x SEDIMENT STORAGE = VOLUME OF SILT FENCE	272 CY	616 CY

NOTES:
1. TOTAL SEDIMENT STORAGE PROVIDED IS GREATER THAN TOTAL SEDIMENT STORAGE REQUIRED.
2. THE SITE IS LOCATED AT A LOCAL HIGH POINT. OFF SITE DRAINAGE ONTO SITE IS MINIMAL.
3. A TEMPORARY SEDIMENT BASIN IS NOT PRATICAL FOR THIS SITE. THE PURPOSE OF THE LANDFILL CAP IS TO PROVID FINAL COVER FOR AN UNLINED LANDFILL AND NOT TO DISTURB THE WASTE BELOW. INSTALLATION OF A TEMPORARY SEDIMENT BASIN WOULD REQUIRE THE WASTE TO BE DISTURBED, LEAVING SILT FENCE AS THE PREFERRED METHOD FOR SEDIMENT STORAGE.

#53 - VEGETATIVE PLAN NOTES

1. TEMPORARY VEGETATION AND STABILIZATION MEASURES WILL BE INSTALLED ON ALL AREAS WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR 21 DAYS. MEASURES WILL BE INSTALLED WITHIN 14 DAYS OF MOST RECENT DISTURBANCE. PERMANENT STABILIZATION MEASURES WILL BE INSTALLED ON ALL AREAS WHERE CONSTRUCTION ACITIVITY HAS CEASED FOR SIX (6) MONTHS OR MORE.

2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER DRILL, CULTIPACKER-SEEDER OR HYDRAULIC SEEDER.

3. TALL LEGUME SEED SHALL BE INOCULATED WITH APPROPRIATE NITROGEN-FIXING BACTERIA.

4. THE AGRICULTURAL LIME TO BE USED SHALL BE WITHIN SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE.

5. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY OVER THE AREA IMMEDIATELY BEFORE LAND PREPARATION SO THAT IT CAN BE MIXED WITH THE SOIL DURING SEED BED PREPARATION.

A) FERTILIZER:
i) 1,500 LBS/ACRE (6-12-12) - FOR COOL & WARM SEASON GRASSES AND LEGUMES
ii) 500 LBS/ACRE (10-10-10) - FOR TEMPORARY COVER CROPS SEEDED ALONE

B) LIME: 2 TON/ACRE, OR AS INDICATED BY SOIL TESTS

6. USE MULCH FOR ALL PERMANENT VEGETATION, TEMPORARY DUST CONTROL, ON ALL SLOPES STEEPER THAN 3%, AND IN THE BOTTOM OF SPILLWAYS. THE MULCHING MATERIAL SHALL CONSIST OF DRY STRAW OR DRY HAY OF GOOD QUALITY, FREE OF WEED SEEDS OR SEEDS OF COMPLETING PLANTS AT A RATE OF 2.5 TONS/ACRE. STRAW OR HAY MULCH SHALL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND OR PLANTING. THE MULCH MAY BE SPREAD BY BLOWER-TYPE EQUIPMENT, OTHER SPREADING EQUIPMENT, OR BY HAND. APPROXIMATELY 75 % OF THE SOIL SURFACE SHALL BE COVERED. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION BY ONE OF THE FOLLOWING METHODS:

A) BY EMULSIFIED ASPHALT SPRAYED ONTO THE MULCH IMMEDIATELY FOLLOWING MULCH APPLICATION OR SPRAYED UNIFORMLY ONTO THE MULCH AS IT IS EJECTED FROM THE BLOWER MACHINE.

B) BY PRESSING THE MULCH INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD WITH A SPECIAL PACKER DISK OR DISK HARROW WITH THE DISKS SET STRAIGHT AND DULL ENOUGH TO PRESS THE MULCH INTO THE GROUND WITHOUT CUTTING IT. DISKS MAY BE SOOTH OR SERATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART.

C) PLASTIC MESH OR NETTING WITH NO LARGER THAN ONE INCH BY ONE INCH MESH MAY BE NEEDED TO ANCHOR STRAW OR HAY MULCH ON UNSTABLE SOIL AND IN CONCENTRATED FLOW AREAS ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

WOOD CELLULOSE MULCH OR WOOD PULP FIBER MULCH SHALL BE APPLIED WITH HYDRAULIC SEEDING EQUIPMENT AT THE RATE OF 1,000 LBS/ACRE. THIS TYPE OF MULCH IS SELF-ANCHORING.

7. IRRIGATION WILL BE APPLIED AT A RATE THAT WILL NOT CAUSE RUNOFF. IRRIGATION MAY BE USED AS AN EMERGENCY TEMPORARY DUST CONTROL METHOD.

8. TOP DRESSING SHALL BE APPLIED ON ALL TEMPORARY GRASS SPECIES AND PERMANENT GRASSES PLANTED ALONE OR IN MIXTURE WITH OTHER SPECIES.

A) PERMANENT GRASSES - 50 LBS/ACRE OF NITROGEN FERTILIZER (COOL AND WARM SEASON - ALONE AND WITH LEGUMES)

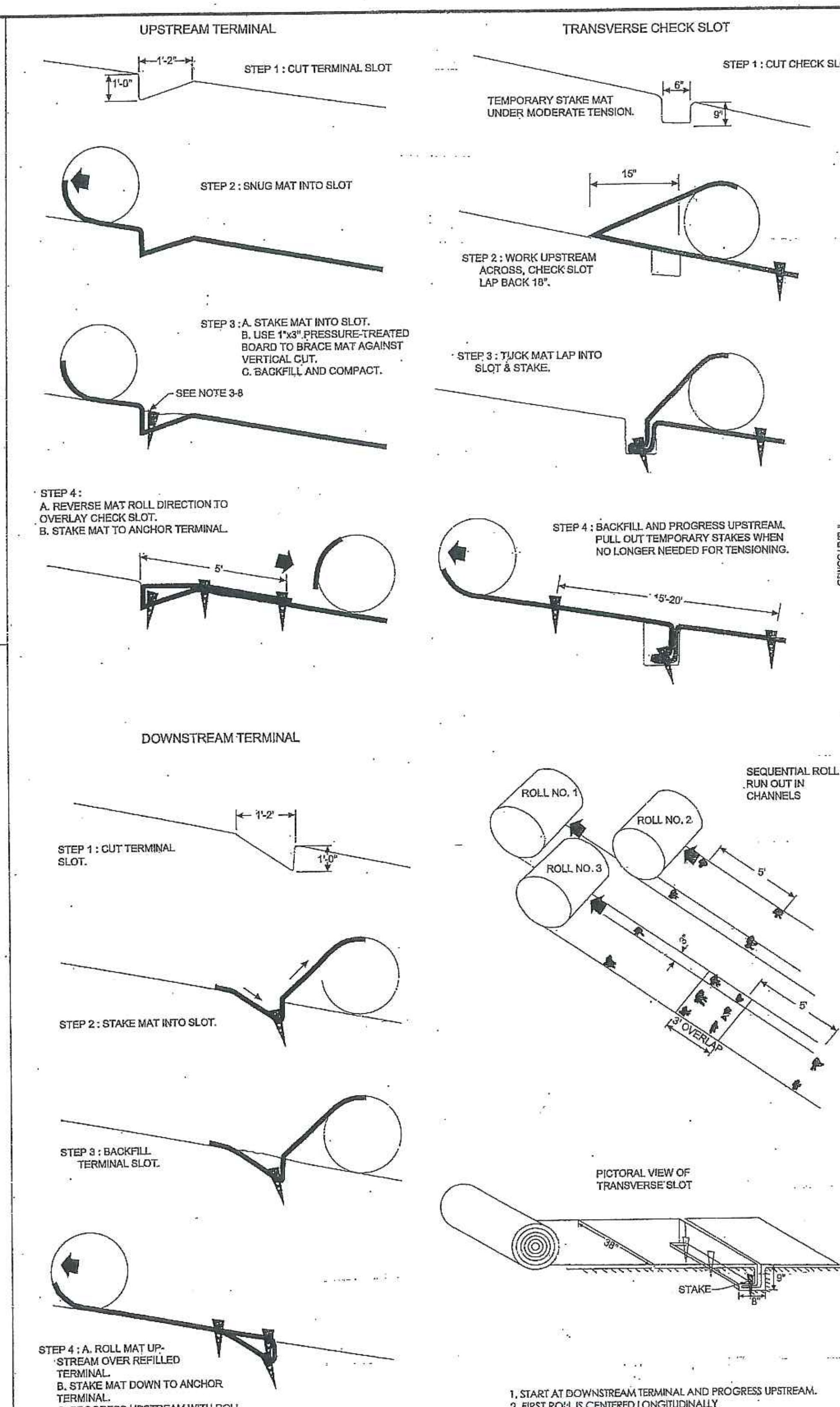
B) TEMPORARY GRASS COVER CROPS SEEDED ALONE - 30 LBS/ACRE OF NITROGEN FERTILIZER

9. SECOND YEAR AND MAINTENANCE FERTILIZATION -SEE TABLE 6-5.1. FERTILIZER REQUIREMENTS., GREEN BOOK. APPLY FERTILIZER IN SPRING, FOLLOWING SEEDING.

10. LIME MAINTENANCE APPLICATION: APPLY ONE TON PER ACRE OF AGRICULTURAL LIME EVERY 4 TO 6 YEARS, OR AS INDICATED BY SOIL TESTS.

11. USE AND MANAGEMENT: BERMUDA GRASS AND BAHIA GRASS MAY BE MOWED AS DESIRED. MAINTAIN AT LEAST 6" OF TOP GROWTH UNDER ANY USE AND MANAGEMENT. BECAUSE OF QUAIL NESTING SEASON, NO MOWING MAY TO SEPT.

12. SOIL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL A PERMANENT VEGETATIVE COVER IS ESTABLISHED.



1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUSSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
4. WORK OUTWARDS FROM CHANNEL CENTER TO EDGE.
5. USE 3" OVERLAP AND STAKE AT 5' INTERVAL ALONG SEAMS.
6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.

(Mb) TYPICAL INSTALLATION GUIDELINES FOR MATTING AND BLANKETS

REVISIONS

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matheny • Thurmond

CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

ES&PC DETAILS AND VEGETATIVE PLAN
C-603
SHEET 15 OF 17

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EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE CONSTRUCTION PROJECTS

SWCD: Brier Creek SWCD (Region 6)

Project Name: Renovations to the 6th Street Treatment Facility   Address: 6th Street, Waynesboro, GA

City/County: Burke County   Date on Plans: 7/26/10

TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N	Item
C-604		1. The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. **(The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)**
C-600-605		2. Level II certification number issued by the Commission, signature and seal of the certified design professional. **(Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)**
C-605		3. The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
C-605		4. Provide the name, address and phone number of primary permittee.
C-605		5. Note total and disturbed acreage of the project or phase under construction.
C-605		6. Provide land lot and district numbers for site location. Describe critical areas and any additional measures that will be utilized for these areas.
C-100		7. Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
C-600-602		8. Graphic scale and north arrow.
C-600-602		9 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch = ~~400ft or larger~~ scale	~~Flat 0 - 2%~~	~~0.5 or 1~~
	Rolling 2 - 8%	1 or 2
	~~Steep 8% +~~	~~2.5 or 10~~

Plan Page #	Included Y/N	Item
C-200		10. Boundary line survey.*
C-600-602		11. Delineation and acreage of contributing drainage basins on the project site.
C-600-602		12. Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
C-600-602		13. Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
C-600-602		14. Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.*
N/A		15. Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
C-600-602		16. Soil series for the project site and their delineation.
C-605		17. Identify the project receiving waters and describe all adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected.
C-604,605		18. Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.*
C-605		19. If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 18 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.*
C-600,602		20. Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.*
ALL		21. Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
C-600-602		22. The limits of disturbance for each phase of construction.
N/A		23. Limit of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist.* **(A copy of the written approval by EPD must be attached to the plan for the plan to be reviewed.)**
C-603		24. Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written rationale explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls.
C-605		25. Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
C-605		26. Best Management Practices to minimize off-site vehicle tracking of sediments and the generation of dust.
C-605		27. BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.*
C-605		28. Provide BMPs for the remediation of all petroleum spills and leaks.*
C-600-603		29. Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
C-605		30. Description of the nature of construction activity.
C-600-602		31. A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs; (2) intermediate grading and drainage BMPs, and (3) final BMPs.*
C-604		32. Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
C-605		33. Description of the practices that will be used to reduce the pollutants in storm water discharges.*
C-605		34. Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.*
C-605		35. Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on page 14 of the permit.
C-605		36. Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 14 of the permit.*
C-605		37. Certification statement and signature of the permittee or the duly authorized representative as stated in section V.G.2.d. of the state general permit.*
C-600,602		38. An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
C-605		39. Indication that non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation without first acquiring the necessary variances and permits.
C-605		40. Indication that the design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation.*
C-605		41. Indication that amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.*
C-605		42. Indication that waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit.*
C-605		43. Documentation that the ES&PC Plan is in compliance with waste disposal, sanitary sewer, or septic tank regulations during and after construction activities have been completed.*
C-605		44. Provide complete requirements of inspections and record keeping by the primary permittee.*
C-605		45. Provide complete requirements of sampling frequency and reporting of sampling results.*
C-605		46. Provide complete details for retention of records as per Part IV.F. of the permit.*
C-605		47. Description of analytical methods to be used to collect and analyze the samples from each location.*
C-605		48. Appendix B rationale for outfall sampling points where applicable.*
C-600-602		49. Clearly note statement in bold letters- "**The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land disturbing activities.**"
C-600-602		50. Clearly note maintenance statement in bold letters - "**Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.**"
C-600-602		51. Clearly note the statement in bold letters - "**Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.**"
C-603		52. Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
C-603		53. Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the * checklist items would be N/A.

Effective January 1, 2012

APPENDIX 1
THE ES&PC PLAN MUST INCLUDE AT LEAST FOUR (4) OF THE FOLLOWING BMPS FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO A IMPAIRED STREAM SEGMENT AND FOR SITES WHICH EPD HAS APPROVED IN WRITING A REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME.

Plan Page #	Included Y/N	Item
N/A		a. During construction activities, double the width of the 25 foot undisturbed vegetated buffer along all State waters requiring a buffer and the 50 foot undisturbed vegetated buffer along all State waters classified as "trout streams" requiring a buffer. During construction activities, EPD will not grant variances to any such buffers that are increased in width.
N/A		b. Increase all temporary sediment basins and retrofitted storm water management basins to provide sediment storage of at least 3600 cubic feet (134 cubic yards) per acre drained.
N/A		c. Use baffles in all temporary sediment basins and retrofitted storm water management basins to at least double the conventional flow path length to the outlet structure.
C-604		d. Place a large sign (minimum 4 feet x 8 feet) on the site visible from the roadway identifying the construction site, the permittee(s), and the contact person(s) and telephone number(s).
N/A		e. Use anionic polyacrylamide (PAM) and/or mulch to stabilize areas left disturbed for more than seven (7) calendar days in accordance with Part III. D.1. of the NPDES Permits.
N/A		f. Conduct turbidity and Total Suspended Solids (TSS) sampling after every rain event of 0.5 inch or greater within any 24 hour period, recognizing the exceptions specified in Part IV.D.6.d. of the NPDES Permits.
N/A		g. Comply with the applicable end-of-pipe turbidity effluent limit, without the "BMP defense" as provided for in O.C.G.A. 12-7-6 (a)(1).
C-604		h. Limit the total planned site disturbance to less than 50% impervious surfaces (excluding any State-mandated buffer areas from such calculations).
N/A		i. Limit the amount of disturbed area at any one time to no greater than 25 acres or 50% of the total planned site, whichever is less.
N/A		j. Use "Dirt II" techniques to model and manage storm water runoff (e.g., seep berms, sand filters, anionic Pam), available on the EPD website, www.gaepd.org.
N/A		k. Add appropriate organic soil amendments (e.g., compost) and conduct pre- and post-construction soil sampling to a depth of six (6) inches to document improved levels of soil carbon after final stabilization of the construction site.
C-604		l. Use mulch filter berms, in addition to a silt fence, on the site perimeter wherever storm water may be discharged.
C-604		m. Apply the appropriate Georgia Department of Transportation approved erosion control matting or blankets or bonded fiber matrix to all slopes steeper than 3:1.
N/A		n. Use appropriate erosion control matting or blankets instead of concrete in construction storm water ditches and storm drainage designed for a 25 year, 24 hour rainfall event.
N/A		o. Use anionic PAM under a passive dosing method (e.g., flocculant blocks) within construction storm water ditches and storm drainages that feed into temporary sediment basins and retrofitted management basins.
N/A		p. Install sod for a minimum 20 foot width, in lieu of seeding, along the site perimeter wherever storm water may be discharged.
N/A		q. Use a surface draining skimmer designed to drain temporary sediment basins and retrofitted storm water management basins over a minimum three (3) day period.
N/A		r. Certified personnel shall conduct inspections at least twice every seven (7) calendar days and within 24 hours of the end of the storm that is 0.5 inches rainfall or greater in accordance with Part IV.D.4.a.(2). (a) - (c), Part IV.D.4.b.(3). (a) - (c) or Part IV.D.4.c.(2). (a) - (c) of the NPDES Permit GAR 100003, as applicable or Part IV.D.4.a.(2) of the Permit GAR 100001. (*If working under NPDES Permit GAR 100002 see below*)
N/A		r.1. *Certified personnel shall conduct inspections at least once every seven calendar days and within 24 hours of the end of the storm that is 0.5 inches or greater in accordance with part IV.D.4.a.(2). (A) - (C) of this permit.*
N/A		s. Apply the appropriate compost blankets (minimum depth 1.5 inches) to protect soil surfaces until vegetation is established during the final stabilization phase of the construction activity.
N/A		t. Use alternative BMPs whose performance has been documented to be superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the State Soil and Water Conservation Commission). (If using this item please refer to the Alternative BMP guidance document found at www.gaswcc.georgia.gov)

Effective January 1, 2012

#18 - THE SITE IS LOCATED WITHIN ONE LINEAR MILE OF AN IMPAIRED STREAM SEGMENT. CONTRACTOR MUST COMPLY WITH ITEMS D, H, L AND M OF THE APPENDIX 1 CHECKLIST SHOWN ABOVE.

PROBABLE CONSTRUCTION SCHEDULE

	DESCRIPTION	2013 MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV
PHASE 1	INSTALLATION OF PERIMETER ES&PC CONTROLS (SILT FENCE, CONSTRUCTION EXIT, ETC)									
	CUT DOWN TREES, GRIND TREES, STUMPS, AND OTHER CLEARING DEBRIS									
	REMOVE MODULAR HOME AND FOUNDATION, DEBRIS ON SITE, FENCES AND ABANDON UTILITY LINES PER PLANS									
PHASE 2	SITE IMPROVEMENTS, GRADING AND CAP INSTALLATION									
	RELOCATION AND/OR INSTALLATION OF MONITORING WELLS PER PLANS									
PHASE 3	FINAL LANDSCAPING AND STABILIZATION									
	REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES									

GSWCC LEVEL II CERTIFICATION #0000009334 EXPIRES: 4/20/15

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 14742 CHARLES S. ARMENTROUT FEB 04 2013

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

REVISIONS			
DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matheny • Thurmond
OAKBROOK CORPORATE CAMPUS
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CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

ES&PC CHECKLIST AND CONSTRUCTION SCHEDULE
C-604
SHEET 16 OF 17

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EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN NOTES

The plan was prepared along with the Comprehensive Monitoring Program (CMP) as required by the NPDES General Permit No. GAR100001. This CMP, and related plan sheets of the construction drawings, and all references shall be considered together as one plan and all requirements of the General Permit as well as local, State and Federal regulations or laws apply regardless of specific inclusion in this plan.

#3, #4 - 24-Hour Contact/Primary Permittee
Contractor to become 24-hour contact and Primary Permittee when NOI issued

Owner/Developer:
City of Waynesboro
Contact: Jerry Coalson
628 Myrick Street
Waynesboro, Georgia 30830
Phone: (706) 554-8000

#5 - TOTAL & DISTURBED ACREAGE
Total area = 10.0 acres
Disturbed area = 8.5 acres

#6 - SITE LOCATION & CRITICAL AREAS
The site is located along Bates Road, approximately 1.5 miles northeast of the City of Waynesboro. The site is within G.M.D. 60. Burke county does not use land lot designations

There are critical areas (wetlands) within the project area. Wetlands are delineated on C600-602.

#16 - SOIL TYPES
Soil types and delineation shown on Erosion, Sedimentation and Pollution Control plan sheets.

#17 - RECEIVING AND AFFECTED WATERS
McIntosh Creek, a tributary of Brier Creek.

#18 - IMPAIRED STREAM PROXIMITY
This site has been reviewed against the Georgia EPD's 2010 integrated and 2012 Draft 305(b)/ 303(d) report, which lists impaired streams within the State of Georgia. It has been determined that this site is within one (1) linear mile of an impaired stream. (Brier Creek) and will need to provide any enhanced BMPs for purposes of erosion and sedimentation control. See Appendix A checklist on C604.

#19 - TMDL IMPLEMENTATION PLAN
TMDL Implementation: Plans for fecal coliform bacteria and mercury have been finalized. A TMDL Implementation Plan for sediment has not been finalized for the impaired stream segment. Addressing site specific conditions or requirements included in the TMDL Implementation is only required for a finalized plan for sediment. As no plan has been finalized for sediment, there are no site specific conditions or reqirements will be addressed.

#24 - SEDIMENT STORAGE
The use of sediment basins is not practical for this project. Sediment storage will be provided by silt-fence. See sediment storage calculations on C-603.

#25 - USE OF ALTERNATIVE BMPs
The use of alternative BMPs are not proposed for this project.

#26 - OFFSITE VEHICLE TRACKING
To help reduce vehicle tracking of sediments onto paved streets the area shall be swept daily to remove excess mud, dirt and debris from the pavement. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

#27 - CONCRETE WASHDOWN
No concrete washdown of tools, mixer chutes, hoppers and the rear of vehicles will be allowed on-site except in areas designated by the contractor and approved by the engineer. At no time will washout of the drum be allowed at the construction site. See concrete washout detail on C603.

#28 - SPILLS & LEAKS:
INVENTORY FOR POLLUTION PREVENTION PLAN
The following materials are expected onsite during construction:
Concrete/Additives/Wastes, detergents, asphalt, acids, petroleum based fuels and lubricants for equipment, tar, lumber, electrical wire and fixtures, paints/stains/finishing treatments, cleaning solvents, fertilizers, pesticides, herbicides, crushed stone, plastic and metal pipes, solid and construction wastes, sanitary wastes.

SPILL PREVENTION
Practices such as good housekeeping, proper handling of hazardous products and proper spill control practices will be followed to reduce the risk of spills and spills from discharging into storm water runoff.
Good Housekeeping:
1. Quantities of products stored onsite will be limited to the amount needed for the job.
2. Products and materials will be stored in a neat, orderly manner in appropriate containers protected by rainfall, where possible.
3. Products will be kept in their original containers with manufacturer labels legible and visible.
4. Product mixing, disposal and disposal of product containing will be according to the manufacturers recommendations.
5. The Contractor will inspect such materials to ensure proper use, storage and disposal.

PRODUCT SPECIFIC PRACTICES
- Petroleum Based Products - Containers for products such as fuels, lubricants and tars will be inspected daily for leaks and spills. This includes on-site vehicle and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas will be located away from state water, natural drains and storm water drainage inlets. In addition, temporary fueling tanks shall have a secondary containment liner to prevent/minimize site contamination. Discharge of oils, fuels and lubricants is prohibited. Proper disposal methods will be collection in a suitable container and disposal as required by local and State regulations.

#49 - "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES."

#50 - "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."

#51 - "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."

#28 - SPILLS & LEAKS:(Continued)
PRODUCT SPECIFIC PRACTICES (Continued)
- Paints/Finishes/Solvents - All product will be stored in tightly sealed original containers when not in use. Excess product will not be discharged to the storm water collection system. Excess product, materials used with these products and product containers will be disposed of according to manufacturers specifications and recommendations.

- Fertilizer/Herbicides - These products will be applied at rates that do not exceed the manufacturers specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.

- Building materials - No building or construction materials will be buried or disposed of onsite. All such material will be disposed of in proper waste disposal procedures.

Spill Cleanup and Control Practices:
- Local, State and manufacturer's recommended methods for spill cleanup will be clearly posted and procedures will be made available to site personnel.

- Material and equipment necessary for spill cleanup will be kept in the material storage areas. Typical materials and equipment includes, but is not limited to, brooms, dustpans, mops, rags, gloves, goggles, cat litter, sand, sawdust and properly labeled plastic and metal waste containers.

- Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills.

- All spills will be cleaned up immediately upon discovery. All spills will be reported as required by local, State and Federal regulations.

- FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.

- FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITH 24 HOURS AT 1-800-426-2675.

- FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.

- FOR SPILLS LESS THAT 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

- The contractor shall notify the licensed professional who prepared this plan if more than 1320 gallons of petroleum is stored onsite (this includes capacities of equipment) or if any one piece of equipment has a capacity greater than 660 gallons. The Contractor will need a Spill Prevention Containment and Countermeasures Plan prepared by that licensed professional.

DESCRIPTION OF EXISTING SITE CONDITIONS:
The existing project area is the location of the Waynesboro old city landfill. The site is covered by woods, grassed areas and wetlands.

The property is shown on FEMA Flood Insurance Rate Maps 13033C0326C and 13033C327C effective date December 17, 2010. The map does not indicate that the property is located within a flood plain.

#30 - NATURE OF CONSTRUCTION ACTIVITY
This project involves installation of the final cover for the Waynesboro old city landfill. Clearing and grading of fill material on the site will be part of the project.

#33 - PRACTICES TO REDUCE POLLUTION IN STORM WATER
Potential sources of of storm water pollution include erosive processes due to weather and chemical spills due to accidents or mismanagement of chemicals used during construction processes. Measures to minimize the impact of these (potential) storm water discharges include BMPs to be installed per the Erosion, Sedimentation and Pollution Control Plan for this project and item #28 of this sheet, INVENTORY FOR POLLUTION PREVENTION PLAN, SPILL PREVENTION PLAN & PRODUCT SPECIFIC PRACTICES.

#34 - STORM WATER MANAGEMENT
The change in impervious area on site and post-developed flows is negligible. All slopes over 3:1 are to be matted. These measures will supplement any existing controls and measures on site.

#39 - NO NON-EXEMPT ACTIVITIES WITHIN BUFFERS
Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation without first acquiring the necessary variance and permits.

#40 - 7-DAY INSTALLATION INSPECTION
The design professional must be retained by the primary permittee to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within seven days of being notified that the BMPs have been installed. The design professional shall determine if BMPs have been installed and maintained as designed. The design professional shall report the results of the inspection to the Primary Permittee within seven (7) days and the permittee must correct all deficiencies within two (2) business days.

#41 - REVISIONS ON HYDRAULICS REQUIRE CERTIFICATION
The primary permittee(s) shall amend their Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on BMPs with a hydraulic component (i.e., those BMPs where the design is based upon rainfall intensity, duration and return frequency of storms) or if the Plan proved to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.3. Amendments to the Plan must be certified by a design professional as provided in this permit.

#42 - NO DISCHARGE OF WASTE MATERIALS
Waste materials shall not be discharged to waters of the State, except as authorized by Section 404 permit.

#43 - WASTE DISPOSAL
Waste Materials: All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary and trash will be hauled as required by local regulations. No construction waste will be buried on site. All personnel will be instructed on proper procedures for waste disposal. Notice stating these practices will be posted at the job site and the Contractor will be responsible for seeing that these procedures are followed.

#43 - HAZARDOUS WASTES:
All hazardous waste materials will be disposed of in the manner specified by local or State regulation or by the manufacturer of the material. All site personnel will be instructed in these procedures and the Contractor will be responsible for seeing that these procedures are followed.

#43 - SANITARY WASTES:
All sanitary wastes will be collected from the portable units and temporary septic systems by a licensed sanitary waste management contractor as required by local or State

TIMING OF CONTROLS:
As indicated on the Anticipated Activity Schedule on the Erosion, Sedimentation and Pollution Control plans, sediment controls will be constructed prior to clearing or grading of any portion of the site. Areas where construction activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and/or mulch within 14 days of the last disturbance. Once construction active ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stablized, all accumulated sediment will be removed and disposed of properly and all perimeter sediment controls will be removed.

MAINTENANCE AND INSPECTION OF EROSION AND SEDIMENT CONTROLS:
Practices described in this plan as well as practices described in Manual for Erosion and Sediment Control in Georgia will be followed in a timely manner such that vegetation, erosion and sediment control measures and other protective measures identified in the plan are in good and effective operating conditions.

INSPECTIONS:
Inspections will be performed as specified in #44 of the Comprehensive Monitoring Program (this sheet) and in accordance with GAR #100001.

COMPREHENSIVE MONITORING PROGRAM

This plan was prepared along with the Erosion, Sedimentation, and Pollution Control Plan (ESPC) as required by NPDES General Permit No. GAR-100001. This comprehensive monitoring plan, the ESPC plans, details of the Construction Drawings, and all references shall be considered together as one plan and all requirements of the General Permit as well as local, State and Federal regulations or laws apply regardless of specific inclusion in this plan.

#44 - INSPECTIONS & RECORD KEEPING
Inspections must be conducted until a Notice of Termination is submitted (unless noted otherwise). Inspections that must take place in accordance with the Plan:

(1) Each day when any type of construction activity has taken place, certified personnel shall inspect: (a) all areas where petroleum products are stored, used or handled for spills and leaks from vehicles and equipment; and (b) all locations where vehicles enter or exit the site for evidence of off-site sediment tracking, (c) measure rainfall once each 24 hour period at the site (while the use of automated rain gauges strongly encouraged by EPD, it is not required).

(2) Certified personnel shall inspect the following at least once every seven (7) days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm occurs on the weekend): (a) disturbed areas that have not undergone final stabilization; (b) areas use for storage of materials that are exposed to precipitation; and (c) structural control measures.

(3) Certified personnel shall inspect at least once per month during the term of this permit the areas of the site that have undergone final stabilization. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). BMPs shall be observed to ensure that they are operating correctly. Where discharge locations locations are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas that have undergone final stabilization, the permittee must comply with IV.D.4.a.(3).

(4) If it is determined through the inspection of BMPs that the ESPC or CMP should be revised, that revision to the ESPC or CMP must take place within seven (7) days of the inspection. After the plan is revised, the permittee affected has two (2) days to implement the changes.

(5) INSPECTION REPORTS:
Inspection reports shall include the following:
1. The scope of the inspection.
2. Name(s) of the personnel making the inspection.
3. The date of each inspection.
4. Major observations relating to the implementation of the ESPC.
5. Incidents of non-compliance and action required to become compliant.
6. If no incidents of non-compliance were identified, a certification that the facility is in compliance with ESPC and this permit must be included.
7. Report shall be signed in accordance with Part V.G. of the Permit.

#44 - RECORD KEEPING:
Items to be submitted to EPD:
1. Notice of Intent form & attachments (Unless notified to the contrary, Permittee is authorized to discharge storm water 14 days after the postmark date.)
2. By the 15th of each month, a summary of storm water discharge monitoring (turbidity) results in accordance with the reporting requirements set forth in the permit. Monthly reports are required until an NOT is filed.ll
3. If EPD or Permittee determines the Plan requires changes, a written certification that the changes have been implemented and/or the Plan has been amended must be sent within 7 days.
4. Upon request, the Primary Permittee shall make the Plan, CMP and/or records available to EPD or the local government within 3 days.ld
5. Notice of Termination form and attachments.

#45 - SAMPLING FREQUENCY & REPORTING:
1. The primary permittee must sample in accordance with the Plan at least once for each rainfall event described below. For a qualifying event, samples must be taken within forty-five (45) minutes of:

(a) the accumulation of the minimum amount of rainfall for the qualifying event, if the storm water discharge to a monitored receiving water or from a monitored outfall has begun at or prior to the accumulation, or

(b) the beginning of any storm water discharge to a monitored receiving water or from a monitored outfall, if the discharge begins after the accumulation of the minimum amount of rainfall for the qualifying event.

2. However, where manual and automatic sampling are impossible (as defined in the permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible. but in no case more than twelve (12) hours after the beginning of the storm water discharge.

3. Sampling by the permittee shall occur for the following events:

(a) For each area of the site that discharges to a receiving stream, the first rain event that reaches or exceeds 0.5 inch and allows for monitoring during normal business hours (M-F 8AM to 5PM and Saturday 8AM to 5PM when construction activity is being conducted by the Primary Permittee) that occurs after all clearing and grubbing operations have been completed in the drainage area of the location selected as the sampling location;

(b) In addition to (a) above, for each area of the site that discharges to a receiving stream, the first rain event that reaches or exceeds 0.5 inch and allows for monitoring during normal business hours that occurs either 90 days after the first sampling event or after all mass grading operations have been completed in the drainage area of the location selected as the sampling location, whichever comes first;

(c) At the time of sampling performed pursuant to (a) and (b) above, if BMPs are found to be properly designed, installed and maintained, no further action is required. If BMPs in any area of the site that discharges to a receiving stream are not properly designed, installed and maintained, corrective action shall be defined and implemented within 2 business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours until the selected turbidity standard is attained or until post-storm event inspections determine that BMPs are properly designed, installed and maintained; and

(d) Existing construction activities, i.e., those that are occuring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b). Those existing construction activities that have met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.

*Note that the permittee may choose to meet the requirements of (a) and (b) above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for monitoring at any time of the day or week.

All samples that have been analyzed must be submitted by 15th day of the month following the reporting period.

Monitoring results shall include:
1. The date, exact place, and time of sampling or measurements.
2. The name(s) of individual(s) who performed the sampling and measurements.
3. The date(s) analyses were performed.
4. The time(s) analyses were initiated.
5. The name(s) of the individual(s) who performed the analyses.
6. References and written procedures, when available, for the analytical techniques or methods used.
7. A quality control/quality assurance program must be included in the written procedures.
8. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

#45 - SAMPLE REPORTING (continued):
Written correspondence (including monitoring results) will be submitted return receipt certified mail to:

Northeast District Office
Georgia Environmental Protection Division
1885-A Tobacco Road
Augusta, Georgia 30906-8825
706-792-7744

#46 - RETENTION OF RECORDS (PART IV.F)
The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:

1. Copy of the NOI(s) submitted to EPD, along with delivery receipt(s).
2. Copy of ESCP, CMP and other related documents.
3. Inspection report from the design professional that prepared the Plan stating BMPs have been installed correctly.
4. Copies of all monitoring information required by this Permit GAR 100001, including:
A) Daily inspection logs of entrances and exits (when construction activity has taken place) and fuel storage areas.
B) Weekly inspection logs of all disturbed areas indicating whether or not BMPs identified in the Plan are operating correctly.
C) Monitoring/sampling/analysis reports as required by this permit.
D) Monthly inspections logs of all areas that have undergone final stabilization.
E) Daily rainfall log.
5. Any other monitoring reports & information, plans, applicable calibration & maintenance records, etc.
6. All items shall be retained by permittee(s) for a period of 5 years from date of submittal of N.O.T., unless period is extended by request of EPD.

#47 - SAMPLING COLLECTION:
Once the rainfall event has been reached, the Permittee must collect storm water samples from the designated monitoring location(s).

The following sample guidelines shall be followed in accordance with the NPDES Permit GAR #100001:
1. All sampling shall be collected by "grab samples"
2. Sample containers should be labeled prior to collecting the samples.
3. Samples should be well mixed before transferring to a secondary container.
4. Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.
5. Samples are not required to be cooled.
6. Manual or automatic samplers may be used. Samples from automatic samplers may be collected no later than the next business day following the rainfall event. While samples collected manually must be collected within forty-five (45) minutes following the rainfall event.
7. The samples should be taken from the horizontal and vertical center of the receiving water(s) or the storm water outfall channel(s), where possible.
8. Care should be taken to avoid stirring the bottom sediments.
9. The sampling container should be held so that the opening faces upstream.
10. The samples should be kept free from floating debris.

#47 - ANALYSIS PROCEDURES:
Samples should be analyzed immediately, but in no case later than 48 hours after collection. Analysis must be conducted in accordance with methodology and test procedures estabilshed by 40CFR Part 136, the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" and other guidance documents that may be prepared by the EPD.

#48 - LOCATION OF MONITORING POINTS:
Two (2) monitoring points are proposed for this project.

The first monitoring point is just after the stream crossing under Bates Road and at the current surface water / sediment sampling site SW-3N. This sample will provide a control for how much sediment is in state waters upstream of the site.

The second monitoring point is just after the last point where stormwater from the site enters state waters and at the current surface water / sediment sampling site SW-4/SD-4. This sample will be compared with the sample taken at location 1 to monitor any increase in sediment. This sample will include stormwater discharge from the property located between the site McIntosh Creek. A visual inspection of this property for evidence of land disturbing activities shall be made during sampling activities and noted on inspection report.

The NTU limit for the outfalls shall be 75 given that the surface water discharge area for the receiving stream is less than approximately 5 square miles and the project site is 10 acres.

#35 - I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.

BY: [signature] 2-4-2013
CHARLES S. ARMENTROUT, GEORGIA REGISTERED P.E. NO 14742
GSWCC CERT.# 0000009334; EXP. 4/20/15

#36 - I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA," (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORMWATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001.

BY: [signature] 2-4-2013
CHARLES S. ARMENTROUT, GEORGIA REGISTERED P.E. NO 14742
GSWCC CERT.# 0000009334; EXP. 4/20/15

#37 - I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT CERTIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT FOR KNOWING VIOLATIONS.

BY: [signature] 2-4-2013
CHARLES S. ARMENTROUT, GEORGIA REGISTERED P.E. NO 14742
GSWCC CERT.# 0000009334; EXP. 4/20/15

N:\01012\CIVIL\CAD Files\Construction Dwgs\C605 - CMP.dwg
Mon, Feb 04 2013 - 4:53:39pm

REVISIONS

DATE	NO.	BY	DESCRIPTION
4 FEBRUARY 2013		EMR	EPD SUBMITTAL SET

DESIGNED: EMR
DRAWN: EMR
CHECKED: CSA
APPROVED: CSA

GEORGIA REGISTERED No. 14742 PROFESSIONAL ENGINEER CHARLES S. ARMENTROUT
FEB 04 2013

GSWCC LEVEL II
CERTIFICATION #0000009334
EXPIRES: 4/20/15

amt ENGINEERS ARCHITECTS PLANNERS
Armentrout • Matheny • Thurmond
OAKBROOK CORPORATE CAMPUS
330 RESEARCH DRIVE, SUITE A240
ATHENS, GEORGIA, USA 30605-2760
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www.amtathens.com

CITY OF WAYNESBORO
BATES ROAD LANDFILL SITE
CORRECTIVE ACTION PLAN
BURKE COUNTY, GEORGIA
EPD HSI #10322, GEFA #2011-L09SW

COMPREHENSIVE MONITORING PLAN

C-605
SHEET 17 OF 17

Appendix D

Groundwater Sampling and Analysis Procedure

GROUNDWATER SAMPLING AND ANALYSIS PLAN

Environmental Protection Division (EPD) required that groundwater detection monitoring be conducted on a five year frequency throughout the post-closure care period, unless an alternative schedule is approved by EPD. Groundwater sampling is to be conducted by a qualified technician well versed in sampling groundwater wells, preserving samples and submitting such to qualified laboratory for analysis. Sampling events for the ten wells will be performed in accordance with the schedule provided in this plan unless an alternate schedule is dictated by EPD.

The following Groundwater Sampling and Analysis (S&A) Plan contains procedures which provide for consistent groundwater sampling and analysis and ensure that monitoring results will provide an accurate representation of groundwater quality at the time and point of sampling.

The greatest source of inadvertent sample contamination is through incorrect handling by field personnel. The level of concern is much greater for groundwater sampling as compared to waste sampling; therefore, extreme care is needed in collecting groundwater samples for detection monitoring purposes. The additional care needed will require additional time, but reliability of the test results will be increased proportionately.

This Groundwater Sampling and Analysis (S&A) Plan has been designed in accordance with the Georgia EPD "Manual for Ground Water Monitoring", and the EPA "RCRA Groundwater Monitoring Technical Standard Operation Procedures Quality Assurance Manual, RCRA Technical Enforcement Guidance Document" (EPA/530/SW-86/055) and currently accepted practices for collection of representative groundwater samples. The plan includes information and procedures for:

1.1 Groundwater Quality Sample Parameters
1.2 Sampling Procedures
1.3 Laboratory Procedures Summary
1.4 Sampling Order
1.5 Sampling Equipment
1.6 Analytical Parameters and Methods
1.7 Well Site Inspection and Site Preparation
1.8 Water Level and Well Depth Measurements
1.9 Well Evacuation
1.10 Field Indicator Parameters
1.11 Sample Collection
1.12 Sample Containers, Preservation and Handling
1.13 Field and Laboratory Quality Assurance/Quality Control

Once a sampling technique has been established, it should be repeated for all subsequent sampling events. Changes in technique may result in a change in the test values.

1.1 Groundwater Quality Sample Parameters

Groundwater samples are to be submitted for laboratory analysis for the following EPA-approved methods.

- SW-846 Method 8260B – Volatile Organic Compounds (VOCs)
- SW-846 Method 6010D – Metals (10 Total)
- SW-846 Method 7470A – Mercury
- SW-846 Method 8260B – Volatile Organic Compounds

1.2 Sampling Procedures

Groundwater sampling will be conducted in accordance with the most current version of the "Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites (LMS/PLN/S04351) (SAP)". Groundwater monitoring will include water level measurements, conventional groundwater purging and sampling, quality control field samples, and proper equipment decontamination. Sampling of wells is to be performed at a frequency of one time in a five year period with the first set of sampling to be performed in the third quarter of 2021 and each five year period thereafter, unless otherwise directed in writing by EPD.

1.3 Laboratory Procedures Summary

Analytical methods and reporting limits (RLs), data reporting procedures, laboratory quality assurance and quality control procedures, and laboratory data validation and contractor validation procedures are to be conducted in accordance with EPA-approved methods. Groundwater samples will be submitted to an EPA-approved analytical laboratory for the analysis of parameters listed above.

1.4 Sampling Order

Monitor wells should be sampled in the order of increasing potential for contamination: wells with the least potential for contamination should be sampled first and wells with the greatest potential for contamination last. This will help to prevent cross-contamination of clean wells. A typical sampling order at the site requires sampling of the upgradient/background A-wells first, followed by lateral gradient B-wells (if present) and lastly the downgradient C-wells.

1.5 Sampling Equipment

Sampling equipment should be selected to minimize the potential for introduction of contaminants into the wells. Bailers or permanently installed positive gas displacement pumps (bladder pumps) may be used for evacuating and sampling monitoring wells. Although bailers are not disallowed for groundwater purging, it should be noted their use is discouraged.

Bailers should be single-use disposable equipment constructed of accepted materials such as Teflon. No field or laboratory cleaned equipment that has been used in another well or taken to another site, should be used to collect samples. If a bailer shows insoluble contamination, it should be replaced.

Selection of inert rope for lowering and raising bailers is important. New (clean) nylon rope should be used to lower and raise the bailers. Nylon rope should not be reused between wells, or from one sampling event to the next. Care should be taken to see that bailer rope does not touch any materials that could contaminate the well and/or groundwater sample (i.e., protective locked cover, ground surface or sampler's clothing).

Positive gas displacement (bladder) pumps, constructed with a Teflon bladder, may be permanently installed in the wells and used to evacuate the wells and collect groundwater samples. Presently, the ten wells on-site do not contain pumps.

1.6 Analytical Parameters and Methods

Groundwater samples should be collected and analyzed for the Georgia Appendix I (GAI) inorganic and organic constituents (Tables 1 and 2) unless an alternate site specific list of detection monitoring indicator parameters is approved by Georgia EPD. The samples should be analyzed in accordance with EPA Methods as follows:

- Mercury – Method 7470A
- Chlorinated Pesticides – Method 8081B
- Volatile Organics – Method 8260B
- Metals – Method 6010D

Any planned deviation should be justified and submitted for approval by the Georgia EPD.

TABLE 1
GEORGIA APPENDIX I
INORGANIC CONSTITUENTS

(1) Antimony	(5) Cadmium	(9) Lead	(13) Thallium
(2) Arsenic	(6) Chromium	(10) Nickel	(14) Vanadium
(3) Barium	(7) Cobalt	(11) Selenium	(15) Zinc
(4) Beryllium	(8) Copper	(12) Silver	
See footnotes to the current GAI List for required Analytical Reporting Limits to meet the Georgia Action Limits.			

TABLE 2 GEORGIA APPENDIX I ORGANIC CONSTITUENTS	
Acetone	trans-1,3-Dichloropropene
Acrylonitrile	Ethylbenzene
Benzene	2-Hexanone; Methyl butyl ketone
Bromochloromethane	Methyl bromide; Bromomethane
Bromodichloromethane	Methyl chloride; Chloromethane
Bromoform; Tribromomethane	Methylene bromide; Dibromomethane
Carbon disulfide	Methylene chloride; Dichloromethane
Carbon tetrachloride	Methyl ethyl ketone; MEK; 2-Butanone
Chlorobenzene	Methyl iodide; Idomethane
Chloroethane; Ethyl chloride	4-Methyl-2-pentanone; Methyl isobutyl ketone
Chloroform; Trichloromethane	Styrene
Dibromochloromethane; Chlorodibromomethane	1,1,1,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane; DBCP	1,1,2,2-Tetrachloroethane
1,2-Dibromoethane; Ethylene dibromide; EDB	Tetrachloroethylene; Tetrachloroethene
Dichlorobenzene; 1,2-Dichlorobenzene	Toluene
p-Dichlorobenzene; 1,4-Dichlorobenzene	1,1,1-Trichloroethane; Methylchloroform
trans-1, 4-Dichloro-2-butene	1,1,2-Trichloroethane
1,1-Dichlorethane; Ethylidene chloride	Trichloroethylene; Trichloroethene
1,2-Dichlorethane; Ethylene dichloride	Trichlorofluoromethane; CFC-11
1,1-Dichloroethylene; 1,1-Dichloroethene	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	Vinyl acetate
trans-1,2-Dichloroethylene	Vinyl chloride
1,2-Dichloropropane; Propylene dichloride	Xylenes
cis-1,3-Dichloropropene	
See footnotes to the current GAI List for required Analytical Reporting Limits to meet the Georgia Action Limits.	

The laboratory should be directed to use appropriate methods to achieve the detection limits specified in the GAI List (which corresponds with the EPA and/or Georgia EPD designated Maximum Contaminant Levels [MCL's] or Practical Quantitation Limit's [PQL's] whichever is lower, for inorganic constituents in effect at the time of sampling). Changes in EPA or Georgia EPD MCL's may require changes in analytical methods to ensure that acceptable detection limits are achieved.

Laboratory records of sample analyses should include the methods used (by Number) and both the extraction date and date of actual analysis, if different. Data from samples that are not analyzed within recommended holding times should be considered suspect.

A period of up to four weeks may be required to complete the laboratory analyses and data validation, depending upon the laboratory contract agreement. Within a reasonable time after completion of the laboratory analyses, and within 90 days from sampling event, the data should be evaluated and included in a Water Monitoring Report submitted to the City and the Engineer.

1.7 Well Site Inspection and Site Preparation

1.7.1 Well Site Inspection

Prior to sampling, each well site should be inspected to determine that site conditions and/or facility activities have not impaired the ability to collect representative groundwater

quality samples. The inspection should address the following information which is included in the Field Survey of Monitoring Well Integrity Form included in EPD's Guidance (August 1997.).

In addition, every year and at site closure, a Georgia registered professional geologist or engineer will inspect the wells and certify their integrity, as required by the Water Well Standards Act.

1. Location/Identification:
   a. Is the well visible?
   b. Is the well properly identified with the well ID?
   c. Are there protective posts?
   d. Is the well accessible?
   e. Is the drainage around the well acceptable?
   f. Is the area around the well free from chemical interferences?
2. Protective Casing:
   a. Is there any apparent damage to the protective casing?
   b. Does the lock and cover effectively prevent tampering?
   c. Was the well locked?
   d. Is the lock in good condition?
   e. Is there evidence of casing degradation or deterioration?
3. Surface Seal:
   a. Is the seal in good condition?
   b. Is the seal sloped away from the protective casing?
   c. Is the seal snug against the protective casing and ground?
   d. Is the surface seal being undermined by erosion?
   e. Is there evidence of frost heaving?
   f. Is there evidence of subsidence around the surface seal?
4. Internal Casing (Stickup):
   a. Is the annular space clear of debris and water?
   b. Is the casing at least 1' above the ground?
   c. Does the cap prevent entry of foreign material into the well?
   d. Is the casing free of kinks or bends?
   e. Is any dedicated sampling equipment in good condition?
5. Recharge Information:
   a. Does the well recharge rapidly enough to purge 3 well vols?
   b. Does the water level change significantly after purging?
   c. What is the approximate purge rate?
   d. If the well purges dry, what is the approximate recharge rate?
   e. What actions were taken to correct deficiencies noted?
6. Additional comments:

One issue that requires corrective action and comment prior to measuring the water level and/or sampling is if the well is not properly vented for equilibration of air pressure prior to water level measurements.

1.7.2 Site Preparation

Prior to conducting water level measurements, well evacuation or sampling, the well site must be prepared to prevent contamination of the sampling equipment and/or groundwater samples.

Clean aluminum foil and/or clean plastic sheeting should be placed adjacent to or around the well, as necessary, to prevent sampling equipment from contacting the protective well casing and/or ground, which could introduce contaminants into the well or groundwater samples.

Any item coming in contact with the inside of the well casing or the well water should be kept clean (i.e. wrapped in aluminum foil) and handled only with clean gloved hands. New (clean) unpowdered sterile sampling gloves should be donned for each well activity, at each well. Gloves should be changed as often as necessary to ensure that only clean gloved hands come in contact with equipment entering the well or used for sampling.

1.7.3 Procedures for Well Site Preparation

The following procedures are provided as a general guide for preparing the well site and work area to prevent contamination of the well or groundwater samples.

1. Prepare a clean work area for placement of all sampling equipment either at the sampling vehicle, if nearby, or at the well apron. Aluminum foil and/or plastic should be placed, as necessary, to ensure that sampling equipment will not contact any materials which could contaminate the well, sampling equipment or groundwater sample.
2. Unlock the protective well casing.
3. Put on new (clean) gloves and wrap clean aluminum foil around any exposed metal to prevent extraneous materials (i.e., rust, paint, dirt, etc.) from coming into contact with the well or sampling equipment.
4. Then remove the well cap and place it top down on the clean work area surface (plastic or aluminum foil).

1.8 Water Level and Well Depth Measurements

Water level data collected for development of potentiometric maps and determination of ground flow direction and velocity must be collected in the shortest time possible to provide for accurate representation of hydrogeologic conditions at one point in time. Prior to initiating groundwater sampling a complete set of water level (depth to water) and total well depth measurements should be recorded. The water levels (depth to water) may need to be re-checked prior to evacuating each well if well evacuation occurs on a subsequent day(s).

Measurement of water level elevations on a continuing basis is important to determine if horizontal and vertical flow gradients have changed since initial site characterization. A change in hydrologic conditions may necessitate modification to the design of the

groundwater monitoring system.

Measurement of static water level elevations and total well depths are necessary to determine:

If the well is experiencing siltation, which may prevent sample collection and/or interfere with collection of representative water quality samples.

The potentiometric surface, groundwater flow direction and groundwater flow velocity at the time of each sampling event.

The purge volume prior to well evacuation.

If changes in horizontal and vertical flow gradients have occurred.

If changes in hydrologic conditions necessitate modification to the groundwater monitoring system and/or sampling program.

The depth to water and total well depth should be measured with an electric water level indicator (E-Line).

Measurements should be recorded to the 0.01 feet. Each well has a surveyed reference point (nail in top of concrete slab) from which the depth to water and total depth can be measured. The elevation of the reference point and the well coordinates are established and shown in the plat in Figure 2.

Any item coming in contact with the inside of the well casing or the well water should be kept clean (i.e., wrapped in aluminum foil) and handled only with clean gloved hands (gloves without any talcum powder). New (clean) unpowdered sterile sampling gloves should be donned for each well activity, at each well. Gloves should be changed as often as necessary to ensure that only clean gloved hands come in contact with equipment entering the well or used for sampling.

The E-line should be thoroughly cleaned and wrapped in aluminum foil before being brought to the site. The E-line should also be cleaned between wells by washing with a non-phosphate detergent and then rinsing thoroughly with distilled water.

The field measurements will include depth to standing water and total depth of the well to the bottom of the intake screen structure. The measurements will be taken to 0.01 foot. Measurements for each well are to be made to the reference nail shown on the concrete slab and listed on the plat (Figure 2).

1.9 Well Evacuation (Purging)

The water standing in a well prior to sampling may not be representative of in-situ groundwater quality. Therefore, the standing water will be removed so that water that is representative of the formation can enter the well.

The procedure used for well evacuation depends on the yield of the well. When evacuating low yield wells, the wells should be evacuated to dryness once. If a well cannot be bailed dry, then an amount of water equivalent to three well volumes should be evacuated. Volatile organic samples are to be obtained as soon as possible after well purging. Samples for Total Metals may be obtained as much as 24 hours after well purging.

1.9.1 Procedure for Calculating the Volume of Water Standing in the Well and the Total Evacuation Volume

Use the electric water level indicator to measure the distance in feet, from top of the casing to top of water.

Measure the distance, in feet from top of casing to bottom of well or use total depth data provided.

Subtract #1 from #2 to obtain the height (H), in feet, of the column of water in the well. For a 2-inch inside diameter well,

$$H \times 0.163 = \text{Volume (Gal.)}$$

1.9.2 Procedure for Evacuation Stagnant Water in Wells

Any item coming in contact with the inside of the well casing or the well water should be kept in a clean container and handled only with gloved hands. Always start with the least contaminated well. For wells with rapid recovery that cannot be evacuated, three well volumes shall be removed. This reflects the present technology in which the goal is to clear standing water without diluting any potential plume by drawing in pure water.

1. ASSEMBLE EQUIPMENT
   a. Place a plastic sheet, such as a painter's drop cloth, around the well as a work area. Unlock protective well casing.
   b. Bring steel measuring tape and electric sounder to the plastic sheet. The sounder probe and tape have been precleaned in the lab and wrapped in foil. Unwrap without touching them.
   c. Put on clean new plastic gloves (gloves without talcum powder). Unlock and remove well cap. Place it, top-down, near a corner of the plastic sheet.

2. EVACUATE THE WELL
   a. Bring two dishpans, a large trash bag, and a measuring container to the plastic sheet. Line one dishpan with aluminum foil.

b. Bring the bailer, which has been precleaned in the laboratory and wrapped in foil, to the plastic sheet. Unwrap it without touching the bailer.
c. Bring the roll of bailer cord to the sheet. This roll has also been covered with foil to keep it clean. Place it in the unlined dishpan and unwrap it without handling the rope.
d. At this point, both the bailer-handler and helper should put on a new pair of clean plastic gloves.
e. The end of the bailer rope is tied to the top of the bailer. Use foil where needed to assure that the rope does not touch any item while in use.
f. The bailer is lifted and lowered carefully into the well until it is submerged.
g. The bailer is raised in a hand over hand manner and the rope is allowed to fall into the polyethylene dishpan lined with foil
h. Pour groundwater from bailer into the measuring container. Repeat bailing procedure until 3 well volumes have been evacuated. If the bailer touches the container, line the lip with aluminum foil.
i. If the well goes dry before three well volumes are obtained, then sample when the well has recovered sufficiently to provide a sample volume. Some wells require 24 hours for recovery and settling.
j. Save the evacuated water in the measuring container for proper disposal. Do not pour on the ground.
k. The rope is untied from the bailer and the portion used is cut off for discard.
l. The used gloves, the used rope, the bailer foil, dishpan foil and the plastic sheet are rolled up and discarded in a large trash bag.
m. Proceed with sampling procedure, or if well requires a recovery period before sampling, replace well cap and lock protective casing. In general, allow 24 hours for well water stabilization. Where recharge is rapid and water is clear of sediment, this waiting period may be shortened.

1.10 Field Indicator Parameters

The following indicator/field parameters should be determined for each sample: temperature, pH, specific conductance, and turbidity. Field parameters (temperature, pH, and specific conductance) should be measured periodically during purging of each monitoring well to determine:

1. When groundwater conditions have stabilized.
2. Ensure that sufficient purging has been performed.
3. Confirm that a representative sample will be collected.

Instruments used for determining indicator parameters should be calibrated in accordance with the manufacturer's specifications and documented in the logbook or field sheets.

If a sample is returned to the laboratory for evaluation of indicator parameters, it should be tested immediately upon arrival and this alternate procedure should be recorded in the project records.

1.11 Sample Collection

Collection of groundwater and surface water samples requires the use of equipment and sample handling in the field that greatly increases the potential for inadvertent sample contamination. The potential for field sampling errors greatly exceed laboratory errors. Trace concentrations of chemicals being monitored can be lost to the air by agitation of the water. They can pass into and out of the water with temperature and pH changes. They can decompose when allowed to stand in the sun. Contamination from the ground surface can pass to the samplers clothing and hands, to the sample containers and then to the sample. Cleanliness and attention to detail should hold these errors to a minimum.

Any item coming in contact wit the inside of the well casing or the well water should be kept clean (i.e., wrapped in aluminum foil) and handled only with clean gloved hands. New (clean) unpowdered sterile sampling gloves should be donned for each well activity, at each well. Gloves should be changed as often as necessary to ensure that only clean gloved hands come in contact with equipment entering the well or used for sampling.

1.11.1 Procedure for Collecting Bailed Samples

1. Place a plastic sheet, such as painter's drop cloth, around the well as a work area to prevent sample bottle contact with the ground. Unlock the protective well casing.
2. Bring two dishpans to the sheet and line one with aluminum foil.
3. Arrange sample bottles on the sheet. Place waste water container in vicinity of well.
4. Bring the bailer, which has been precleaned in the laboratory and wrapped in foil, to the plastic sheet. Unwrap the bailer without touching it.
5. Bring the roll of bailer cord to the sheet. This spool has also been wrapped with foil to keep it clean. Place the spool in the unlined dishpan and unwrap it without handling the rope. Selection of inert rope is important. New nylon rope is available from several manufacturers. Where organic contaminants are of interest it may be advisable to use Teflon rope for the first 10 feet of cord and discard after each well. However, the value of this may be offset by the additional handling required.
6. Take a pair of new, clean, plastic gloves and unlock and remove the well-cap. Place it top-down on a corner of the plastic sheet.
7. At this point both bailer-handler and helper should put on a new pair of gloves.
8. The end of the bailer rope is tied to the top of the bailer. The rope must not touch anything but clean aluminum foil. Use foil where needed.
9. The bailer is lifted and lowered carefully into the well until it is submerged.
10. The helper will unscrew the appropriate sample caps and place them top down on the plastic sheet without touching the interiors or dislodging any Teflon discs inside the caps.
11. The bailer is raised in a hand over hand manner and the rope is allowed to fall into the polyethylene dishpan lined with foil. The first bailer-full is discarded into the waste container.
12. The samples are poured into the bottles without bubbles, and are filled to the top without headspace. The helper can hold the bottle and be responsible for recapping without touching the interior of the cap, and screwing down lightly. It is not good practice to

leave samples in the sun. They should be moved to the ice chest with ice as soon as possible.

13. The organic samples are the most delicate and should be collected first. A sample for volatile analysis must be filled so that the vial has a meniscus. The cap is slid over it and closed so that no bubble can be seen when the sample vial is upended. The volatile samples are always collected in pairs.
    The other organics usually require two or three 1-liter bottles without preservative. These should be collected next, also without headspace.
    If a sample is to be collected for total metals, it will not have preservative and should be collected next. If there is a sediment problem, this sample should be collected right after the volatile samples, in order to minimize the sediment requiring removal.
    Finally, preserved samples should be collected, taking great care that the acids and salts in the bottles do not contact the helper's gloves, and thus, pass to other caps and bottles. Do not allow the bailer to touch any sample bottles, or allow any rope end or gloved fingers to contact the sample well water while pouring.
14. All remaining sample bottles should now be carried to the ice chest where they are labeled, placed in zip-loc bags, and iced down.
15. The labels can be pre-filled out leaving less work and time delay at the site. The label must have:
    Name of Facility
    Date of Sampling and Time
    Sample Description (Monitoring Well ID and "Up" or "Down")
    Sampler's Name

    Additionally, mark each sample bottle with an identification number using red glass-marking crayon which is resistant to water. Bottle caps are good places to add an I.D. This is a precaution in case labels get wet or come off during transport.
16. The well cap is replaced and locked. Lock the protective well casing.
17. The rope is untied from the bailer and all used rope is discarded.
18. The used gloves, the used rope, the bailer foil, dishpan foil and the plastic sheet are folded up and discarded in the large trash bag.
19. Proceed to the next well and repeat.

NOTE: IT IS GOOD PRACTICE TO TAKE AN EXTRA SET OF SAMPLE BOTTLES TO THE FIELD IN CASE OF BREAKAGE OR ACCIDENTAL CONTAMINATION.

1.11.2 Delayed Sampling for Inorganic Constituents (Metals)

Although bailers are not disallowed for groundwater purging, it should be noted their use is discouraged. For an alternative procedure, please refer to Section 4.8.3.
Prepare the well site to prevent contamination from extraneous materials as described above.
With clean gloved hands, retrieve and/or unwrap the bailer and rope and prepare to collect the sample for inorganic analysis.
For re-evaluation of turbidity, the bailer will be slowly lowered in the well. The decent of the bailer shall be stopped immediately above the water table. The bailer shall then be

allowed to sink in the water column until it is fully or partially submerged. The bailer shall be removed from the water column as slow as practical, in a manner that minimizes disturbance of the water present in the well. If the turbidity is below 5 NTU's, collect the sample as described above. If the turbidity is above 5 NTU's, additional settling time (but not more than a total of 24 hours) may be necessary. At the end of well evacuation activities, if the groundwater turbidity levels are above 10 NTU's, low-flow, low-volume groundwater purging and sampling techniques shall be implemented according to the most recent version of USEPA Protocol SESDPROC-301-RS (Groundwater Sampling), or other low-flow method approved by EPD.
Replace the well cap and lock the protective cover.
Collect discarded gloves, rope, aluminum foil and plastic sheeting for disposal.

1.11.3 Procedure for Collecting Bladder Pump Samples-Not Used. There are Currently No Dedicated Bladder Pumps in any of the Wells

Collecting samples with bladder pumps is easier, and more reliable (less potential for sample contamination) than with bailers. The procedures are similar to that used for collecting samples with bailers with the following exceptions:
Total well depths can only be measured when the bladder pump is removed. Therefore, the total well depth at time of construction should be used to calculate the evacuation volumes. Bladder pumps should only be removed for well or pump maintenance; they should not be removed for routine sampling.
Water is evacuated and sampled without lowering equipment into the well (the bladder pump is installed in the well). An air supply regulator is attached to the tube which fills and discharges the bladder. The regulator is adjusted to expand the bladder after the water chamber in the pump is filled. Water is gently pushed to the surface via the discharge line. Field measurement samples and analytical samples are collected from the discharge line which must be kept clean. Special air supply units are made for bladder pump systems. The air supply should be contaminant (oil) free; therefore, if commercial compressors are used instead of a special air supply unit, filtering may be required.
Discharge rates during evacuation and sampling can be adjusted independently to provide better management of sample turbidity.

1.11.4 Procedure for Collecting Split Samples

Spilt samples may be required when EPD or another authorized entity intends to perform independent analyses. Groundwater collected from a well is split into two sets of sample containers; with one set being provided to each party. Split samples should be collected using the parallel splitting procedure:

1. Two sample containers for a given set of test parameters are lined up and the caps removed.
2. The two sample containers are filled in "parallel"; equal portions of sample aliquot from the same bailer run are poured into each sample container. This is repeated until the two sample containers are filled. The containers are then capped as usual. When split samples are collected using bladder pumps, water from the pump discharge line

should be directed back and forth between the two sample containers to ensure that the split samples represent water collected in the same pumping interval.

Collecting one set of sample containers and then the other is discouraged, because it may result in discrepancies in sample results due to slight changes in water quality over time.

3. Two sample containers for another test parameter are then lined up and filled as described above.
4. This procedure is repeated until sample containers for all of the test parameters for a given well are filled.

1.12 Sample Containers, Preservation, and Handling

1.12.1 Organic Constituents

Samples collected for analysis of volatile organic constituents should be collected in 40 milliliter (ml) glass Volatile Organic Analyses (VOA) sample containers. VOC sample containers may be preserved with HC1 to extend holding time to 14 days. VOA sample containers should be filled to the top without head space, capped with a Teflon seal and placed on ice immediately after sampling. On arrival at the laboratory, the sample containers should be transferred to a refrigerator.

1.12.2 Inorganic Constituents (Metals)

Samples collected for analysis of inorganic constituents (metals) should be collected in containers composed of polyethylene or other accepted materials as per SW-846. Analysis for inorganic constituents should be performed on unfiltered samples.

Inorganic samples should be preserved with HNO3 to a pH of <2. Sample preservation should be conducted either by the laboratory prior to shipment of sample containers (pre-preserved containers) or in the field after sample collection. The use of pre-preserved sample containers requires that the containers not be allowed to overflow during sampling (thereby, removing some of the preservative). The inorganic samples should also be preserved by being placed on ice for shipment to the laboratory. On arrival at the laboratory, the sample containers should be transferred to a refrigerator.

TABLE 3 RECOMMENDED SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIMES			
PARAMETER	RECOMMENDED CONTAINER	PRESERVATIVES	HOLDING TIMES
GEORGIA APPENDIX I METALS	Polyethylene	HNO_3 to pH<2 Cool to 4^0C	6 months
GEORGIA APPENDIX I ORGANICS	Glass 40 ml VOAs with Teflon lined septa cap	HCl Cool to 4^0C	14 days (Extract in 5 days)
SURFACE WATER METALS	Polyethylene	HNO_3 to pH<2 Cool to 4^0C	6 months
CHLORIDE	Polyethylene	Cool to 4^0C	28 days
CYANIDE	Polyethylene	NaOH to pH>12 Cool to 4^0C	14 days
CHEMICAL OXYGEN DEMAND	Polyethylene	H_2SO_4 to ph<2 Cool to 4^0C	28 days

1.12.3 Chain-of-Custody Control

Custody and protection of samples is an important legal consideration. As few people as possible should handle the samples. The sampler is personally responsible for collected samples, and must be able to attest to the integrity of samples until transfer. If the samples are placed in a vehicle, it must be kept locked. Any ice chest will be sealed and located in a place that is locked, having access only by responsible officials.

A chain-of-custody form shall accompany and document the handling of samples from the moment of collection until testing. It contains the facility name, date of sampling and name of collector. Samples will have consecutive ID numbers entered on the chain-of-custody along with a written description of each sample. Several bottles collected from one sampling point for different parameters will have the same ID number. Each transfer of custody will be recorded on the chain-of-custody with an appropriate signature, date and time.

Samples should be identified on the sample label, logbook and/or field sheets and chain-of-custody record by sampling location (well number) and date and time of collection. Several sample containers collected for different parameters should have the same ID number if they were collected from the same sampling location.

Sample handling and custody from the moment of collection until testing should be documented on a chain-of-custody record (form). The chain-of-custody record should contain the facility name, date and time of sampling and name of sampler(s). Each transfer of custody should be recorded on the chain-of-custody record with appropriate signatures, date and times for each person either relinquishing or receiving custody of the samples.

If the samples are to be shipped, the cooler should be secured and custody sealed. The chain-of-custody record should be secured inside of a plastic bag attached to the inside of the cooler lid. The shippers agent should provide a bill of lading which will provide for custody during shipment until the cooler is received and opened by the laboratory sample custodian.

If sample coolers are placed in a vehicle, hotel room or other unattended location, the location must be kept locked and secured. Only personnel in custody of the samples should have access to these locations. When unattended, coolers should be locked or secured with custody seals.

1.12.4 Sample Transport

Samples should be delivered to the laboratory in the shortest possible time after collection. Any delays should be documented in the project records.

1.13 Field and Laboratory Quality Assurance/Quality Control

Field and laboratory quality assurance and quality control procedures should be implemented to ensure the reliability of the analytical data being gathered for the monitoring program.

1.13.1 Field Quality Assurance / Quality Control

All field instruments should be calibrated prior to field use and re-calibrated periodically during each day of sampling.

A trip blank should be part of each sampling event. The laboratory should be requested to provide a constituent free trip blank which should be transported to the site with the sample containers. The trip blank sample container(s) should not be opened by the field personnel. The trip blank should be entered on the chain-of-custody record, for return with the samples. If positive results are detected in the trip blank, it should alert the laboratory of laboratory handling errors.

If a field/equipment blank is requested, constituent free water provided by the laboratory or a new container of distilled water may be used. The distilled water should be handled like a sample for collection of the field/equipment blank. The water should be poured into a new bailer and then into a set of sample containers using the same technique described for groundwater samples.

Analysis of the field/equipment blank alerts the sampler to technical error in the sampling activities. The blank test results are not used to correct the sample results, but are reported as-is. If the field blanks indicate sample contamination as a result of field procedures, the wells may need to be re-sampled.

1.13.2 Laboratory Quality Assurance / Quality Control

A commercial laboratory should be employed to conduct analyses of groundwater and surface water samples. The laboratory of choice should be required to exercise proper QA/QC procedures as required by the SW-846 Methods. The laboratory should also be in compliance with any Georgia requirements for laboratory certification.

The approved EPA test methods contain the requirement to run a spiked sample to determine percent recovery. Additional Quality Controls, such as method blanks and duplicates, are also described in the test methods and should be conducted by the laboratory, as requited.

1.13.3 Verification of Sample Results

A single laboratory result may be very accurate or considerably in error depending on a number of factors:

Interferences in the sample
Field sampling error
Contamination picked up during sample preparation
Skill of the analyst
Time delay
Instrument calibration

If a test result shows significant concentrations of one or more monitoring constituents above the detection limit, it may be assumed that contaminants ate present in the water sample. However, the facility may elect to repeat testing, if it believes that the sample may have been contaminated.

In most cases of suspect contamination the constituent concentrations are much closer to the detection limit of the test and verification becomes more critical. Re-sampling may be required whenever a downgradient result gives cause for alarm and verification of the accuracy of the results is needed. A properly verified result is accompanied by the following:

A duplicate sample result
A spiked sample result
A blank result
A set of calibration standards run to establish instrument response

At the very least, a sample should be spiked with a known quantity of the sought for constituent to determine the percent recovery. With good recoveries, no interferences are present in the water to suppress or enhance the response of the instrument. If good quality assurance control is maintained for the verification sample, the results are considered to represent actual conditions and can be used in place of the original results.

Appendix E

Groundwater Wells Boring Logs

upgradient

MONITORING WELL RECORD

Project: City of Waynesboro LF Waynesboro, GA	Well No: MWA-5
	Project No: MCE-01-493
Location: Waynesboro LF	GS Elevation:
Driller/Equipment: Bett's Environmental/ ATV Rig with 4.25 H.S. Augers	Drilling Date: October 17, 2002
Water Level: 25.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			firm, light red, CLAY (CL)				
			firm, light whitish-red, clayey SAND (SC)				
	10						Cement Fill, 2 inch PVC Riser
							16.0
							18.0 — 2 foot Bentonite Seal
	20						
▽							Sand Filter Pack
							0.010 inch Machine-slotted PVC screen
	30		BORING TERMINATED AT 30.0ft				30.0
	40						
	50						
	60						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover.

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 1/13/03

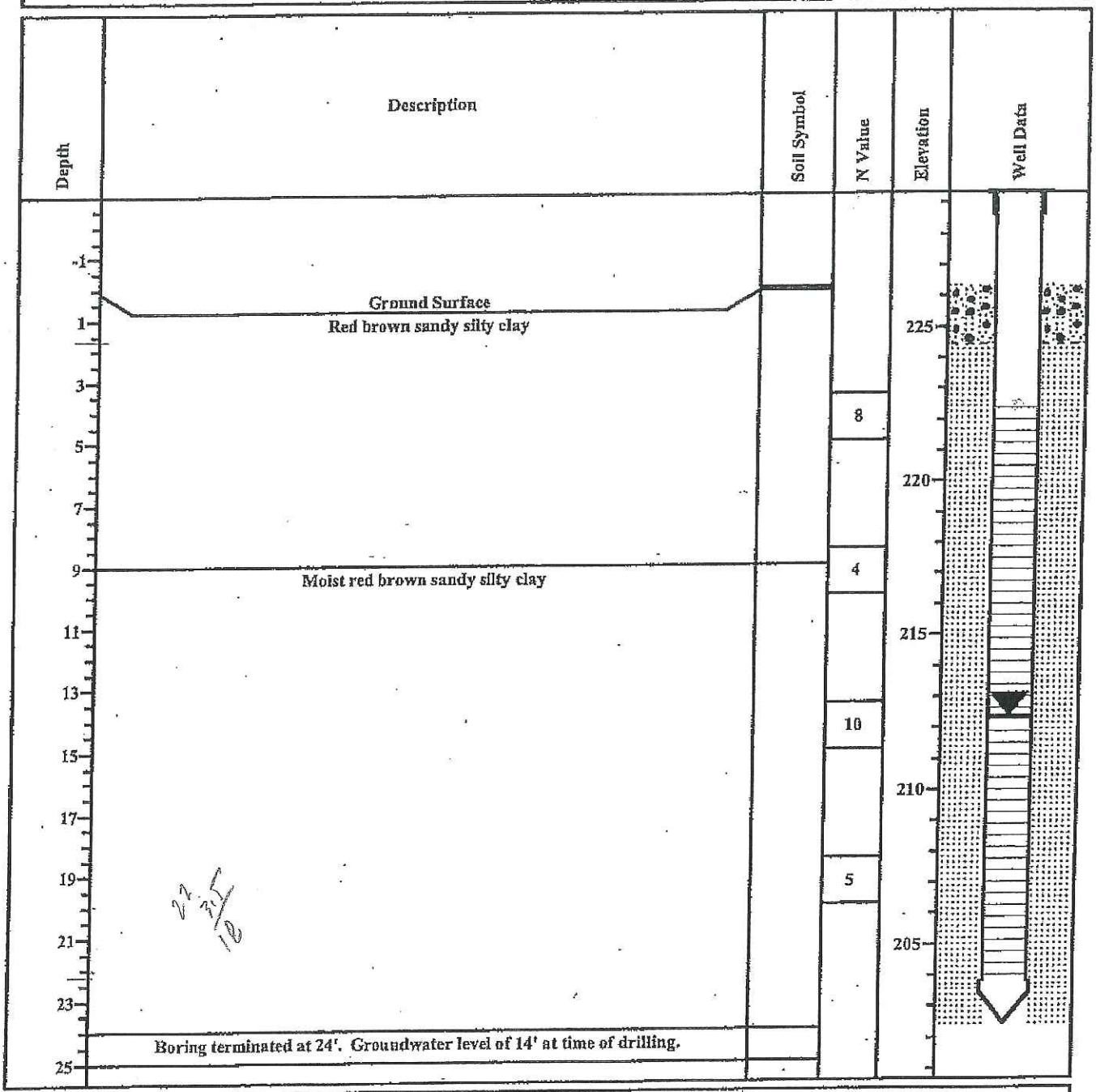
5021 Mercer University Drive, Suite D2, Macon, GA 31210
5731 Miller Court, Suite C, Columbus, GA 31909
1000 Business Center Drive, Suite 30, Savannah, GA 31405
595 Dekalb Street, Suite E, Auburn, AL 36830

GEC
GEOTECHNICAL & ENVIRONMENTAL
CONSULTANTS

Monitoring Well Log

Project: Waynesboro Old City Dump
Project No: MCE-01-493
Location: Waynesboro, Burke County, GA
Rig Type: CME-55

Boring#: MWA-1
Monitor: D. Price
Drilling Date: 7/31/01
Auger Size: 3.25"



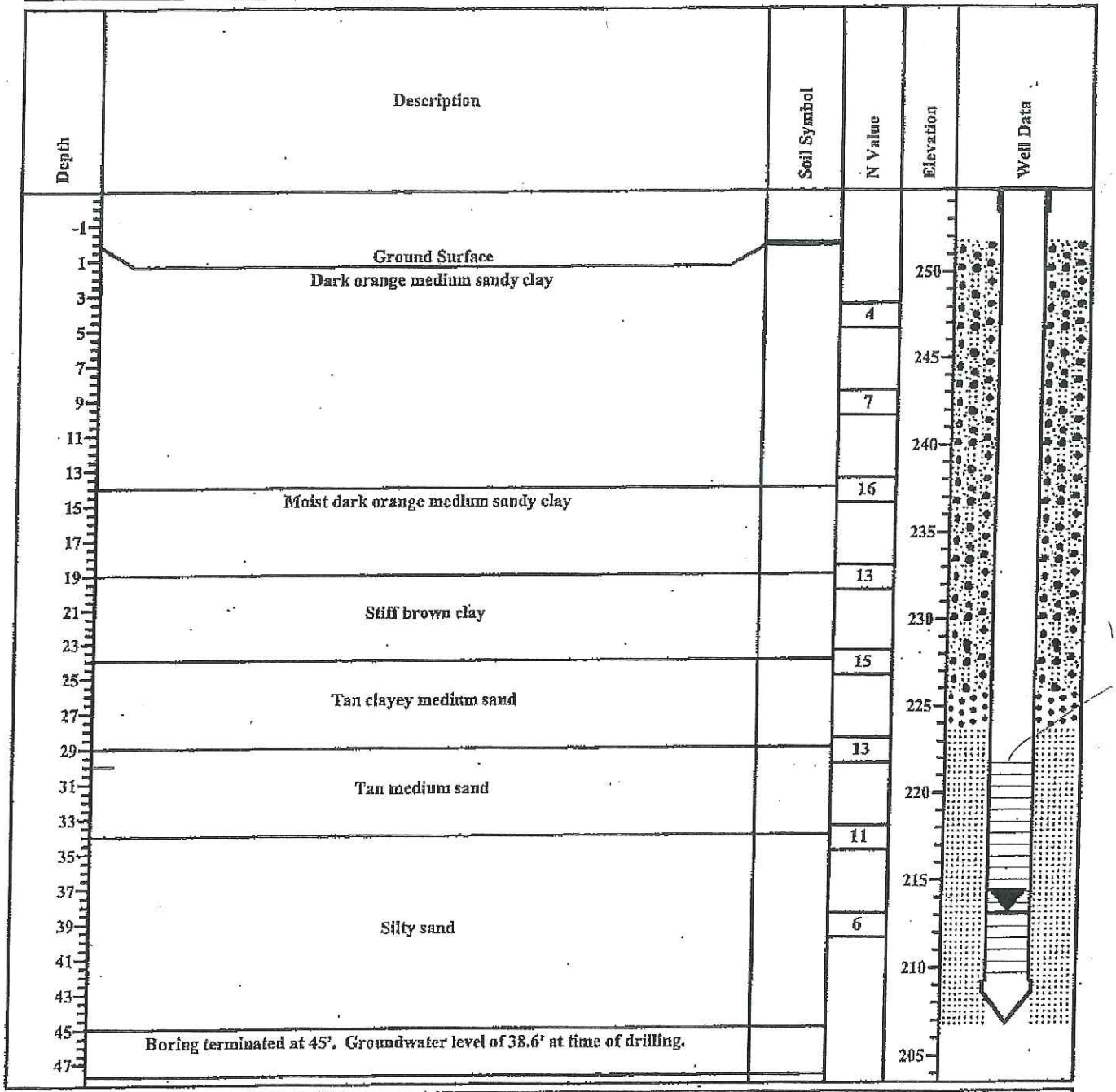
GEC
GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS

5021 Mercer University Drive
Suite D-2
Macon, Georgia 31210-5691

Monitoring Well Log

Project: Waynesboro Old City Dump
Project No: MCE-01-493
Location: Waynesboro, Burke County, GA
Rig Type: CME-55

Boring#: MWA-2
Monitor: S. Boswell
Drilling Date: 7/31/01
Auger Size: 3.25"



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5021 Mercer University Drive
Suite D-2
Macon, Georgia 31210-5691

MONITORING WELL RECORD

Project: **City of Waynesboro LF**
Waynesboro, GA

Location: **Waynesboro LF**

Driller/Equipment: Bett's Environmental/ ATV Rig with 4.25 H.S. Augers

Water Level: 4.0 ft at time of boring

Well No: **MWB-6**

Project No: MCE-01-493

GS Elevation:

Drilling Date: October 17, 2002

Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
▽	0		dark black, sandy SILT (SM)				1.0 Cement Fill, 2 inch PVC Riser; 3.0 Bentonite Fill; Sand Filter Pack; 0.010 inch Machine-slotted PVC screen; 15.0
	10		dark brown, silty SAND (SM)				
			BORING TERMINATED AT 15.0ft				
	20						
	30						
	40						
	50						
	60						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover.

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 1/13/03

5021 Mercer University Drive, Suite D2, Macon, GA 31210
5731 Miller Court, Suite C, Columbus , GA 31909
1000 Business Center Drive, Suite 30, Savannah, GA 31405
595 Dekalb Street, Suite E, Auburn, AL 36830

GEC
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CONSULTANTS

MONITORING WELL RECORD

Project: City of Waynesboro LF Waynesboro, GA	Well No: MWB-8
	Project No: MCE-01-493
Location: Waynesboro LF	GS Elevation:
Driller/Equipment: Bett's Environmental/ ATV Rig with 4.25 H.S. Augers	Drilling Date: October 31, 2002
Water Level: 15.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
▽	10		firm, light red, clayey SAND (SC)				0.5 Flush Mount cover, 2 inch PVC Riser 3.0 Bentonite seal Sand Filter pack 0.010 inch Machine-slotted PVC screen 20.0
	20		BORING TERMINATED AT 20.0ft				
	30						
	40						
	50						
	60						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Flush mount

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 1/13/03

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5731 Miller Court, Suite C, Columbus , GA 31909
1000 Business Center Drive, Suite 30, Savannah, GA 31405
595 Dekalb Street, Suite E, Auburn, AL 36830

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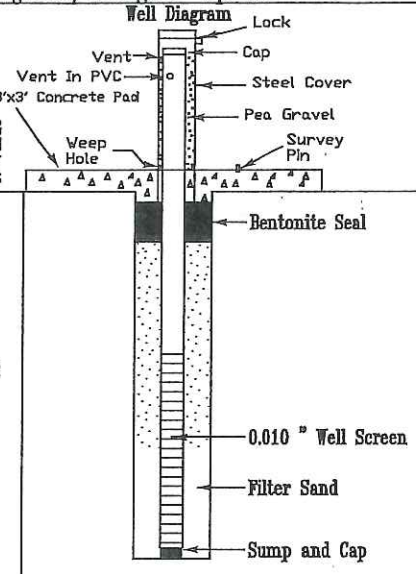
MONITORING WELL RECORD

Project: Waynesboro Landfill	Well No: MWB-11
	Project No: 090248.211
Location:	GS Elevation: 201.4 ft-MSL
Driller/Equipment: GEC/ CME 55 Truck	Drilling Date: March 31, 2014
Water Level: 1.5 ft after 24+ hours	Engineer/Geologist: Spaller

Elevation (ft)	Water Level	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value
				ALLUVIUM		
				loose to firm, reddish brown, sandy CLAY (CL)		
199.4	▼	2			SS-1	2
				loose, whitish tan, fine silty SAND (SM)		
197.4		4			SS-2	5
				BORING TERMINATED AT 5.0ft		
195.4		6				
193.4		8				
191.4		10				

Well Diagram



NOTES:

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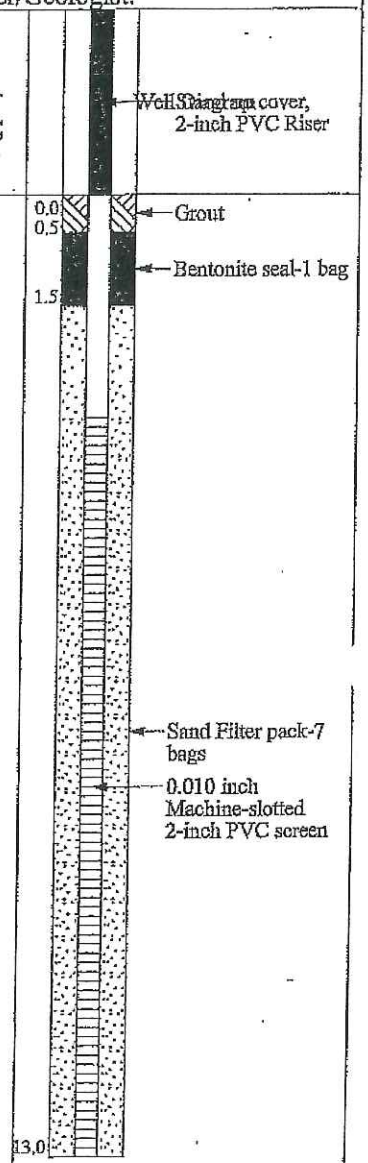
MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MWB-13**
	Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ ATV Rig with 4.25 H. S. Augers	Drillers Date: September 12, 2007
Water Level: 8.4 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
			TOPSOIL			
			COASTAL PLAIN SEDIMENTS brownish-white, clayey SAND (SC)			
	5		**COASTAL PLAIN SEDIMENTS** brownish-yellow, medium to fine, clayey SAND (SC)			
▽						
	10		**COASTAL PLAIN SEDIMENTS** brownish-yellow, medium to fine, clayey SAND (SC); wet			
	15		**BORING TERMINATED AT 15.0 ft**			



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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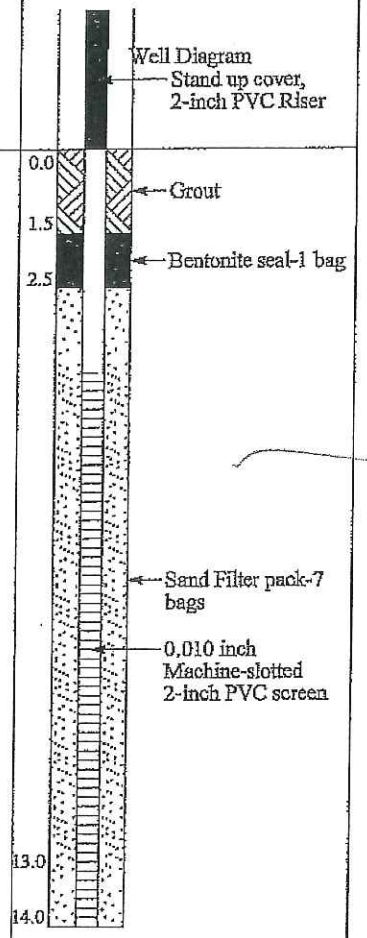
C O N S U L T A N T S

MONITORING WELL RECORD

Project: City of Waynesboro LF Waynesboro, GA	Well No: MWB-14 Project No: MCE-01-493
Location: Waynesboro LF	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ ATV Rig with 4.25 H.S. Augers	Drilling Date: September 12, 2007
Water Level: 13.2 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
			TOPSOIL			
			COASTAL PLAIN SEDIMENTS brown, clayey SAND (SC)			
			COASTAL PLAIN SEDIMENTS reddish-brown, clayey SAND (SC)			
	5					
			COASTAL PLAIN SEDIMENTS red, clayey SAND (SC)			
	10					
▽			**COASTAL PLAIN SEDIMENTS** reddish-white, clayey SAND (SC)			
	15		**BORING TERMINATED AT 15.0 ft**			
	20					



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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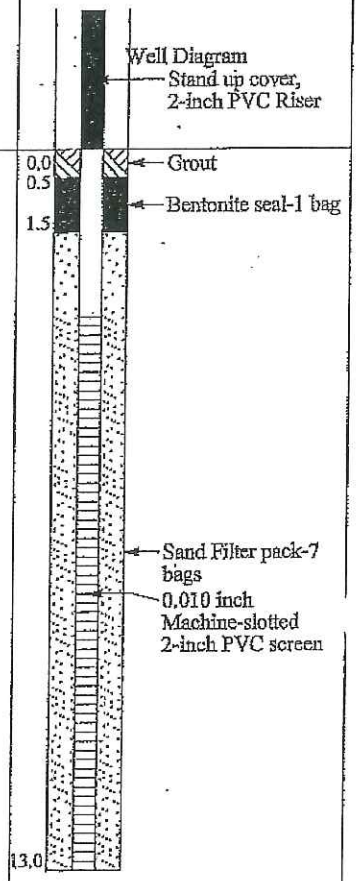
MONITORING WELL RECORD

Project: City of Waynesboro LF Waynesboro, GA	Well No: MWB-15
	Project No: MCE-01-493
Location: Waynesboro LF	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.Augers	Drilling Date: September 5, 2007
Water Level: 4.8 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
		TOPSOIL			
		COASTAL PLAIN SEDIMENTS black, clayey SAND (SC)			
		COASTAL PLAIN SEDIMENTS brown, clayey SAND (SC)			
5		COASTAL PLAIN SEDIMENTS reddish-white, clayey SAND (SC)			
10					
15		BORING TERMINATED AT 15.0 ft			
20					

Water Level (ft): ▽ at 5



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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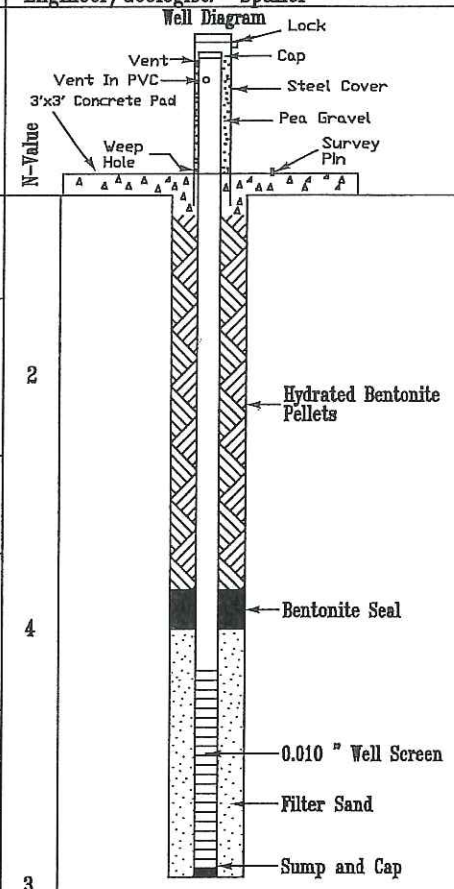
MONITORING WELL RECORD

Project: Waynesboro Landfill	Well No: MWB-16
	Project No: 090248.211
Location:	GS Elevation: 194.1-MSL
Driller/Equipment: GEC/ Hand Auger	Drilling Date: March 31, 2014
Water Level: 1.5 ft after 24+ hours	Engineer/Geologist: Spaller

Elevation (ft)	Water Level	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value
				ALLUVIUM		
				loose to firm, reddish brown, sandy CLAY (CL)		
192.1	▽	2			SS-1	2
				loose, whitish tan, fine silty SAND (SM)		
190.2		4			SS-2	4
188.2		6			SS-3	3
186.2		8		BORING TERMINATED AT 8.0ft		
184.2		10				

Well Diagram



NOTES:

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Appendix F

Surface Water Sampling and Analysis Procedure

SURFACE WATER SAMPLING AND ANALYSIS PROCEDURES

The plat in Figure 2 lists six surface water sampling sites along with their locations.

All six sites should be sampled unless there is inadequate surface water to allow sampling at the time of sampling.

Surface water samples shall be collected and analyzed on a five year frequency for the surface water monitoring parameters identified by the Georgia EPD Solid Waste Program. These constituents are identified in Table 4. Field measurements and equipment calibration will be conducted as described for groundwater sampling. Samples will not be collected from any of the surface water monitoring locations where water is not present or flow is inadequate to collect representative samples. If sufficient water is present, surface water samples will be collected during subsequent semiannual monitoring events.

SURFACE WATER

Parameter	Method
TSS Dried at 103-105°	SM2540D
Mercury	SW7470A
Hardness	SM2340B (Standard Methods)
	EUTA Titration
Chlorinated Pesticides	SW8081B
Volatile Organics	SW8260B
Metals	SW6010D

Good field sampling practices should be employed as described for groundwater sampling, including: using clean gloves, labeling the sample containers, completing the chain-of-custody record, preserving the samples and placing them on ice as soon as possible. Additional precautions/procedures that should be employed while collecting surface water samples include:

Care should be taken to ensure that sediments are not disturbed and collected with the water samples.

Samples should be collected while the sampler is facing upstream so as to minimize the potential for inclusion of sampling artifacts during sample collection.

Sampling order should take into consideration that surface water flow is much faster than groundwater flow. Within the same surface water feature (i.e., creek) downstream samples should be collected before upstream samples.

Care should be taken to prevent floating debris from inclusion in the samples.

Depending upon the surface water, flow rate samples may be collected directly into the sample containers or using a clean grab container. Where flows are appropriate for direct sampling without

loss of preservatives due to overfilling, or inclusion of floating debris, the surface water samples can be collected by dipping the sample containers into the flow path to fill them. If the flow is too low or too high, to collect sediment and debris free samples or prevent loss of preservatives, a clean grab container provided by the laboratory may be used to collect the water, which can then be poured into the sample containers. Where the depth of the surface water flow is sufficient, it may be possible to collect a sediment and debris free sample by submerging the grab container before removing the cap to collect the sample. However, where stream flows minimal other precautions may be required at the samplers discretion to ensure that a sediment and debris free sample is collected.

Appendix G

Methane Monitoring Wells Boring Log

MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-1 Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.Augers	Drilling Date: September 5, 2007
Water Level: 16.3 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			207.9				Stand up cover, 2-inch PVC Riser
			TOPSOIL				0.0 Grout
			COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt				0.5 Bentonite seal-1 bag 1.5
			COASTAL PLAIN SEDIMENTS blackish-brown, medium to fine clayey **SAND (SC)**				
			COASTAL PLAIN SEDIMENTS reddish-white, medium to fine clayey **SAND (SC)**				
	10						Sand Filter pack-8 bags 0.010 inch Machine-slotted 2-inch PVC screen
▽			191.7				
			BORING TERMINATED AT 18.0ft				18.5 189.5
	20						
	30						
	40						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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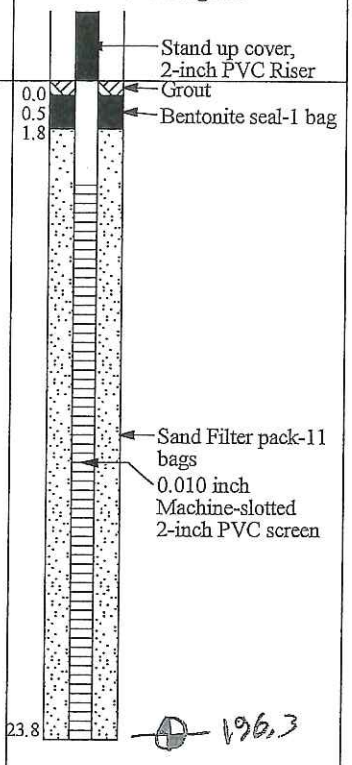
MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MM-2** Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.Augers	Drilling Date: September 5, 2007
Water Level: 19.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
			220.1			
			TOPSOIL			
			COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt			
	10					
			COASTAL PLAIN SEDIMENTS reddish-white, medium to fine clayey **SAND (SC)**			
▽			201.1			
	20					
			BORING TERMINATED AT 23.0ft			
	30					
	40					

Well Diagram



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MM-3** Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.Augers	Drilling Date: September 6, 2007
Water Level: 22.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			228.1				Stand up cover, 2-inch PVC Riser
			TOPSOIL				0.0 Grout
			COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt				0.5 Bentonite seal-1 bag 2.0
			COASTAL PLAIN SEDIMENTS blackish-brown, medium to fine clayey **SAND (SC)**				
	10		**COASTAL PLAIN SEDIMENTS** reddish-white, medium to fine clayey **SAND (SC)**				Sand Filter pack-11 bags 0.010 inch Machine-slotted 2-inch PVC screen
▽	20		206.1 W.L.				
			BORING TERMINATED AT 23.0ft				23.8 204.3
	30						
	40						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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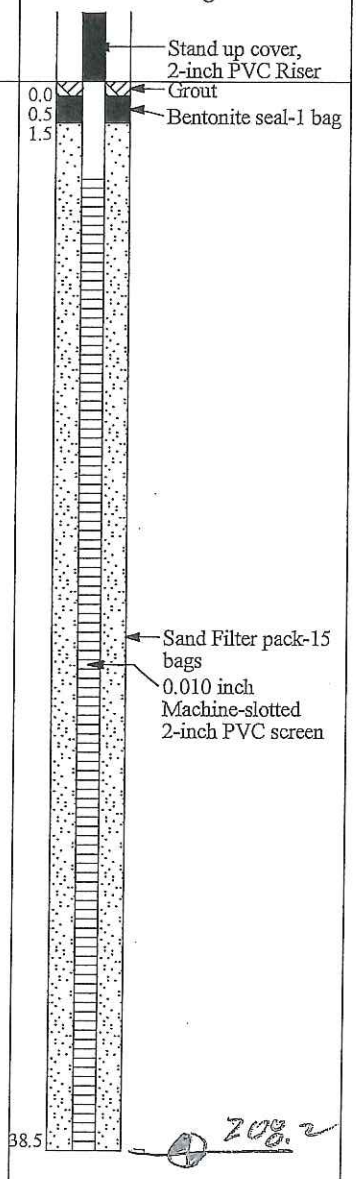
MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MM-4**
	Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S. Augers	Drilling Date: September 6, 2007
Water Level: 34.5 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Description	Sample Type	N-Value	PID (ppm)
	2467			
	TOPSOIL			
	COASTAL PLAIN SEDIMENTS blackish-brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt			
	COASTAL PLAIN SEDIMENTS red, medium to fine clayey **SAND (SC)**			
10				
20				
30	**COASTAL PLAIN SEDIMENTS** brown, slightly, medium to fine silty **SAND (SC-SM)**; with clay			
	212.2			
	COASTAL PLAIN SEDIMENTS brownish-white, medium to fine clayey **SAND (SC)**			
	BORING TERMINATED AT 38.5ft			
40				

Well Diagram



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 6/11/19

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upgradient

MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MM-5** Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S. Augers	Drilling Date: September 6, 2007
Water Level: 32.0 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Description	Sample Type	N-Value	PID (ppm)
	TOPSOIL 243.6			
	COASTAL PLAIN SEDIMENTS blackish-brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt			
	COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt			
10	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey **SAND (SC)**			
20	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine silty **SAND (SC)**			
30	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey **SAND (SC)** 211.6			
	BORING TERMINATED AT 34.0ft			
40				

Well Diagram

- 0.0: Stand up cover, 2-inch PVC Riser
- 0.5: Grout
- 2.0: Bentonite seal-1 bag
- Sand Filter pack-15 bags
- 0.010 inch Machine-slotted 2-inch PVC screen
- 34.0: 209.6

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: **MM-6** Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H. S. Augers	Drilling Date: September 6, 2007
Water Level: 20.0 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Description	Well Diagram
	228.3	Stand up cover, 2-inch PVC Riser
0.0	**TOPSOIL**	Grout
0.5		Bentonite seal-1 bag
2.0	**COASTAL PLAIN SEDIMENTS** blackish-brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt	
	COASTAL PLAIN SEDIMENTS red, medium to fine clayey **SAND (SC)**	
10	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey **SAND (SC)**	Sand Filter pack-11 bags 0.010 inch Machine-slotted 2-inch PVC screen
▽ 20	208.3	
23.8	**BORING TERMINATED AT 23.0ft**	204.5
30		
40		

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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Appendix G

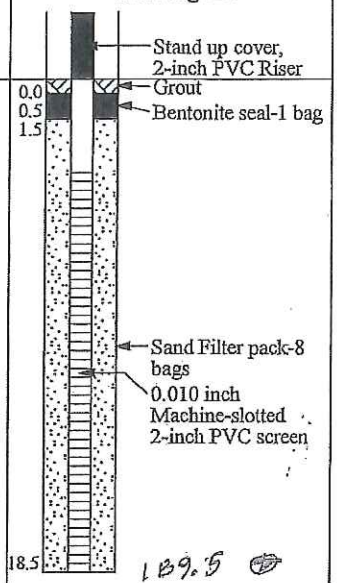
Methane Monitoring Wells Boring Log

MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-1
Location: **Waynesboro LF**	Project No: MCE-01-493
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.A.	GS Elevation:
Water Level: 16.3 ft at time of boring	Drillers Date: September 5, 2007
	Engineer/Geologist:

Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
		207.9			
		TOPSOIL			
		COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey SAND (SC-SM); with silt			
		COASTAL PLAIN SEDIMENTS blackish-brown, medium to fine clayey SAND (SC)			
		COASTAL PLAIN SEDIMENTS reddish-white, medium to fine clayey SAND (SC)			
10					
▽		191.7			
		BORING TERMINATED AT 18.0ft			
20					
30					
40					

Well Diagram



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 6/11/19

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-2 Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H. S. Augers	Drilling Date: September 5, 2007
Water Level: 19.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			220.1				Stand up cover, 2-inch PVC Riser
			TOPSOIL				0.0 Grout
			COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey SAND (SC-SM); with silt				0.5 Bentonite seal-1 bag 1.8
	10						
			COASTAL PLAIN SEDIMENTS reddish-white, medium to fine clayey SAND (SC)				Sand Filter pack-11 bags 0.010 inch Machine-slotted 2-inch PVC screen
▽			201.1				
	20						
			BORING TERMINATED AT 23.0ft				23.8 196.3
	30						
	40						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-3 Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H. S. Augers	Drilling Date: September 6, 2007
Water Level: 22.0 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			223.1				Stand up cover, 2-inch PVC Riser
			TOPSOIL				0.0 Grout
			COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey SAND (SC-SM); with silt				0.5 Bentonite seal-1 bag 2.0
			COASTAL PLAIN SEDIMENTS blackish-brown, medium to fine clayey SAND (SC)				
	10		**COASTAL PLAIN SEDIMENTS** reddish-white, medium to fine clayey SAND (SC)				Sand Filter pack-11 bags 0.010 inch Machine-slotted 2-inch PVC screen
▽	20		206.1 W.L.				
			BORING TERMINATED AT 23.0ft				23.8 199.3
	30						
	40						

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

ENVIRONMENTAL WAYNESBORO BORING LOGS.GPJ GEC.GDT 6/11/19

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-4 Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.A.	Drilling Date: September 6, 2007
Water Level: 34.5 ft at time of boring	Engineer/Geologist:

Water Level (ft)	Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)	Well Diagram
			24617				Stand up cover, 2-inch PVC Riser
			TOPSOIL				Grout
			COASTAL PLAIN SEDIMENTS blackish-brown, slightly, medium to fine clayey SAND (SC-SM); with silt				0.0 0.5 Bentonite seal-1 bag 1.5
			COASTAL PLAIN SEDIMENTS red, medium to fine clayey SAND (SC)				
	10						
	20						Sand Filter pack-15 bags 0.010 inch Machine-slotted 2-inch PVC screen
	30		**COASTAL PLAIN SEDIMENTS** brown, slightly, medium to fine silty SAND (SC-SM); with clay				
▽			3.12.2				
			COASTAL PLAIN SEDIMENTS brownish-white, medium to fine clayey SAND (SC)				
			BORING TERMINATED AT 38.5ft				38.5 3.08.2
	40						

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NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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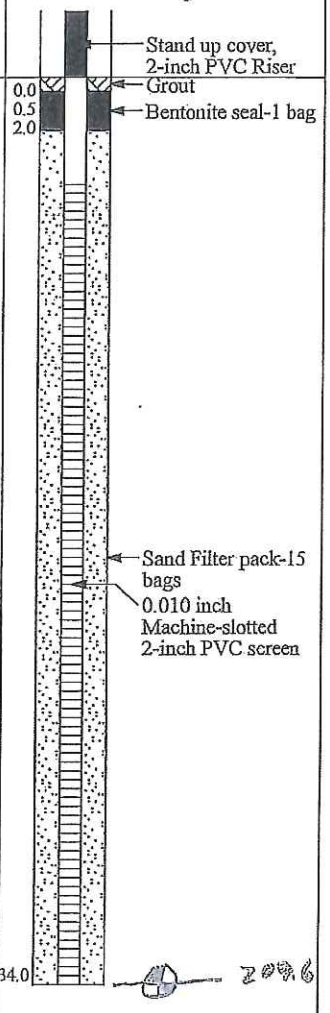
MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-5 Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.Augers	Drilling Date: September 6, 2007
Water Level: 32.0 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Description	Sample Type	N-Value	PID (ppm)
	TOPSOIL 2436			
	COASTAL PLAIN SEDIMENTS blackish-brown, slightly, medium to fine clayey SAND (SC-SM); with silt			
	COASTAL PLAIN SEDIMENTS brown, slightly, medium to fine clayey SAND (SC-SM); with silt			
10	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey SAND (SC)			
20	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine silty SAND (SC)			
30	**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey SAND (SC) 2 11.6			
	BORING TERMINATED AT 34.0ft			
40				

Well Diagram



- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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MONITORING WELL RECORD

Project: **City of Waynesboro LF** Waynesboro, GA	Well No: MM-6
	Project No: MCE-01-493
Location: **Waynesboro LF**	GS Elevation:
Driller/Equipment: GEC; supervised by Jason Cooper, P.E./ CME-55 with 4.25 H.S.A.	Drilling Date: September 6, 2007
Water Level: 20.0 ft at time of boring	Engineer/Geologist:

Depth (ft)	Soil Symbol	Soil Description	Sample Type	N-Value	PID (ppm)
		228.3			
		TOPSOIL			
		COASTAL PLAIN SEDIMENTS blackish-brown, slightly, medium to fine clayey **SAND (SC-SM)**; with silt			
		COASTAL PLAIN SEDIMENTS red, medium to fine clayey **SAND (SC)**			
10		**COASTAL PLAIN SEDIMENTS** brownish-white, medium to fine clayey **SAND (SC)**			
▽ 20		208.3			
		BORING TERMINATED AT 23.0ft			
30					
40					

Well Diagram

- Stand up cover, 2-inch PVC Riser
- 0.0 Grout
- 0.5 Bentonite seal-1 bag
- 2.0
- Sand Filter pack-11 bags
- 0.010 inch Machine-slotted 2-inch PVC screen
- 23.8 204.5

- Boring and sampling performed in accordance with ASTM D 1586.
- Depths are measured from existing ground surface at time of drilling.
- Depths are shown to illustrate general arrangements of the strata encountered at the boring location.
- Do not use depths for determinations of quantities or distances.

NOTES: Stand up well with metal cover. 2" Type II well installed as outlined in EPA160014-891034; Wells developed using hand bailers and mechanical pumping

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