



RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: WRB Refining LLC - Wood River Refinery Site ID #: 1191150002
Facility Address: 900 S. Central Ave; Roxana, IL 62048 Fed ID #: ILD 080 012 305

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

<input type="checkbox"/>	LPC-160 Forms		
<input type="checkbox"/>	<u>Groundwater</u>	<input type="checkbox"/>	<u>Leachate</u>
<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4	<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4
<input type="checkbox"/>	Semi-Annual	<input type="checkbox"/>	Semi-Annual
<input type="checkbox"/>	Annual	<input type="checkbox"/>	Annual
<input type="checkbox"/>	Biennial	<input type="checkbox"/>	Biennial

<input type="checkbox"/>	Groundwater Data (without LPC-160 Forms)
<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4
<input type="checkbox"/>	Annual <input type="checkbox"/> Semi-Annual <input type="checkbox"/> Biennial

Well Construction Information

Well Construction Forms, Boring Logs and/or Abandonment Forms

Well Survey Data (e.g., Stick-up Elevation Data)

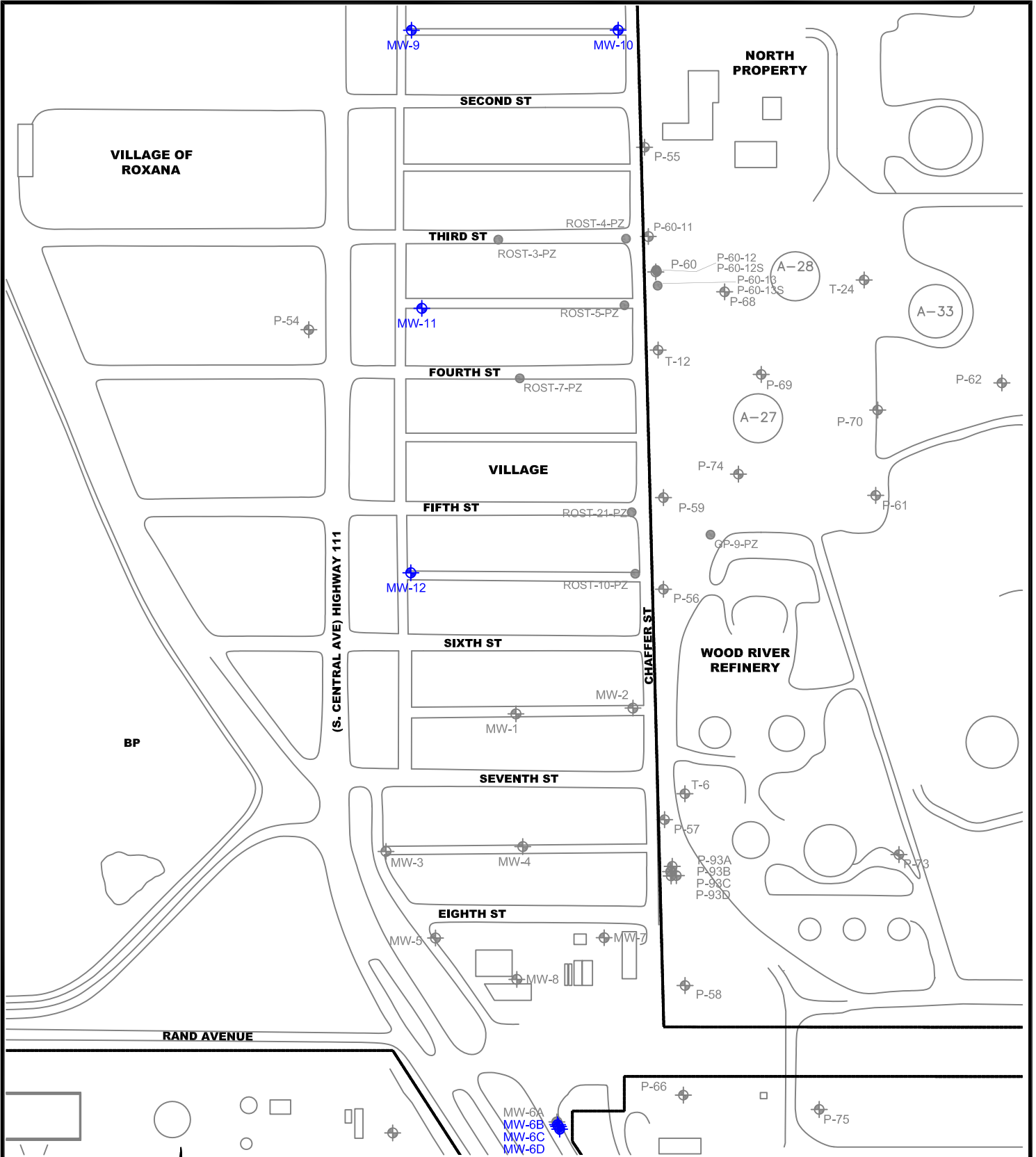
Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

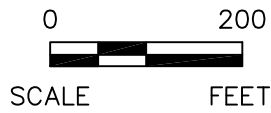
Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

Gas Monitoring Reports

Other (identify) Map of referenced monitoring well locations.



SHELL OIL PRODUCTS US ROXANA, ILLINOIS		PROJECT NO. 21562291
URS		
DRN. BY: wmp 11/24/10 DSGN. BY: wmp CHKD. BY:	Newly Installed Monitoring Wells	FIG. NO. 1



Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity		Well ID:	MW-6B
Project Location:	Roxana, Illinois	Date Started:	10/12/2010	
Well Location:	Frontage road South of Rand Avenue	Date Completed:	10/12/2010	Boring ID: MW-6B
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1420	Northing: 791604.07
Driller:	J. Cox	Type of Rig:	CME 75	Easting: 2322076.35
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum: 432.79
Geologist:	M. Miller	Completion Zone:		

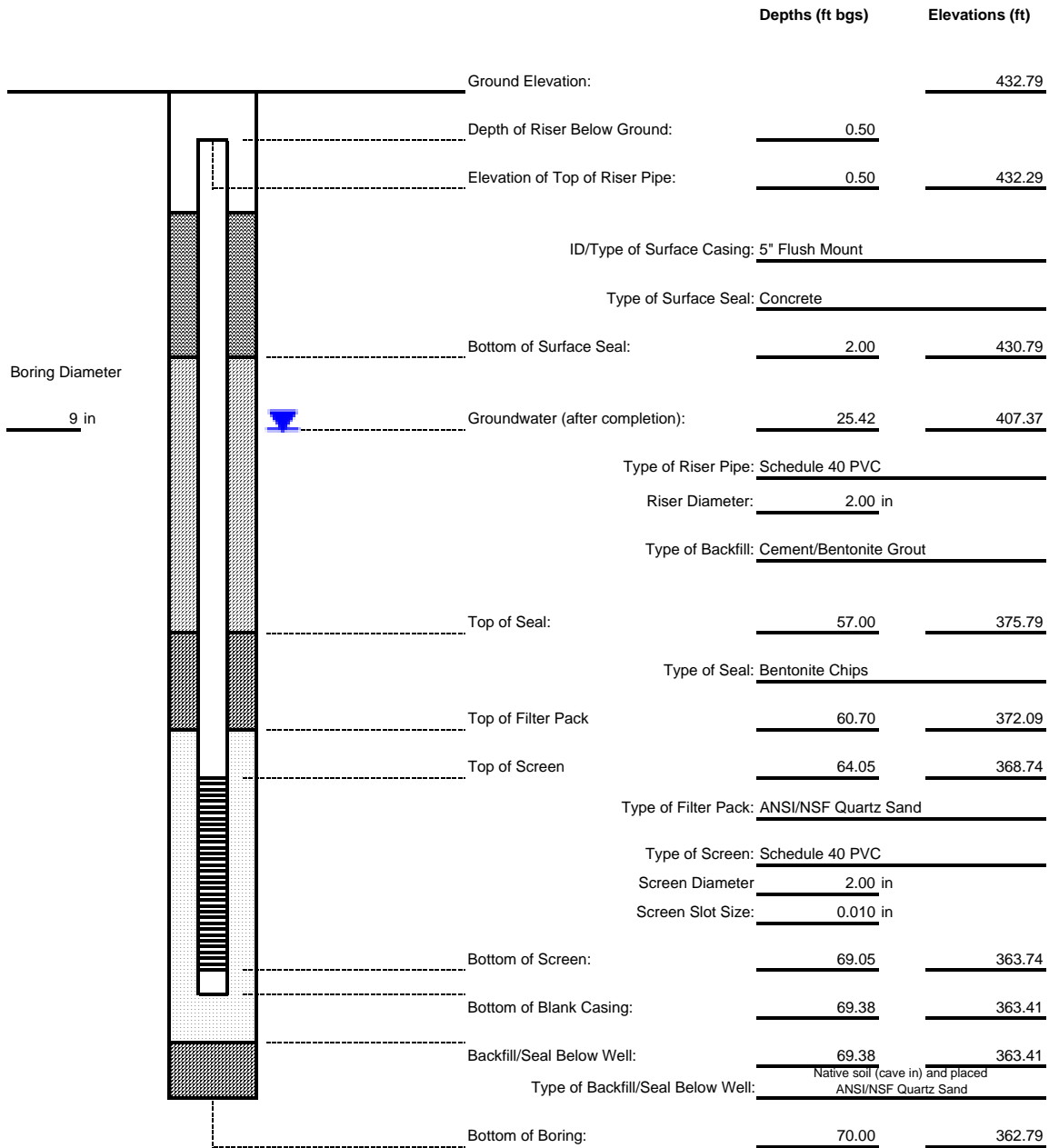


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 11/3/10
 WEATHER: Sunny (45°F)
 FIELD PERSONNEL: Kurt MPE
 MONITORING WELL ID: MW-6B

INITIAL DATA

Well Diameter: 2 in. Gallons/Lin.Ft': 0.163 Water Added during Drilling: 15 gallons
 Total Depth of Well: 68.14 ft Vol. Of Water Column: 6.96 gallons Water to be Removed: 75 gallons (5x added)
 Depth to Water: 25.42 ft Min. Purge Volume: 34.80 gallons (5 volumes) Ambient PID/FID Reading: 1.7 pp
 Height of Water Column: 42.72 ft Depth to Top of Screen: 65.00 ft Wellbore PID/FID Reading: 0.0 pp
 1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: ~~American~~ American Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
75	14:02	25.45	Clear	None	7.98	18.39	1.236	17.9	3.89	-73
82	14:06	↓	↓	↓	7.29	18.53	1.153	15.7	3.89	-95
89	14:10	↓	↓	↓	7.23	18.54	1.148	11.3	4.74	-70
96	14:14	↓	↓	↓	7.12	18.51	1.145	9.0	3.68	-84
103	14:18	↓	↓	↓	7.22	18.66	1.149	12.2	4.17	-77
108	14:22	↓	↓	↓	7.22	18.59	1.147	14.2	4.06	-99

Start Time: (0938-0945) 1250 Purge Stop Time: 1422 Elapsed Time: 99 min Total Volume Purged: 108 gallons
 Average Purge Rate (gallons/min): 1.5 Well Volumes Purged: 5 Water Quality Meter ID: R20327 Calibrated on: 11/3/10

SAMPLING DATA

Sampling Method: _____
 Sample Date: _____ Sample Time: _____ Analysis: _____

COMMENTS:

Well depth after development 69.05
Bottom HARD
Well 6.5 in below ground surface

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-6C
Project Location:	Roxana, Illinois	Date Started:	10/13/2010		
Well Location:	Frontage road South of Rand Avenue	Date Completed:	10/13/2010	Boring ID:	MW-6C
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1415	Northing:	791599.99
Driller:	J. Cox	Type of Rig:	CME 75	Easting:	2322078.73
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	432.79
Geologist:	M. Miller	Completion Zone:			

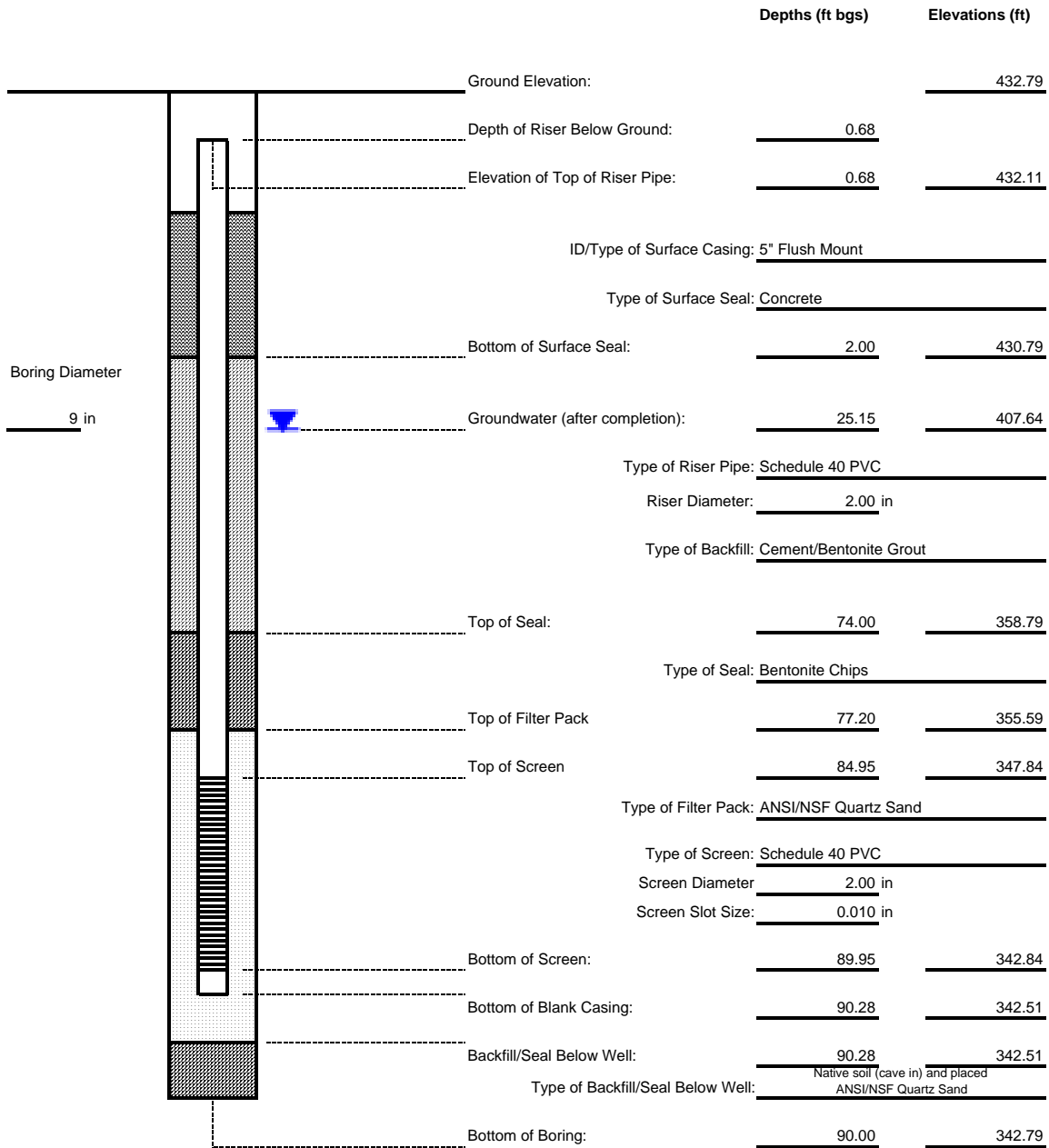


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 11/4/10
 WEATHER: Sunny, 50° windy
 FIELD PERSONNEL: MPE/JCW
 MONITORING WELL ID: MW-6C

INITIAL DATA

Well Diameter: 2 in. Gallons/Lin.Ft': 0.163 Water Added during Drilling: 30 gallon
 Total Depth of Well: 89.98 ft Vol. Of Water Column: 10.57 gallons Water to be Removed: 150 gallons (5x adde
 Depth to Water: 25.15 ft Min. Purge Volume: 52.8 gallons (5 volumes) Ambient PID/FID Reading: 2.5 pp
 Height of Water Column: 64.83 ft Depth to Top of Screen: 80 ft Wellbore PID/FID Reading: 0.0 pp
1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: Humicane Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
150	1127	NG	clear	None	7.46	19.16	1207	24.7	2.02	-62
160	1130	↓ 25.18	clear	↓	6.98	18.39	1166	11.9	3.44	-85
170	1134		clear		7.12	17.85	1147	5.7	4.67	-88
180	1138		clear		6.96	17.76	1146	10.5	3.64	-87
190	1142		clear		6.98	17.71	1152	7.0	4.23	-78
200	1146		clear		6.97	17.71	1146	7.1	3.73	-91

Start Time: 1030 Purge Stop Time: 1146 Elapsed Time: 86 Total Volume Purged: 200 gallon
 Average Purge Rate (gallons/min): 2.5 Well Volumes Purged: 5 Water Quality Meter ID: R20827 Calibrated on: 11/4/10

SAMPLING DATA

Sampling Method: _____
 Sample Date: _____ Sample Time: _____ Analysis: _____

COMMENTS:

total depth to water = 25.17 ft
total depth to bottom = 89.95 ft
soft or hard = 30 ft

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-6D
Project Location:	Roxana, Illinois	Date Started:	10/21/2010		
Well Location:	Frontage road South of Rand Avenue	Date Completed:	10/26/2010	Boring ID:	MW-6D
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1515	Northing:	791594.14
Driller:	P. Seymour	Type of Rig:	CME 75	Easting:	2322081.25
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	432.54
Geologist:	N. Satam	Completion Zone:			

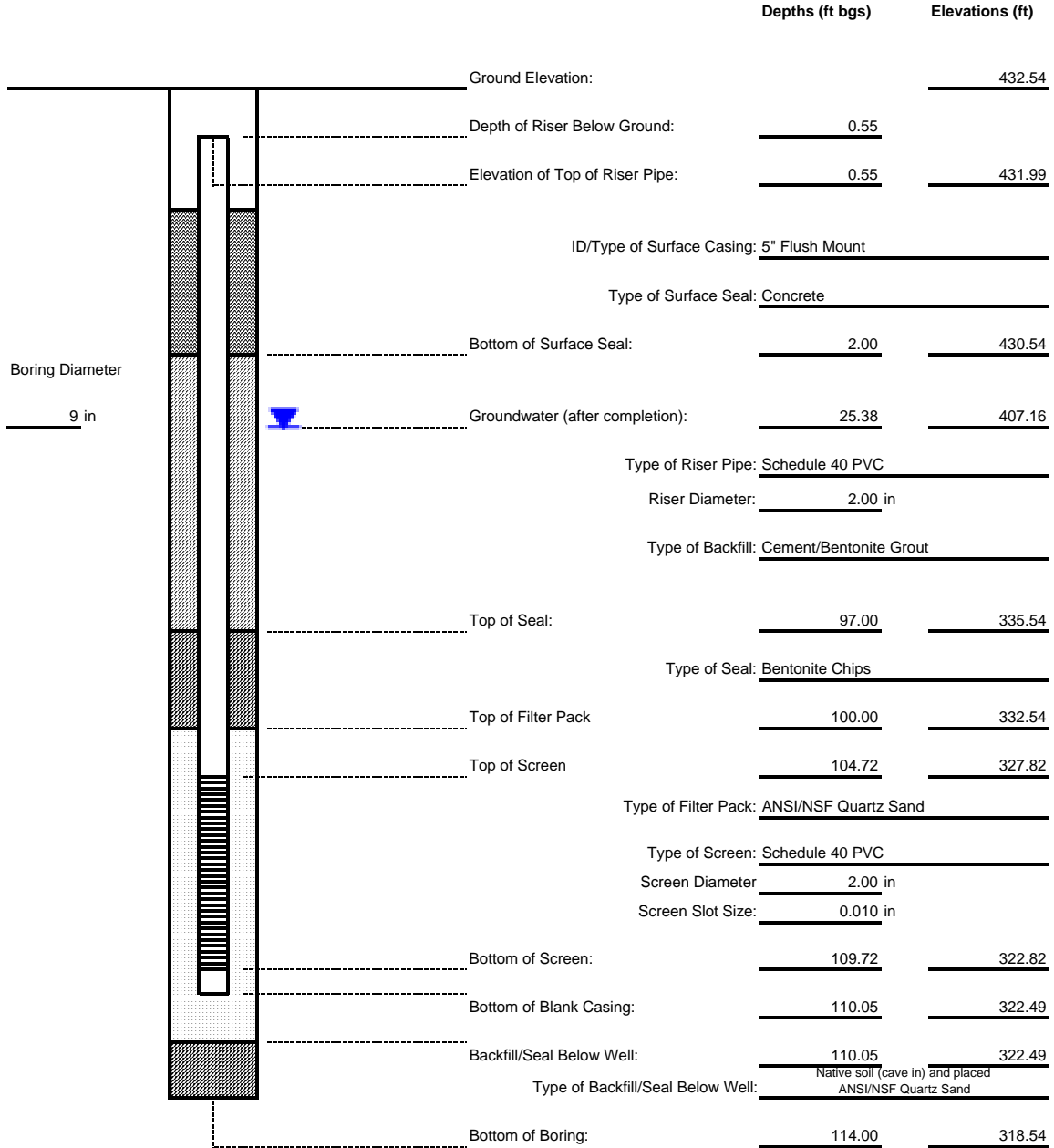


DIAGRAM IS NOT TO SCALE

**LOG OF BORING
MW-6D**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting Date: 10/21/10	Quadrangle Sec:34.00
								Completion Date: 10/26/10	T:15N R:R9W
								Casing Elevation: 431.99	UTM (or State Plane) Coord N: (X):791594.14
								Ground Elevation: 432.54	E: (Y):2322091.25

DESCRIPTION								NOTES	
5								Refer to log of boring B-6 in the Subsurface Investigation Report (dated January 21, 2009) for the lithology of the top 50'.	Borehole advanced to depth of 10' via air knife to clear utilities.
10									
15									
20									

URS (ENVI/RO) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

Completion Depth: 114.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: _____ ft., After _____ hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-6D**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting Date: 10/21/10	Quadrangle Sec:34.00
								Completion Date: 10/26/10	T:15N R:R9W
								Casing Elevation: 431.99	UTM (or State Plane) Coord
								Ground Elevation: 432.54	N: (X):791594.14
									E: (Y):2322091.25

DESCRIPTION								NOTES
								Refer to log of boring B-6 in the Subsurface Investigation Report (dated January 21, 2009) for the lithology of the top 50'.
30								
35								
40								
45								

URS (ENVI/RO) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

Completion Depth: 114.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: _____ ft., After _____ hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-6D**

Starting Date: 10/21/10
 Completion Date: 10/26/10
 Casing Elevation: 431.99
 Ground Elevation: 432.54
 Quadrangle Sec: 34.00
 T: T5N
 R: R9W
 UTM (or State Plane) Coord
 N: (X): 791594.14
 E: (Y): 2322091.25

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS
55	24	24	1	0.1	[Redacted]	[Dotted]	SP
			3 3 6	0.0			
60	24	24	2	0.5	[Redacted]	[Dotted]	SP
			3 4 5	0.7			
65	24	24	1	0.8	[Redacted]	[Dotted]	SP
			3 5 7	2.2			
70	24	8	3	0.3	[Redacted]	[Dotted]	SP
			11 19 21	0.4			
75	24	5	4	0.5	[Redacted]	[Dotted]	SP
			10 22 21	0.4			
80	24	8	9	0.3	[Redacted]	[Dotted]	SP
			14 23 27	0.3			
85	21	21	13	0.7	[Redacted]	[Dotted]	SP
			14 18 28				
90	24	23	8	0.5	[Redacted]	[Dotted]	SP
			14 22 28	0.6			
95	24	16	8	0.8	[Redacted]	[Dotted]	SP
			13 27 32	1.8			
100	24	6	7		[Redacted]	[Dotted]	SP
			19 48 34				
105	24	0	13		[Redacted]	[Dotted]	SP
			19 36 19				
110	24	22	2		[Redacted]	[Dotted]	SP
			9 19 33				
115	24	23	4	0.3	[Redacted]	[Dotted]	SP
			9				

DESCRIPTION	NOTES
Loose to medium dense, wet, brown, fine to medium grained SAND (SP)	
Becomes dense, trace black gravel	
Becomes fine to coarse grained	
Trace gravel	

Completion Depth: 114.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: _____ ft., After _____ hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable
 Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

URS (ENVIRON) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-6D**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting Date: 10/21/10	Quadrangle Sec:34.00
								Completion Date: 10/26/10	T:15N R:R9W
								Casing Elevation: 431.99	UTM (or State Plane) Coord N: (X):791594.14
								Ground Elevation: 432.54	E: (Y):2322091.25

								DESCRIPTION	NOTES
80			16 26	0.4			SP	Same: Dense, wet, brown, fine to coarse grained SAND (SP), trace gravel	
	24	1	10 16 16 24	0.2					
	24	0	9 15 21 36	0.2					
85	24	0	8 12 17 31			SP		Gravel grades out	
	24	0	5 6 10 12						
	24	22	14 11 15 16	0.0 0.1 0.0					
90	24	24	9 9 12 24	0.1 0.4 0.9		SP		2" sandy silt seam Becomes medium dense, fine to medium grained Becomes medium to coarse grained Becomes loose Becomes fine to medium grained Becomes medium dense, medium to coarse grained	
	24	0	37 23 18 21						
	24	0	3 9 12 14						
95	24	22	14 12 21 24	0.9 1.3		SP		Becomes fine to medium grained Becomes fine to coarse grained	
	24	24	15 16 15 12	1.1 1.1					
	24	24	8 15 26 25	1.4 1.3					
	24	24	31 19 18 23	1.4 1.3				Becomes medium to coarse grained	

Completion Depth: 114.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: _____ ft., After _____ hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-6D**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	LOG OF BORING MW-6D	
								Starting Date: 10/21/10 Completion Date: 10/26/10 Casing Elevation: 431.99 Ground Elevation: 432.54	Quadrangle Sec:34.00 T:15N R:R9W UTM (or State Plane) Coord N: (X):791594.14 E: (Y):2322091.25
DESCRIPTION								NOTES	
105	24	0	10 13 17 15				SP	Same: Medium dense, wet, brown, medium to coarse grained SAND (SP) Becomes fine to coarse grained	
	24	18	5 8 8 9						
	24	0	8 13 13 29						
	24	24	12 9 12 19	1.1 1.3					
	24	18	5 7 14 17	1.8 1.8					
110	24	24	7 13 21 27	2.8 4.2			CL	Stiff, moist, dark gray, medium plastic CLAY, with trace medium to coarse sand	
	24	2	21 22 30 48						
	24								
115								Bottom of boring at 114' bgs	Monitoring well installed.
								This boring log also used for installation of adjacent wells MW-6B and MW-6C with screen intervals based on the ground surface at the time of drilling of 65' to 70' bgs and 80' to 85' bgs, respectively. Survey data of the existing ground surface shows the screen intervals from 64.05' to 69.05' bgs and 84.95' to 89.95' bgs, respectively.	Screened interval based on the ground surface at the time of installation was 105' to 110' bgs. Survey data of the existing ground surface shows the screen interval from 104.72' to 109.72' bgs
120									

URS (ENVI/IRON) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

Completion Depth: 114.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: _____ ft., After _____ hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 11/9/10
 WEATHER: Sunny, 45°F
 FIELD PERSONNEL: KWILLIMPE
 MONITORING WELL ID: MW-4D

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 110.00 ft
 Depth to Water: 25.38 ft
 Height of Water Column: 84.62 ft
 Gallons/Lin.Ft: 0.163
 Vol. Of Water Column: 13.79 gallons
 Min. Purge Volume: 68.47 gallons (5 volumes)
 Depth to Top of Screen: 105.0 ft
 Water Added during Drilling: 258 gallons
 Water to be Removed: 1250 gallons (5x added)
 Ambient PID/FID Reading: 0.0 pp
 Wellbore PID/FID Reading: 0.2 pp

1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: Hurricane Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (umhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
1250	1055	25.38	Clear	None	6.98	17.55	1.338	-4.4	5.84	18
1244	1101	↓	↓	↓	7.19	19.47	1.331	-5.2	5.57	-49
1278	1107	↓	↓	↓	7.32	19.76	1.318	11.4	5.05	-105
1292	1113	↓	↓	↓	7.30	18.04	1.220	-3.5	4.02	-83
1306	1119	↓	↓	↓	7.04	18.72	1.330	4.3	2.63	-92
1320	1125	↓	↓	↓	7.13	18.73	1.320	1.8	3.50	-108
1324	1139	↓	↓	↓	7.09	18.55	1.336	2.6	1.87	-109

Start Time: 1055 Purge Stop Time: 1139 Elapsed Time: 44 min Total Volume Purged: 1324 gallons
 Average Purge Rate (gallons/min): 2.5 Well Volumes Purged: 6 Water Quality Meter ID: R220827 Calibrated on: 11/9/10

SAMPLING DATA

Sampling Method: _____
 Sample Date: _____ Sample Time: _____ Analysis: _____

COMMENTS:

Top of well = 7.25 in btoc
Bottom = HARD
Total Depth of well = 109.72 ft

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-9
Project Location:	Roxana, Illinois	Date Started:	10/28/2010		
Well Location:	Alley between 1st and 2nd Streets	Date Completed:	11/1/2010	Boring ID:	MW-9
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1340	Northing:	794065.9
Driller:	P. Seymour	Type of Rig:	CME 75	Easting:	2321747.7
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	445.62
Geologist:	N. Satam	Completion Zone:			

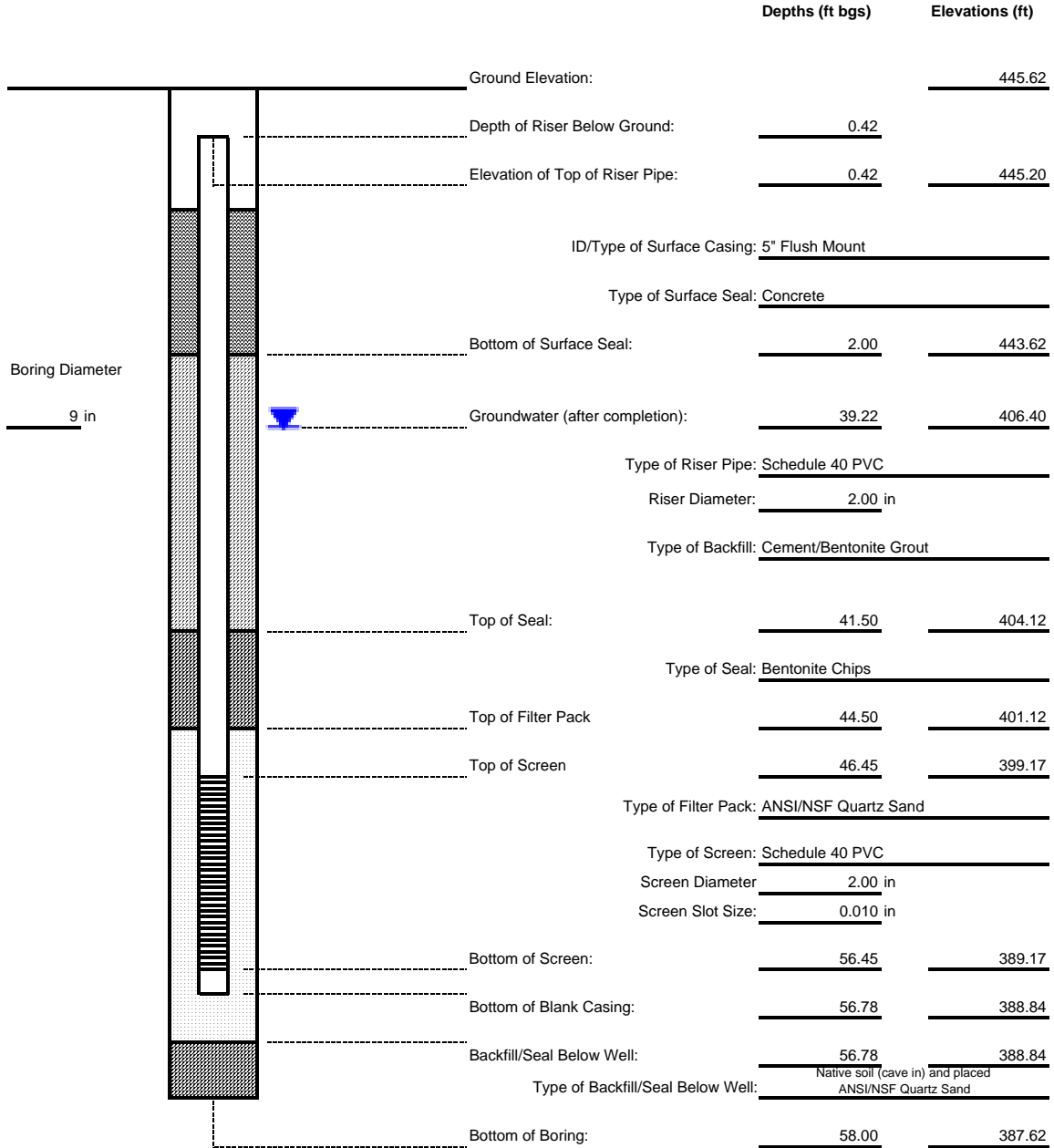


DIAGRAM IS NOT TO SCALE

LOG OF BORING MW-9

Starting Date: 10/28/10 Completion Date: 11/1/10 Casing Elevation: 445.20 Ground Elevation: 445.62	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 794065.90 E: (Y): 2321747.70
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Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
					●	[Cross-hatch]	ASPHALT	Asphalt	Borehole advanced to depth of 10' via air knife to clear utilities. Soil cuttings from air knife were used to log the upper portion of the borehole.
					●	[Diagonal lines]	FILL	Brown, sandy clay with gravel (FILL)	
5					●	[Diagonal lines]	SM	Dense, dry, brown, Silty SAND (SM)	
	24	14	NA	0.0	●	[Diagonal lines]	SM		
				0.2	●	[Diagonal lines]	SM		
	48	32	NA	0.8	●	[Diagonal lines]	SM		
15				0.5	●	[Diagonal lines]	SP-SM	Dense, dry, brown, fine grained Silty SAND (SP-SM)	
				0.3	●	[Diagonal lines]	SP-SM	Becomes medium dense	
	48	34	NA		●	[Diagonal lines]	SP-SM		
20					●	[Diagonal lines]	SP	Dense, moist, brown, fine grained SAND (SP)	
	48	32	NA		●	[Diagonal lines]	SP		

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 40 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger- Soil samples not collected



USC based on field visual observations

URS (ENVI/RO) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-9**

Starting Date: 10/28/10
 Completion Date: 11/1/10
 Casing Elevation: 445.20
 Ground Elevation: 445.62

Quadrangle Sec: 34.00
 T: 15N
 R: R9W
 UTM (or State Plane) Coord
 N: (X): 794065.90
 E: (Y): 2321747.70

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	LOG OF BORING MW-9	
								DESCRIPTION	NOTES
30	48	32	NA	0.6			SP	Same: Dense, moist, brown, fine grained SAND (SP)	
				1.2					
	0.7								
	1.1								
35	48	32	NA	0.4			CL	Soft, wet, low plastic CLAY (CL), some silt	
				2.0					
40	48	32	NA	1.9			SP	Loose, moist, brown, medium grained SAND (SP)	▽
				2.0					
	2.2								
	0.9								
45	48	48	NA	1.8			CL	Soft, moist, medium plastic CLAY (CL)	
				1.2					
	1.7								

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 40 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 ▽ Water level at time of drilling
 ▼ Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

URS (ENVI/RO) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-9**

Starting Date: 10/28/10
 Completion Date: 11/1/10
 Casing Elevation: 445.20
 Ground Elevation: 445.62

Quadrangle Sec: 34.00
 T: 15N
 R: R9W
 UTM (or State Plane) Coord
 N: (X): 794065.90
 E: (Y): 2321747.70

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS
55	48	NA		1.8			SP
60				1.5			
70							

DESCRIPTION	NOTES
Medium dense, wet, brown, fine grained SAND (SP), trace silt 1" silt seam Becomes fine to medium grained	
Bottom of boring at 56' bgs	Monitoring well installed. Screened interval based on the ground surface at the time of installation was 46.5' to 56.5' bgs. Survey data of the existing ground surface shows the screen interval from 46.45' to 56.45' bgs

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 40 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.

Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 11/2/10
 WEATHER: Sunny 58°F
 FIELD PERSONNEL: JCW, MPB
 MONITORING WELL ID: MW-9

INITIAL DATA

Well Diameter: 2 in. 56.22 Gallons/Lin.Ft.: 0.163
 Total Depth of Well: 56.22 ft Vol. Of Water Column: 2.77 gallons
 Depth to Water: 39.22 ft Min. Purge Volume: 13.8 gallons (5 volumes)
 Height of Water Column: 17 ft Depth to Top of Screen: 46.5 ft
 Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 pp
 Wellbore PID/FID Reading: 0.0 pp
 1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4 inch well

PURGE DATA

Purge Method: Monsoon Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
75	1340	39.57	clear	None ↓	8.15	15.88	904.1	20.6	5.94	-140
77.5	1342		clear		7.17	15.75	895.5	16.8	2.62	-117
80	1344		clear		7.03	15.96	898.8	10.5	4.87	-96
82.5	1346		clear		6.99	15.78	897.6	11.1	4.88	-87
85	1348		clear		7.00	15.61	895.9	6.6	4.41	-94
87.5	1350		clear		6.89	16.09	896.9	9.7	3.05	-80
90	1352		clear		6.90	16.35	896.9	8.6	3.18	-78
92.5	1354		clear		6.97	16.10	899.0	6.8	4.88	-80

Start Time: 1220 Purge Stop Time: 1354 Elapsed Time: 94 min. Total Volume Purged: 92.5 gallons
 Average Purge Rate (gallons/min): 1.5 Well Volumes Purged: 7 Water Quality Meter ID: R20827 Calibrated on: 11/2/10

SAMPLING DATA

Sampling Method: _____
 Sample Date: _____ Sample Time: _____ Analysis: _____

COMMENTS:

Total Depth of well: 56.45
Hard or soft: Hard
well = 6 in below ground surface

Monitoring Well Installation Details
 Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-10
Project Location:	Roxana, Illinois	Date Started:	10/20/2010		
Well Location:	Alley between 1st and 2nd Streets	Date Completed:	10/20/2010	Boring ID:	MW-10
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1450	Northing:	794066.09
Driller:	P. Seymour	Type of Rig:	CME 75	Easting:	2322212.72
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	445.57
Geologist:	N. Satam	Completion Zone:			

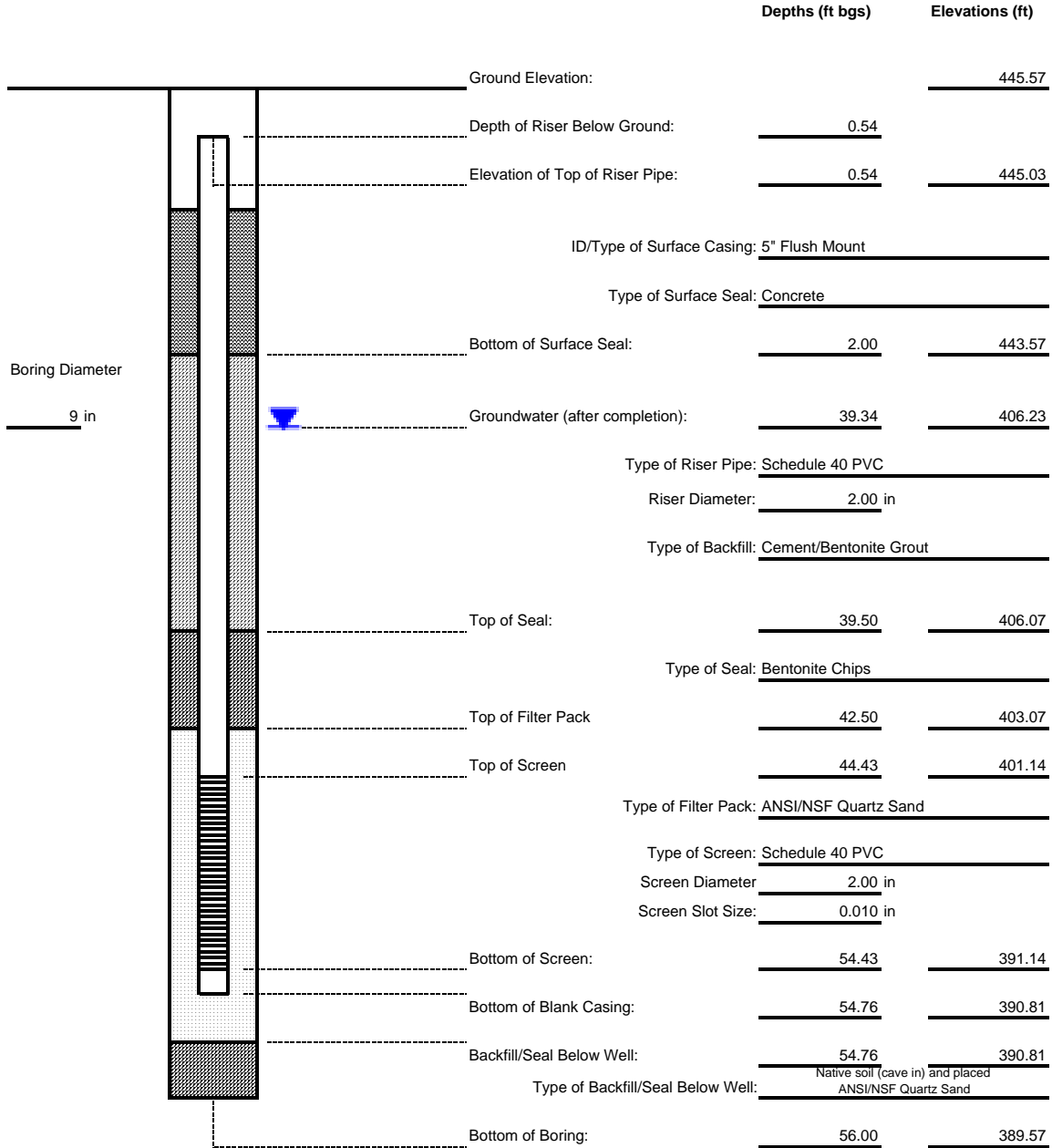


DIAGRAM IS NOT TO SCALE

LOG OF BORING MW-10

Starting Date: 10/20/10 Completion Date: 10/20/10 Casing Elevation: 445.03 Ground Elevation: 445.57	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 794066.09 E: (Y): 2322212.72
--	--

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
					●	[Cross-hatch]	ASPHALT	Asphalt	Borehole advanced to depth of 5.5' via air knife to clear utilities. Soil cuttings from air knife were used to log the upper portion of the borehole.
					●	[Diagonal lines]	FILL	Loose, brown, silty sand (FILL)	
5					●	[Vertical lines]	ML	Dense, moist, brown, SILT (ML) Becomes trace fine SAND 3" loose, coarse sand seam	
	48	32	NA	0.0	●	[Vertical lines]	ML		
				4.0	●	[Vertical lines]	SM	Medium dense, dry, brown, silty SAND (SM)	
10				3.8	●	[Vertical lines]	SM		
				4.2	●	[Vertical lines]	SM		
	48	36	NA	3.8	●	[Vertical lines]	SM		
15				5.5	●	[Vertical lines]	SM	Becomes moist	
				23.0	●	[Vertical lines]	SM	Becomes olive brown	
	48	38	NA	11	●	[Vertical lines]	SM		
20				11	●	[Vertical lines]	SP	Medium dense, dry, brown, fine to medium grained SAND (SP) Becomes trace silt Becomes fine grained, silt grades out	
				17.0	●	[Vertical lines]	SP		
	48	38	NA	17.0	●	[Vertical lines]	SP		
				8	●	[Vertical lines]	SP		

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 41 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.

- | | |
|---|--|
| <input type="checkbox"/> Water level at time of drilling
<input checked="" type="checkbox"/> Water level after drilling
ATD - At time of drilling
NE - None Encountered
NA - Not Applicable | <input checked="" type="checkbox"/> Geoprobe Macro Sampler
<input checked="" type="checkbox"/> Air Knife/Hand Auger Sampler
<input checked="" type="checkbox"/> Air Rotary
<input checked="" type="checkbox"/> 3" Clear Acetate Liner
<input checked="" type="checkbox"/> Splitspoon Sampler
<input checked="" type="checkbox"/> Hollow Stem Auger-
Soil samples not collected |
|---|--|



USC based on field visual observations

URS (ENVI/RO) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-10**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting	Quadrangle
								Date: 10/20/10	Sec: 34.00
								Completion	T: 15N
								Date: 10/20/10	R: R9W
								Casing Elevation: 445.03	UTM (or State Plane) Coord
								Ground Elevation: 445.57	N: (X): 794066.09
									E: (Y): 2322212.72

								DESCRIPTION	NOTES
30	48	36	NA	2.5			SP	Same: Medium dense, dry, brown, fine to medium grained SAND (SP)	
	48	36	NA	2.8					
35	48	35	NA	3.2			SP		
	48	35	NA	5.0					
40	48	34	NA	6.2			SP		
	48	34	NA	8.0					
45	48	48	NA	22			SP		▽
	48	48	NA	38					
	48	24	NA	54					
	48	24	NA	18					

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 41 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

URS (ENVIRON) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-10**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	LOG OF BORING MW-10	
								DESCRIPTION	NOTES
								Starting Date: 10/20/10 Completion Date: 10/20/10 Casing Elevation: 445.03 Ground Elevation: 445.57	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 794066.09 E: (Y): 2322212.72
55	48	0	NA	8.5 6.5			SP	Same: Loose, wet, brown, medium grained, SAND (SP)	Unable to recovery any soil within sample liner.
60								Bottom of boring at 56' bgs	Monitoring well installed. Screened interval based on the ground surface at the time of installation was 44.5' to 54.5' bgs. Survey data of the existing ground surface shows the screen interval from 44.43' to 54.43' bgs.
65									
70									

Completion Depth: 56.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 41 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562271
 DATE: 11/1/10
 WEATHER: Cloudy 50°F
 FIELD PERSONNEL: KWH/MPE
 MONITORING WELL ID: MW-10

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 54.36 ft
 Depth to Water: 39.34 ft
 Height of Water Column: 15.02 ft
 1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

Gallons/Lin.Ft.: 0.163
 Vol. Of Water Column: 2.45 gallons
 Min. Purge Volume: 12.2 gallons (5 volumes)
 Depth to Top of Screen: 44.5 ft

Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 pp
 Wellbore PID/FID Reading: 212 pp

PURGE DATA

Purge Method: Monsoon Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
75	1137	39.59	Clear	None	6.48	16.27	1.075	3.9	1.04	43
87.5	1140	↓	↓	↓	6.39	16.35	1.025	10.8	2.54	7
80	1142	↓	↓	↓	6.67	15.78	1.007	7.6	1.38	4
82.5	1144	↓	↓	↓	6.65	16.08	1.000	7.2	1.63	5
85	1144	↓	↓	↓	6.64	16.23	1.020	4.3	0.87	3
87.5	1148	↓	↓	↓	6.47	16.19	1.013	3.1	2.06	3.2

Start Time: 1032 Purge Stop Time: 1148 Elapsed Time: 76 min Total Volume Purged: 87.5 gallons
 Average Purge Rate (gallons/min): 2 gal/min Well Volumes Purged: 5 Water Quality Meter ID: R20827 Calibrated on: 8/1/10

SAMPLING DATA

Sampling Method:
 Sample Date: NA Sample Time: NA Analysis: NA

COMMENTS:
Final Depth of Well: 54.43
Bottom: HARD OR SOFT - HARD
+7 inches - elevation

Monitoring Well Installation Details
 Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-11
Project Location:	Roxana, Illinois	Date Started:	10/14/2010		
Well Location:	Alley between 3rd and 4th Streets	Date Completed:	10/14/2010	Boring ID:	MW-11
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1720	Northing:	793440.27
Driller:	J. Cox	Type of Rig:	CME 75	Easting:	2321771.09
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	442.74
Geologist:	M. Miller	Completion Zone:			

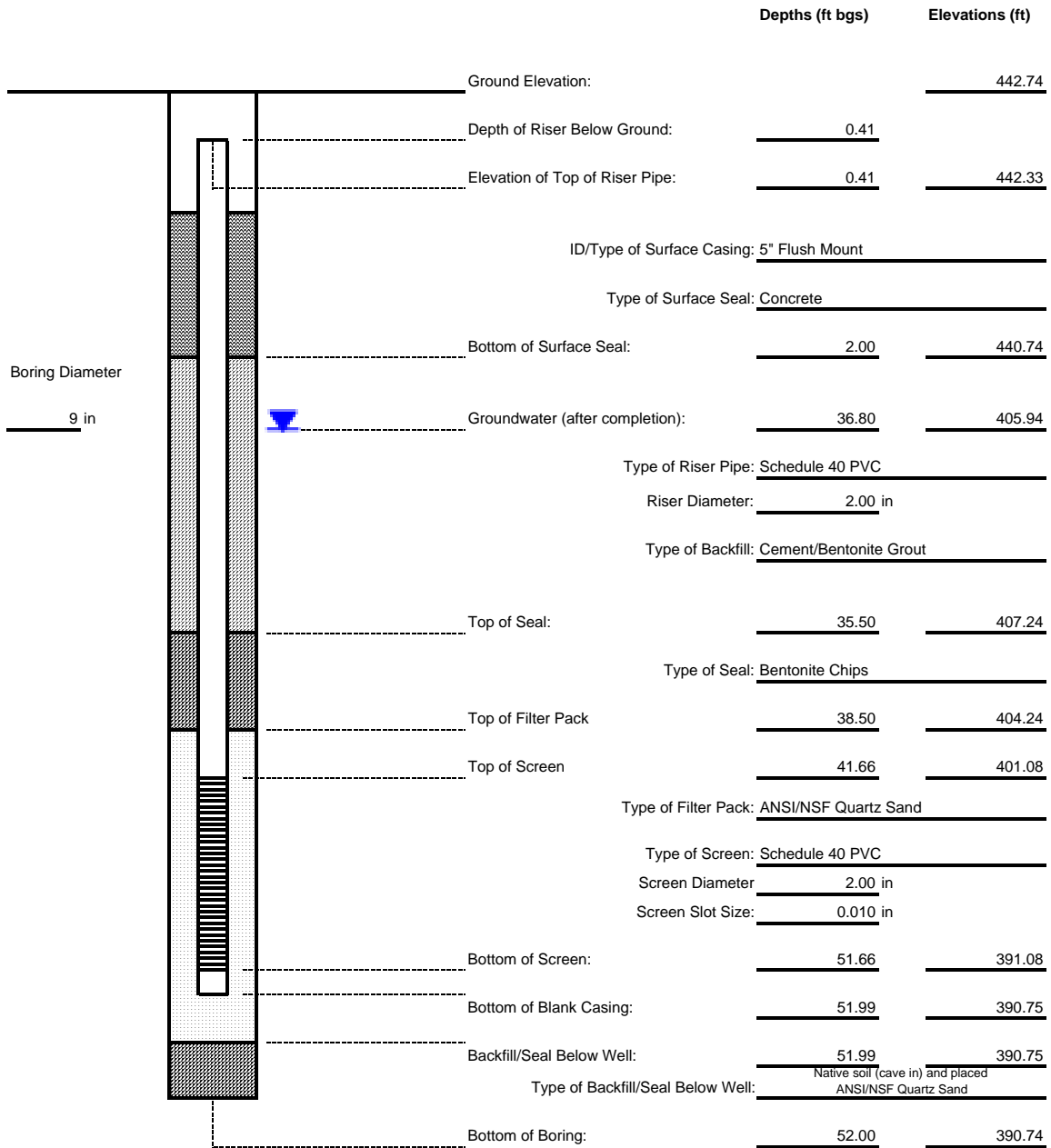


DIAGRAM IS NOT TO SCALE

LOG OF BORING MW-11

Starting Date: 10/14/10 Completion Date: 10/14/10 Casing Elevation: 442.33 Ground Elevation: 442.74	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 793440.27 E: (Y): 2321771.09
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Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
							ASPHALT	Asphalt	Borehole advanced to depth of 10' via air knife to clear utilities. Soil cuttings from air knife were used to log the upper portion of the borehole.
							FILL	Loose, moist, brown, silty sand (FILL), trace gravel	
5							ML	Medium dense, moist, brown, sandy SILT (ML)	
10							SP	Loose to medium dense, moist, tan, fine grained SAND (SP)	
	24	16	2 2 4 11	7.2				Becomes very dense	
	24	18	15 35 47 51	6.1				Becomes loose	
15							SP	Becomes wet	
	24	22	2 4 5 7	7.5					
	24	24	3 5 5 4	10.4					
	24	24	3 3 4 21	9.1			SM	Soft, wet, brown, silty SAND (SM)	
20							ML	Grading to soft, wet, brown, sandy SILT (ML)	
	24	22	3 4 4 6	8.3			CL	Soft, wet, dark brown, sandy CLAY (CL)	
	24	24	4 5 7 8	6.4			SP	Medium dense, dry, brown, fine grained SAND (SP)	
	24	24	4 5 7 8	26.8			SP	Becomes gray	
	24	22	5 7	7.9					

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Joe Cox
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: M. Miller
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 36 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

- Geoprobe Macro Sampler
- Air Knife/Hand Auger Sampler
- Air Rotary
- 3" Clear Acetate Liner
- Splitspoon Sampler
- Hollow Stem Auger- Soil samples not collected



USC based on field visual observations

URS (ENVIRON) LOG (EPA FORMAT) 2:1562291.00007.GPJ URSSTILEV.GDT 11/29/10

**LOG OF BORING
MW-11**

Starting Date: 10/14/10
 Completion Date: 10/14/10
 Casing Elevation: 442.33
 Ground Elevation: 442.74
 Quadrangle Sec: 34.00
 T: 15N
 R: R9W
 UTM (or State Plane) Coord
 N: (X): 793440.27
 E: (Y): 2321771.09

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS
30			9 10			[Symbol: Fine to medium sand with dots]	SP
	24	24	3 5 7 7	24.2			
	24	24	4 5 9 10	39.8			
24	24	4 8 10 12	17.8				
35	24	24	4 7 7 10	58.5			
	24	24	3 7 9 12	53.6			
	24	24	5 8 12 17	36.9			
40	24	24	2 8 15 14	130			
	24	24	5 9 11 13	47.1			
	24	24	2 8 11 15	42			
45	24	24	4 8 12 16	13.8			
	24	16	5 10 16 14	15.2			
	24	24	8 20 37 41				

DESCRIPTION	NOTES
Same: Medium dense, dry, gray, fine grained SAND (SP) Becomes moist	
Becomes fine to medium grained	
Becomes wet	▽
Becomes dense, medium to coarse grained	
Becomes very dense	

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Joe Cox
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: M. Miller
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 36 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-11**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting Date: 10/14/10	Quadrangle Sec: 34.00
								Completion Date: 10/14/10	T: 15N R: R9W
								Casing Elevation: 442.33	UTM (or State Plane) Coord
								Ground Elevation: 442.74	N: (X): 793440.27 E: (Y): 2321771.09

								DESCRIPTION	NOTES
	24	24	4 15 21 32	10.1			SP	Same: Very dense, wet, gray, medium to coarse grained SAND (SP)	Monitoring well installed. Screened interval based on the ground surface at the time of installation was 41' to 51' bgs. Survey data of the existing ground surface shows the screen interval from 41.66' to 51.66' bgs.
55								Bottom of boring at 52' bgs	
60									
65									
70									

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Joe Cox
 Drilling Method: HSA 4.25" ID
 Drill Rig Type: CME 75
 Logged by: M. Miller
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 36 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 11/2/10
 WEATHER: Cloudy, 50°F
 FIELD PERSONNEL: KWH/MPE
 MONITORING WELL ID: MW-11

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 51.63 ft
 Depth to Water: 34.80 ft
 Height of Water Column: 14.83 ft
 Gallons/Lin.Ft: 0.163
 Vol. Of Water Column: 2.42 gallons
 Min. Purge Volume: 12.09 gallons (5 volumes)
 Depth to Top of Screen: 41.00 ft
 Water Added during Drilling: 20 gallon
 Water to be Removed: 100 gallons (5x added)
 Ambient PID/FID Reading: 0.0 pp
 Wellbore PID/FID Reading: 17.3 pp

1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: MONSOON

Stable: 0.2 0.2 3.0
X X X

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
100	1034	36.89	clear	None	6.60	15.32	1108	7.4	0.06	-88
102.5	1037		clear	None	6.65	15.53	1031	1.3	0.06	-85
105	1039		clear	None	6.69	14.83	1040	4.0	0.56	-88
107.5	1041		clear	None	6.65	15.58	1035	4.1	0.66	-85
110	1043		clear	None	6.76	15.36	1028	2.7	2.61	-88
112.5	1045		clear	None	6.76	15.32	1021	0.7	3.72	-86
115	1048		clear	None	6.78	15.29	1027	2.4	0.76	-83

Start Time: 0848 Purge Stop Time: 1048 Elapsed Time: 120 Min. Total Volume Purged: 115 gallon
 Average Purge Rate (gallons/min): 1.5 Well Volumes Purged: 6 Water Quality Meter ID: R20927 Calibrated on: 11/2/10

SAMPLING DATA

Sampling Method: _____
 Sample Date: _____ Sample Time: _____ Analysis: _____

COMMENTS:

Total Depth of Well: 51.66
HARD or Soft: Hard
Well = Lin below ground surface

Monitoring Well Installation Details
 Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Route 111/Rand Avenue Vicinity			Well ID:	MW-12
Project Location:	Roxana, Illinois	Date Started:	10/18/2010		
Well Location:	Alley between 5th and 6th Streets	Date Completed:	10/19/2010	Boring ID:	MW-12
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1215	Northing:	792845.49
Driller:	P. Seymour	Type of Rig:	CME 75	Easting:	2321746.32
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	443.11
Geologist:	N. Satam	Completion Zone:			

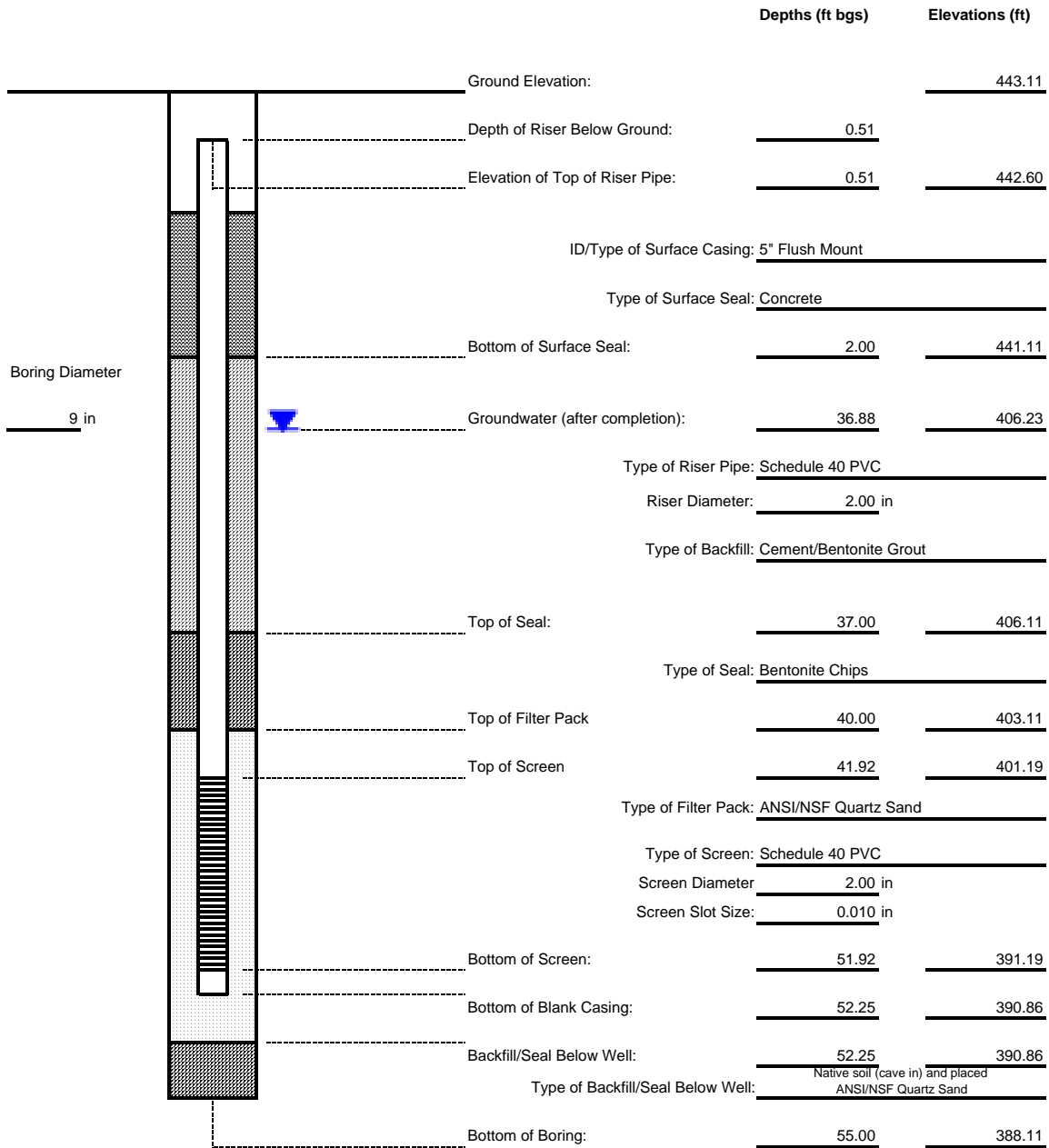


DIAGRAM IS NOT TO SCALE

LOG OF BORING MW-12

Starting Date: 10/18/10 Completion Date: 10/18/10 Casing Elevation: 442.60 Ground Elevation: 443.11	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 792845.49 E: (Y): 2321746.32
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Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
					ASPHALT	ASPHALT		Asphalt	Borehole advanced to depth of 5' via air knife to clear utilities. Soil cuttings from air knife were used to log the upper portion of the borehole.
					FILL	FILL		Brown, silty clay (FILL), with gravel	
5					CL	CL		Dense, moist, brown, silty CLAY (CL) Becomes soft	
	48	26	NA	.01 0.1	▲	▲		Becomes trace fine sand	
10					SP	SP		Loose, moist to dry, fine to medium grained SAND (SP)	
	48	26	NA	0.0	▲	▲			
	48	33	NA	0.0	▲	▲			
15					SP	SP			
	48	32	NA	0.0	▲	▲			
20					SP	SP			
	48	33	NA	0.1 0.0	▲	▲			
				0.1	▲	▲			

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 44.5 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.

- Water level at time of drilling
- Water level after drilling
- ATD - At time of drilling
- NE - None Encountered
- NA - Not Applicable
- Geoprobe Macro Sampler
- Air Knife/Hand Auger Sampler
- Air Rotary
- 3" Clear Acetate Liner

- Splitspoon Sampler
- Hollow Stem Auger- Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-12**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting	Quadrangle
								Date: 10/18/10	Sec: 34.00
								Completion	T: 15N
								Date: 10/18/10	R: R9W
								Casing Elevation: 442.60	UTM (or State Plane) Coord
								Ground Elevation: 443.11	N: (X): 792845.49
									E: (Y): 2321746.32

								DESCRIPTION	NOTES
30	48	32	NA	0.5			SP	Same: Loose, moist to dry, fine to medium grained SAND (SP)	
				0.3					
35	48	32	NA	0.2			SP		
				0.1					
40	48	32	NA	0.4			SP		
				0.1					
45	48	34	NA	0.1			SP		
				0.1					
	48	38	NA	0.1			SP		
				0.6					
	48	48	NA	0.2			SP		
				0.1					
	48	48	NA	0.2			SP		▽
				0.1					
	48	48	NA	0.0			SP		
				0.1					
	48	48	NA	0.0			SP		
				0.0					

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 44.5 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

**LOG OF BORING
MW-12**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	LOG OF BORING MW-12	
								DESCRIPTION	NOTES
								Starting Date: 10/18/10 Completion Date: 10/18/10 Casing Elevation: 442.60 Ground Elevation: 443.11	Quadrangle Sec: 34.00 T: 15N R: R9W UTM (or State Plane) Coord N: (X): 792845.49 E: (Y): 2321746.32
55							SP	Same: Dense, wet, light brown, medium to coarse grained SAND (SP)	Monitoring well installed. Screened interval based on the ground surface at the time of installation was 42' to 52' bgs. Survey data of the existing ground surface shows the screen interval from 41.92' to 51.92' bgs
60								Bottom of boring at 52' bgs	
65									
70									

Completion Depth: 52.00 Ft bgs
 Project No.: 21562291
 Project Name: Route 111/Rand Avenue Vicinity
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: Pat Seymour
 Drilling Method: Macro Core TM Sampler
 Drill Rig Type: VTR 9700
 Logged by: N. Satam
 County: Madison
 Site ID No.: ILD080012305
 Federal ID No.: 1191150002

Water Depth: 44.5 ft., After ATD hrs.
 Water Depth: _____ ft., After _____ hrs.
 Water level at time of drilling
 Water level after drilling
 ATD - At time of drilling
 NE - None Encountered
 NA - Not Applicable

Geoprobe Macro Sampler
 Air Knife/Hand Auger Sampler
 Air Rotary
 3" Clear Acetate Liner
 Splitspoon Sampler
 Hollow Stem Auger-
 Soil samples not collected



USC based on field visual observations

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: West Fenceline Well Development PROJECT NUMBER: 21562291
 DATE: 10/11/10
 WEATHER: Sunny, 65°F
 FIELD PERSONNEL: KW/MPE
 MONITORING WELL ID: MW-12

INITIAL DATA

Well Diameter: 2 in. Gallons/Lin.Ft: 0.163 Water Added during Drilling: 25 gallons
 Total Depth of Well: 51.83 ft Vol. Of Water Column: 2.44 gallons Water to be Removed: 125 gallons (5x added)
 Depth to Water: 36.88 ft Min. Purge Volume: 12.18 gallons (5 volumes) Ambient PID/FID Reading: 0.0 pp
 Height of Water Column: 14.95 ft Depth to Top of Screen: 42.00 ft Wellbore PID/FID Reading: 0.0 pp
 1 0.163 gallons/ft for 2 inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: MONSOON Stable: 0.2 0.2 3%

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
125.0	1610	37.0 ft	Clear	None	7.20	17.23	1.070	10.0	2.90	181
127.5	1612	↓	↓	↓	6.92	16.86	1.049	7.5	3.19	185
130.0	1614				7.06	16.27	1.047	4.0	5.25	184
132.5	1616				7.10	16.49	1.050	5.5	5.05	183
135.0	1618				7.04	16.29	1.049	2.7	3.88	191
137.5	1620				7.00	16.56	1.049	4.3	4.43	201
140.0	1622				6.83	16.45	1.049	1.9	4.57	202
142.5	1624				6.99	16.42	1.047	3.7	4.22	203

Start Time: 1652 Purge Stop Time: 1624 Elapsed Time: 92 min Total Volume Purged: 142.5 gallons
 Average Purge Rate (gallons/min): 2.5 Well Volumes Purged: 7 Water Quality Meter ID: R20827 Calibrated on: 11/1/10

SAMPLING DATA

Sampling Method: _____ Sample Date: NA Sample Time: NA Analysis: NA

COMMENTS:

Final Depth of Well = 51.92 feet
Bottom Head
+ 6 1/2" elevation btoc