APPENDIX B

BORING LOGS AND WELL CONSTRUCTION LOGS

BORING LOGS

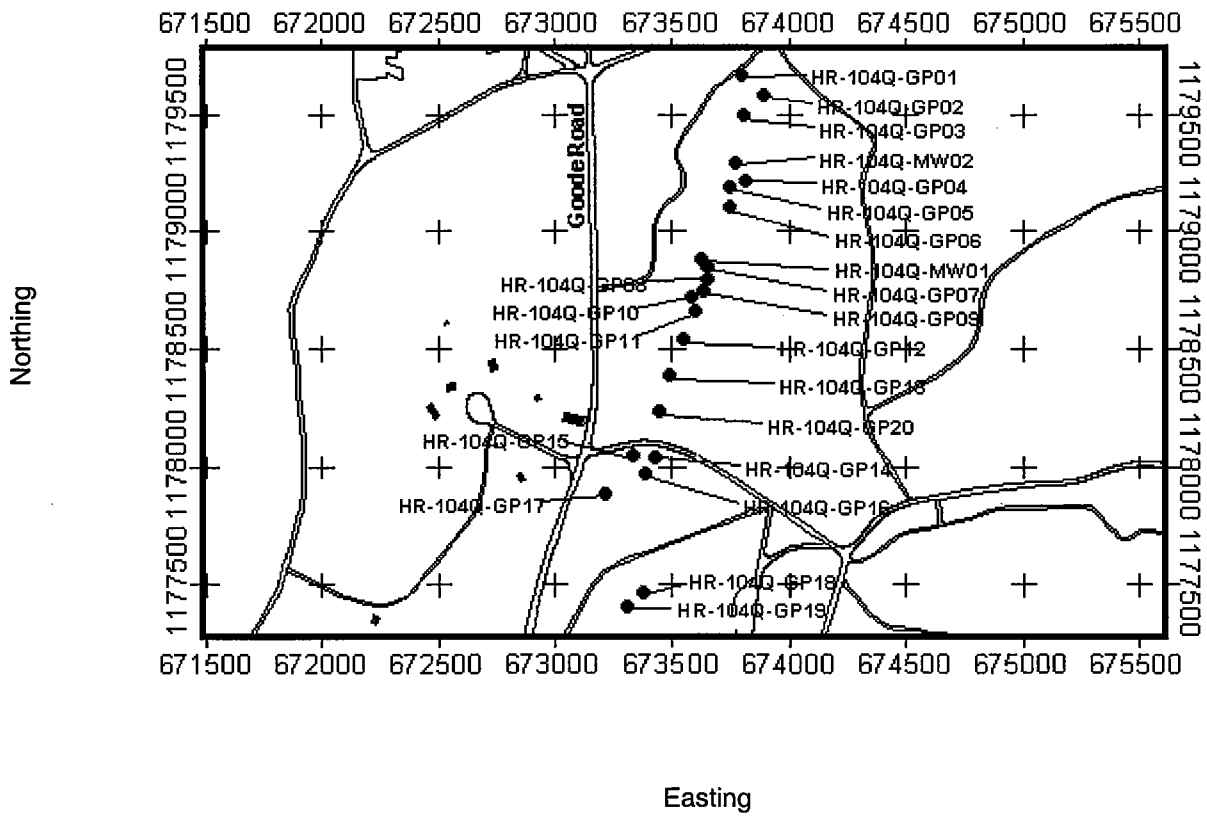
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP01
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 769.92 10. Date started: 06/13/02 — 11. Date completed: 06/13/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	VOC/SVOC	Yes	Explosives	Pesticides	Herbicides	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Mark Shoemaker		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP01

Project: Fort McClellan | Geologist: Mark Shoemaker | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sm: Medium brown SILT, some Sand and Gravel, rounded up to 0.5" diameter, organic rich.	sm		Organic Vapor = 0ppm		QK0001		Hand auger (0-1' bgs) No visible contamination
	1	cl: Reddish brown SILT and CLAY, dry, moderately hard.	cl		Organic Vapor = 0ppm				Rec 3.0'/3.0' (1-4' bgs)
	2								
	3						QK0003		No visible contamination
	4								Boring terminated at 4' bgs Bottom of borehole at 4' bgs

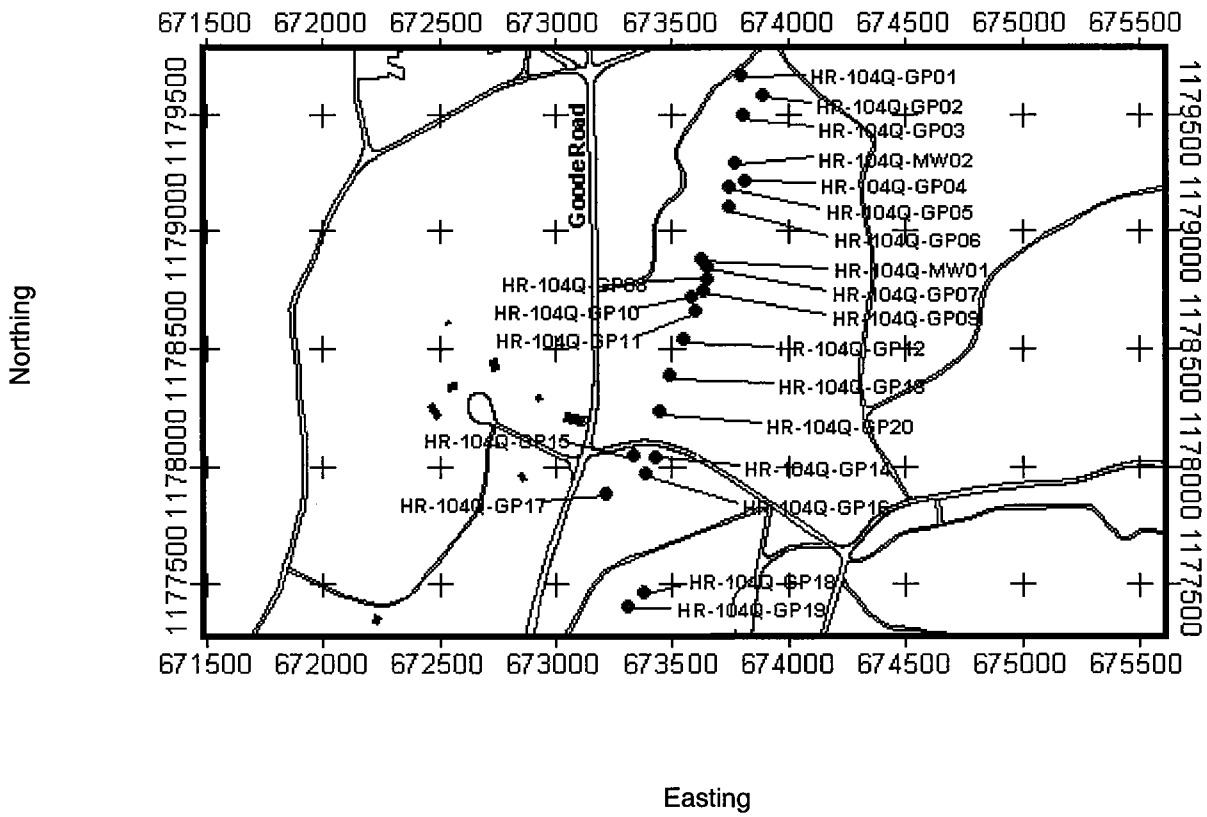
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP02
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: NA	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Mark Shoemaker/Lee Flippen	6. Mfr. designation of drill: Hand Auger
7. Sizes and types of drilling and sampling equipment: Hand Auger	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q
	9. Surface elevation (feet above mean sea level): 765.16
	10. Date started: 06/18/02 / 11. Date completed: 06/18/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist: Cindy Levaas		
	Bentonite	NA	NA			

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP02

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	cl-ml: Medium to dark brown, moist SILT and CLAY.	cl-ml		Organic Vapor = 0ppm		QK0004		Boring hand augered (0-4' bgs)
	1	cl: Reddish brown, moist, medium stiff CLAY, some Silt.							
	2		cl						
	3				Organic Vapor = 0ppm		QK0005		
	4								Bottom of borehole at 4' bgs

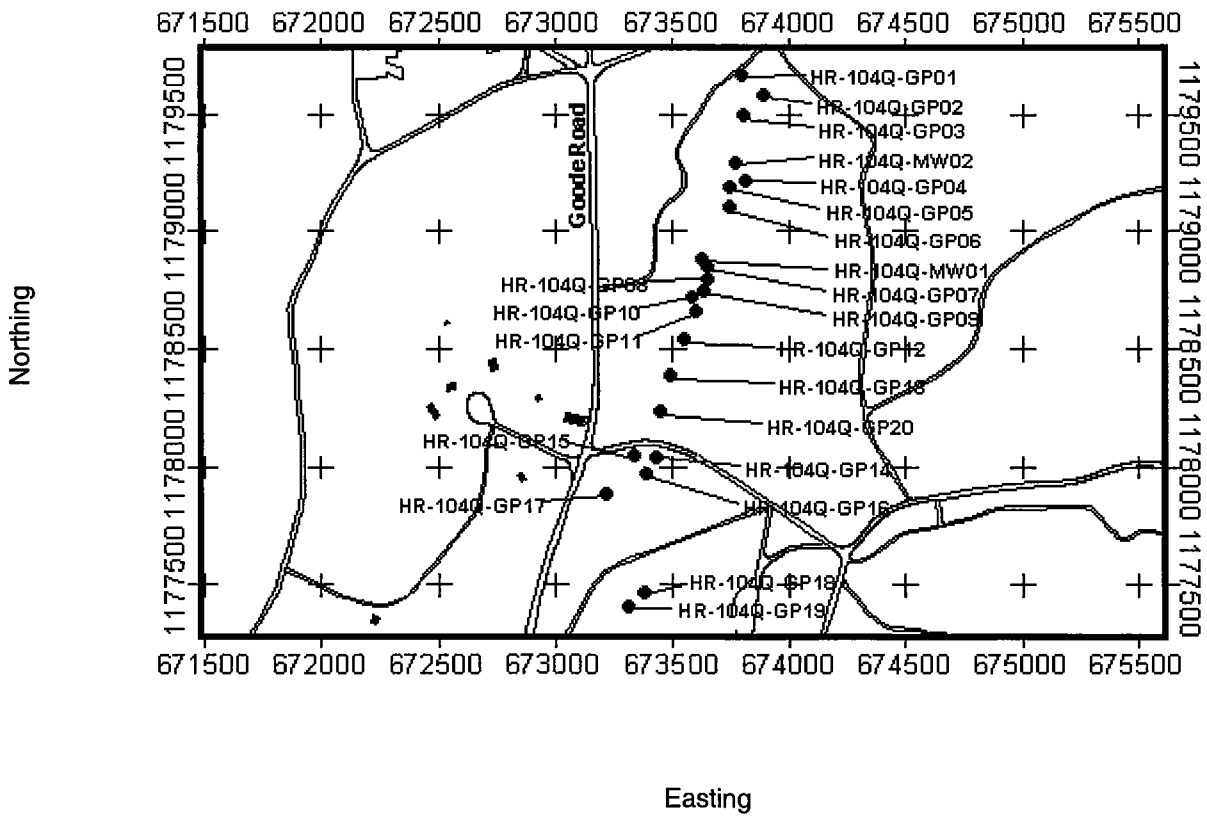
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP03
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: NA	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Mark Shoemaker/Lee Flippen	6. Mfr. designation of drill: Hand Auger
7. Sizes and types of drilling and sampling equipment: Hand Auger	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q
	9. Surface elevation (feet above mean sea level): 778.47
	10. Date started: 06/18/02 / 11. Date completed: 06/18/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	VOC/SVOC	Yes	Explosives	Pesticides	Herbicides	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP03

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl-ml: Medium reddish brown, slightly moist, loose SILT and CLAY.	cl-ml		Organic Vapor = 0ppm		QK0006		Boring hand augered (0-4' bgs)
	1	cl: Reddish brown, moist, medium stiff CLAY, some Silt.							
	2		cl						
	3				Organic Vapor = 0ppm				
775							QK0007		
	4								Bottom of borehole at 4' bgs

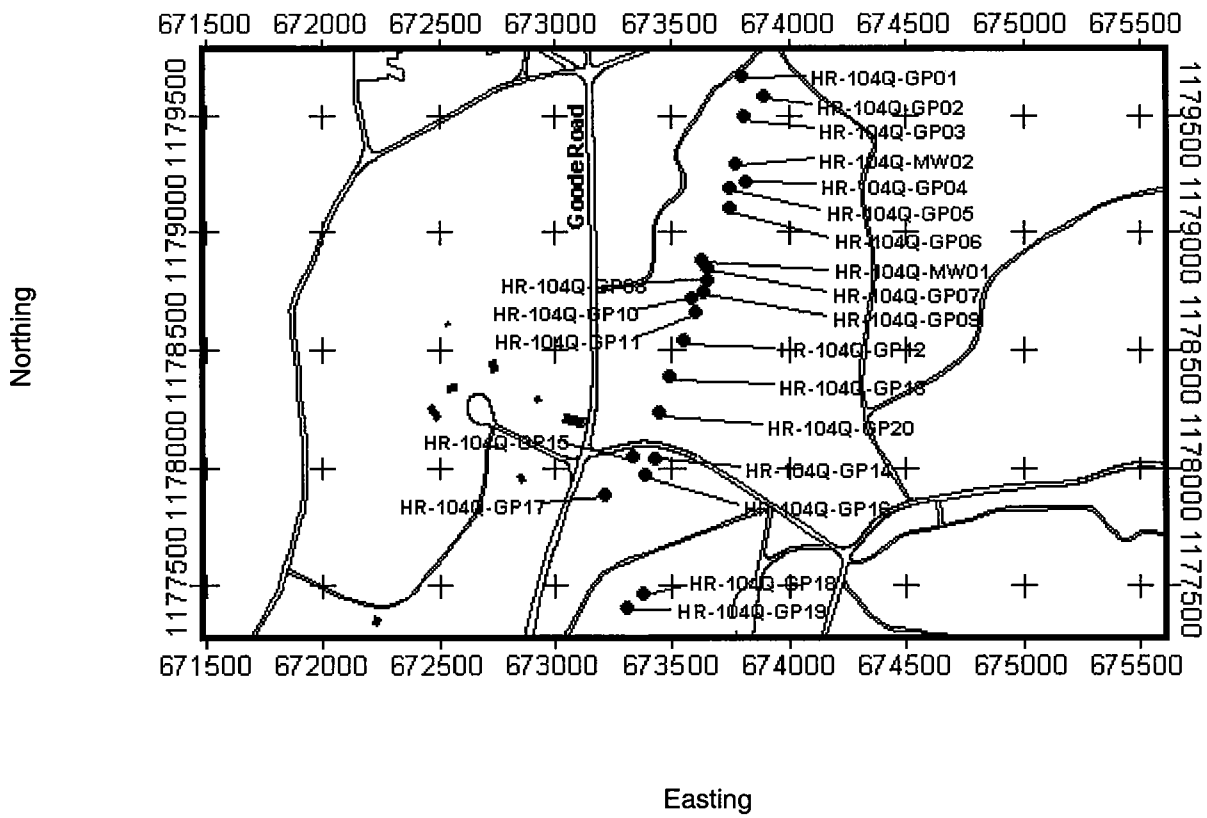
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP04
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 774.22 10. Date started: 06/13/02 — 11. Date completed: 06/13/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist: Mark Shoemaker		
	Bentonite	NA	NA			

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP04

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP04

Project: Fort McClellan | Geologist: Mark Shoemaker | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl: Reddish brown SILT, some Clay, trace Sand and fine Gravel, little Organics.	cl		Organic Vapor = 0ppm		QK0009		Boring hand augered (0-1' bgs) No visible contamination
	1	cl: Reddish brown CLAY and SILT, trace Sand and fine Gravel.	cl		Organic Vapor = 0ppm				Rec 3.0'/3.0' (1-4' bgs)
	2								
	3						QK0010		No visible contamination
	4								Boring terminated at 4' bgs Bottom of borehole at 4' bgs

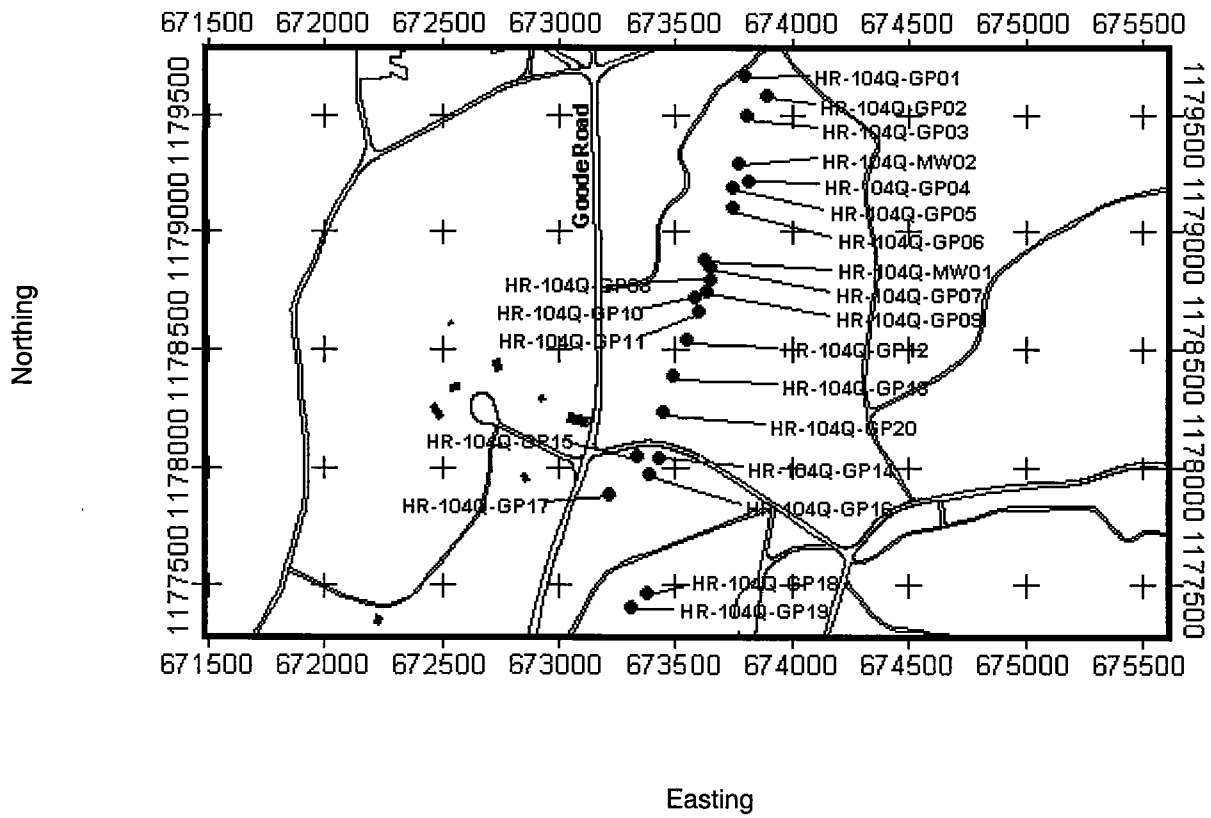
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP05
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 775.56 10. Date started: 06/13/02 — 11. Date completed: 06/13/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Mark Shoemaker		

LOCATION SKETCH/COMMENTS:



HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP05

Project: Fort McClellan | Geologist: Mark Shoemaker | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
775	0	sm: Reddish brown SILT, some Sand and Gravel up to 0.5" diameter, dry.	sm		Organic Vapor = 0ppm		QK0011		Boring hand augered (0-1' bgs) No visible contamination
	1	sc: Reddish brown CLAY, little Sand and fine Gravel, medium stiff.	sc		Organic Vapor = 0ppm				Rec 3.0'/3.0' (1-4' bgs)
	2								
	3						QK0012		No visible contamination
	4								Boring terminated at 4' bgs Bottom of borehole at 4' bgs

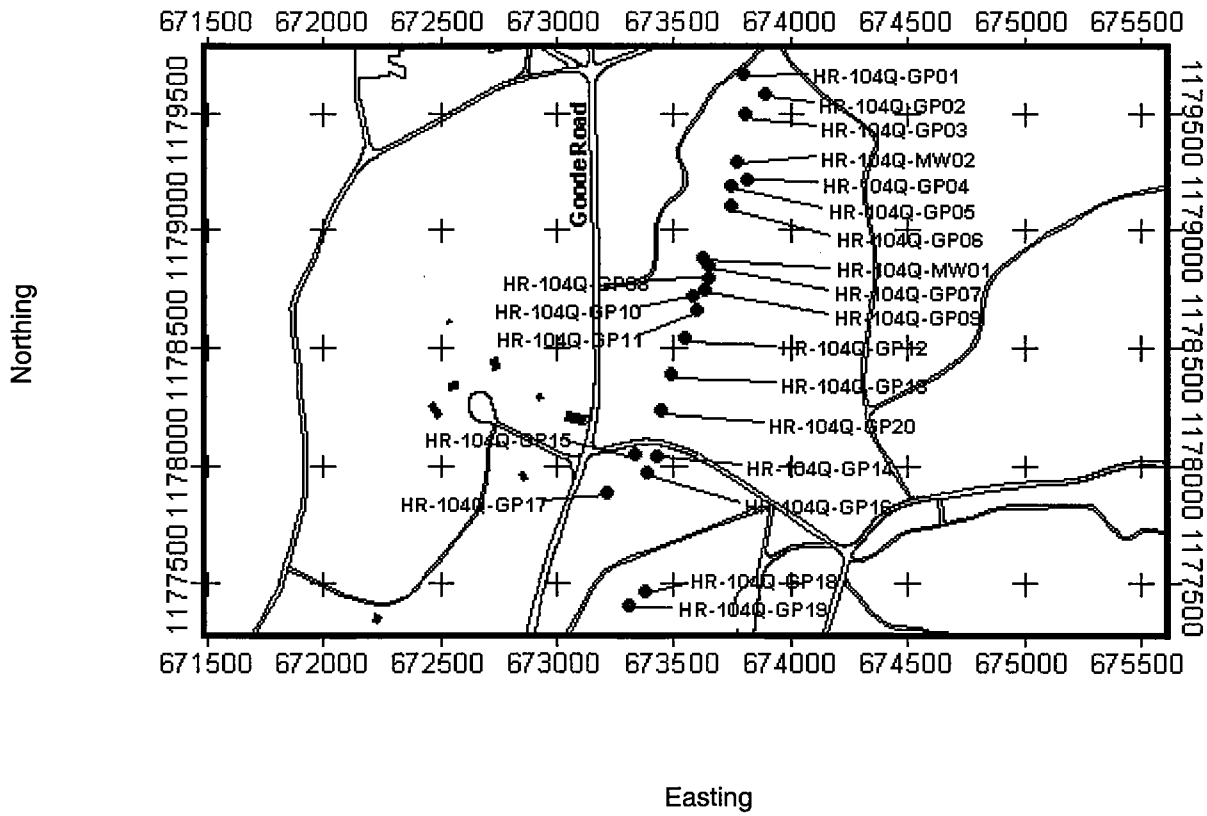
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP06
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 760.09 10. Date started: 06/13/02 — 11. Date completed: 06/13/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist: Mark Shoemaker		
	Bentonite	NA	NA			

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP06

Project: Fort McClellan | Geologist: Mark Shoemaker | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
760	0	sc: Reddish brown CLAY, some Sand and fine Gravel.			Organic Vapor = 0ppm		QK0013		Boring hand augered (0-1' bgs) No visible contamination
	1								Rec 3.0'/3.0' (1-4' bgs)
	2		sc		Organic Vapor = 0ppm				
	3						QK0014		No visible contamination
	4								Boring terminated at 4' bgs Bottom of borehole at 4' bgs

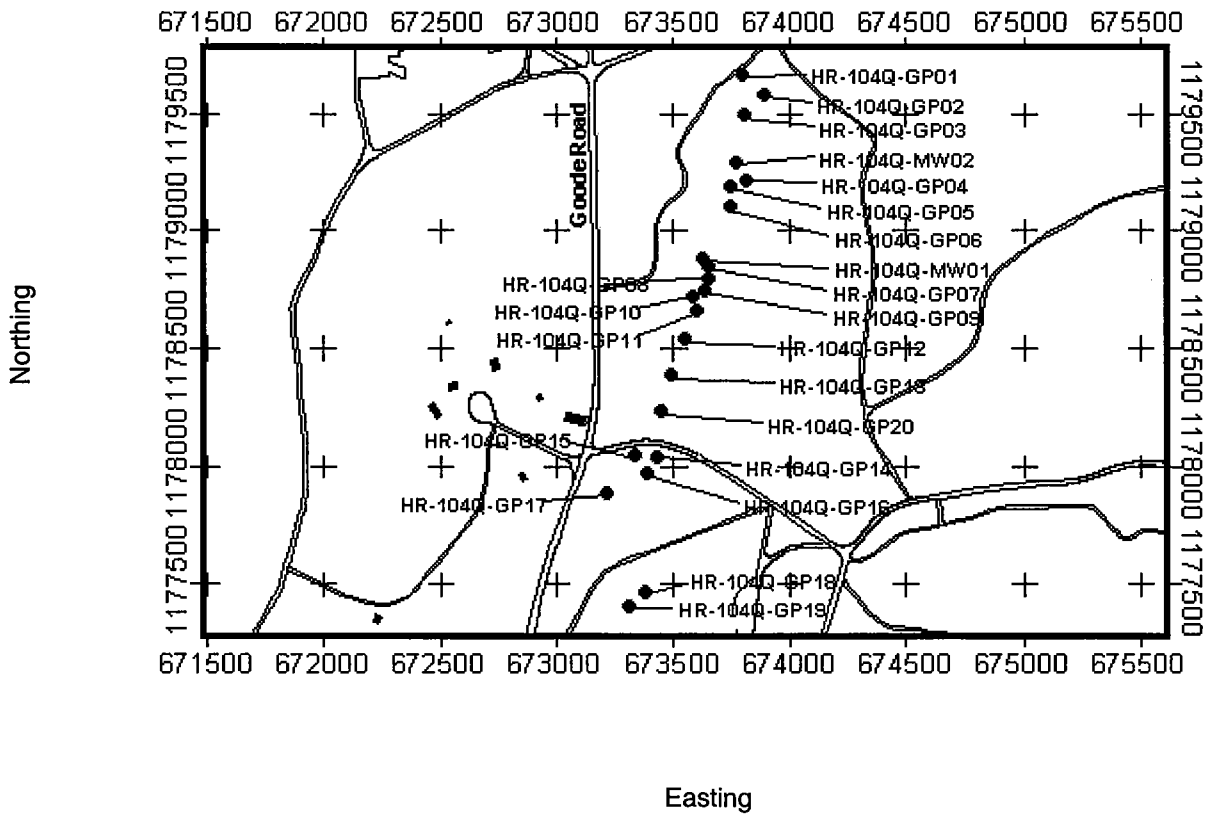
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP07
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 770 10. Date started: 04/26/02 — 11. Date completed: 04/26/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP07

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP07

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
770	0	cl: Reddish brown, moist, medium stiff CLAY, some Silt.	cl		Organic Vapor = 13.3ppm		QK0015		Boring hand augered (0-1' bgs)
	1								Rec 1.5'/3.0' (1-4 bgs)
	2								
	3				Organic Vapor = 4.4ppm		QK0016		
	4								Bottom of borehole at 4' bgs

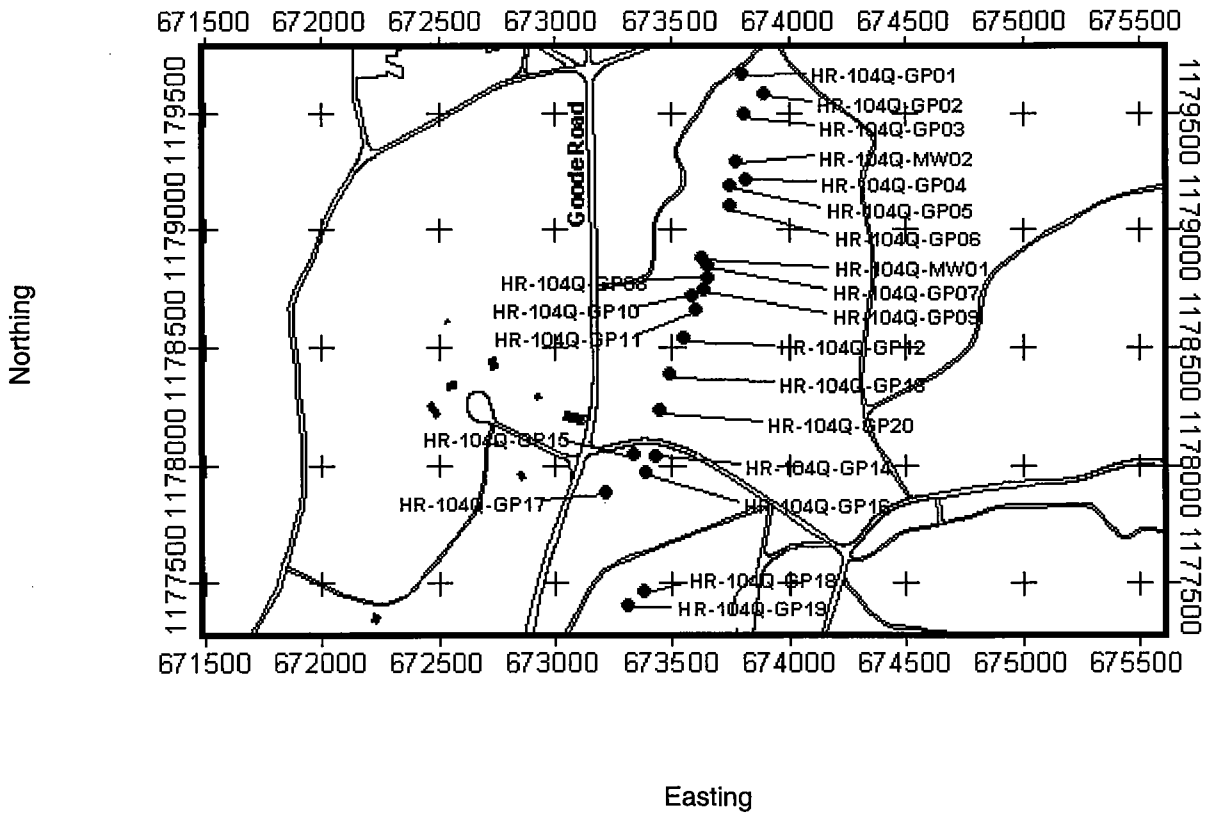
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP08
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 768.76 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP08

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP08

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Dark reddish brown, dry to slightly moist SILT, little Clay, trace roots.	ml				QK0017		Boring hand augered (0-1' bgs)
	1	cl-ml: Reddish brown, slightly moist, stiff CLAY and SILT.	cl-ml						Rec 3.0'/3.0' (1-4' bgs)
	2								
	3						QK0018		
765	4								Bottom of borehole at 4' bgs

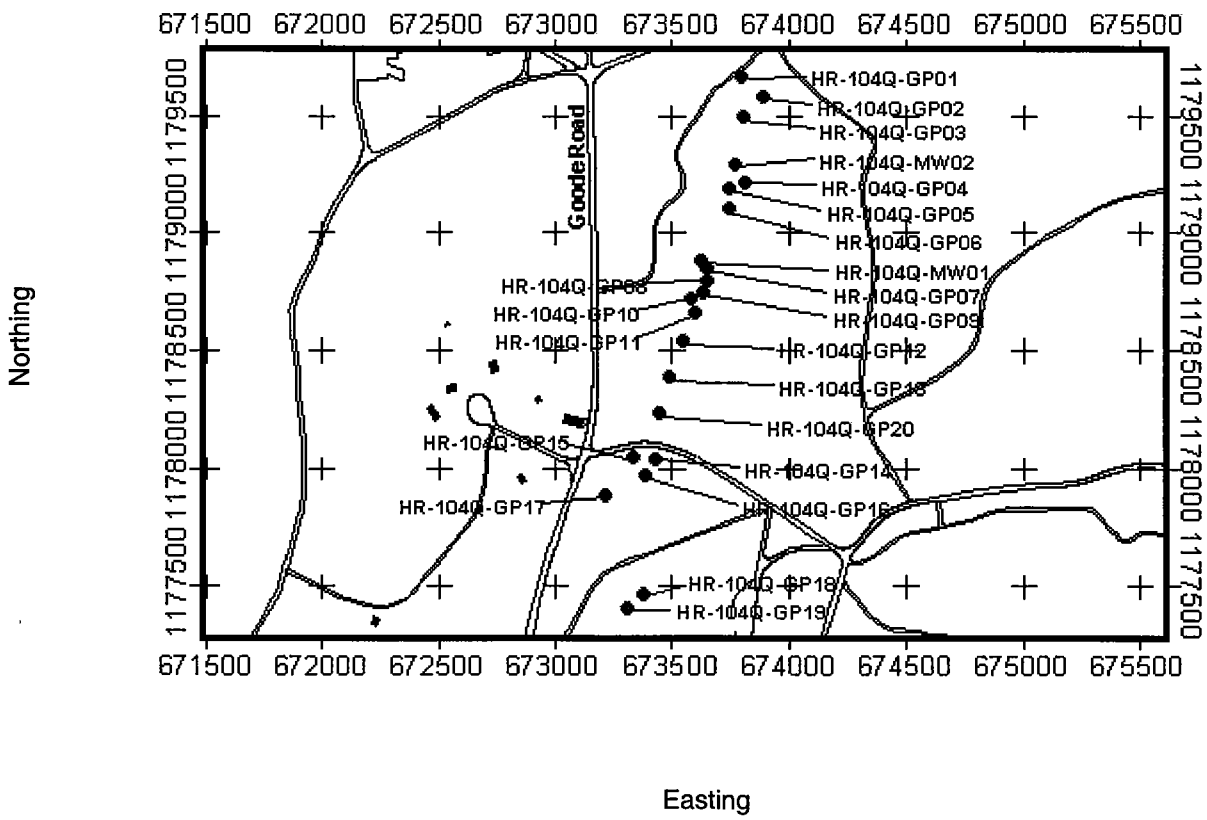
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP09
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 772.36 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP09

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Reddish brown, dry, loose SILT, little Clay, trace roots.	ml				QK0019		Boring hand augered (0-1' bgs)
	1	cl: Reddish brown, slightly moist CLAY, some Silt.	cl						Rec 3.0'/3.0' (1-4' bgs)
770	2								
	3						QK0020		
	4								Bottom of borehole at 4' bgs

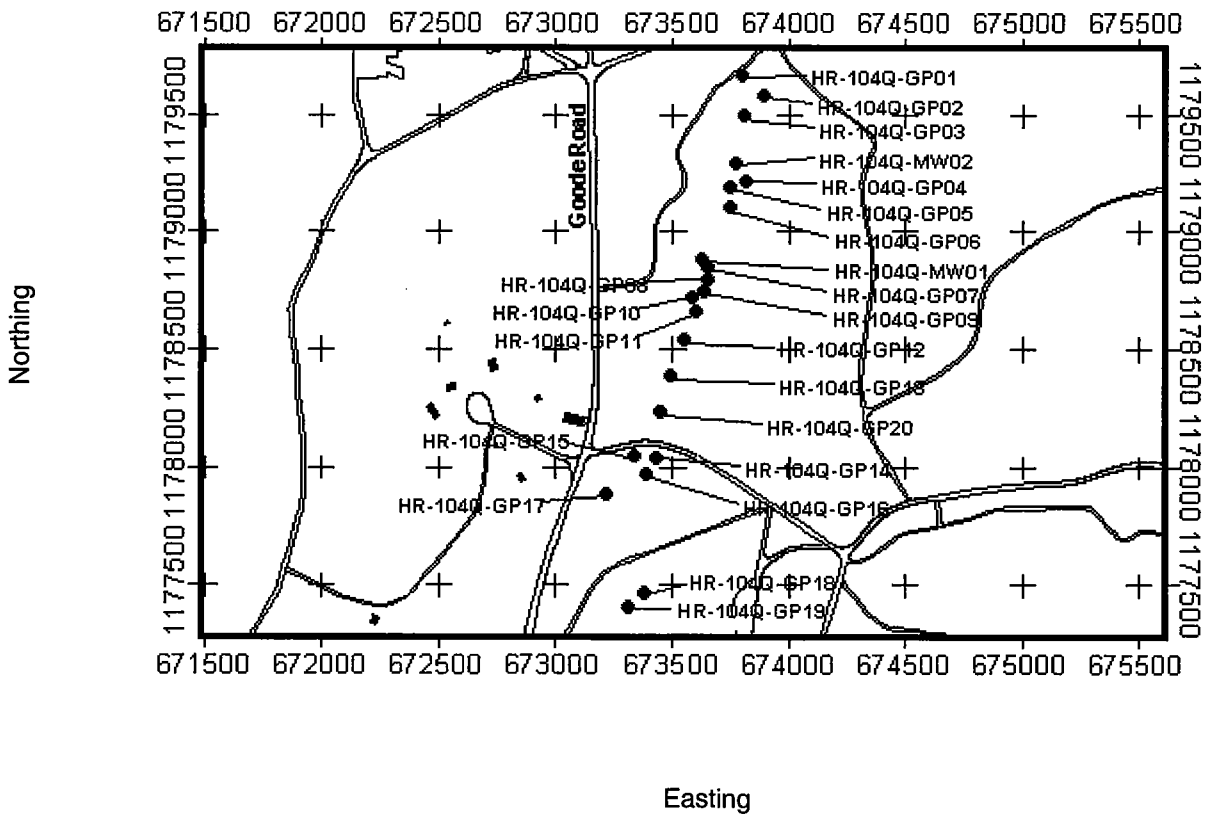
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP10
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 776.2 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP10

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl-ml: Reddish brown, moist, medium stiff CLAY and SILT, little subrounded, well sorted, sandstone Gravel, trace roots.	cl-ml				QK0021		Boring hand augered (0-1' bgs)
775	1	cl-ml: Reddish brown, moist, medium stiff CLAY and SILT.	cl-ml						Rec 3.0/3.0 (1-4' bgs)
	2								
	3						QK0022		
	4								Bottom of borehole at 4' bgs

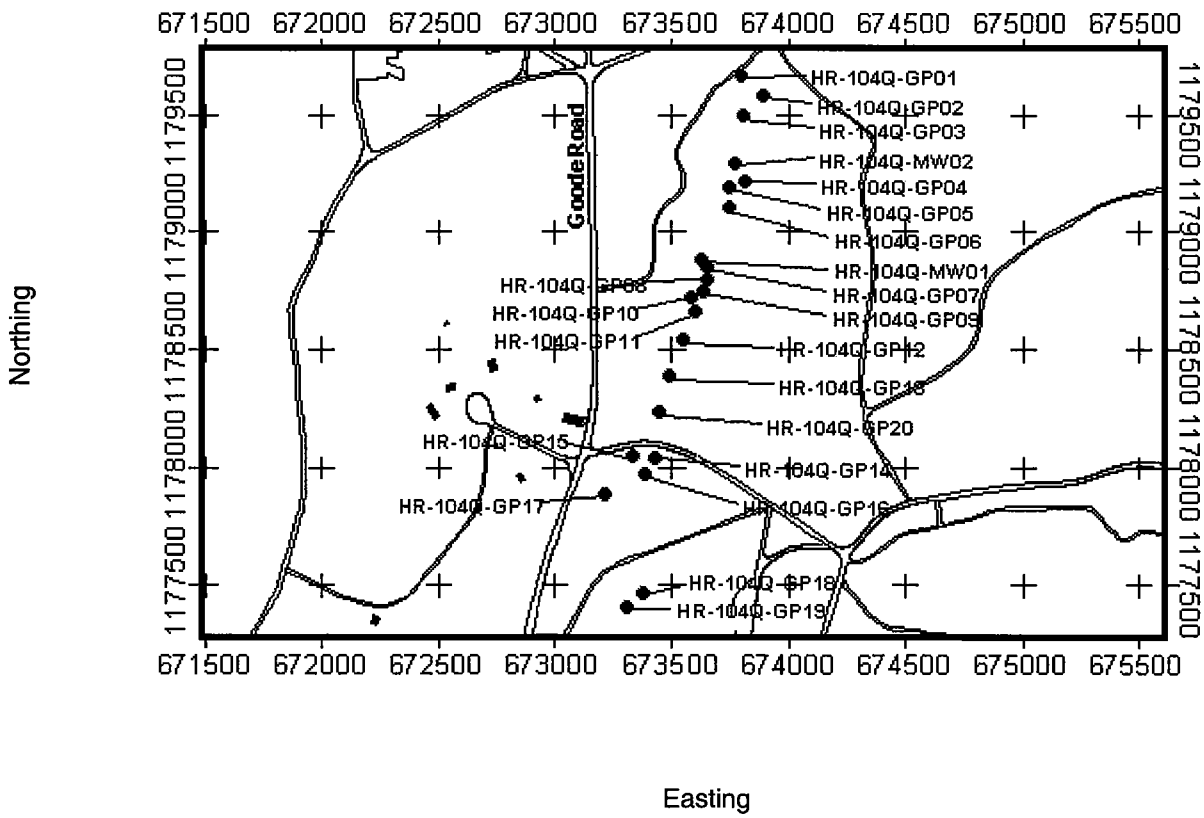
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP11
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 772.49 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP11

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Medium brown, loose, dry to slightly moist SILT, little Clay.	ml				QK0023		Boring hand augered (0-1' bgs)
	1	cl-ml: Reddish brown, moist, medium stiff CLAY and SILT, little subrounded, sandstone Gravel.	cl-ml						Rec 2.4'/3.0' (1-4' bgs)
770	2								
	3						QK0024		
	4								Bottom of borehole at 4' bgs

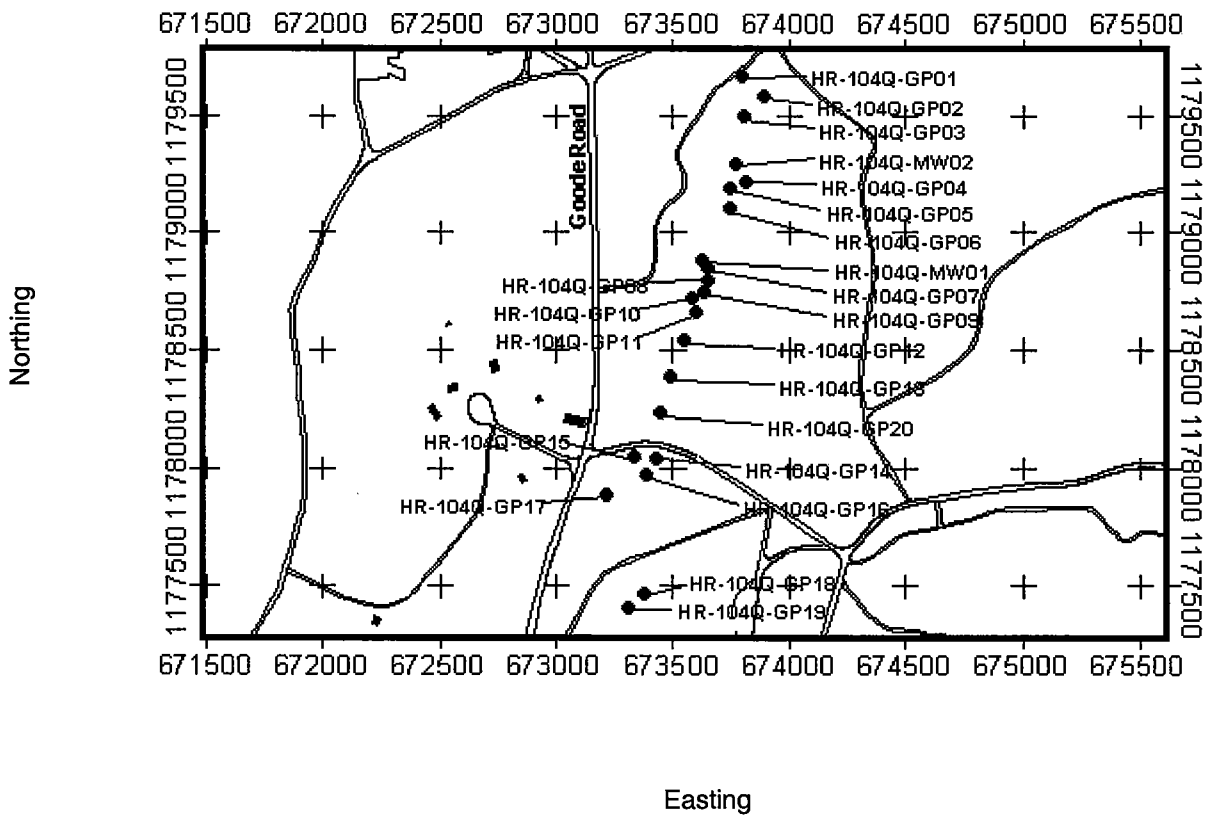
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP12
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 774.03 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP12

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Medium brown, dry to slightly moist SILT, some Clay, trace roots.	ml				QK0025		Boring hand augered (0-1' bgs)
	1	cl-ml: Medium brown to reddish brown, dry to slightly moist, medium stiff CLAY and SILT.	cl-ml						Rec 1.8'/3.0' (1-4' bgs)
	2								
	3						QK0026		
	4								Bottom of borehole at 4' bgs

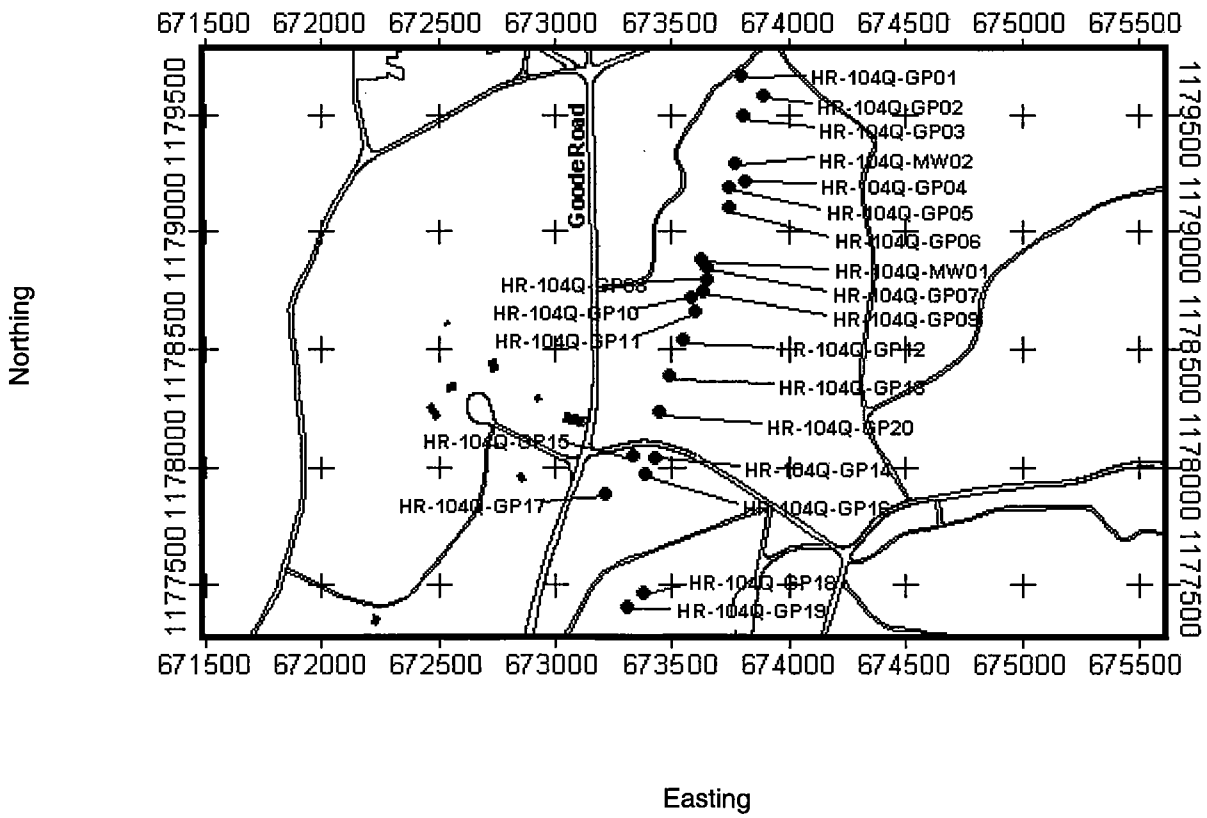
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP13
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 786.88 10. Date started: 06/14/02 — 11. Date completed: 06/14/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP13

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Medium brown, dry to slightly moist, loose SILT, some Clay, trace roots.	ml				QK0027		Boring hand augered (0-1' bgs)
	1	cl-ml: Medium brown, dry to slightly moist, medium stiff CLAY and SILT.	cl-ml						Rec 1.8'/3.0' (1-4' bgs)
785	2								
	3						QK0028		
	4								Bottom of borehole at 4' bgs

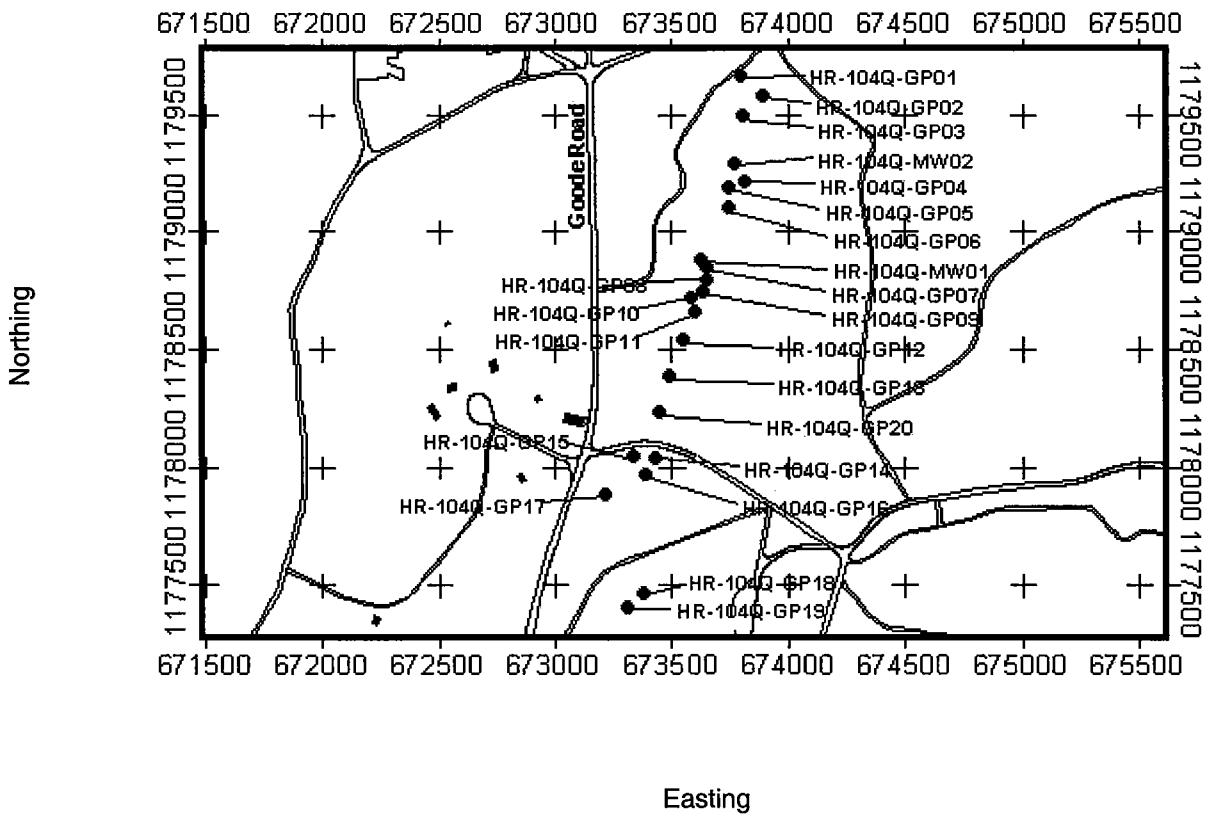
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP14
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 817.89 10. Date started: 06/17/02 — 11. Date completed: 06/17/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP14

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl-ml: Medium brown to reddish brown, slightly moist SILT and CLAY, little Sand.	cl-ml		Organic Vapor = 0ppm		QK0029		Rec 2.0'/4.0' (0-4' bgs)
	1								
	2								
815	3						QK0030		
	4								Bottom of borehole at 4' bgs

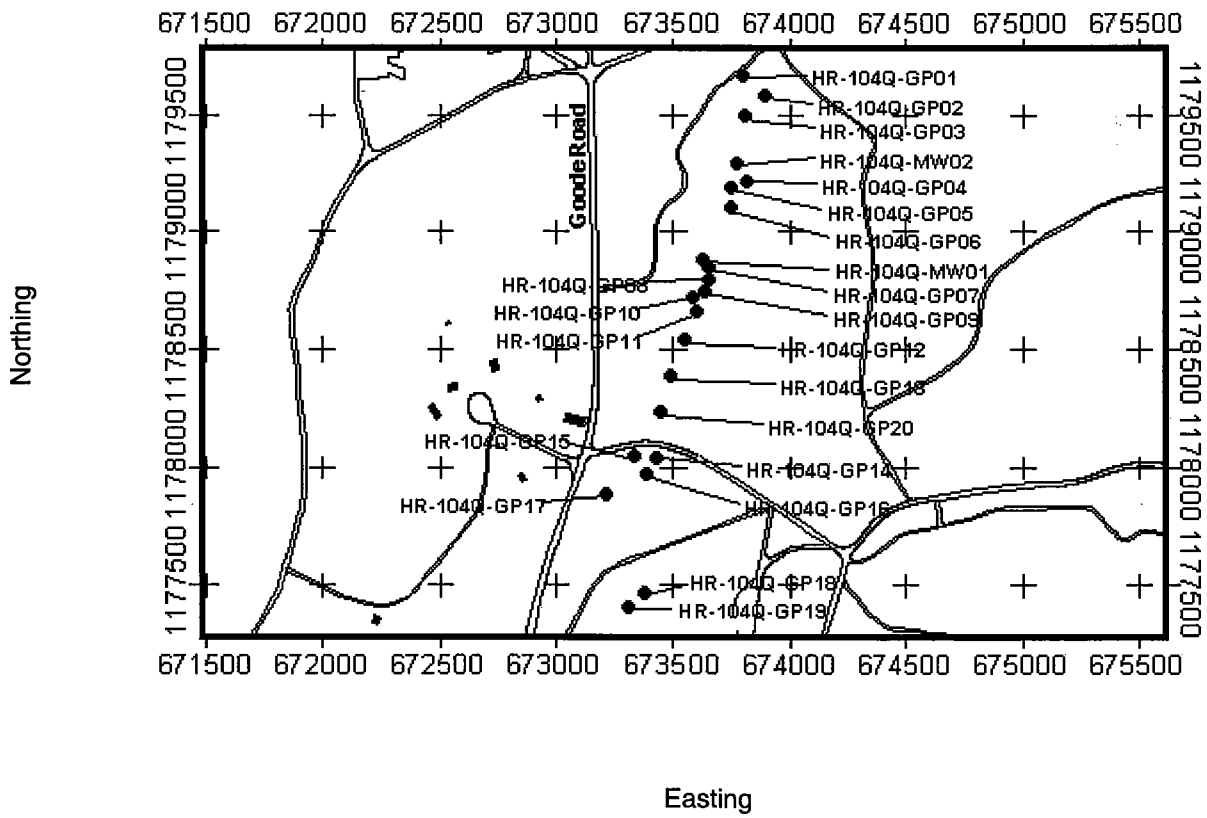
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP15
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 806.98 10. Date started: 06/17/02 — 11. Date completed: 06/17/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP15

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Medium brown, dry SILT, some Clay, little Sand.	ml		Organic Vapor = 0ppm		QK0031		Rec 1.8'/4.0' (0-4' bgs)
	1								
805	2								
	3						QK0032		
	4								Bottom of borehole at 4' bgs

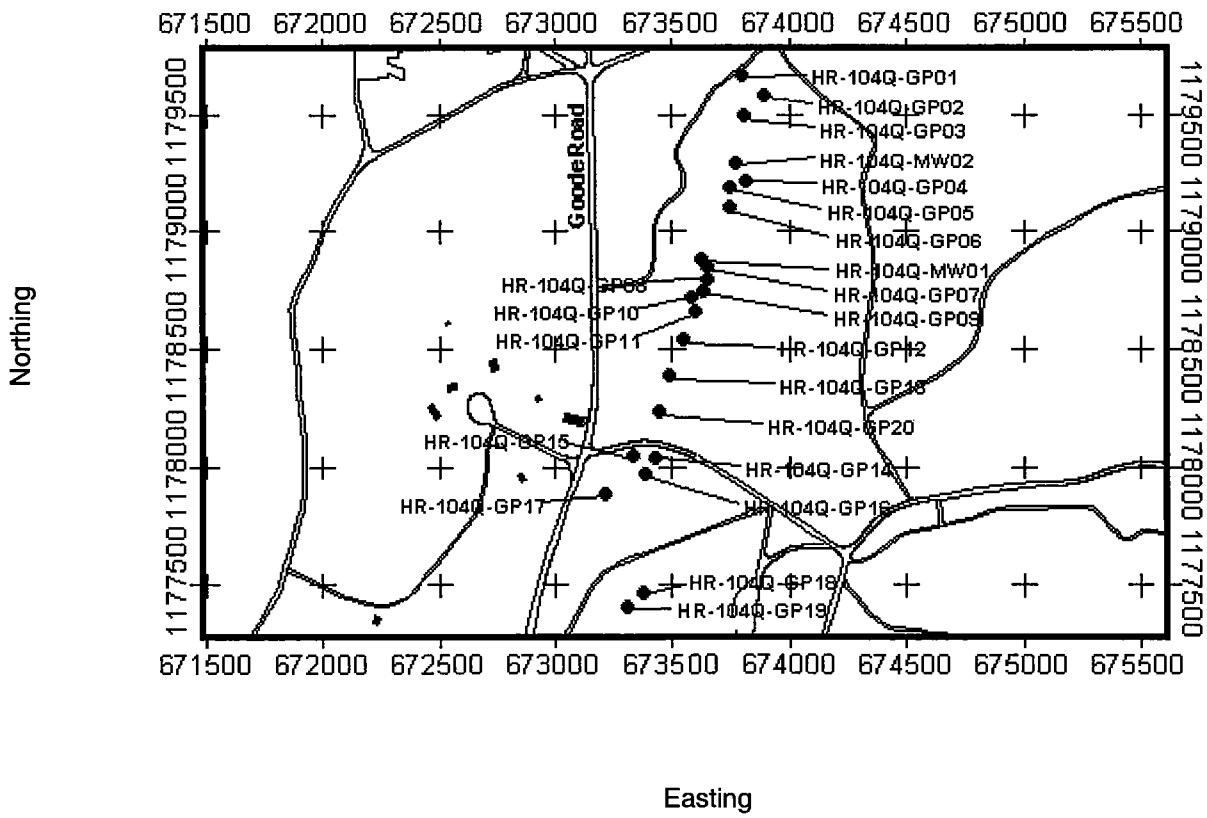
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP16
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 826.66 10. Date started: 06/17/02 — 11. Date completed: 06/17/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP16

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sc: Reddish brown, moist, stiff CLAY and SAND, little Silt.			Organic Vapor = 0ppm				Rec 2.3'/4.0' (0-4' bgs)
							QK0033		
	1								
825									
	2		sc						
	3								
							QK0034		
	4								Bottom of borehole at 4' bgs

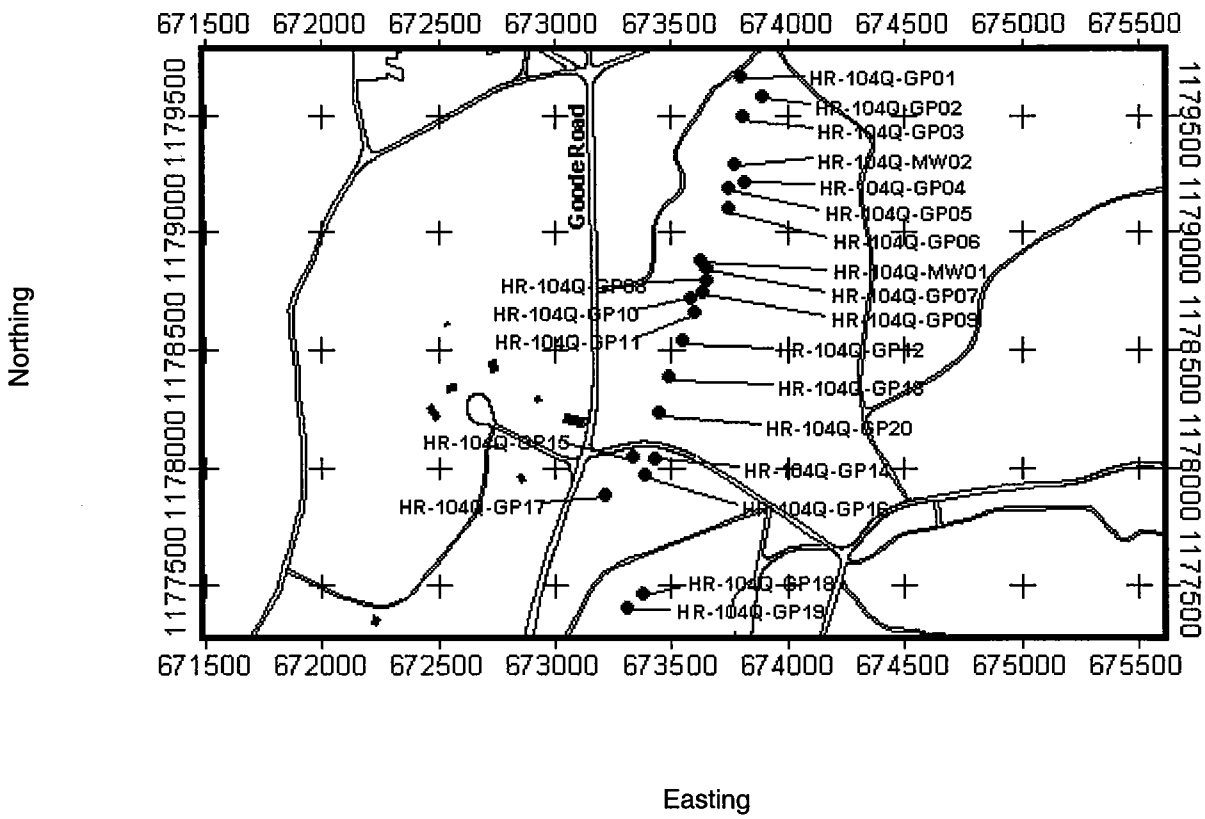
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP17
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 822.11 10. Date started: 06/17/02 — 11. Date completed: 06/17/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP17

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sc: Reddish brown, moist, stiff SAND and CLAY, some Silt.			Organic Vapor = 0ppm				Rec 1.9'/4.0' (0-4' bgs)
							QK0035		
	1								
820	2		sc						
	3								
							QK0036		
	4								Bottom of borehole at 4' bgs

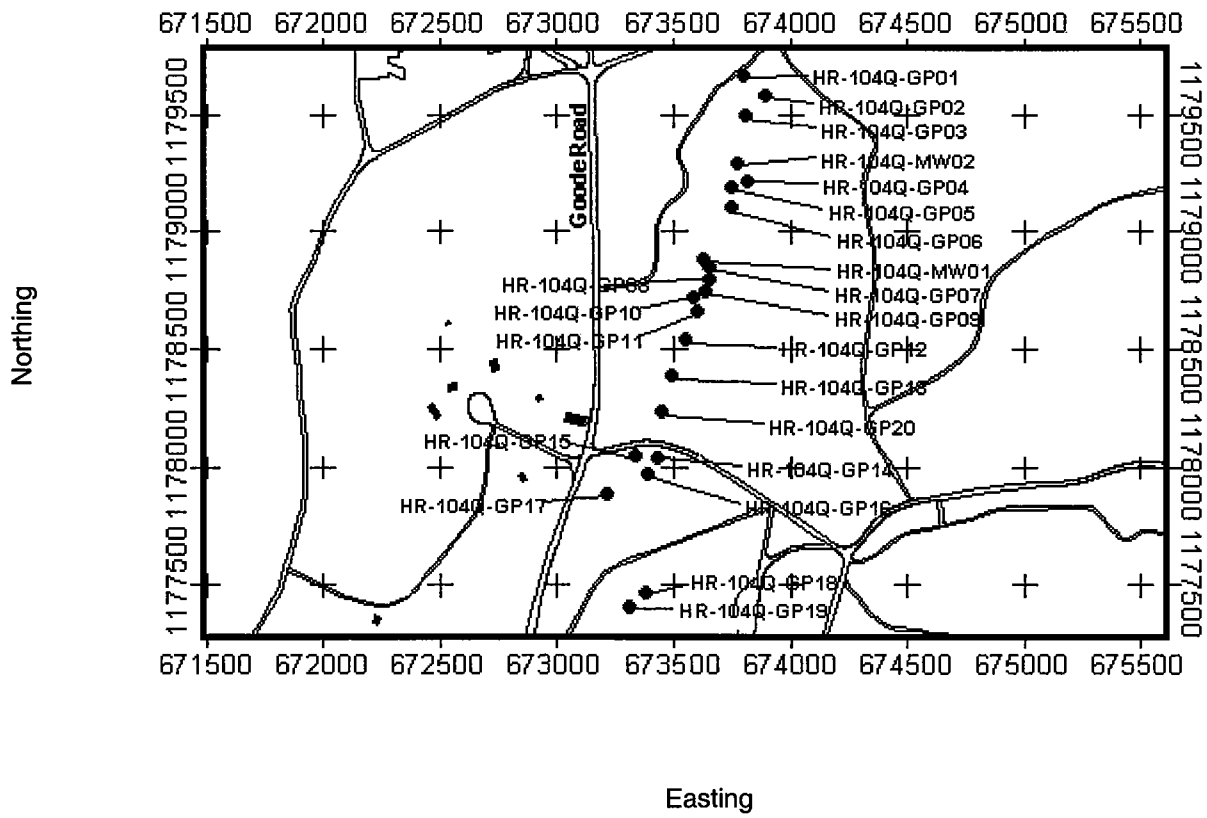
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP18
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: NA	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Mark Shoemaker/Lee Flippen	6. Mfr. designation of drill: Hand Auger
7. Sizes and types of drilling and sampling equipment: Hand Auger	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q
	9. Surface elevation (feet above mean sea level): 927.83
	10. Date started: 06/18/02 / 11. Date completed: 06/18/02
12. Overburden thickness (feet bgs): >2	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 2	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP18

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP18

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Light brown, dry to slightly moist, loose SILT, little Clay, trace roots.	ml		Organic Vapor = 0ppm		QK0037		Boring hand augered (0-2' bgs)
	1	ml: Medium brown to yellowish orange, dry to slightly moist, loose SILT, little Clay.	ml		Organic Vapor = 0ppm		QK0038		Hand auger refusal at 2' bgs Bottom of borehole at 2' bgs
	2								

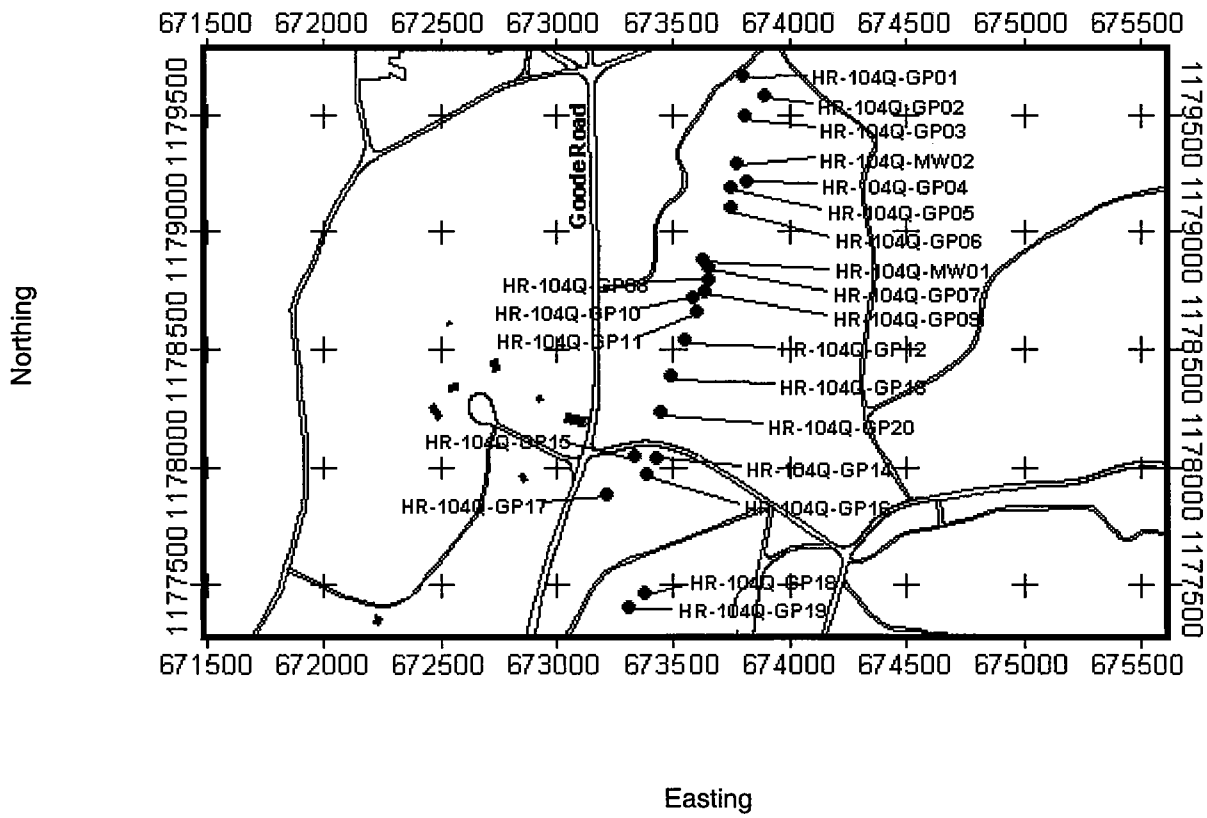
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP19
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: NA	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Mark Shoemaker/Lee Flippen	6. Mfr. designation of drill: Hand Auger
7. Sizes and types of drilling and sampling equipment: Hand Auger	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q
	9. Surface elevation (feet above mean sea level): 926.3
	10. Date started: 06/18/02 / 11. Date completed: 06/18/02
12. Overburden thickness (feet bgs): >2	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 2	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist: Cindy Levaas		
	Bentonite	NA	NA			

LOCATION SKETCH/COMMENTS:



HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP19

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	ml: Medium brown, slightly moist, loose SILT, little Clay, trace roots.	ml		Organic Vapor = 0ppm		QK0040		Boring hand augered (0-2' bgs)
	1	ml: Light brown, slightly moist, loose SILT, little Clay, some subangular, sandstone Gravel.	ml		Organic Vapor = 0ppm		QK0041		Hand auger refusal at 2' bgs Bottom of borehole at 2' bgs
925	2								

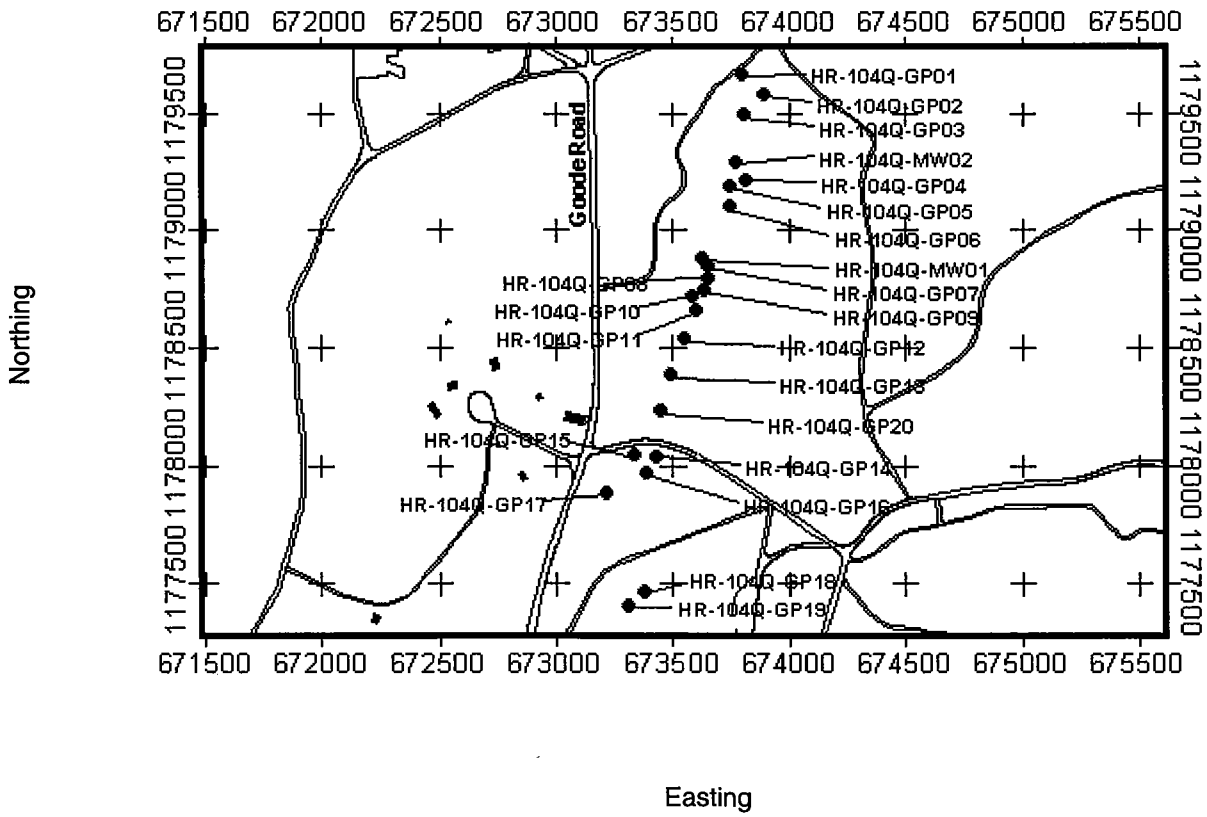
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-GP20
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniel/Bill Zato	6. Mfr. designation of drill: Megaprobe- Bobcat Mounted
7. Sizes and types of drilling and sampling equipment: Direct Push DP - 4'x2" Acetate-Lined Sampler	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 791.14 10. Date started: 06/17/02 / 11. Date completed: 06/17/02
12. Overburden thickness (feet bgs): >4	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 4	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	Bentonite	NA	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: HR-104Q-GP20

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-GP20

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl-ml: Dark brown to reddish brown, dry to slightly moist SILT and CLAY, trace roots.	cl-ml		Organic Vapor = 0ppm		QK0042		Rec 1.9'/4.0' (0-4' bgs)
790	1								
	2								
	3						QK0043		
	4								Bottom of borehole at 4' bgs

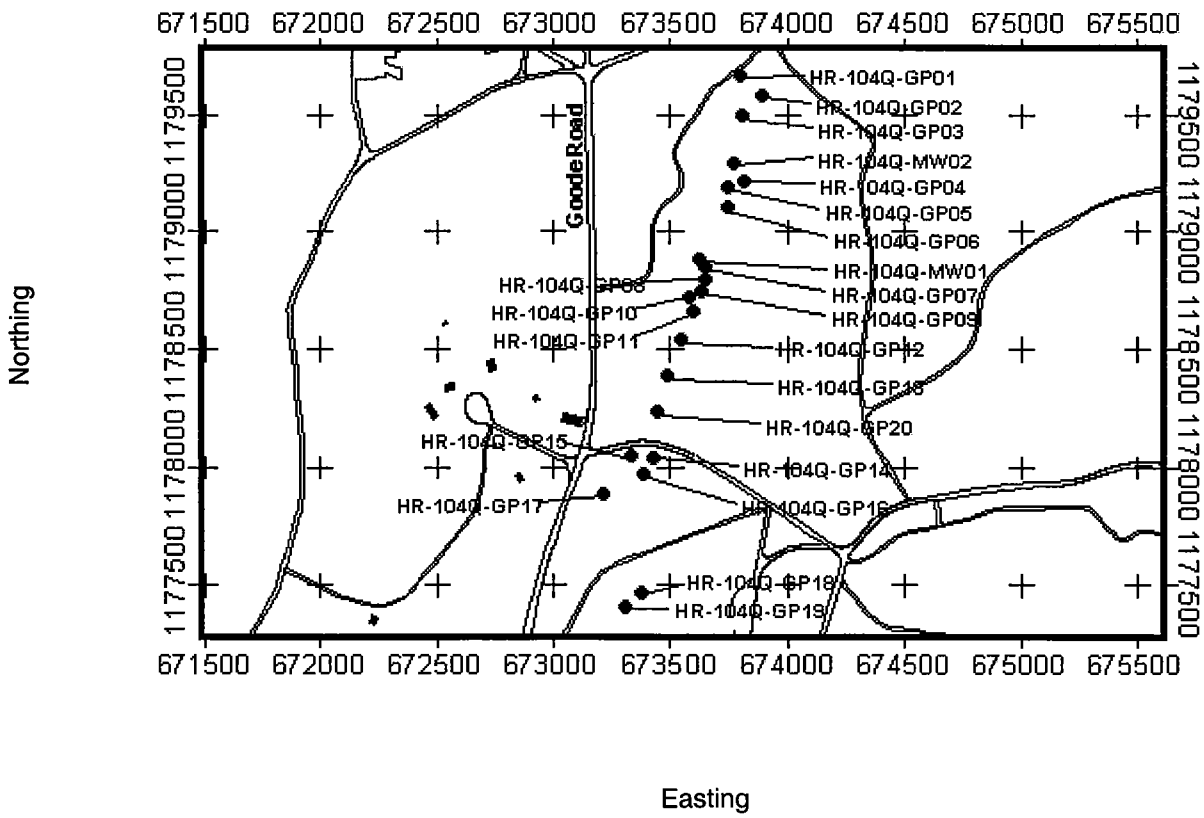
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-MW01
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN/Miller Drilling Company	Sheet 1 of 4 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: S. McDaniel/G. Bilbrey	6. Mfr. designation of drill: Geoprobe
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP - 4'x2" Acetate-Lined Sampler HSA - 5'x4.25" ID Augers, 2'x2" Steel Split Spoons	8. Hole location: Former Rifle/Machine Gun Range, Parcel 104Q 9. Surface elevation (feet above mean sea level): 762.04 10. Date started: 04/23/02 — 11. Date completed: 05/09/02
12. Overburden thickness (feet bgs): >30	15. Depth groundwater encountered (feet bgs): 20
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): 20.32' ~24 hrs
14. Total depth of hole (feet bgs): 30	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	NA	2" Permanent	NA	C. Levaas/M. Shoemaker		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW01

Project: Fort McClellan | Geologist: C. Levaas/M. Shoemaker | Sheet 2 of 4 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl-ml: Dark brown, moist, medium stiff CLAY and SILT, some roots.	cl-ml		Organic Vapor = 0.2ppm		QK0044 OK0045		Rec 1.0'/1.0' (0-1' bgs)
	1	cl-ml: Dark brown to reddish brown, moist, medium stiff CLAY and SILT, trace fine to medium Sand.	cl-ml						Rec 1.9'/3.0' (1-4' bgs)
760	2								
	3				Organic Vapor = 0ppm		QK0046		
	4	cl: Dark brown to reddish brown, moist, medium stiff CLAY, some Silt.	cl						Rec 3.0'/4.0' (4-8' bgs)
	5								
	6				Organic Vapor = 0ppm				
755	7								
	8	cl: Reddish brown, moist to very moist, medium stiff to stiff CLAY, little Silt, little fine to medium Sand.			Organic Vapor = 0ppm				Rec 3.9'/4.0' (8-12' bgs)
	9								
	10								

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW01

Project: Fort McClellan | Geologist: C. Levaas/M. Shoemaker | Sheet 3 of 4 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	11		cl		Organic Vapor = 0ppm				
750	12	NA: No sample collected for lithologic description.							Direct push terminated at 12' bgs
	13		NA						
	14								
	15	sc: Medium brown to light reddish brown SAND, some Clay, medium stiff, moist.	sc		Organic Vapor = 0ppm 0.9ppm			3 6 6 10	Rec 0.9'/2.0' (15-17' bgs)
	16	NA: No recovery.	NA						
745	17	NA: No sample collected for lithologic description.							
	18		NA						
	19								
	20	sc: Light reddish brown to yellowish orange,			Organic			2 3 2 6	Rec 1.3'/2.0' (20-22' bgs)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW01

Project: Fort McClellan | Geologist: C. Levaas/M. Shoemaker | Sheet 4 of 4 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
		medium to coarse SAND, little Clay, moist, medium stiff.	sc		Vapor = 0ppm				Groundwater encountered at 20' bgs
	21								21
		NA: No recovery.	NA						
740	22	NA: No sample collected for lithologic description.							22
	23		NA						23
	24								24
	25	sc: Yellowish orange, soft CLAY, some medium Sand, moist.	sc		Organic Vapor = 0ppm			3 2 4 5	Rec 1.4'/2.0' (25-27' bgs) 25
	26								26
		NA: No recovery.	NA						
735	27	NA: No sample collected for lithologic description.							27
	28		NA						28
	29								29
	30								Bottom of borehole at 30' bgs 30

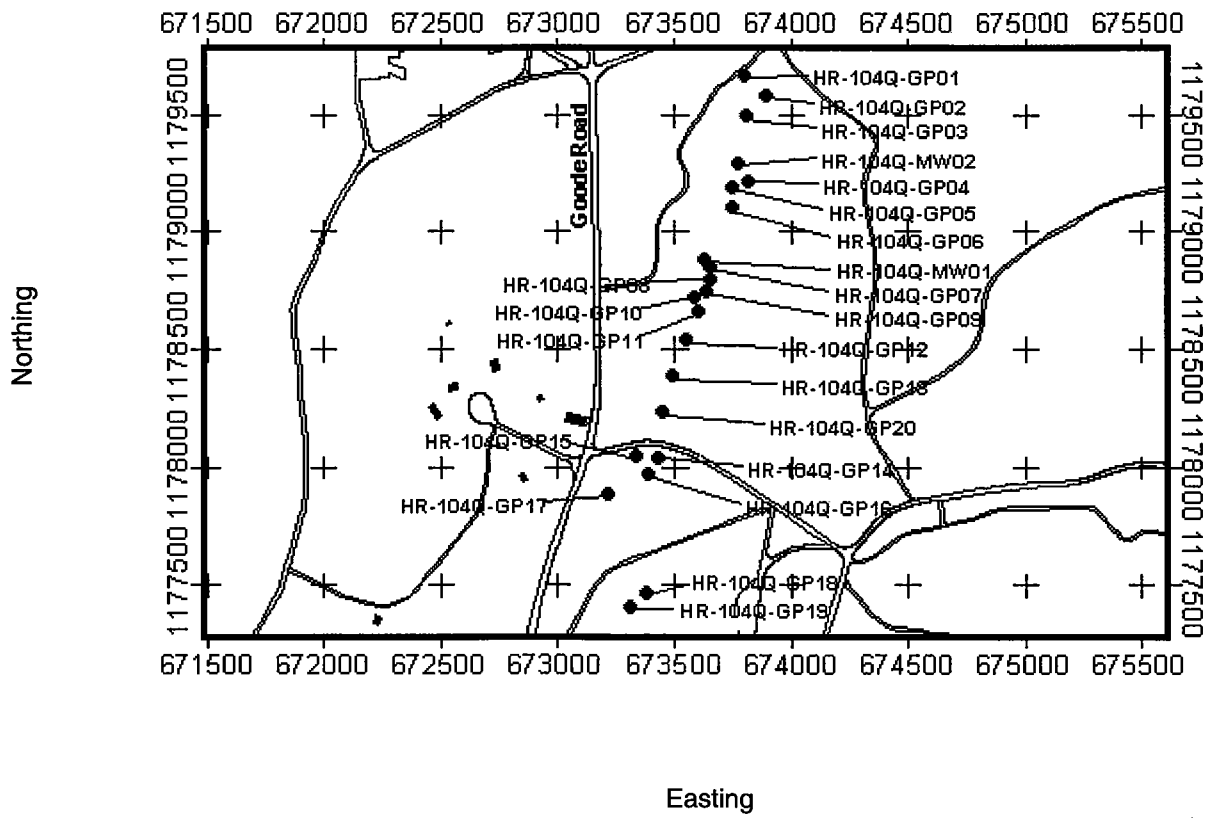
HTRW DRILLING LOG

District: **Mobile USACE**		**HOLE NUMBER** HR-104Q-MW02
1. Company name: **Shaw Environmental, Inc.**	2. Drill Subcontractor: ESN/Miller Drilling Company	Sheet 1 of 9 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: S. McDaniel/G. Bilbrey	6. Mfr. designation of drill: Geoprobe/Hollow Stem Auger
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP - 4'x2" Acetate-Lined Sampler HSA - 5'x4.25" ID Augers, 2'x2" Steel Split Spoons	8. Hole location: Former Rifle/Machine Gun Range, Parclel 104Q 9. Surface elevation (feet above mean sea level): 774.07 10. Date started: 04/26/02 — 11. Date completed: 05/09/02
12. Overburden thickness (feet bgs): >72.5	15. Depth groundwater encountered (feet bgs): 60
13. Depth drilled into rock (feet bgs): NA	16. Depth to water and elapsed time after drilling completed (feet bgs): 34.89' ~24 hrs
14. Total depth of hole (feet bgs): 72.5	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA	NA	NA			
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	NA	Yes	Explosives	NA	NA	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	NA	2" Permanent	NA	Cindy Levaas		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 2 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	cl: Reddish brown, moist, medium stiff CLAY, some Silt, some fine to medium Sand.			Organic Vapor = 0ppm		QK0047		Rec 2.5'/4.0' (0-4' bgs)
	1								
	2		cl						
	3						QK0048		
770	4	cl: Reddish brown, moist, medium stiff to stiff CLAY, some Silt.							Rec 3.7'/4.0' (4-8' bgs)
	5								
	6				Organic Vapor = 0ppm				
	7								
	8		cl		Organic Vapor = 0ppm				Rec 3.9'/4.0' (8-12' bgs)
765	9								
	10								

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 3 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	11				Organic Vapor = 0ppm				
	12	NA: No sample collected for lithologic description.							Direct push terminated at 12' bgs
	13		NA						
760	14								
	15	cl: Light brown to reddish brown, very moist to wet, medium stiff to stiff CLAY, some Silt.	cl		Organic Vapor = 0ppm			3 4 8 12	Rec 1.3'/2.0' (15-17' bgs)
	16	NA: No recovery.	NA						
	17	NA: No sample collected for lithologic description.							
	18		NA						
755	19								
	20	cl: Reddish brown to yellowish orange, moist,			Organic			3 4 6 9	Rec 2.0'/2.0' (20-22' bgs)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 4 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
		stiff CLAY, some Silt, little fine to medium Sand.			Vapor = 0ppm				
	21		cl						
	22	NA: No sample collected for lithologic description.							
	23		NA						
750	24								
	25	cl: Reddish brown to yellowish orange, moist, stiff CLAY, some Silt, little fine to medium Sand.			Organic Vapor = 0ppm			4 6 7 5	Rec 1.2'/2.0' (25-27' bgs)
			cl						
	26	NA: No recovery.							
			NA						
	27	NA: No sample collected for lithologic description.							
	28		NA						
745	29								
	30	cl: Light brown to yellowish orange, moist, stiff CLAY, some Silt, some fine to coarse Sand.			Organic Vapor			4 6 8 8	Rec 1.6'/2.0' (30-32' bgs)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 5 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
					= 0ppm				
	31		cl						
		NA: No recovery.	NA						
	32	NA: No sample collected for lithologic description.							
	33		NA						
740	34								
	35	cl: Yellowish orange to light gray, very moist, stiff CLAY, some Silt, little fine to coarse Sand.			Organic Vapor = 0ppm			5 7 10 12	Rec 2.0'/2.0' (35-37' bgs)
	36		cl						
	37	NA: No sample collected for lithologic description.							
	38		NA						
735	39								
	40	cl: Yellowish orange to light gray, very moist, stiff CLAY, some Silt, little fine to coarse Sand.			Organic Vapor = 0ppm			6 7 9 14	Rec 2.0'/2.0' (40-42' bgs)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 6 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	41		cl						
	42	NA: No sample collected for lithologic description.							
	43		NA						
730	44								
	45	cl: Yellowish orange to light gray, very moist, stiff CLAY, some Silt, little fine to coarse Sand, little fine grained, subangular, sandstone Gravel.			Organic Vapor = 0ppm			3 5 6 14	Rec 2.0'/2.0' (45-47' bgs)
	46		cl						
	47	NA: No sample collected for lithologic description.							
	48		NA						
725	49								
	50	cl: Light brown to light gray, moist, medium stiff to stiff CLAY, some Silt.			Organic Vapor = 0ppm			5 11 13 17	Rec 2.0'/2.0' (50-52' bgs)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 7 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	51		cl						51
	52	NA: No sample collected for lithologic description.			Organic Vapor = 0ppm				52
	53		NA						53
720	54								54
	55	cl: Light brown to light gray, moist, medium stiff to stiff CLAY, some Silt.			Organic Vapor = 0ppm			4 6 8 11	Rec 2.0'/2.0' (55-57' bgs) 55
	56		cl						56
	57	NA: No sample collected for lithologic description.							57
	58		NA						58
715	59								59
	60	cl: Light brown, wet, medium stiff CLAY, some Silt, some fine to medium Sand.			Organic Vapor = 0ppm			3 4 4 5	Groundwater encountered at 60' bgs Rec 2.0'/2.0' (60-64' bgs) 60

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 8 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	61		cl						
	62	NA: No sample collected for lithologic description.							
	63		NA						
710	64								
	65	cl: Light brown, wet, soft CLAY, some Silt, some fine to coarse Sand.			Organic Vapor = 0ppm			0 0 0 5	Rec 2.0'/2.0' (65-67' bgs)
	66		cl						
	67	NA: No sample collected for lithologic description.							
	68		NA						
705	69								
	70	NA: No sample collected for lithologic description.							
	71								

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: HR-104Q-MW02

Project: Fort McClellan | Geologist: Cindy Levaas | Sheet 9 of 9 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
			NA						
	72								72 Bottom of borehole at 72.5' bgs

WELL CONSTRUCTION LOGS

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan
LOCATION: Anniston, AL
CLIENT: USACE Mobile District
CONTRACTOR: Miller Drilling Company
DRILLER: Glen Bilbrey
SHAW FIELD REPRESENTATIVE: Cindy Levaas

WELL NO: HR-104Q-MW01
DRILLING METHOD: Hollow Stem Auger
INSTALLATION DATE: 09-MAY-02
NORTHING: 1178867.79
EASTING: 673621.32
HORIZONTAL SURVEY DATUM: NAD83
VERTICAL SURVEY DATUM: NAVD88
JOB NO: 796887

GROUND SURFACE ELEVATION* 762.04

TOP of WELL CASING or RISER PIPE
EL* 764.22 STICKUP 2.18

SURFACE SEAL
TYPE of SURFACE SEAL: Concrete
MINIMUM THICKNESS: 4 inches

ANNULAR SPACE SEAL TYPE
Grout

APPROXIMATE DIAMETER of BOREHOLE (inches) 8

TOP OF SEAL
SEAL MATERIAL: Bentonite
SEAL START DEPTH: 6.5

FILTER PACK
TYPE of SAND PACK AROUND SCREEN: Sand No 1
TOP OF SAND PACK: 9.5

CASING
TYPE of RISER MATERIAL (Flush Threaded): PVC SCH 40
INSIDE DIAMETER of RISER (inches): 2

SCREEN
TYPE of SCREEN MATERIAL: PVC SCH 40
SLOT SIZE (inches): 0.010
INSIDE DIAMETER (inches): 2

TOP OF SCREENED INTERVAL
EL* 747.04 DEPTH 15

BOTTOM of SCREENED INTERVAL
EL* 732.04 DEPTH 30

BOTTOM of SUMP and WELL
EL* 732.04 DEPTH 30

BOTTOM of BOREHOLE
EL* 732.04 DEPTH 30

NEAT CEMENT
GROUT
BENTONITE SEAL
FILTER PACK
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.
All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan
LOCATION: Anniston, AL
CLIENT: USACE Mobile District
CONTRACTOR: Miller Drilling Company
DRILLER: Glen Bilbrey
SHAW FIELD REPRESENTATIVE: Cindy Levaas

WELL NO: HR-104Q-MW02
DRILLING METHOD: Hollow Stem Auger
INSTALLATION DATE: 09-MAY-02
NORTHING: 1179282.59
EASTING: 673765.62
HORIZONTAL SURVEY DATUM: NAD83
VERTICAL SURVEY DATUM: NAVD88
JOB NO: 796887

GROUND SURFACE ELEVATION* 774.07

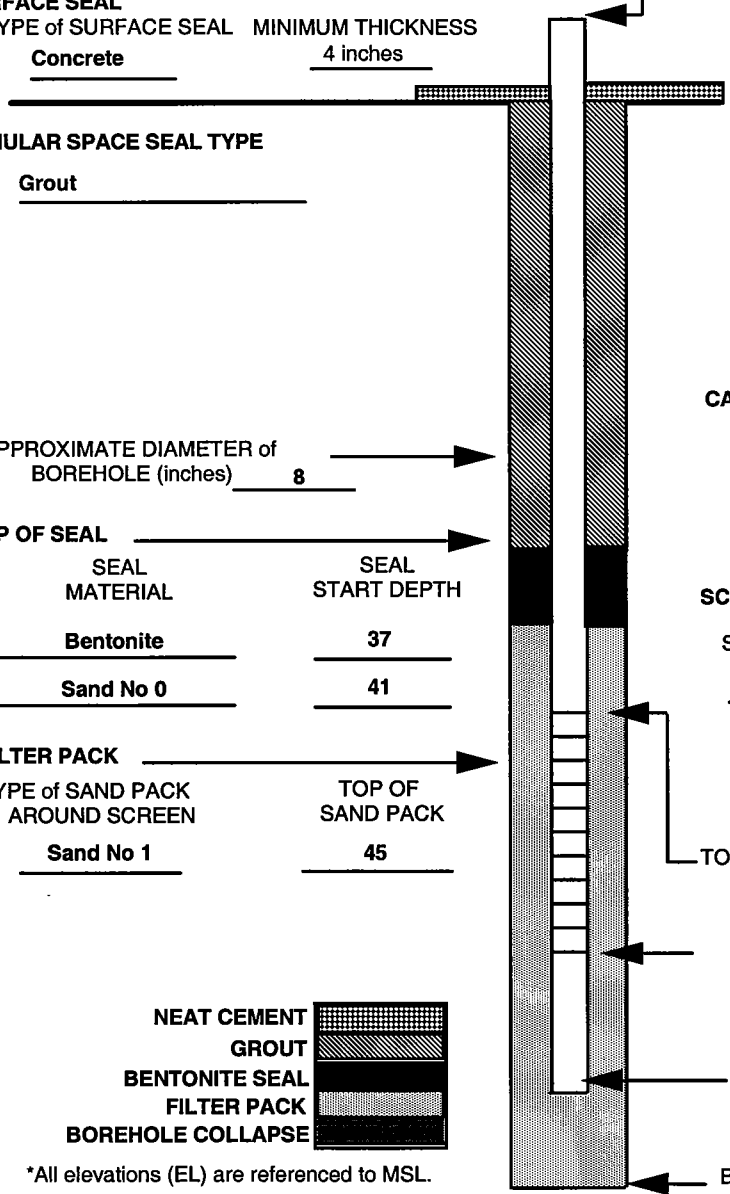
TOP of WELL CASING or RISER PIPE
EL* 776.2 STICKUP 2.13

SURFACE SEAL

TYPE of SURFACE SEAL	MINIMUM THICKNESS
Concrete	4 inches

ANNULAR SPACE SEAL TYPE

Grout



APPROXIMATE DIAMETER of BOREHOLE (inches) 8

TOP OF SEAL

SEAL MATERIAL	SEAL START DEPTH
Bentonite	37
Sand No 0	41

FILTER PACK

TYPE of SAND PACK AROUND SCREEN	TOP OF SAND PACK
Sand No 1	45

CASING

TYPE of RISER MATERIAL (Flush Threaded)	INSIDE DIAMETER of RISER (inches)
PVC SCH 40	2

SCREEN

TYPE of SCREEN MATERIAL	SLOT SIZE (inches)	INSIDE DIAMETER (inches)
PVC SCH 40	0.010	2

TOP OF SCREENED INTERVAL
EL* 721.57 DEPTH 52.5

BOTTOM of SCREENED INTERVAL
EL* 701.57 DEPTH 72.5

BOTTOM of SUMP and WELL
EL* 701.57 DEPTH 72.5

BOTTOM of BOREHOLE
EL* 701.57 DEPTH 72.5

NEAT CEMENT
GROUT
BENTONITE SEAL
FILTER PACK
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.
All depths and heights are given in feet and are referenced to the ground surface.