

**Direct Push Technology (DPT)
Bore Logs From The
Bruno/Brickyard Associates/Alonzo Site**

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Borehole Record for BBA-GP01

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG		District <u>Kansas City</u>		Hole Number <u>BBA-GP01</u>	
1. Company Name <u>Ecology & Environment Inc</u>		2. Drill Subcontractor <u>Northstar/Geologic</u>		Sheet <u>1</u> of <u>8</u> Sheets	
3. Project <u>Hudson Superfund Facility Siting</u>			4. Location <u>Schaghticoke, NY</u>		
5. Name of Driller <u>Jud Powell</u>			6. Manufacturer's Designation of Drill <u>Geoprobe 5400</u>		
7. Sizes and Types of Drilling and Sampling Equipment		1.75" O.D. Geoprobe Rob with acetate sleeves and discrete soil sampling system		8. Hole Location <u>West of Dtc. Bldg and North of Metal workshop Bldg,</u>	
				9. Surface Elevation	
		10. Date Started <u>10-10-03</u>		11. Date Completed <u>10-10-03</u>	
12. Overburden Thickness <u>> 25'</u>		15. Depth Groundwater Encountered <u>7.8' BGS</u>			
13. Depth Drilled Into Rock <u>NA</u>		16. Depth to Water and Elapsed Time After Drilling Completed <u>5.65' BGS after 10 minutes</u>			
14. Total Depth of Hole <u>25'</u>		17. Other Water Level Managements (Specify)			
18. Geological Samples		Disturbed <u>NA</u>		Undisturbed <u>—</u>	
19. Total Number of Core Boxes		<u>NA</u>			
20. Samples For Chemical Analysis		VOC <input checked="" type="checkbox"/>		Metals <input checked="" type="checkbox"/>	
		Other (Specify) <u>SVOC's</u>		Other (Specify) <u>Pest/PCB's</u>	
21. Disposition of Hole		Backfilled <input type="checkbox"/>		Monitoring Well <input checked="" type="checkbox"/>	
				Other (Specify)	
				23. Signature of Inspector <u>R. Denton</u>	
LOCATION SKETCH/COMMENTS			SCALE: <u>—</u>		
<p>See GP02 Log</p>					
PROJECT <u>Hudson Superfund Facility Siting</u>				HOLE NO. <u>BBA-GP01</u>	

UN-numbered
Master Lock

Lock Number Master Lock

SCREENED WELL

Stick-up 2.6' ft

Top of Grout NA ft

Sand 2' to surface

Top of Seal at 2 ft

Top of Sand Pack 4 ft

Top of Screen at 6 ft

Bottom of Screen at 16 ft

Bottom of Hole at 25 ft

Bottom of Sandpack at 16'

GROUND SURFACE

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

Quantity of Material Used:

Bentonite _____

Pellets _____

Cement _____

Borehole 1.75" inches Diameter

Cement/Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

PVC sch. 40, 1" diameter

Stainless Steel _____

Pack Type/Size:

Sand No. 0

Gravel _____

Natural _____

NOTE: See pages 136 and 137 for well construction diagrams

Robert A. Meyer

HTRW DRILLING LOG (Continuation Sheet)							Hole Number BBA-GPO1
Project Hudson Facility Siting		Inspector Robert A. Myers			Sheet 3 of 8		
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' Fill	<p>↑</p> <p>FID = 3.1 ppm PID = 0 ppm of soil core</p> <p>FID/PID = 0 ppm in BZ</p>	NA		NA	4' Run 1.7' rec
	4	4' to 7.4' Fill (brick)	<p>↓</p> <p>0 ppm FID/PID in BZ and off soil core</p> <p>↑</p>				4' Run 2.6' rec
	7.4	7.4' to 8' ML	<p>↓</p>				Wet @ 7.8' BGS

PROJECT Hudson Facility Siting

HOLE NO. BBA-GPO1

HTRW DRILLING LOG (Continuation Sheet)							Hole Number BBA-GP01
Project Hudson Facility Siting		Inspector Robert A. Myers			Sheet 5 of 8		
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' SW	Opp in BZ and off soil corp	NA	1020 Collect BBA-GP01-5B from 8' to 10' BGS with Duplicate.	NA	Saturated 4' Run 3.8' Rec
	12	12' to 16' SW					4' Run 4.0' Rec
	13						
	14						
	15						
	16						

PROJECT Hudson Facility Siting

HOLE NO. BBA-GP01

HTRW DRILLING LOG (Continuation Sheet)							Hole Number			
Project		Inspector			Sheet		Sheet			
Hudson Facility Siting		Robert A. Meyer			7 of 8					
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)			
16		16' to 18.9' SW	<p>Oppm in BZ and off-soil core</p>	NA		NA	4' Run 3.4' Rec			
17										
18										
19		18.9' to 20' ML								
20		20' to 24' ML					4' Run			
21										
22										
23										
24		24' to 25' ML					1' Run 0.9' Rec			
25										

PROJECT Hudson Facility Siting

HOLE NO. BBA-GPO1

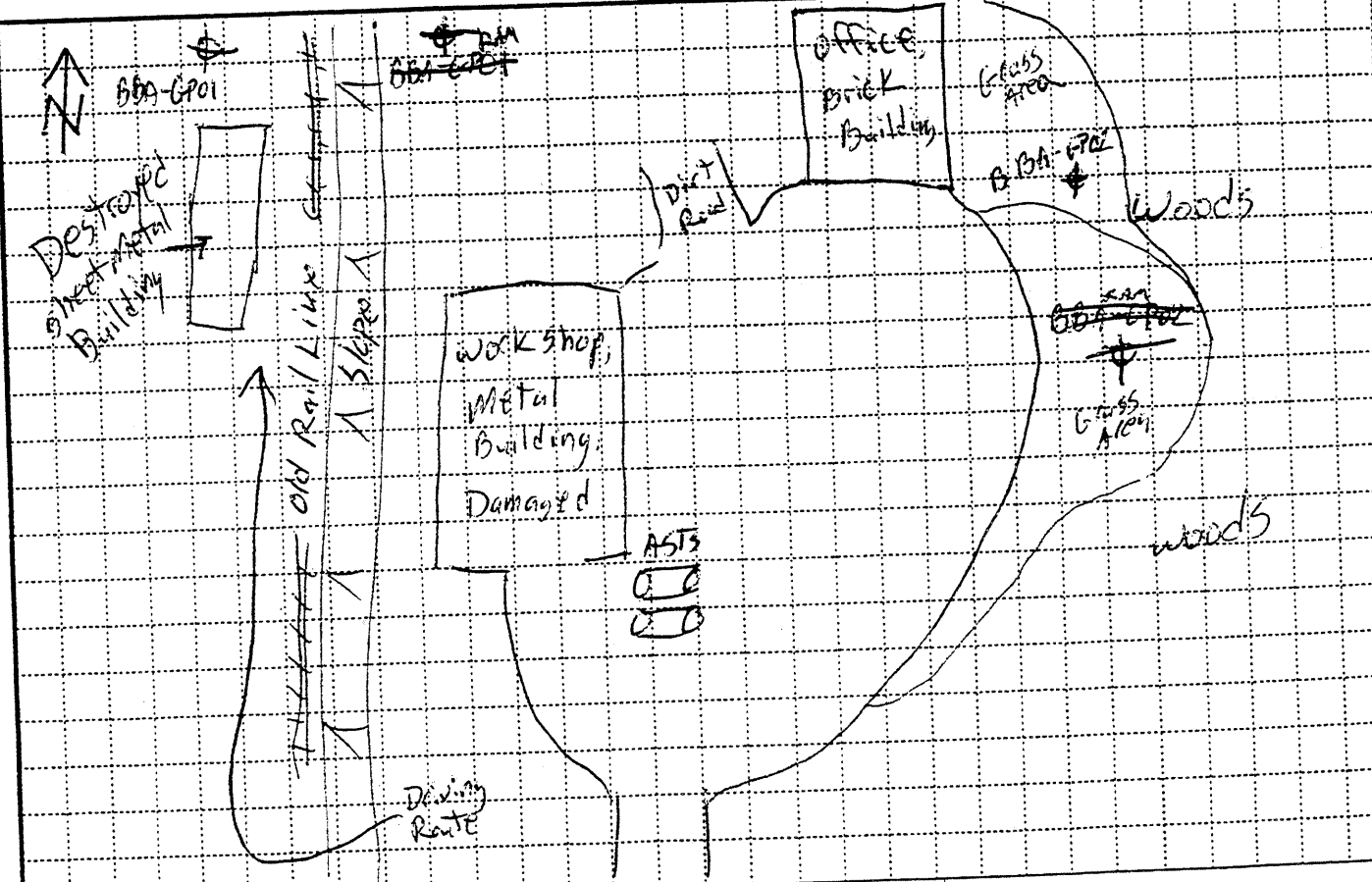
Borehole Record for BBA-6P02

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG		District <i>Kansas City</i>	Hole Number <i>BBA-GP02</i>	
1. Company Name <i>Ecology & Environment Inc.</i>		2. Drill Subcontractor <i>Norstar/Geologic</i>		Sheet <i>1</i> of Sheets <i>8</i>
3. Project <i>Hudson Superfund Facility Siting</i>		4. Location <i>Schaghticoke, NY</i>		
5. Name of Driller <i>Jud Powell</i>		6. Manufacturer's Designation of Drill <i>Geoprobe 5400</i>		
7. Sizes and Types of Drilling and Sampling Equipment <i>1.75" O.D. Geoprobe rods with acetate sleeves and discrete soil sampling system</i>		8. Hole Location <i>~ 60' South East of Brick Office Building</i>		
		9. Surface Elevation		
		10. Date Started <i>10-10-03</i>	11. Date Completed <i>10-10-03</i>	
12. Overburden Thickness <i>> 25'</i>		15. Depth Groundwater Encountered <i>7.6' BGS</i>		
13. Depth Drilled Into Rock <i>NA</i>		16. Depth to Water and Elapsed Time After Drilling Completed <i>15.3' after 11 minutes</i>		
14. Total Depth of Hole <i>25'</i>		17. Other Water Level Managements (Specify)		
18. Geological Samples <i>NA</i>		Disturbed	Undisturbed	19. Total Number of Core Boxes <i>NA</i>
20. Samples For Chemical Analysis		VOC <input checked="" type="checkbox"/>	Metals <input checked="" type="checkbox"/>	Other (Specify) <i>SVOL'S</i>
21. Disposition of Hole		Backfilled	Monitoring Well <i>Temporary</i>	Other (Specify) <i>Pest/PCBS</i>
				Other (Specify) <i>CIN</i>
				21. Total Core Recovery <i>NA%</i>
			23. Signature of Inspector <i>Robert A. Mays</i>	

SCALE: *N53*

LOCATION SKETCH/COMMENTS



PROJECT *Hudson Superfund Facility Siting* B5388

HOLE NO. *BBA-GP02*

Lock Number UN-numbered Master Lock

SCREENED WELL

OPEN-HOLE WELL

Stick-up 2.55' ft

Stick-up _____ ft

Inner Casing Material NA

Inner Casing Material _____

Inner Casing Inside Diameter NA inches

Inner Casing Inside Diameter _____ inches

GROUND SURFACE

Top of Grout NA ft
Sand 0.5' to surface
Top of Seal at 0.5 ft

Quantity of Material Used:
Bentonite _____
Pellets _____

Cement _____
Borehole 1.75 inches Diameter

Outer Casing Diameter _____ inches

Top of Sand Pack 4 ft

Cement/Bentonite _____

Bedrock _____ ft

Top of Screen at 6 ft

Grout _____

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Screen at 16 ft

Screen Slot Size .010"

Bottom of Inner Casing _____ ft

Bottom of Hole at 25 ft

Screen Type slotted
 PVC Sch. 40 1" dia.
 Stainless Steel _____

Corehole Diameter _____

Bottom of Sandpack at 18' BG-5

Pack Type/Size:
 Sand NO. 0
 Gravel _____
 Natural _____

Bottom of Corehole _____ ft

* Hole was allowed to collapse up to 18' BG-5
NOTE: See pages 136 and 137 for well construction diagrams

Robert A. Meyer

HTRW DRILLING LOG (Continuation Sheet)							Hole Number
Project		Inspector			Sheet		Sheets
Hudson Facility Siting		Robert A. Myra			3 of 8		BBA-GPO2
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' CL	↑	NA		NA	
	1		Open EED/ED in BZ and off soil core				4' Run 3.4' Rec
	2		↓				
	3						
	4	4' to 8' CL	↓				
	5						4' Run 4' Rec
	6						
	7						
	8		↓		0910 Collect Sample BBA-GPO2-5B from 7' to 11' BGS with MS/MSD		Water @ 7.6' BGS
PROJECT Hudson Facility Siting					HOLE NO. BBA-GPO2		

B-390

HTRW DRILLING LOG (Continuation Sheet)							Hole Number
Project		Inspector			Sheet		Sheets
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	3	8' to 11.2' GM	↑ Opp in BZ and off soil core	NA		NA	Water @ 7.6' BGS 4' Run 3.5' Rel.
	9						
	10		↓				
	11	11.2' to 12' CL					
	12	12' to 16' CL					
	13		↓				4' Run 4' Rel.
	14						
	15						
	16						

Depth(feet).

NARRATIVE LITHOLOGIC DESCRIPTION

Moisture Content

Dry Moist Wet

8' to 11.2', silt and VF to coarse sand (Tan)
with some (40%) Fine to med. pebbles.
Saturated

11.2' to 12', Gray uniform CLAY, moderately
plastic, trace silt

12' to 16', Gray CLAY as above

HTRW DRILLING LOG (Continuation Sheet)							Hole Number BBA-GPOZ
Project Hudson Facility Siting			Inspector Robert A. Meyer			Sheet 7 of 8	Sheet 8
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
16	16' to 20'	CL	↑	NA		NA	4' Run 4' Rec.
17			↓ Oppm in BZ and soil core				
18							
19							
20	20' to 24'	CL					
21							
22							
23							
24	24' to 25'	CL	↓				1' Run 1' Rec.
25			↓				

PROJECT Hudson Facility Siting

HOLE NO. BBA-GPOZ

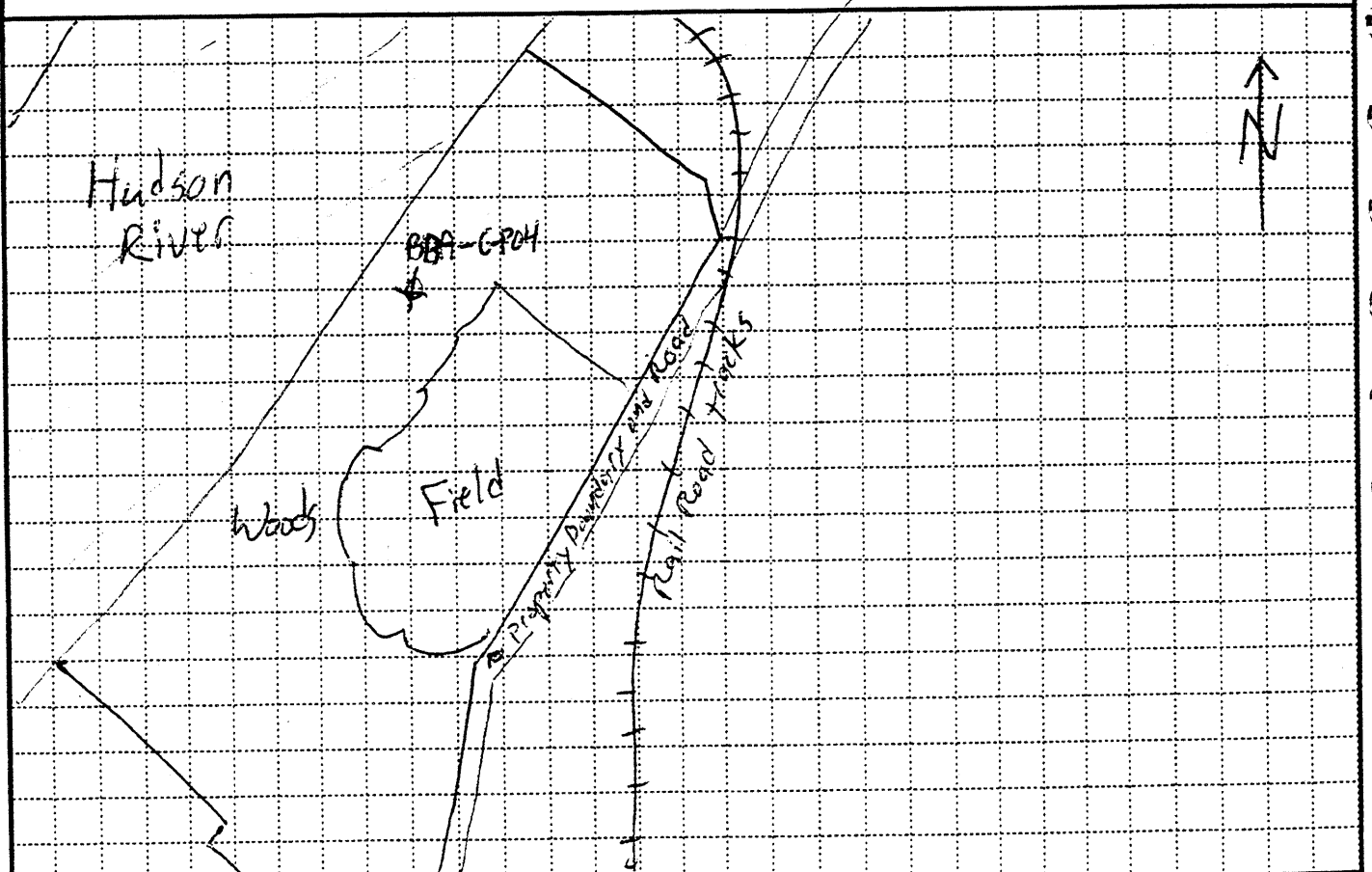
Borehole Record for BBA-GP04

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG		District <i>Kansas City</i>	Hole Number <i>BBA-GP04</i>	
1. Company Name <i>Ecology & Environment Inc.</i>		2. Drill Subcontractor <i>Northstar/Geologic Inc.</i>		Sheet <i>1</i> of <i>8</i> Sheets
3. Project <i>Hudson Superfund Facility Siting</i>		4. Location <i>Schaghticoke</i>		
5. Name of Driller <i>Jud Powell</i>		6. Manufacturer's Designation of Drill <i>Geoprobe 5400</i>		
7. Sizes and Types of Drilling and Sampling Equipment <i>1.75" OD Geoprobe Mud core Rods with acetate sleeves and discrete soil sampling system</i>		8. Hole Location <i>North end of site ~40' west of Hudson River</i>		
		9. Surface Elevation		
		10. Date Started <i>10-10-03</i>	11. Date Completed <i>10-10-03</i>	
12. Overburden Thickness <i>12.9'</i>		15. Depth Groundwater Encountered <i>8' BLS</i>		
13. Depth Drilled Into Rock <i>1.1'</i>		16. Depth to Water and Elapsed Time After Drilling Completed <i>8.65' BLS after 7 minutes</i>		
14. Total Depth of Hole <i>14</i>		17. Other Water Level Managements (Specify)		
18. Geological Samples <i>NA</i>		Disturbed <i>—</i>		Undisturbed <i>—</i>
19. Total Number of Core Boxes <i>NA</i>		20. Samples For Chemical Analysis		
VOC <input checked="" type="checkbox"/>		Metals <input checked="" type="checkbox"/>	Other (Specify) <i>SVOCs</i>	Other (Specify) <i>PEST/PCBs</i>
21. Disposition of Hole <i>Backfilled</i>		Monitoring Well <i>Temporary</i>	Other (Specify)	23. Signature of Inspector <i>Robert A. Meyer</i>
21. Total Core Recovery <i>NA</i> %		21. Total Core Recovery <i>NA</i> %		

LOCATION SKETCH/COMMENTS

SCALE:



PROJECT *Hudson Facility Siting*

HOLE NO. *BBA-GP04*

Lock Number un-numbered Master Lock

SCREENED WELL

Stick-up 2.8' ft

Top of Grout NA ft

Sand 0.5' to surface

Top of Seal at 0.5' ft

Top of Sand Pack 2 ft

Top of Screen at 3.5' ft

Bottom of Screen at 13.5 ft

Bottom of Hole at 14' ft

Bottom of Sandpack at 14' ft

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

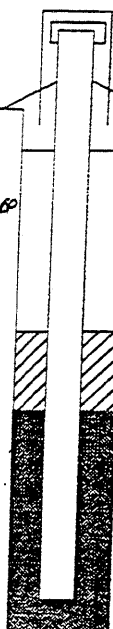

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole 1.75" inches Diameter

Cement/Bentonite _____

Grout _____

Screen Slot Size .000"

Screen Type slotted

PVC Sch. 40, 1" dia.

Stainless Steel _____

Pack Type/Size:

Sand No. 0

Gravel _____

Natural _____

NOTE: See pages 136 and 137 for well construction diagrams

Robert A. [Signature]

HTRW DRILLING LOG (Continuation Sheet)							Hole Number BBA-GP04
Project Hudson Facility Siting			Inspector Robert A. Meyer		Sheet 3 of 8		
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' GP	↑	NA		NA	
	1		Open in BZ and off Soil Core				4' Run 1.9' Rec
	2		↓				
	3						
	4	4' to 7.5' GP	↓				
	5						4' Run 2.3' Rec
	6						
	7						
	8	7.5' to 30' CL	↓				

PROJECT Hudson Facility Siting	HOLE NO. BBA-GP04
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Depth(feet).

NARRATIVE LITHOLOGIC DESCRIPTION



Moisture Content

Dry Moist Wet

0' to 40', Top 0.2' is silt/sand loam, 0.2' to 4' is
VF to coarse sand and fine to med.
rounded pebbles.

4' to 7.8', Sand & pebbles as above

7.8' to 8', Silty brown CLAY

HTRW DRILLING LOG (Continuation Sheet)							Hole Number BBA-GP04	
Project Hudson Facility Siting			Inspector Robert A. Meyer			Sheet 5 of 8		
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)	
	8	8' to 11.6'	 Open in BZ and of soil cores	NA	1215 Collect	NA	Water @ ≈ 9' BGS	
		SM/SC						
	9					BBA-GP04-SB		From 8'-10' BGS
	10							
		11.6' to 12'						
		GP						
	12	12' to 12.9'						
		GP						
	13	12.9' to 14						
		Weathered Shale						
	14	Refusal @ 14' BGS						
	15							
	16							

PROJECT Hudson Facility Siting

HOLE NO. BBA-GP04

**Geotechnical Bore Logs
From The
Bruno/Brickyard Associates/Alonzo Site**

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Borehole Record for BBA-6701 / GP03

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG			District <i>NSACE Kansas City</i>	Hole Number <i>BBA-GT01</i>	
1. Company Name <i>Ecology and Environment</i>	2. Drill Subcontractor <i>NORTHSTAR DRILLING</i>			Sheet <i>1</i>	Sheets <i>of 8</i>
3. Project <i>Brown/Brick/ASD/Alon 20</i>			4. Location <i>West of Winterbourne Rd; East of Lock</i>		
5. Name of Driller <i>STEVE LARAMIE, DONNIS HONORAR</i>			6. Manufacturer's Designation of Drill <i>CME-450</i>		
7. Sizes and Types of Drilling and Sampling Equipment <i>4 1/2" HSA</i> <i>2" X 24" SPIRIT SPOON</i>			8. Hole Location <i>NORTHEAST of LOCK</i> <i>SW Corner of Alon 20 property</i>		
			9. Surface Elevation		
			10. Date Started <i>10/19/03</i>		11. Date Completed <i>10/9/03</i>
12. Overburden Thickness <i>17.6'</i>			15. Depth Groundwater Encountered <i>5.8' BGS</i>		
13. Depth Drilled into Rock <i>9' 0.9'</i>			16. Depth to Water and Elapsed Time After Drilling Completed <i>NOT RECORDED</i>		
14. Total Depth of Hole <i>18.3'</i>			17. Other Water Level Managements (Specify) <i>NOT RECORDED</i>		
18. Geological Samples		Disturbed <i>0</i>		Undisturbed <i>9</i>	
20. Samples For Chemical Analysis		VOC <i>TAL METALS</i>	Metals SVOC <i>PCB FIRST</i>	Other (Specify) <i>ATMOSPHERIC LEADS</i>	Other (Specify) <i>BASECATHODE MEASURE</i>
21. Disposition of Hole		Backfilled <i>-</i>	Monitoring Well <i>X</i>	Other (Specify) <i>-</i>	23. Signature of Inspector <i>JM [Signature]</i>
LOCATION SKETCH/COMMENTS					
SCALE: <i>NOT TO SCALE</i>					
PROJECT <i>Hudson River PCB Facility Siting</i>				HOLE NO. <i>BBA-GT01</i>	

SCREENED WELL		OPEN-HOLE WELL	
Stick-up <u>1.32</u> ft	Lock Number <u>866</u>	Stick-up _____ ft	Inner Casing Material _____
Top of Grout _____ ft	Inner Casing Material _____	Inner Casing Material _____	Inner Casing Inside Diameter _____ inches
Top of Seal at <u>0</u> ft	Inner Casing Inside Diameter _____ inches	Inner Casing Inside Diameter _____ inches	Outer Casing Diameter _____ inches
Top of Sand Pack <u>2.8</u> ft	GROUND SURFACE	Outer Casing Diameter _____ inches	Borehole Diameter _____ ft
Top of Screen at <u>3.8</u> ft	Quantity of Material Used:	Bedrock _____ ft	Bottom of Rock Socket/Outer Casing _____ ft
Bottom of Screen at <u>13.8</u> ft	Bentonite Pellets <u>2.8'</u>	Bottom of Rock Socket/Outer Casing _____ ft	Bottom of Inner Casing _____ ft
Bottom of Hole at <u>18.3</u> ft	Cement <u>0-</u>	Bottom of Inner Casing _____ ft	Corehole Diameter _____
Bottom of Sandpack at <u>18.3</u> ft	Borehole Diameter <u>8</u> inches	Bottom of Inner Casing _____ ft	Bottom of Corehole _____ ft
	Cement/Bentonite <u>None</u>		
	Grout <u>NONE</u>		
	Screen Slot Size <u>0.10</u>		
	Screen Type _____		
	<input checked="" type="checkbox"/> PVC <u>0.10</u>		
	<input type="checkbox"/> Stainless Steel _____		
	Pack Type/Size:		
	<input checked="" type="checkbox"/> Sand <u>0</u>		
	<input type="checkbox"/> Gravel _____		
	<input type="checkbox"/> Natural _____		

NOTE: See pages 136 and 137 for well construction diagrams

- Well constructed as per work plan. However top of screen to grade interval was too short to install 2' of sand above screen AND 3' of bentonite.

⇒ Driller backfilled very bottom of hole w/ bentonite for 3' (18.3' → 15.3' B.A. SAND PACK IS 18.3' → 15.3')

- No TVA readings > 1.0 ppm in BZ

⇒ To gather sufficient volume for both the full geochemical analytical suite, as well as the chemical analytical suite, we drove the 3" diameter split spoon to the 5'-7' interval and collected the required volume. This location was 1' north of the original sampling borehole. It was backfilled with seal cuttings sample: BBA-GT01-C, collected @ 13:29.

- Collected soil sample BBA-GT01-SB at 5.8' BOS; will submit for TCL vocs, SVOCs, PCB/pesticides, TAC metals, TAC cyanide. This is because this is location disabled as a remediation location. A few MW also will be installed for the same reason.

HTRW DRILLING LOG (Continuation Sheet) Hole Number
BBA-6701/4903

Project: BROWN/BRICKMAN/ALLEN Inspector: Tom NICKERSON Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	1	Sm	PID = 2.6	BBA-6701-A 13:20	-	2/2/3/4	60% Rec.
	2	Gm	PID = 1.3	BBA-6701-B 13:23	-	5/5/3/5	50% Rec.
	3						
	4						
	5		PID = 0.1	BBA-6701-C 13:34	-	5/3/3/2	50% Rec.
	6	SW			BBA-6703-5B 15:35		
	7	sw/ml	PID = 0.2	BBA-6701-D 13:39		1/2/1/1	75% Rec.
	8						

PROJECT: Hudson River PCB Facility Siting Project HOLE NO.: BBA-6701/6903

HTRW DRILLING LOG (Continuation Sheet)							Hole Number
Project		Inspector					BBA-6741/6-03
Beams/Brightwater/Plan 20		Tom Nilsson					Sheet 5 of 8
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	9	Sm	PIB = 0.55	BBA-6741-E	-	4/2/1	60% Rec
	10	ML	PIB = 0.9	BBA-6741-F	-	2/2/1	50% Rec
	11			1401			
	12		PIB = 0.8	BBA-6741-G	-	4/4/5/6	95% Rec
	13			1406			
	14	ML	PIB = 0.25	BBA-6741-H	-	1/1/3/2	90%
	15	Sm		1416			
	16						

PROJECT Hudson River PCB Facility Siting

HOLE NO. BBA-6741/6-03

HTRW DRILLING LOG (Continuation Sheet)

Hole Number
BBA-GT01/5PA
Sheet *7* of *8*

Project *BRUNO / BRICKYARD / MONROE* Inspector *Joni Wickelsson*

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	17	SM	PI0 = 0.2	<i>BBA-GT01-1</i>		<i>2/4/15 / 50 / 0.3</i>	
		ML		<i>14:30</i>			<i>10%</i>
	18 18	WEATHERED gray shale	PI0 = 0	<i>N^o sample</i>	-	<i>50 / 0.3</i>	<i>5%</i>
	19	Bottom of hole @ 18.5' BGS					
	20						
	21						
	22						
	23						
	24						

PROJECT *HUDSON RIVER PCB FACILITY SITING*

HOLE NO. *BBA-GT01*

Borehole Record for

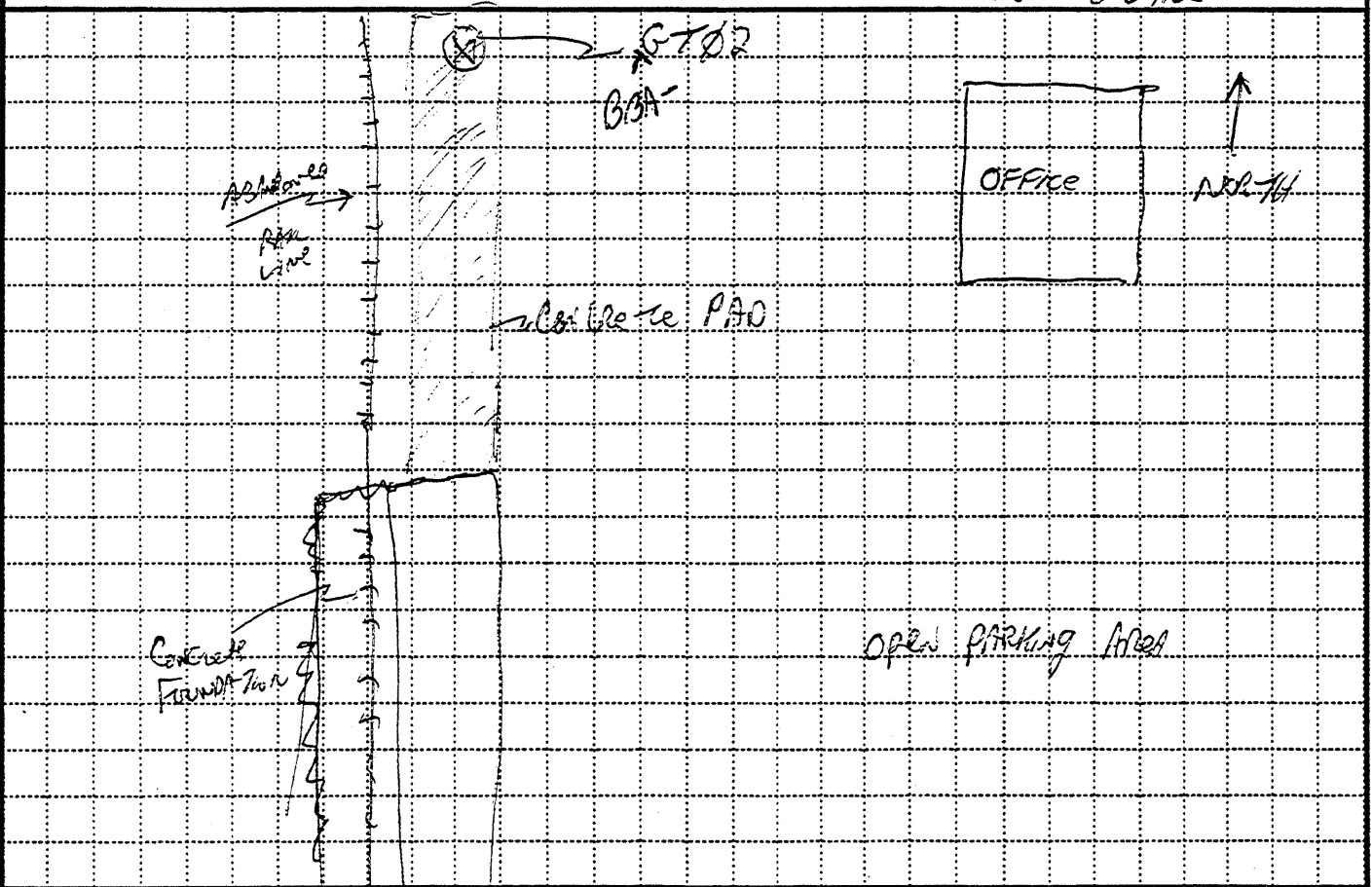
BBA-GT02

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG			District	Hole Number	
1. Company Name <i>Ecology & Environment, Inc</i>		2. Drill Subcontractor <i>KANSAS CITY NORTSTAR DRILLING</i>		Sheet <i>BBA-GT02</i>	
3. Project <i>BRUNO / BUCKHEAD / ALONZO</i>		4. Location <i>SCHAGHTICOCKE NY</i>		1 of 10	
5. Name of Driller <i>Steve LARAMIE / DENNIS HONOUR</i>		6. Manufacturer's Designation of Drill <i>CME Q45C</i>			
7. Sizes and Types of Drilling and Sampling Equipment <i>4 1/4" HSA 2" X 24" SPLIT SPOON</i>		8. Hole Location <i>NORTH END of CONCRETE PAD, W. of Warehouse</i>		9. Surface Elevation	
12. Overburden Thickness <i>> 26'</i>		10. Date Started <i>10/10/03</i>		11. Date Completed <i>10/10/03</i>	
13. Depth Drilled Into Rock <i>0</i>		15. Depth Groundwater Encountered		16. Depth to Water and Elapsed Time After Drilling Completed <i>14.3' BGS THROUGH AUGER; 0 hrs</i>	
14. Total Depth of Hole <i>26.0'</i>		17. Other Water Level Managements (Specify)		19. Total Number of Core Boxes <i>0</i>	
18. Geological Samples		Disturbed <i>0</i>		Undisturbed <i>Arterberg: 1 GRAIN 520413</i>	
20. Samples For Chemical Analysis		VOC <i>0</i>		Metals <i>0</i>	
21. Disposition of Hole		Backfilled <i>X</i>		Monitoring Well <i>0</i>	
23. Signature of Inspector <i>John J. Peterson</i>		Other (Specify) <i>GRAIN 13</i>		Other (Specify) <i>MUSTONE: 13</i>	
21. Total Core Recovery <i>N/A %</i>		Other (Specify)		Other (Specify)	

LOCATION SKETCH/COMMENTS

SCALE: NOT TO SCALE



PROJECT <i>Audson RIVER PCB FACILITY SITING</i>	HOLE NO. <i>BBA-GT02</i>
--	-----------------------------

SCREENED WELL		OPEN-HOLE WELL	
Lock Number _____	Stick-up _____ ft	Inner Casing Material _____	Inner Casing Inside Diameter _____ inches
Inner Casing Material _____	Inner Casing Inside Diameter _____ inches	Inner Casing Material _____	Inner Casing Inside Diameter _____ inches
Stick-up _____ ft	Quantity of Material Used:	Outer Casing Diameter _____ inches	Borehole Diameter _____ ft
Top of Grout _____ ft	Bentonite Pellets _____	Bedrock _____ ft	Bottom of Rock Socket/Outer Casing _____ ft
Top of Seal at _____ ft	Cement _____	Bottom of Inner Casing _____ ft	Corehole Diameter _____
Top of Sand Pack _____ ft	Borehole _____ inches Diameter	Bottom of Corehole _____ ft	
Top of Screen at _____ ft	Cement/Bentonite _____		
Bottom of Screen at _____ ft	Grout _____		
Bottom of Hole at _____ ft	Screen Slot Size _____		
Bottom of Sandpack at _____	Screen Type _____		
	<input type="checkbox"/> PVC _____		
	<input type="checkbox"/> Stainless Steel _____		
	Pack Type/Size:		
	<input type="checkbox"/> Sand _____		
	<input type="checkbox"/> Gravel _____		
	<input type="checkbox"/> Natural _____		

NOTE: See pages 136 and 137 for well construction diagrams

Geotechnical Boring only; Well NOT Constructed

- Minimum Penetration @ 0'-2' Spcon Due to Concrete. Augered through 3" of Concrete.

- Used 3" spcon on the 2'-4' depth interval due to the need to collect sufficient soil volume for the field bestial analytical suite. Saw from 4'-6' Collected sample BGA-GT02-C @ 0942 @ 3'-5.5' BGS.

- Backfilled hole w Bentonite to 19.5' BGS, then used cuttings to backfill remainder of hole

- All TVA-1000 readings in Breathing zone were all < 1000 ppm

HTRW DRILLING LOG (Continuation Sheet)							Hole Number		
Project			Inspector			Sheet		Sheets	
BRINE BRIDGEHEAD AREA 7			JEN NICKERSON			BBA-6702		3 of 10	
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)		
	1	SP/SM Concrete	PI = 0.15 F = 0.1	BBA-6702-A	-	1/50 0.1	25% Rec.		
	2	CRUSHED BRICK + CLAY		0908					
	3		PI = 1.1 F = 0	BBA-6702-B		A 3" DOWN OPEN FOR VOLUMES, NOT COLLECTED.	30% Rec.		
	4	CL				Blow Count NOT WITH STANDARD. 7/9/57			
	5		PI = 1.5 F = 0.25	BBA-6702-C		2/3/16 25/19 3" DOWN	90% Rec.		
	6								
	7		PI = 1.3 F = 0.3	BBA-6702-D		3/4/44	60% Rec.		
	8								

PROJECT HUDSON RIVER PCB FACILITY TESTING HOLE NO. BBA-6702

NARRATIVE LITHOLOGIC DESCRIPTION

↓ Dry Brown Sand, coarse, grading to med-fine sand.
 Reuses gravel inclusions, 10% ; Dry, some silt,
 0.6 Concrete P&O
 ↓
 1.3 Crushed Brick & clay; med. clay does not appear
 to be native; appears to be part of fill

~~Brown~~

3.9 ~~at~~ Brown clay; med-low-moisture; highly
 cohesive, hard.

Collected Geotech America size Vol One at
 5.0 - 5.5' BGS @ 0947. Sample BBA-GT02-C.

Same 7/9/77 Brown clay, as described above

Moisture
Content

Dry

Moist

Wet

HTRW DRILLING LOG (Continuation Sheet)

Project: BOUND BRICKYARD AVUNZO ASSOCIATES Inspector: Tom Nicholson Hole Number: BBA-GT03
Sheet: 5 of 10 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	CL	PLD = 1.3 FLD = 0.1	BBA-GT02-E		2/4/10	90% Rec.
	9			10:04			
	10	Sm	PLD = 1.3 FLD = 0.2	BBA-GT02-F		2/6/69	100%
	11			10:28			
	12	SW	PLD = 0.4 FLD = 0	BBA-GT02-E		4/8/57	95%
	13			10:34			
	14		PLD = 0.6 FLD = 0.4	BBA-GT02-H		WOM 1/1/1	100%
	15			10:47			
	16						

PROJECT: Hudson River PCB Facility Siting

HOLE NO. BBA-GT03

HTRW DRILLING LOG (Continuation Sheet)							Hole Number
Project			Inspector			Sheet	Sheet
Pittsburg / BRICKYARD / Aug 20			Jon Nickerson			7	of 10
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	17	SP Sw ②	PID=0.4 FID=0.25	BBA-GT02-I	-	1/1/2	100% Rec
	18	Sm		10154			
	19		PID=0.2 FID=0.1	BBA-GT02-J	-	w.o.H/ 1/2/3	100% Rec
	20	ml		1102			
	21		PID=0.85 FID 0.6	BBA-GT02-K	-	w.o.H/ 1/1/1	100% Rec.
	22	Cl4		1107			
	23		PID=0.3 FID=0.1	BBA-GT02-L	-	1/2/2/2	65% Rec
	24			1110			

PROJECT: Anderson River PCB Facility Siting
HOLE NO.: BBA-GT02

HTRW DRILLING LOG (Continuation Sheet)							Hole Number
Project			Inspector			Sheet	Sheet
Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
BRWPC / BRIDGE / Area 20			Tom NICKERSON			BBA-GT02	9 of 10
	25	CH ↓	P.D = 0.4 F.D = 0.2	BBA-GT02-m 11:19	-	2/4/3/4	80% Rec.
	26						
BOTTOM OF HOLE = 26.0'							

PROJECT	MUNDAN RIVER PCB FACILITY SITING Project	HOLE NO.	BBA-GT02
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**Bruno/Brickyard Associates/Alonzo Site
Supplemental Geotechnical Information**

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**TABLE 1
SUMMARY**

PROJECT: HUDSON RIVER PCB FACILITY SITING PROJECT

FILE NO.: 0204

DATE:

CLASSIFIED BY: AT AND LDD

LOCATION OR BORING	SAMPLE NO.	ELEV. OR DEPTH	LL/PL	SAMPLE DESCRIPTION	NAT. W. C. %
BBA-GTO1	A	0-2			10.8
BBA-GTO1	B	2-4			8.2
BBA-GTO1	C	4-6	NP	SILTY SAND (SM), GRAY; WITH GRAVEL	15.4
BBA-GTO1	D	6-8			63.9
BBA-GTO1	E	8-10			24.6
BBA-GTO1	F	10-12			33.7
BBA-GTO1	G	12-14			25
BBA-GTO1	H	14-16			21.4
BBA-GTO1	I	16-17			22.8
BBA-GTO2	A	0-0.6			12.5
BBA-GTO2	B	2-2.5			16.1
BBA-GTO2	C	5-5.5	27/17	SANDY CLAY (CL), GRAY	21.4
BBA-GTO2	D	7-7.5			20.6
BBA-GTO2	E	8-10			24.2
BBA-GTO2	F	10-12			22.4
BBA-GTO2	G	12-14			21.9
BBA-GTO2	H	15-16			32.2
BBA-GTO2	I	17-18			21.0
BBA-GTO2	J	19-20			21.3
BBA-GTO2	K	20-22			19.4
BBA-GTO2	L	22-24			35.0

REMARKS:

TABLE 1
SUMMARY

PROJECT: HUDSON RIVER PCB FACILITY SITING PROJECT

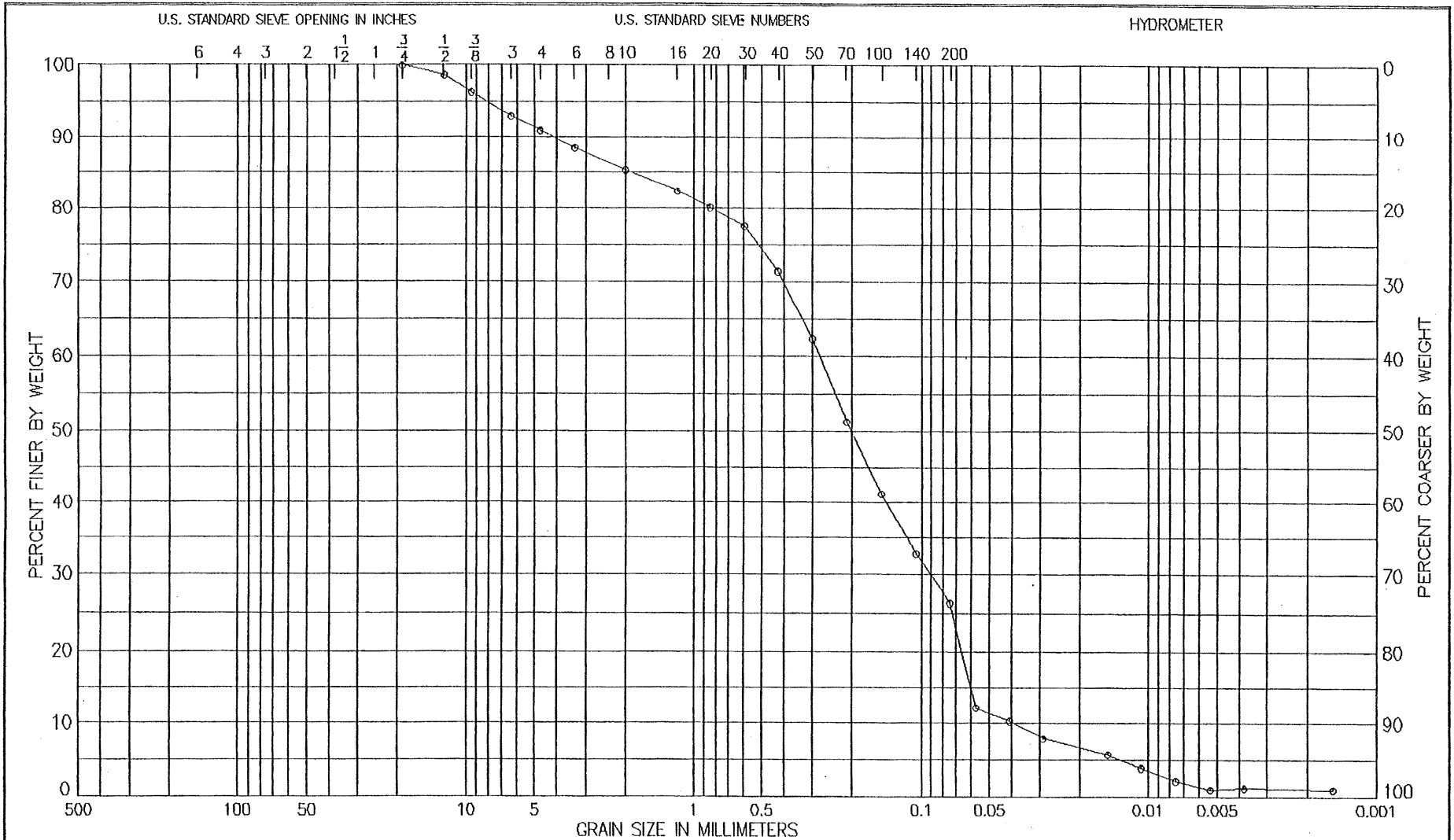
FILE NO.: 0204

DATE:

CLASSIFIED BY: AT AND LDD

LOCATION OR BORING	SAMPLE NO.	ELEV. OR DEPTH	LL/PL	SAMPLE DESCRIPTION	NAT. W. C. %
BBA-GTO2	M	24-26			26.8

B-433



COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LL	NP	PL	PI	GS	2.67	EST	NAT W, %	15.4	ORG, %		PROJECT	HUDSON RIVER PCB FACILITY SITING PROJECT	
CLASSIFICATION										BORING NO.	BBA-GT01	SAMPLE NO.	C
SILTY SAND (SM), GRAY; WITH GRAVEL										DEPTH/ELEV	4-6	DATE	06 NOV 03
GRADATION CURVE					LABORATORY USAE WES -- STF/GL								

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: BBA-GT01 SAMPLE: C DF: 0204 .DAT
DEPTH: 4-6 DATE: 06 NOV 03

NON-PLASTIC GS: 2.67 est WC: 15.40
CLASSIFICATION: 108
SILTY SAND (SM), GRAY; WITH GRAVEL

TOTAL WEIGHT OF SAMPLE: 1008.2 gms.
PARTIAL WEIGHT AFTER SPLIT: 68.5 gms.

WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	3/4 in	19.100	100.0	.0
13.1	1/2 in	12.500	98.7	1.3
22.9	3/8 in	9.500	96.4	3.6
34.6	No 3	6.350	93.0	7.0
20.6	No 4	4.750	91.0	9.0
24.5	No 6	3.350	88.5	11.5
33.1	No 10	2.000	85.2	14.8
2.3	No 16	1.180	82.4	17.6
4.1	No 20	.850	80.1	19.9
6.2	No 30	.600	77.5	22.5
11.1	No 40	.425	71.4	28.6
18.3	No 50	.300	62.5	37.5
27.3	No 70	.212	51.3	48.7
35.4	No 100	.150	41.2	58.8
42.1	No 140	.106	32.9	67.1
47.3	No 200	.075	26.4	73.6

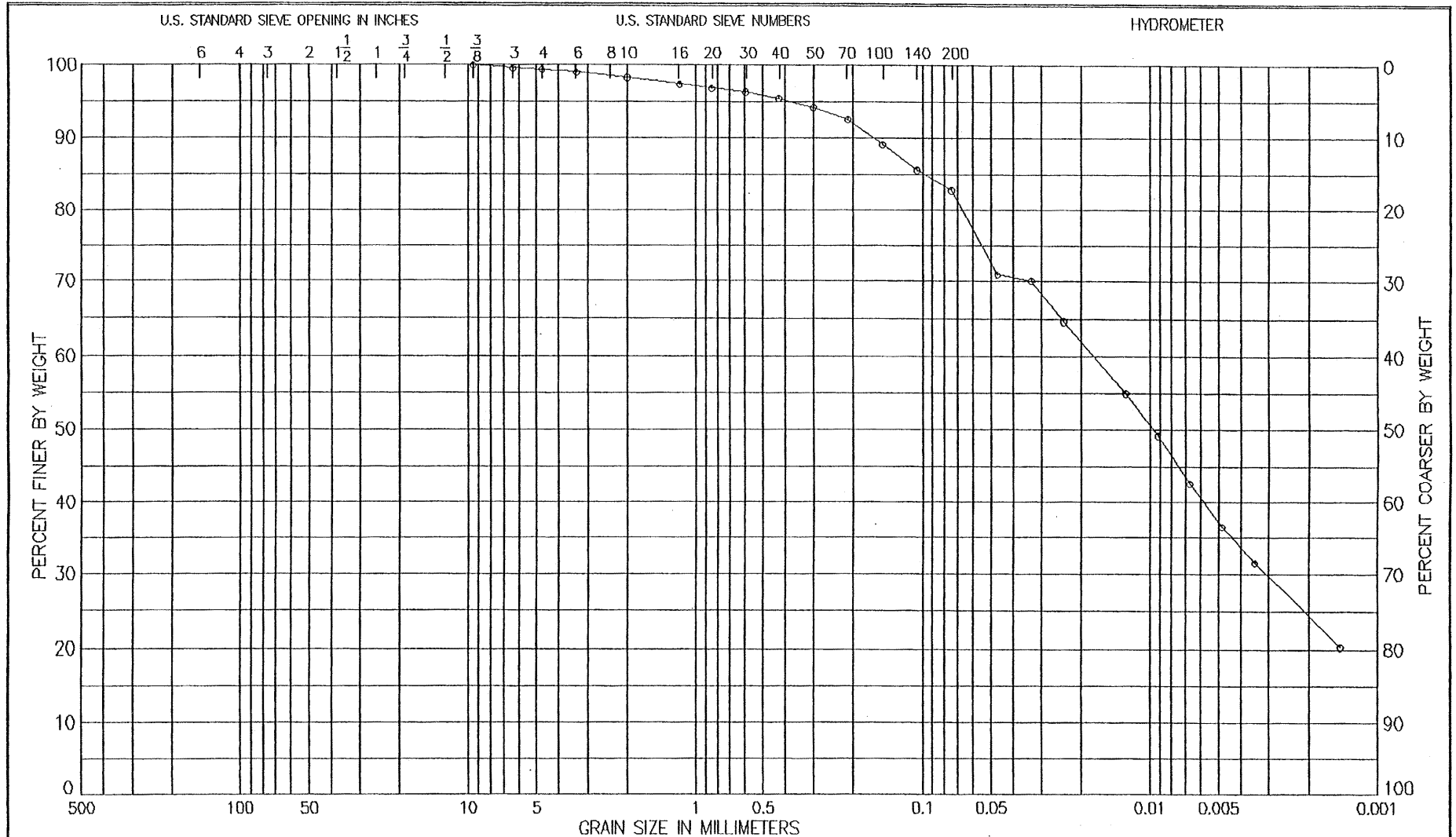
HYDROMETER:

RDGS	TEMP			
6.1	22.5	.0574	12.1	87.9
5.2	22.5	.0409	10.3	89.7
4.0	22.5	.0292	8.0	92.0
2.9	22.5	.0152	5.8	94.2
2.0	22.5	.0108	4.0	96.0
1.0	23.0	.0076	2.2	97.8
.4	23.0	.0054	1.0	99.0
.4	23.5	.0038	1.2	98.8
.3	23.5	.0016	1.0	99.0

PERCENT GRAVEL = 9.0
PERCENT SAND = 64.6
PERCENT FINES = 26.4

EDE

B-435



COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LL	27	PL	17	PI	10	GS	2.70	EST	NAT W, %	21.4	ORG, %
----	----	----	----	----	----	----	------	-----	----------	------	--------

CLASSIFICATION
SANDY CLAY (CL), GRAY

PROJECT HUDSON RIVER PCB FACILITY SITING
PROJECT
BORING NO. BBA-GT02 SAMPLE NO. C
DEPTH/ELEV 5-5.5 DATE 06 NOV 03

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: BBA-GT02 SAMPLE: C DF: 0204 .DAT
DEPTH: 5-5.5 DATE: 06 NOV 03

LL: 27 PL: 17 PI: 10 GS: 2.70 est WC: 21.40
CLASSIFICATION: 126
SANDY CLAY (CL), GRAY

TOTAL WEIGHT OF SAMPLE: 444.4 gms.
PARTIAL WEIGHT AFTER SPLIT: 55.9 gms.

WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	3/8 in	9.500	100.0	.0
1.7	No 3	6.350	99.6	.4
.8	No 4	4.750	99.4	.6
1.7	No 6	3.350	99.1	.9
3.3	No 10	2.000	98.3	1.7
.5	No 16	1.180	97.4	2.6
.8	No 20	.850	96.9	3.1
1.1	No 30	.600	96.4	3.6
1.6	No 40	.425	95.5	4.5
2.3	No 50	.300	94.3	5.7
3.3	No 70	.212	92.5	7.5
5.2	No 100	.150	89.2	10.8
7.2	No 140	.106	85.6	14.4
8.8	No 200	.075	82.8	17.2

HYDROMETER:

RDGS	TEMP			
25.3	23.0	.0470	70.9	29.1
25.0	23.0	.0333	70.1	29.9
23.1	23.0	.0241	64.8	35.2
19.6	23.0	.0129	55.0	45.0
17.5	23.0	.0093	49.2	50.8
15.2	23.0	.0067	42.7	57.3
13.0	23.0	.0048	36.6	63.4
11.1	23.5	.0035	31.6	68.4
7.1	23.5	.0015	20.4	79.6

PERCENT GRAVEL = .6
PERCENT SAND = 16.6
PERCENT FINES = 82.8

EDE