NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C
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1030 East Dominick St.

Environmental Restoration Project

City of Rome, Oneida County

Site ID: E633064

Addendum

Alternative Analysis Report (AAR) of 2015

September 2017

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Background:

Remedial Investigation performed in 2009 revealed, presence of the source of the petroleum contamination onsite and is impacting the ground water (GW). Though there were no significant exceedances of soil cleanup objective (SCOs) in subsurface soil, non-aqueous phase liquid (NAPL), sheen, stained soil, petroleum odor and/or elevated photoionization detector (PID) readings were observed in the majority of the borings installed onsite. Barton & Loguidice (B & L) submitted Alternative Analysis Report (AAR) in November 2015 on behalf of the City of Rome. The remedial alternatives developed and evaluated in AAR were inadequate to further prevent the migration of the petroleum contamination to ground water.

This addendum redevelops the remedial alternatives and re estimates the cleanup costs which adequately addresses the waste/source area to prevent further migration of the contamination to the ground water. For more details on the nature and extent of the contamination, refer to Remedial Investigation Report dated May 2016.

Following are the four remedial alternatives and their respective cost estimates which are evaluated in PRAP/ROD for the criteria set forth in the Part 375.

Alternative #1: No action

This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment. There are no cost no capital or annual cost.

Alternative #2: Source Material Excavation and soil Removal to Unrestricted SCOs

This alternative incudes excavation of the all the soils/materials up to 17' bgs (maximum depth at which the petroleum impacts were observed) from the entire site and disposing off-site to allow for the unrestricted use of the site. The excavation will be backfilled with the clean imported soils. This alternative will not require institutional control and site management plan.

Cost estimate Details/assumptions:

- Depth of excavation 17'
- Assume off-site disposal
- Estimated volume of soil to be excavated is 25,000 CY.
- From FS, cost for excavation and off-site disposal is $150/CY
- Imported soil, cost $20/CY placed with 30% compaction 32,500 CY.
- From 1333 East Dom FS, cost of building demo is estimate at $225,000.

Total Cost of Excavation and off-site disposal:

Excavation and off-site disposal -	$150/CY * 25,000 CY =	$ 3,750,000
Building demo		225,000
Excavation Backfill placed -	32,500 CY at $20/CY =	$ 650,000
Subtotal		$ 4,625,000
Contingency and Engineering (15%)		$ 693,750
Total capital cost		**$ 5,319,000**

Alternative #3: Source Material Excavation, Site Cover, Natural Attenuation and Site Management

Source Description: Definition of the source area from a review of Remedial Investigation borings and test pits

Evaluation based on the concept of gross contamination (visual, PID, NAPL) from CP-51. For this determination source area soils has NAPL, or visual significant staining, and/or high PID reading (about 75 ppm). Impacted interval below meets this description. From investigation (refer to attached boring logs and the figure):

Location	Impacted Interval	water table
MW-01	12 -17 ft	12.5’
MW-4	10 – 17 ft	14’
SB-04	12.5 – 17	12’
SB-05	13 – 18 ft	15.5’
SB-16	15 – 18 ft	11’
SB-17	10-16 ft	14.5’
MW-7	10 – 17 ft	14.5
TP-3 and 4	clean but piping, assume removal of piping.	
TP-7	C&D, pushed towards the tracks. Would remain.	

Assume the area of contamination is roughly circular with a diameter of 120 feet. The contamination to be managed is 11-17 feet below grade.

Alternatives that follow are based on excavation of petroleum contaminated soil which is considered grossly contaminated soil. Shallow soil above the contaminated layer can be excavated, temporarily stockpiles and placed back in the hole. Remedies assuming commercial land use. Alternatives do not include groundwater management.

Proposed alternatives assumes that the **current** site conditions (existing cover and garage building) are acceptable for the current commercial / industrial land use (car repair and maintenance facility). Should the current site usage change (no longer a car maintenance facility), the remedy would allow for commercial land use, call for building demolition, with the excavation and off-site disposal or on-site treatment of the grossly contaminated soil found in the subsurface and removal of any piping found.

Under this alternative, source material located in the central portion of site will be excavated and disposed off-site. Clean overburden (0’ to 11’) and imported soil will be used to backfill the excavation. Approximately 2500 CY will be excavated from the 11’-17’ and disposed off-site. One foot of soil cover will be installed over the entire site to allow for the commercial use of the site. Institutional control in the form of environmental easement restricting use of the property, prohibiting GW use and SMP (Site

Management Plan) will be placed on the property. SMP will contain excavation plan to manage the soils underneath the cover. SMP will also contain GW monitoring plan to periodically evaluate the effectiveness of the remedy. SMP will require periodic evaluation of the IC/EC (institutional and engineering controls) and submission of PRR (periodic review report). This alternative also requires SVI (soil vapor intrusion) evaluation in the onsite existing building if the site use is changed and in future buildings constructed onsite.

Cost estimate Details/assumptions:

- Source area is about 11 to 17 feet deep for an average thickness of 6 feet.
- Assume shallow soils above can be excavated, stockpiled and placed back in the hole.
- Assume off-site disposal
- Estimated volume of contaminated soil is 2512 CY.
- From FS, cost for excavation and off-site disposal is $150/CY
- Estimated volume of shallow soil to stockpile and reuse is 4605 CY
- From FS, cost to excavate, stockpile and place back in the hole is $50/CY.
- Imported soil, cost $20/CY placed.
- From 1333 East Dom FS, cost of building demo is estimate at $225,000.
- Estimated volume of imported soil for 1’ soil cover of 0.9 acre with 30% compaction = 1900 CY.
- Imported soil, cost $ 20/CY placed is $ 38,000

Total Cost of Excavation and off-site disposal of petroleum contaminated soil:

Excavation and off-site disposal -	$150/CY * 2512 CY =	$ 376,800
Excavation, stockpiling and placement back in the hole	$ 50/CY * 4,605 CY =	$ 230,250
Building demo		$ 225,000
Excavation Backfill placed -	3300 CY at $20/CY =	$ 66,000
1’ soil cover placed -	1900 CY at $20/CY =	$ 38,000
Subtotal		$ 1,002,000
Contingency and Engineering (15%)		$ 150,300
Total capital cost		**$ 1,152,000**

Annual Cost (0-5 years):

GW sampling (annually)	$ 5,000
Lab cost and validation (annually)	$ 1,000
PRR and IC/EC certification (annually)	$ 5,000
Subtotal	$ 11,000
Contingency (15%)	$ 1,650
Total annual cost	**$ 12,650**

Annual cost (5-30 years, every 5 years):

PRR and IC/EC certification (annually)	$ 2,500
Subtotal	$ 2,500
Contingency (15%)	$ 375
Total annual cost	**$ 2,875**
Present worth of the annual costs	**$ 60,500**
Total Present worth	**$ 1,212,500**

Alternative #4: On-site Ex-situ Soil Turning, Site Cover, Natural Attenuation, and Site Management.

This alternative consist of treating source material ex-site in bio piles by periodically turning the piles. The treated soils will be placed back into the excavation hole. Clean overburden (0' to 11') will be placed back. One foot of soil cover will be installed over entire site to allow for commercial use of the site. Institutional control as described in alternative 3 above will be imposed.

Cost estimate Details/assumptions:

- Source area is about 11 to 17 feet deep for an average thickness of 6 feet. (Refer to alternative 3 for details about the source).
- Assume shallow soils above can be excavated, stockpiled and placed back in the hole.
- Estimated volume of contaminated soil is 2512 CY.
- From AFMC IRM cost estimate, cost for amendments and soil turning is $ 60/CY
- Estimated volume of shallow soil to stockpile and reuse is 4605 CY
- From FS, shallow soils, cost to excavate, stockpile and place back in the hole is $50/CY.
- Imported soil, cost $20/CY placed on top one foot (top soil or gravel).
- From 1333 East Dom FS, cost of building demo is $225,000.
- Estimated volume of imported soil for 1' soil cover with 30% compaction = 1500 CY (excluding excavation area)
- Imported soil, cost $ 20/CY placed is $ 38,000

Total Cost of Excavation and on-site soil turning:

Excavation and on-site soil turning -	$ 60/CY * 2512 CY = $150,270
Excavation, stockpiling and placement back in the hole	$ 50/CY * 4605 CY = $230,250
Building demo	$ 225,000
Backfill placed (top soil or gravel, 1 foot) -	$ 400 CY at $20/CY = $ 8,000
1' soil cover placed -	1500 CY at $20/CY = $ 30,000
Subtotal	$643,520
Contingency and Engineering (15%)	$ 96,530
Total	**$ 740,000**

Annual Cost (0-5 years):

GW sampling (annually)	$ 5,000
Lab cost and validation (annually)	$ 1,000
PRR and IC/EC certification (annually)	$ 5,000
Subtotal	$ 11,000
Contingency (15%)	$ 1,650

Total annual cost	**$ 12,650**
Annual cost (5-30 years, every 5 years):	
PRR and IC/EC certification (annually)	$ 2,500
Subtotal	$ 2,500
Contingency (15%)	$ 375
Total annual cost	**$ 2,875**
Total Present Worth of annual costs	**$ 60,500**
Total Present Worth	**$ 800,500**

This document is made part of the B&L AAR dated November 2015. Based on the evaluation of the above alternatives presented in PRAP for the site, alternative 3 is proposed, since it meets the threshold criteria and provides the best balance of the remaining criterions.

DEC Project Manager: _____ (Parag Amin) Date: 9/20/17
(Signature)

DEC Section Chief: _____ (Dave Crosby) Date: 9/20/17
(Signature)

Figures

Plotted: Jan 17, 2017 – 1:47PM SYR By: jgs2
I:\Shared\200\245005-S\SIR FIGURES\1030 E DOM\Dec 2016 Report\245005_FIG 2_SITE LOCATION PLAN.dwg

Checked by ____ Drawn by JGS Designed by SBL In charge of SDN

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By ____ Date ____

Ck'd ____ Date ____

REVISIONS

CITY OF ROME
PROPOSED REMEDIAL ACTION PLAN
1030 EAST DOMINICK STREET

SITE LOCATION FIGURE

ONEIDEA COUNTY, NEW YORK

CITY OF ROME

Barton & Loguidice, D.P.C.

Date
JANUARY, 2017

Scale
1" = 20'

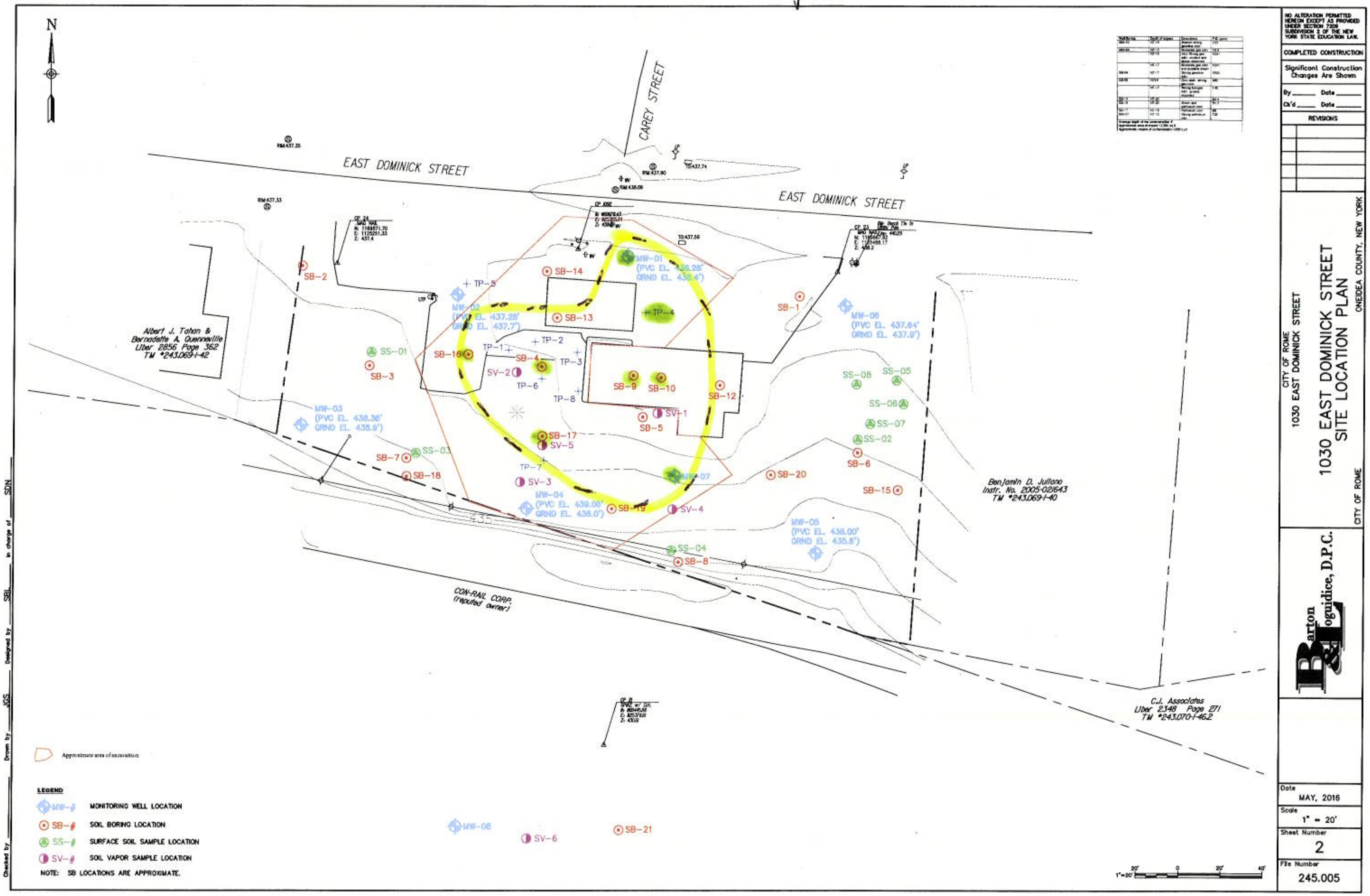
Sheet Number
2

File Number
245.005

1030 Source Area

notes — Meets source definition (NAPL, visual, PID >75ppm)

— Source area boundary



Boring and Well Logs

Well/Boring	Depth of Impact	Description	PID (ppm)
MW-10	12'-16'	Stained strong gasoline odor	229
MW-04	10'-12'	Moderate gas odor	19.5
	12'-15'	Very Strong gas odor, product and sheen observed	1041
	15'-17'	Moderate gas odor and possible sheen	1041
SB-04	12'-17'	Strong gasoline odor	1500
SB-05	12'14'	Grey stain, strong gas odor	980
	15'-17'	Strong fuel/gas odor, growly impacted	148
SB-14	15'-20'		94.4
SB-16	15'-20'	Sheen and petroleum odor	31.1
SB-17	10'-16'	Petroleum odor	95
MW-07	10'-15'	Strong petroleum odor	720

Average depth of the contamination 4'
Approximate area of impact 12,550 sq.ft
Approximate volume of contamination 1860 c.yd

N

RIM:437.35

EAST DOMINICK STREET

CAREY STREET

RIM:437.90

TG:437.74

RIM:438.09

RIM:437.33

CP_102
N: 1169678.43
E: 1125365.34
Z: 438.09

CP_24
MAG NAIL
N: 1169671.70
E: 1125251.33
Z: 437.4

TG:437.59

BM_Bench Tie In
Utility Pole
CP_23
MAG NAIL Elev. 440.29
N: 1169667.62
E: 1125488.17
Z: 438.2

SB-2
SB-14
SB-13
SB-1
SB-16
SB-4
SB-3
SB-9
SB-10
SB-12
SB-5
SB-17
SB-7
SB-18
SB-20
SB-15
SB-6
SB-8
SB-19
SB-21

TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-8

SV-1
SV-2
SV-3
SV-4
SV-5
SV-6

SS-01
SS-02
SS-03
SS-04
SS-05
SS-06
SS-07
SS-08

MW-01
(PVC EL. 438.28'
GRND EL. 438.4')

MW-02
(PVC EL. 437.28'
GRND EL. 437.7')

MW-03
(PVC EL. 438.36'
GRND EL. 435.9')

MW-04
(PVC EL. 439.06'
GRND EL. 436.0')

MW-05
(PVC EL. 438.00'
GRND EL. 435.6')

MW-06
(PVC EL. 437.64'
GRND EL. 437.9')

MW-07

MW-08

LTP

LP

WV

435

Albert J. Tahan &
Bernadette A. Quenneville
Liber 2856 Page 362
TM #243.069-1-42

Benjamin D. Juliano
Instr. No. 2005-021643
TM #243.069-1-40

CON-RAIL CORP.
(reputed owner)

CP_21
SPIKE w/ DH.
N: 1169445.88
E: 1125378.61
Z: 430.61

C.J. Associates
Liber 2348 Page 271
TM #243.070-1-46.2

Approximate area of excavaition

LEGEND

- MW-# MONITORING WELL LOCATION
- SB-# SOIL BORING LOCATION
- SS-# SURFACE SOIL SAMPLE LOCATION
- SV-# SOIL VAPOR SAMPLE LOCATION

NOTE: SB LOCATIONS ARE APPROXIMATE.

1"=20' 20' 0 20' 40'

Plotted: May 18, 2016 – 3:03PM SYR By: jgs
I: \Shared\200\245005-S\SIR FIGURES\1030 E DOM\245005_FIG 2_SITE LOCATION PLAN.dwg

Checked by ____ Drawn by JGS Designed by ____ SBL ____ In charge of SDN

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

1030 EAST DOMINICK STREET
SITE LOCATION PLAN

CITY OF ROME
1030 EAST DOMINICK STREET
ONEIDEA COUNTY, NEW YORK

Barton & Loguidice, D.P.C.

CITY OF ROME

Date
MAY, 2016

Scale
1" = 20'

Sheet Number
2

File Number
245.005

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-01**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve LeFevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/17-18/2009			**Borehole Diam:**	2"	**Total Depth:**	22.9
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125498.04	**Ground Elevation:**	438.40	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169568.69	**TOC Elevation:**	438.28	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-01

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown to Black fine to medium SAND AND GRAVEL, some asphalt material, brick fragments, moist, some staining, little to no odor	S-1	0-4	2.4	0.4	0.8	SAND AND GRAVEL FILL	*4" flush-mount protective casing*; *Portland concrete surface seal*
2									*Top of cement-bentonite grout ~1.5'*
3									
4	MC	Brown fine to medium SAND, some fine to medium Gravel and Cobble fragments, soft, moist, little staining in upper portion, moist	S-2	4-8	1.8	0.0			
5									*Top of choker sandpack 5.5'*
6						2.7	0.9		*Top of bentonite chip seal 6.0'*
7						1.7			2.5' steel rod (tape-weight) broke off while installing bentonite seal
8	MC	Same as above, Brown fine to medium SAND and coarse to fine GRAVEL, Cobble fragments, firm, dry grades to moist, no odor or visual staining	S-3	8-12	1.8	0.4			
9									*Top of choker sandpack 9.0' 10/18/09*
10						0.3	0.8		*Top of choker sandpack 9.5' 10/17/09*
11						0.4			
12		Moist grades to wet							*Top of screen 11.5'*

Barton & Loguidice, P.C. | City of Rome Environmental Restoration Project | BORING NO: MW-01

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL FILL:** As above, Brown Silty SAND AND GRAVEL, some Cobble fragments, wet, grades at bottom of sample to Grey medium to fine SAND and fine to medium GRAVEL, wet, stained, strong gasoline odor	S-4	12-~~16~~	2.0	7.1 4.6 4.6 223.0 193.0	P 538 S 475	SAND AND GRAVEL FILL	*0.010-inch slot* *2" dia. PVC screen*
16	MC	**SAND AND GRAVEL:** Brown cf SAND and fc GRAVEL, rounded to subrounded, slight to no odor, no visual staining, loose to soft	S-5	16-~~20~~ 16.2	0.3	106 96 73	P 232 S 100		Refusal at 16.2 with MC, switch to 4.25" HSAs and auger to 17' WL in HSAs = 14.6' bgs (HSAs at 15', sampled to 18')
17	MC	Same as above, PID screening up to ~30 ppm, may be due to water and slough in augers.	S-6	17-~~21~~ 18.3		0.9 1.3 6.1 3.4	P 13.9 S 9.6		WL = 14.3' (HSAs at 17.3')
19	MC	Same as above, PID screening up to ~30 ppm, may be due to water and slough in augers.	S-7	19-~~23~~ 20.5		~30	P 117 S ~75	SAND AND GRAVEL	*0.010-inch slot* *2" dia. PVC screen*
21	MC <ANALYTICAL SAMPLE COLLECTED>	Brown fine to medium GRAVEL and coarse to fine SAND, loose to firm, saturated, no odor or visual staining, trace Silt, Gravel is rounded to subrounded	S-8	21-~~25~~ 22.9	2.5	1.5 2.3 1.7 1.7	4.6		MC bullet installed for discrete sample *Bottom of screen 21.5'* *Cave-in 21.5'-23.0'*
23		**END OF SOIL BORING**							

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-02**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve LeFevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/18/2009			**Borehole Diam:**	2"	**Total Depth:**	21'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125308.58	**Ground Elevation:**	437.70	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169657.13	**TOC Elevation:**	437.28	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-02

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / Well Construction
1	MC	**SAND AND GRAVEL FILL:** Black Asphalt grades to COBBLE and coarse GRAVEL with brick fragments	S-1	0-4	2.8	0.2	2.3	SAND AND GRAVEL FILL	*4" flush-mount protective casing*; *Portland concrete surface seal*
2						0.3			*Top of cement-bentonite grout ~1.5'*
3						0.5			
4		Bottom 1' or sample is Brown Silty fine to medium SAND, little fine to medium Gravel, soft, moist, o odor, minor Black staining				0.1			
	MC	Brown fine to medium SAND, some fine to medium Gravel and Cobble fragments, soft, moist, no odor, little staining in upper portion of sample	S-2	4-~~8~~ 4.4	0.4	0.5			MC refusal at 4.4', Lyon switches to 4.25" HSAs and augers to 5' to resume sampling; *Top of choker sandpack 4.5'*
5						0.6	3.8		
6	MC	Brown fine to coarse SAND AND GRAVEL, some Cobble fragments, loose to soft, dry to slightly moist, no odor or visual staining or sheen (fill)	S-3	5-8	2.0	0.4	4.0		*Top of bentonite seal - 5.1'*; Harry notes increase of Cobbles at ~5'
7						0.3			
8						0.2			
9	MC	Same as above, fill with Cobble fragments, moist	S-4	8-12	1.3	0.4	3.6		*Top of choker sandpack 8.1'*; *Top of filter sandpack - 8.8'*
10									
11						1.6			*Top of screen - 11.0'*
12		**GRAVEL AND SAND:** Bottom 4" of sample is Brown coarse to medium SAND and fine to medium GRAVEL (rounded to subrounded), loose, wet, no odor or visual staining or sheen						GRAVEL & SAND	

COMPOSITE ANALYTICAL SAMPLE COLLECTED>

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-02

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED	**GRAVEL AND SAND:** Same as above with little Silt, firm, wet to saturated, some Grey staining, no odor	S-5	12-~~16~~ 13.9	0.9	0.3 0.4 1.3	3.6	GRAVEL AND SAND	
14									
15	MC	Brown fine to coarse GRAVEL AND SAND (Gravel is subrounded), little Silt, dense, saturated, no odor or visual staining or sheen	S-6	14.5-~~18.5~~ 15.5	0.6	0.2 0.3	3.4		
16									MC refusal at 15.5', HSAs advanced to 16.5'
17	MC	Brown fine to coarse GRAVEL AND SAND (Gravel is subrounded), little Silt, dense, saturated, no odor or visual staining or sheen	S-7	16.5-~~20.5~~ 17.9	1.5	0.3	3.2		
18									*0.010-inch slot* *2" dia. PVC screen* *Sand filter pack*
19	MC	Same as above, PID hits may be impacted by above contamination in drill string	S-8	19-~~23~~ 21	0.8	0.3 0.4 0.3	3.4		Lyon pushed well to depth after cleaning out HSAs with 3" SS and RB due to heaving S&G, approx. 19.5-21' is natural pack
20									
21									*Bottom of screen - 21.0'* MC refusal at 21'
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-03**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve LeFevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh/Robin VerSchneider			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/13/2009, 11/20/2009			**Borehole Diam:**	2"	**Total Depth:**	18.5
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125234.71	**Ground Elevation:**	435.90	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169595.95	**TOC Elevation:**	438.36	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-03

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Dark Brown fine to medium SAND, some fine to coarse Gravel, little Silt, no odor or visual staining, Gravel/Cobble fragments cause low recovery	S-1	0-4	0.1	0.1		SAND AND GRAVEL FILL	*Surface completion - 4" protective riser 2.5' above the ground surface*; *Portland concrete surface seal*
2									
3									*Top of choker sandpack 2.0'*; *Top of bentonite chips grout 2.5'*
4	MC	Brown to Black Silty fine to medium SAND, little fine to medium Gravel, moist, soft, some staining, no odor (fill)	S-2	4-8	0.8				
5									*Top of choker sandpack 4.6'*; *Top of filter sandpack 5.1'*
6						0.1			
7									
8	MC	Same as above, no odor	S-3	8-12	0.2				*Top of screen - 8.0'*
9									Jeff Lyon says that sampler drove "like butter"
10						0.1			
11									
12									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-03

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:** Brown to Tan coarse to fine SAND and fine to medium GRAVEL, loose, wet, grades to Brown medium SAND, trace fine to medium Gravel (sub rounded), well-sorted,	S-4	12-~~16~~ 15.9	2.5				
13									
14		Sample becomes saturated				0.1			*0.010-inch slot* *2" dia. PVC screen* *Sand filter pack*
15									Refusal at 15.9', second attempt made in new boring ~2 ft away - refusal was encountered at 15.5'.
16		Above grades to Brown medium fine SAND AND GRAVEL, sub rounded to angular, loose, no odor or visual staining						**SAND AND GRAVEL**	
	SS Blows w/ 3" dia SS 32-12-8-14	Brown fine to coarse SAND and fine to medium GRAVEL, rounded, no staining, no sheen, no odor	S-1	16-18	2.0				Split spoon sampling and well installation on 11/20/09
17						0.0	0.0		
18		**END OF SOIL BORING**							*Bottom of screen 18.0'* *Bottom of hole 18.5'*
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-04**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling with 2"-3" dia. split-spoons as indicated		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/19/2009			**Borehole Diam:**	2"	**Total Depth:**	23.7'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125341.55	**Ground Elevation:**	436.00	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169556.95	**TOC Elevation:**	439.06	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-04

Depth (ft)	Sample Type Blows	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	SS 2-2-2-1	**SAND AND GRAVEL FILL:** Dark Brown medium to coarse SAND, some fine Gravel, moist, loose, no odor (fill)	S-1	0-2	0.1	0.3 (BG)	2.1	SAND AND GRAVEL FILL	*Surface completion - 4" protective riser 2.5' above the ground surface* *Portland concrete surface seal*
2									
3	SS 3-2-1-WOH	Above grades to Brown fin to medium SAND and (-) GRAVEL (angular to subrounded), trace Silt	S-2	2-4	0.5	0.3	3.6		*Top of bentonite seal - 2.5'*
4									
5	SS 3-4-5-7	Above with wood fragments, wet, gas odor, slight sheen (?)	S-3	4-6	0.2	1.3	P 17.1 S ~13		*Top of choker sandpack 5.7'* Harry notes increase of Cobbles at ~5'
6	SS 12-7-4-4	Brown fine to medium SAND and (-) GRAVEL, trace Silt, wood fragments, slight gas odor	S-4	6-8	0.3	1.4	6.4		*Top of filter sandpack - 8.8'*
7						0.6			*Top of filter sandpack - 8.8'*
8	SS 3-4-5-5	Same as above, slight gas odor, slight wood odor, moist to wet	S-5A	8-10	0.3	1.6	8.4		S-5B - Overdrive 8'-10' interval with 3" SS due to low recovery - 3" spoon has no recovery *Top of screen 8.5'*
9	3" SS 15-18-12-25		S-5B	8-10	NR				
10						1.0			*0.010-inch slot* *2" dia. PVC screen* *Sand filter pack*
11	3" SS 10-9-15-25	Brown to Grey medium to coarse SAND and large concrete and Cobble fragments, some coarse to fine Gravel (subangular to angular), loose to soft, moderate gas odor, moist	S-6	10-12		19.4	P 12.5 S 9.5		
12						6.4			

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-04

Depth (ft)	Sample Type Blows	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	3" SS 50/0.4'	**SAND AND GRAVEL:** Brown to Grey fine to coarse GRAVEL AND SAND, loose, moist, strong gas odor, Grey staining	S-7	12-14	0.5	290 395 310	P 570 S 270	SAND AND GRAVEL	SS refusal at 12.4', Lyon augers through obstruction and resumes sampling
13	3" SS 9-12-12-15	Grey fine to coarse GRAVEL (rounded), some coarse to medium Sand and Cobble, product observed on soil from approximately 13.2'-14.0', very strong gas odor and sheen, saturated	S-8	13-15	1.8	494 190 65 1041	P 1220 S ~770		*0.010-inch slot* *2" dia. PVC screen* *Sand filter pack*
14		Above grades to Brown color with some Grey staining and sheen, strong odor							
15	3" SS 16-10-24-43	Brown to Grey coarse to medium SAND AND GRAVEL, some Cobble, loose, saturated, gas odor	S-9	15-17	1.3	83 190 65 1041	P 238 S 150		
16									
17		Above grades to coarse to medium GRAVEL and (-) SAND, little Cobble (all grains rounded), moderate gas odor, possible sheen							
18	3" SS 18-50/0.1'	Same as above, gas odor, saturated, loose, sample recovery may be slough	S-10	17-~~19~~ 17.6	0.6	18 30	P 238 S 150		SS refusal at 17.6' *Bottom of screen 18.5'*
19	3" SS 9-9-11-50/0.3	Greyish Brown fine to coarse GRAVEL, rounded to subangular, loose, moderate gas odor - possibly smeared	S-11	19-21		190.0 P 106 S 70 P 122 S 25 P 108 S ~60	P 186 S 115		
20									
21	3" SS 50/0.4'	Red Sandstone COBBLE fragments and slough, sligh odor, saturated	S-12	21-~~23~~ 21.4	<0.1				MC refusal at 21', WL in HSAs ~14' bgs
22	3" SS 42/4"	Rock fragments and slough	S-13	22.3-~~24~~ 22.7	<0.1				*Cave-in and filter sand*
23	3" SS 50-50/0.2'	Brown fine to medium GRAVEL AND SAND, loose, slight odor, no staining or sheen, generally lower PID readings in middle of core, sample is probably smeared and impacted by above contamination in drill string	S-14	23-~~25~~ 23.7	<0.1	P 30 S ~18 11.3 13.7 3.9	2.9		WL in HSAs after ~30 min = 12.5' bgs
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-05**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve LeFevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh/Robin VerSchneider			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/12/2009, 11/20/2009			**Borehole Diam:**	2"	**Total Depth:**	18.5
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125478.44	**Ground Elevation:**	435.60	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169535.90	**TOC Elevation:**	438.00	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-05

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown medium to fine SAND, some fine to medium Gravel, loose grades to concrete frags and asphalt, last 4" of spoon is Brown Silty fine to medium Sand and Gravel, no odor or visual staining (Fill)	S-1	0-4	2.0	0.2	16	SAND AND GRAVEL FILL	*Surface completion - 4" protective riser 2.5' above the ground surface*
2						0.2			*Portland concrete surface seal*
3						0.2			Well position ~20 ft north of stake due to site grade
4						0.2			*Top of choker sandpack 2.0'*
5	MC	Same as above with Brown Silty fine to medium SAND and coarse to fine GRAVEL (sub-round to sub-angular), loose to soft, moist, no odor or visual staining	S-2	4-8	1.2	0.3 (BG)	17		*Top of bentonite chips grout 2.5'*
6						0.3			*Top of choker sandpack 4.8'*
7						0.3			*Top of filter sandpack 5.3'*
8						0.3			
9	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	Same as above with increase of coarse Sand, little Cobble frags, moist, loose to soft, Brown fine (-) medium Sand at 11.7', wet no odor or visual staining	S-3	8-12	2.0	0.5	12		*Top of screen 8.2'*
10						0.5			
11						0.6			
12						0.7			

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-05

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC	**SAND AND GRAVEL:** Brown Silty fine SAND and fine to coarse GRAVEL (sub-round to sub-angular), loose, saturated, no odor or staining, firm to soft	S-4	12-~~16~~ 15	2.0	0.7 (BG)	1.5	SAND AND GRAVEL	Refusal at 15', moved ~3' west and advanced to 15' to resume sampling
13									*Top of filter sandpack 13'*
14									*Top of choker sandpack 13.5'*
15						1.2			
	MC	Same as above, medium dense, saturated, no odor or visual staining	S-5	15-~~19~~ 18.5	2.6	0.3 (BG)	1.4		*0.010-inch slot 2" dia. PVC screen*
16									
17		Above grades to Brown fine to medium SAND, trace fine to coarse Gravel, subrounded, faceted, loose, saturated							
18		Above grades to Brown Silty fine SAND and fine to coarse GRAVEL (angular to subrounded), dense, saturated, weathered pebbles, matrix supported(?)				0.4			*Bottom of screen 18.2'*
19		**END OF SOIL BORING**							*Cave-in 18.2'-19'*
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-06**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/11/2009, 11/23/2009			**Borehole Diam:**	2"	**Total Depth:**	22.4
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125492.20	**Ground Elevation:**	437.90	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	1169651.79	**TOC Elevation:**	437.64	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-06

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / Well Construction
1	MC	**SAND AND GRAVEL FILL:** Brown to Black coarse to medium SAND and fine to medium GRAVEL, loose, slightly moist, no odor, minor staining, (Fill)	S-1	0-4	~0.5	0.9		SAND AND GRAVEL FILL	*4" flush-mount protective casing*
2									*Portland concrete surface seal*
3						1.3			Macro Core failure - sample S-1 hammered out of sampler
4									*Top of cement-bentonite grout*
5	MC	Same as above, mixed fill, becomes wet at ~7.7' no odor or visual staining	S-2	4-8	0.1	0.0			
6						0.0	1.8		*Top of choker sandpack 5.0'*
7						0.0			*Top of bentonite chip seal 5.5'*
8						0.1			
9	MC	Same as above, coarse Gravel and Cobble fragments cause poor recovery, moist, loose, no odor or visual staining	S-3	8-12	0.5				
10						0.0	2.1		*Top of choker sandpack 9.5'*
11		Railroad nails observed in cuttings at 11' (Fill)							*Top of filter sandpack 9.9'*
12									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-06

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:** Brown fine to coarse GRAVEL and coarse to fine SAND (sub-round to angular), dense advancement, but sample is loose, moist, no odor or visual staining, saturated at 15.5'	S-4	12-16	2.0	0.0	2.5	SAND AND GRAVEL	*Top of screen 12.0'*
13									
14									
15									
16	MC	Brown coarse to medium SAND and fine to medium GRAVEL (subrounded to subangular), trace Silt, saturated, medium dense, ~2" seam of Reddish Brown SILT, no odor or visual staining	S-5	16-20	2.1	0.0	1.5		*0.010-inch slot* *2" dia. PVC screen*
17						0.0			
18						0.1			
19						0.2			
20	MC	Same as above, no odor or visual staining	S-6	20-24	2.0	0.0	1.5		*Bottom of screen 22'*
21									
22									Refusal at 22.4 ft
		END OF SOIL BORING							
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-01**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/11/2009			**Borehole Diam:**	2"	**Total Depth:**	20.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125470.62 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169656.311 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-01

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Asphalt and Black fine to medium GRAVEL, sub base is loose, low recovery, soft, sampler nearly free fell ~2'-4'	S-1	0-4	0.5	0.2	10	SAND AND GRAVEL FILL	
2						0.1			
3									
4						0.1			
4	MC	Brown fiine to medium SAND, some coarse to fine Gravel (round to angular), brick frags, asphalt, minor staining, no odor, little Silt, (Fill)	S-2	4-8	1.9	0.1	23		
5						0.2			
6									
7						0.1			
8						0.1			
8	MC	Same as above, Brown Silty medium to fine SAND and coarse to fine GRAVEL (rounded to angular), loose to soft, moist, trace brick fragments, no odor or visual staining	S-3	8-12	1.8	0.2	31		
9									
10						0.2			
11						0.3			
12		Last 0.1' of sample is wet				0.2			

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-01

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:** Brown Silty fine to medium SAND and medium to fine GRAVEL (angular to rounded), firm to dense, moist	S-4	12-16	1.6	0.1	3.4	SAND AND GRAVEL	
13						0.2			
14									
15						0.1			
16		Sample becomes saturated at ~15.5' , no odor or visual staining				0.2			
	MC	Brown medium to fine SAND and fine to medium (-) coarse GRAVEL (sub-rounded) firm, saturated, faint stratification (?), no odor or visual stainng	S-5	16-20	3.0				
17						0.0			
18							3.0		
19									
20		**END OF SOIL BORING**				0.1			
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-02**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/17/2009			**Borehole Diam:**	2"	**Total Depth:**	18.7'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125235.081 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169670.571 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-02

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown, Silty fine to medium SAND and GRAVEL, soft, moist, little coarse GRAVEL and Cobbles frags, slight fule odor and little staining	S-1	0-4	2.5	0.7	14	SAND AND GRAVEL FILL	
2						0.7			
3						0.9			
4		Brown/Black Silty fine (-) medium SAND, little fine to medium GRAVEL, moist to wet, fuel odor, stained				0.7			
5	MC	Brown Silty medium to coarse SAND, some fine to medium GRAVEL, little coarse GRAVEL and Cobble frags, moist to wet, slight gas and fuel odor throughout, no major visual staining	S-2	4-8	1.4	4.0	79		
6						3.5			
7						2.7			
8						2.6			
9	MC	Same as above, moist, loose	S-3	8-12	2.0	0.5	12		
10						2.5			
11		**SAND AND GRAVEL:** Grades to Brown medium SAND, little medium to fine GRAVEL, trace, coarse Sand, loose to soft, moist, no odor or visual staining				1.0		SAND AND GRAVEL	
12						4.1			Advanced HSAs to 12' then continue sampling

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-02

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:** Same as above, moist to wet	S-4	12-15	2.0	0.3		SAND AND GRAVEL	
13						0.4	0.9		
14		Grades to Brown Silty SAND and GRAVEL, wet no odor or visual staining				0.3			
15									
16									Harry advanced HSAs to 16.5' because of cobbles
	MC	Same as above, Brown fine to medium SAND and GRAVEL (angular to sub-angular), firm to dense, saturated, no odor or visual staining	S-5	16.5-~~20.5~~ 18.7		0.3			
17						0.4	0.6		
18									
19		**END OF SOIL BORING**				0.3			
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-03**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/13/2009			**Borehole Diam:**	2"	**Total Depth:**	18.9
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125267.043 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169623.856 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-03

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** 4" of Brown SILT and fine SAND (trace Sand) Brown/Black fine SABD, some fine to coarse Gravel (angular to rounded), little Silt, moist to dry, firm to soft, some staining 0-2', no odor	S-1	0-4	2.9	0.2 (BG)	0.5	SAND AND GRAVEL FILL	
2						0.2			
3						0.3			
4						0.2			
5	MC	Brown coarse to fine SAND and fine to coarse Gravel, loose, moist, no odor, little minor staining at **top** of sample	S-2	4-8	1.5	0.2	0.8		
6									
7									
8						0.3			
9	MC	Same as above, no odor or visual staining	S-3	8-12	0.2		0.8		Low recovery
10									
11									
12									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-03

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:**	S-4	12-16	0.7				
		Above grades at ~12-13' to Brown medium SAND, trace fine gravel, saturated, loose, no odor or visual staining				1.4			
13									
						1.2			
14							0.7		
						0.9			
15									
		Brown fine (-) medium SAND, loose, saturated				3.3			
16	MC	Same as above	S-5	16-20	3.0			SAND AND GRAVEL	
						0.8			
17									
							0.6		
18		Above grades to Brown Silty fine to coarse SAND and fine to medium GRAVEL, little coarse Gravel, firm to medium dense, saturated, no odor or visual staining				0.5			
19									Refusal at 18.9'
		END OF SOIL BORING							
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-04**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/13/2009			**Borehole Diam:**	2"	**Total Depth:**	18.6'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125348.671 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169623.365 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-04

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown to Black fine to medium SAND and fine to coarse GRAVEL, little Silt, loose, dry to slightly moist, slight odor in first 1' of sample, asphalt, some Black staining	S-1	0-4	1.5	0.5	10	SAND AND GRAVEL FILL	
2									
3						0.6			
4	MC	Same as above with Cobble fragments and little asphalt debris, loose, moist grades to dry, no odor, minor staining in top 2" of sample	S-2	4-8	1.2	0.5	07		
5									
6						0.6			
7						0.4			
8	MC	Same as above, Brown coarse to fine SAND and fine to coarse GRAVEL, little (-) Silt, moist, last 2" of sample are wet, no odor or visual staining, soft	S-3	8-12	0.8	0.6	07		
9									
10						0.5			
11						0.6			
12									

Barton & Loguidice, P.C. | City of Rome Environmental Restoration Project | BORING NO: SB-04

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC	**SAND AND GRAVEL:** Brown fine to medium SAND, little fine to medium Gravel (rounded to subrounded), saturated	S-4	12-~~16~~ 12.7	0.7	0.8 1.0 7.8	0.7	SAND AND GRAVEL	Refusal at 12.7', rig repositioned ~3 ft south and resume sampling at 12' (Sampler cuttings from 0-12 are similar to above with slight sweet odor)
13	MC	Same as above , strong gasoline odor	SB-4B S-2	12-~~16~~ over-driven to 17'	2.7	148			
14									
15						310	1160		
16		Above grades in last 1' of sample to Grey fine SAND and fine GRAVEL (rounded), stratified (?), dense/firm, wet, strong gasoline odor				1500			
17		Black stained coarse to medium SAND and fine to medium GRAVEL, petroleum odor, saturated, loose, grades to Brown fine to medium GRAVEL and coarse to medium SAND, saturated, loose, some staining, less odor (slight to moderate)	SB-4B S-3	16-~~20~~ 18.6	2.5	~30	P 202 S 80		Photo taken
18						~25 4.5	P 12.3 S ~8		Refusal at 18.6'
		END OF SOIL BORING							
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

<COMPOSITE ANALYTICAL SAMPLE COLLECTED>

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-05**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/16/2009			**Borehole Diam:**	2"	**Total Depth:**	22.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125391.451 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169599.762 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-05

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	SAND AND GRAVEL FILL: Asphalt debris grades to Brown Silty fine SAND, little fine to medium Gravel, wood fragments, soft moist, no odor or visual staining	S-1	0-4	1.5	0.0	10	SAND AND GRAVEL FILL	
2									
3						0.1			
4									H.S.A. to 4'
5	MC	Same as above, no odor or visual staining	S-2	4-8	1.6				
6						0.1	13		
7									
8									HSAs to 8' - hard advancement
9	MC	Same as above with coarse Gravel and Cobble fragments, dry, loose, bony , increase of medium to coarse Sand at ~11.5', sample becomes moist to wet	S-3	8-12	1.8	0.0			
10							10		
11						0.1			
12									HSAs to 12'

Barton & Loguidice, P.C. | City of Rome Environmental Restoration Project | BORING NO: SB-05

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC	**SAND AND GRAVEL:** Same as above with Cobble/Gravel frags and dark Grey stained medium to fine Sand, loose	S-4	12-~~16~~ 14.2	0.7	340.0		SAND AND GRAVEL FILL	
13						450	793		
						980	650		
14		Sample becomes wet at 13.8', strong gas odor				360			HSAs to 15'
15	MC	Black coarse to fine GRAVEL AND SAND, loose, wet to saturated, strong fuel/gas odor, grossly impacted, possible slough	S-5	15-~~19~~ 16.9	0.7	133.0			
16		<COMPOSITE ANALYTICAL SAMPLE COLLECTED>				148.0	P 400 S 350		
17						135			
18	MC	Brown fine to coarse GRAVEL, loose, wet, probably slough	S-6	18-~~22~~ 18.3	<0.1	5.3	82.5		
19									
20	MC	Brown fine to medium GRAVEL and Silty SAND, dense, saturated, slight to moderate gas odor	S-7	19.5-~~23.5~~ 19.8	0.3	18.1 13.5	P 38.9 S ~30		Refusal at 19.8'
21	MC	Same as above, slight to no odor, saturated, dense	S-8	20.5-~~24.5~~ 22.0	1.5	28.6	7.4		
						9.9			
22						3.6 3.1			MC refusal at 22.0
		END OF SOIL BORING							
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-06**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/11/2009			**Borehole Diam:**	2"	**Total Depth:**	20
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125498.157 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169583.043 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-06

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown Silty fine to medium SAND AND GRAVEL, loose, slightly moist, no odor or visual staining	S-1	0-4	0.3	0.0		SAND AND GRAVEL FILL	
2									
3									
4	MC	Brown to Tan Silty fine to medium SAND and medium to fine GRAVEL, little Cobble fragments, firm to loose, no odor or visual staining (Fill)	S-2	4-8	1.8	0.0 0.1 0.2 (BG) 0.2	1.0		
5									
6									
7									
8	MC	Same as above with increase of Cobble/coarse Gravel fragments, loose to medium dense, slightly moist, no odor or visual staining	S-3	8-12	1.9	0.2 (BG) 0.2 0.3 0.4	1.4		
9									
10									
11									
12									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-06

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**SAND AND GRAVEL:** Brown fine to medium GRAVEL and coarse to medium SAND, medium dense, wet	S-4	12-16	2.5	0.7		SAND AND GRAVEL	
13						0.9			
14		Sample becomes saturated				1.0			
15		Above grades to Brown medium to fine SAND, trace (+) fine Gravel (subrounded), loose, saturated, no odor or visual staining				1.3			
16	MC	Same as above, Brown GRAVEL AND SAND, saturated	S-5	16-~~20~~ 16.8	0.8	0.1			Refusal at 16.8'
17		**END OF SOIL BORING**							
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-07**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/13/2009			**Borehole Diam:**	2"	**Total Depth:**	16'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125284.746 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169580.584 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-07

Depth (ft)	Sample Type		Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC		**SAND AND GRAVEL FILL:** Brown to Black Silty fine to medium SAND and fine to coarse GRAVEL, loose, slightly moist, wood fragments, no odor, some Black staining (Fill)	S-1	0-4	1.3	0.4	0.5	SAND AND GRAVEL FILL	
2										
3										
4	MC		Same as above, Brown to Black Silty SAND AND GRAVEL, no odor, moist to wet	S-2	4-8	0.1	0.3	1.1		
5										
6										
7										
8	MC	<COMPOSITE ANALYTICAL SAMPLE COLLECTED>	**BROWN SAND:** Above grades to Brown fine SAND, trace fine Gravel, loose, moist, no odor or visual staining	S-3	8-12	1.5	0.4	0.8	BROWN SAND	
9										
10										
11										
12										

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-07

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC	**BROWN SAND:** Brown fine to medium SAND, little fine to medium Gravel (rounded to subrounded), saturated	S-4	12-16		0.8		BROWN SAND	
13						0.5			
14		Above grades to Brown fine to medium SAND, trace fine Gravel (rounded to subrounded), saturated, loose, no odor or visual staining				0.4	0.5		
15									
16						0.5			
		END OF SOIL BORING							
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-08**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/13,16/2009			**Borehole Diam:**	2"	**Total Depth:**	26.5
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125413.579 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169531.903 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-08

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Brown Silty fine to medium SAND, some fine to coarse Gravel and Cobble frags, moist firm, no odor, possible minor staining	S-1	0-4	1.8	0.4	36	SAND AND GRAVEL FILL	
2						0.5			
3									
4						0.4			
5	MC	Same as above fill with Cobble, coarse Gravel, odor moderate at 6" from the top of the sample (sweet), no visual staining, loose, dry to moist	S-2	4-8	1.5	24.1	80		
6						3.0			
7						4.5			
8						7.0			
9	MC	Same as above, Brown medium to coarse SAND and fine to medium GRAVEL with Cobble, loose to firm, moist, no odor or visual staining (fill)	S-3	8-12	1.5	0.9	13		
10						0.7			
11						1.1			
12						0.5			

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-08

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC	**SAND AND GRAVEL:** Brown coarse to fine Silty SAND and fine to coarse GRAVEL, dense, wet, no visual staining	SB-8B S-1	12-~~16~~ 14.2	0.9	0.3 0.3 0.4	0.6	SAND AND GRAVEL FILL	Macro-core sampler broke of the rods and was not retrived, no analytical sample was submitted. Returned on 11/16/09 3' to the SE with HSAs to complete the boring (SB-08B) to depth.
13									
14		Color grades to Greyish Brown at ~14', slight gas odor				1.0			MC refusal at 14.2
15	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	Same as above, moderate gas odor, wet	SB-8B S-2	14.5-~~20.5~~ 16.4	0.8	2.2 3.5 4.0 7.6	P 227 S 75		
16									MC refusal at 16.4', HSAs to 17' for next sample
17		Brownish-Grey coarse to fine GRAVEL and coarse to medium Silty SAND, loose, saturated, moderate gas odor, no sheen	SB-8B S-3	17-~~21~~ 17.7	0.8	12 10 P 100, S 60 75	P 223 S 65		MC refusal at 17.7', Harry says very Cobbly from 17.7'-18.8-, HSAs to 19' for next sample
18									
19	MC	Brown fine to coarse GRAVEL, some Silty Sand, loose, saturated, washed sample (may be more fines), no odor or visual staining	SB-8B S-4	19-~~23~~ 19.4	0.2	0.8	2.0		
20									MC refusal at 19.4', HSAs to 20.5' for next sample, bony HSA advancement
21	MC	Same as above, saturated, no visual staining, very slight odor Cobbles noted during auger advancement	SB-8B S-5	20.5-~~24.5~~ 20.6	0.1	1.1	5.8		MC refusal at 20.6', HSAs to 22.5' for next sample, very bony HSA advancement
22									
23	MC <COMPOSITE ANALYTICAL SAMPLE COLLECTED>	Brown Silty SAND and fine to coarse GRAVEL (subangular)	SB-8B S-6	22.5-26.5	2.9	1.7			
24						1.8			
25						1.4	4.5		
26		**FLUVIAL SAND AND GRAVEL:** Above grades to Grey medium to fine SAND and fine to coarse GRAVEL (rounded to subrounded), possibly fluvial, loose to firm, saturated, no odor or visual staining				1.4		FLUVIAL S & G	
		END OF SOIL BORING							
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-09**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/12/2009			**Borehole Diam:**	2"	**Total Depth:**	9.5'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125385.059 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169628.282 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-09

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**SAND AND GRAVEL FILL:** Grey GRAVEL AND SAND subbase, concrete fragments	S-1	0-4	1.2	3.2	6.0	SAND AND GRAVEL FILL	
2						2.3			
3		Above grades in last 3" of sample to Brown/Black fine SAND, some fine Gravel, some staining, no odor, loose, dry to slightly moist				1.4			
4	MC	Same as above, loose SAND AND GRAVEL fill, no odor minor staining on some of the fill, material (i.e. asphalt and concrete debris), dry, loose	S-2	4-8	0.5	0.6	2.1		
5									
6									
7						0.5			
8	MC	<COMPOSITE ANALYTICAL SAMPLE COLLECTED> Brown Silty fine to medium SAND, some fine to medium Gravel (angular to sub-rounded), soft to loose, no odor, minor staining at ~8', slightly moist to dry	S-3	8-~~12~~ 9.5	2.0	0.3	1.4		
9						0.6			
10		**END OF SOIL BORING**							
11									
12									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-10**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/12/2009			**Borehole Diam:**	2"	**Total Depth:**	9.5
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1,125,398.335 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169628.774 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-10

Depth (ft)	Sample Type		Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC		**SAND AND GRAVEL FILL:** Brown fine to medium SAND, some fine to coarse Gravel (angular to subrounded), some minor staining (old?), no odor, loose, slightly moist	S-1	0-4	1.3	0.1	0.9	SAND AND GRAVEL FILL	
2										
3										
4	MC		Same as above, Silty Brown fine to medium SAND, some fine to medium Gravel, minor staining, no odor, soft, slightly moist	S-2	4-~~8~~ 6.2	2.0	0.3	0.9		
5										
6	MC	<COMPOSITE ANALYTICAL SAMPLE COLLECTED>	Same as above with increased cobble and gravel rags, loose to medium dense, slightly moist, no odor or visual staining	S-3	6-10	2.9	0.4			Refusal at 6.2', move over ~15" west and resume sampling at 6'
7										
8							0.4	2.0		
9							0.5			
10	MC		Same as above, slightly moist, no odor or visual staining	S-4	10-~~14~~ 11.2	0.6	0.3	2.1		
11										
12			**END OF SOIL BORING**							Refusal at 11.2'

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-12**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve Le Fevre				or 2"-3" dia. split-spoons (where indicated).		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/12/2009			**Borehole Diam:**	2"	**Total Depth:**	14.2'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	1125433.74 (Approx.)	**Ground Elevation:**	UNK	**Screen Type/Diam:**	
Vert. Datum:	N/A	**Northing:**	1169625.332 (Approx.)	**TOC Elevation:**	UNK	**Slot Size:**	

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-12

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**CONCRETE SLABS:** ~4" Concrete slab underlain by fill material Original ~4" thick concrete slab, reinforced with rebar	S-1	0-4	1.2	0.7	3.5	CONCRETE SLABS	
2		**SAND AND GRAVEL FILL:** Brown to Black medium to fine SAND and fine to coarse Gravel (fill), some Black staining, no odor, loose, dry to slightly most				1.0		SAND AND GRAVEL FILL	
3						0.4			
4	MC	Same as above	S-2A	4-~~8~~ 4.5'	0.4		2.7		S-2A - Refusal at 4.5', second attempt to advance further
5	MC	Same as above, Brown/Red to Grey/Black SAND AND GRAVEL, some Cobble fragments, loose, slightly moist, minor staining, no odor (fill)	S-2B	4.5-8	1.5	0.6 (BG)	2.6		
6						0.6			
7						0.7			
8						0.7			
9	MC	Same as above, SAND AND GRAVEL, some Cobble fragments, loose, dry, no odor or visual staining	S-3	8-12	1.9	0.4	2.5		
10						0.4			
11						0.5			
12		Sample becomes slightly moist				0.5			

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-12

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	MC <COMPOSI	**SAND AND GRAVEL FILL:** Same as above with mostly coarse Gravel and Cobble fragments, loose, dry, no odor or visual staining	S-4	12-~~16~~ 14.2	0.8	0.4	2.9	S & G FILL	
13									
14		**END OF SOIL BORING**							Refusal at 14.2'
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-13**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Lyon Drilling		
Client:	City of Rome			**Driller:**	Harry Lyon		
Site Location:	1030 East Dominick Street			**Rig Type:**	CME-45, Trailer-mounted		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (4' macro-core)		
Project Manager:	Steve LeFevre				or 2"-3" dia. split-spoons (where indicated). Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Josh Haugh			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	11/23/2010			**Borehole Diam:**	2"	**Total Depth:**	16.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-13

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	**CONCRETE SLAB (FORMER PUMP ISLAND):** ~4" thickness	S-1	0-4	0.5	0.0		CONC	
2		**SAND AND GRAVEL FILL:** Concrete debris grades to Brown to dark Brown coarse to fine SAND and fine to medium GRAVEL, loose, dry, no odor (fill)				0.1	1.0		
3									
4	MC	Brown fine to coarse SAND and fine to medium GRAVEL, some Cobble, loose, moist to slightly moist, no odor or visual staining (fill)	S-2	4-8	2.0	0.0		SAND AND GRAVEL FILL	
5									
6						0.1	2.3		
7									
8	MC	Same as above	S-3	~~8-12~~ 11.6	1.8	0.2			
9									
10						0.3	2.6		
11						0.6			
12		Little Grey staining observed at ~11.2' (PID = 0.6 ppm), no odor, loose to firm, moist to wet at 11.5'				0.2			MC refusal at 11.6', second attempt and subsequent refusal at 11.8'

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-13

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
12	SS 15-33-31-28	**SAND AND GRAVEL FILL:** Same as above with Red Sandstone Cobble fragments, moist to wet, no odor or visual staining	SS-1	12-14	0.5	0.0	2.2	SAND AND GRAVEL FILL	Switch to 2" split spoon and 140 lb hammer, open hole
13									
14	SS 12-9-14-50	As above, little Silt, dense (fill), moderate gas odor and Grey staining, saturated	SS-2	14-16	0.7	P - 30	15.9		
15									
16		**END OF SOIL BORING**							
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-14**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	18.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-14

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Asphalt fill 0-8". Turns to Brown SAND and GRAVEL with black bits throughout. At 2.5-3.0ft Grey GRAVEL/Concrete.	1	0-5	3.0	0.0			
5	MC	Similar as above (SAA). Brown medium GRAVEL with some fine to medium Sand, slightly moist near bottom. Gravel turns reddish, flat-lying.	2	5-10	2.0	0.0			
10	MC	SAA with coarse Sand, trace black specs. At 10" turns wet to saturated. Rounded to angular gravel and fine-medium-coarse Sand.	3	10-15	2.0	0.0			
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-14

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	0-18ft Brown saturated SAND and GRAVEL (PID 94.4 ~18"). Turns to saturated medium to coarse SAND and fine to medium GRAVEL (rounded to subangular) to bottom.	4	15-20	3.8				
16							249.0		
17									
18		Refusal @ 18ft.				94.4			
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-15**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	18.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-15

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Topsoil then Brown fine to medium SAND, moist. At 8" turns to Grey/Brown SAND and medium GRAVEL (subangular), dry, loose.	1	0-5	1.5	0.1			
5	MC	Tpo 6" is Brown/Black medium GRAVEL (rounded to angular) with some fine to medium Sand. At 6"-10" crumbled concrete. Turns back to as above, dry, loose.	2	5-10	1.5	0.0			
10	MC	0-2ft Red/Grey/Brown SAND and medium GRAVEL, dry, loose. At 2ft becomes reddish/brown SAND and GRAVEL, saturated.	3	10-15	4.0	0.0	0.0		
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-15

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Saturated Brown fine to medium SAND and medium GRAVEL (subrounded to angular).	4	15-20	3.5				
16									
17						0 0			
18		Refusal @ 18ft							
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-16**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	18.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-16

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	0-6" Asphalt fill material. Black cinders underneath. Turns to Brown SAND and GRAVEL fill material. At 1.8ft loose, dry, tan SAND then back to SAND and GRAVEL.	1	0-5	2.5	0.0			
5	MC	Similar as above (SAA), loose, dry. Bottom 2" is Grey GRAVEL (subangular), flat-lying.	2	5-10	1.7	0.0			
10	MC	Grey/Red medium GRAVEL (angular) with some fine to medium Brown Sand. Saturated at 1.0ft. Sand turns reddish/brown. Some smears of black noted in portion above saturated zone.	3	10-15	1.6	0.0			
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-16

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Saturated with sheen on water. Medium GRAVEL (subrounded) turns to medium SAND, petro odor.	4	15-20	3.0		408.0		
16									
17						31.1			
18		Refusal @ 18ft							
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-17**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	16.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-17

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Topsoil grades to Brown SAND and GRAVEL fill material. Dark brown/red/gravel. Dry, some woodchips. Bottom 3" is dry crushed concrete.	1	0-5	2.4	0.0			
5	MC	SAA. SAND and GRAVEL fill material, loose, dry. Medium to coarse Gravel (angular to subangular) throughout.	2	5-10	2.2	0.0			
10	MC	SAA. Bottom 6" is moist/wet SAND and GRAVEL turning to black fine GRAVEL, petro odor. PID ~95 ppm.	3	10-15	2.8	95.0	351		
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-17

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Saturated Brown fine to medium SAND. Changes to black fine to medium SAND at 1.5ft to bottom. Petro odor. Refusal @ 16ft	4	15-20	2.5	23.0	351		
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-18**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	16.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-18

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Topsoil then Brown SAND and GRAVEL fill material. Slight petro odor. Bottom 6" turns to black Silty SAND with little red Gravel.	1	0-5	2.2	0.0	0.2		
2									
3									
4									
5									
6	MC	0.0-1.0' is fill material. Turns to Brown fine to medium SAND with little medium Gravel, slightly moist.	2	5-10	2.2	0.0			
7									
8									
9									
10									
11	MC	SAA. At 6" becomes saturated.	3	10-15	1.7	0.0			
12									
13									
14									
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-18

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	SAA. Saturated.	4	15-20	2.0				
16		Refusal @ 16ft							
17						0.0			
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-19**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	18.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-19

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	2" of topsoil. Turns to Brown fine SAND with some Gravel and sections of black Sand mixed throughout, fill, loose, dry.	1	0-5	2.0	0.0			
5	MC	Red/Grey/Brown SAND and GRAVEL fill material with sections of tan flat-lying Gravel, lose, dry.	2	5-10	2.0	0.0			
10	MC	Top 6" SAA. Becomes wet/moist from 6" to 2.5' turns to Brown mised SAND and GRAVEL with orange staining and sections of black and tan Sand. Bottom 3" is Grey wet SAND, slight petro odor noted.	3	10-15	3.5	15.4	71.1		
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-19

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Top is Brown SAND and GRAVEL. Grades to dark brown fine to medium SAND, saturated. Bottom 2" is back GRAVEL.	4	15-20	2.0				
16									
17						3.8			
18		Refusal @ 18ft							
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-20**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	15.5'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-20

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Top 4" is topsoil. 4"-20" is concrete and fill material then ~3" of wood and black fine SAND. Bottom 1.0ft is brown/grey/black fine SAND and fine to medium GRAVEL, dry.	1	0-5	3.0	0.0			
5	MC	Similar as above (SAA). Fine SAND and fine to medium GRAVEL fill material. Bottom 1.0ft is tan/grey flat-lying GRAVEL, dry, loose.	2	5-10	2.8	0.0			
10	MC	SAA. SAND and GRAVEL fill material. Wet from 2-3ft then back to dry.	3	10-15	5.0	0.0	0.0		
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-20

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Mostly cave-in in sleeve. Saturated Brown GRAVEL at top then turns to medium SAND from 1-0ft to bottom. Refusal at 15.5ft	4	15-20	3.0	0 0			
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **SB-21**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/15/2014			**Borehole Diam:**	2"	**Total Depth:**	15.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: SB-21

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	0.0-2.0' SAND and GRAVEL fill material, turns to fine Brown SAND, moist at bottom.	1	0-5	2.9	0.0			
5	MC	SAA, grades to medium to coarse SAND, layer of dark grey material with trace woodchips. Bottom 1" is wet to saturated.	2	5-10	2.3	0.0			
10	MC	Top 4" is Grey medium GRAVEL (rounded to subrounded), light petro odor, no PID hits. Grades to angular GRAVEL and fine-medium-coarse SAND. Length of sleeve staurated.	3	10-15	3.0	0.0	0.2		
15		Refusal @ 15ft							

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-7**

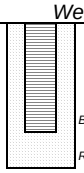
Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/14/2014			**Borehole Diam:**	2"	**Total Depth:**	17.0'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-7

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1	MC	Brown/Black/Grey/Red SAND and GRAVEL fill material, dry, loose.	1	0-5	2.1	0.0			*Concrete surface seal with ~2ft stickup*
2									*Top of bentonite seal*
3									
4									
5	MC	Similar to above (SAA), slightly moist as bottom.	2	5-10	3.8	0.0			
6									
7									
8									*Top of sandpack 8.0ft*
9									
10	MC	SAA. At bottom 6" strong petro odor. PID 720 ppm. Moist from 2.0-3.0ft.	3	10-15	4.5	720.0			
11									
12									*Top of Screen 11.5ft*
13									*0.010-inch slot 2" dia. PVC screen*
14									
15									

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-7

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	Brown SAND and GRAVEL, saturated. At 2.5ft turns to dark grey medium to coarse SAND on top of flat-lying weathered rock.	4	15-20	4.0				 *Bottom of Screen 16.5ft* *Refusal @ 17ft*
16									
17		Refusal @ 17ft				64.0			
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SUBSURFACE INVESTIGATION LOG

Boring No. **MW-8**

Project No. 245.005

PROJECT INFORMATION				DRILLING INFORMATION			
Project:	City of Rome Environmental Restoration Project			**Drilling Co:**	Zebra Environmental		
Client:	City of Rome			**Driller:**	Joe Hutchins		
Site Location:	1030 East Dominick Street			**Rig Type:**	Geoprobe DT6620		
Job No:	245.005			**Drilling Method(s):**	Continuous soil sampling, direct push methods (5' macro-core)		
Project Manager:	Steve LeFevre				Wells installed with 4 1/4" H.S.A.'s.		
Logged By:	Leandra Keefe			**Hammer Type, Weight/Drop:**	N/A		
Dates Drilled	5/15/2014			**Borehole Diam:**	2"	**Total Depth:**	15.5'
LOCATION INFORMATION (NYSP)				**WELL INFORMATION**			
Horiz. Datum:	NAD83	**Easting:**	UNK	**Ground Elevation:**	UNK	**Screen Type/Diam:**	PVC/2"
Vert. Datum:	N/A	**Northing:**	UNK	**TOC Elevation:**	UNK	**Slot Size:**	0.010"

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-8

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
1–5	MC	Topsoil mixed with fine SAND and fine GRAVEL (angular), dry, loose.	1	0-5	0.5	0.0			*Concrete surface seal with flushmount* *Top of bentonite seal*
5–10	MC	Brown/dark Grey Silty SAND, moist, at bottom 2" saturated, coarse SAND with little fine Gravel (angular).	2	5-10	0.5	0.8			*Top of sandpack 8.0ft*
10–15	MC	Saturated. Coarse SAND and fine GRAVEL, slight petro odor in upper 1.5ft, darker soils, PID ~24ppm	3	10-15	3.0	24.7			*Top of Screen 10.5ft* *0.010-inch slot 2" dia. PVC screen*

Barton & Loguidice, P.C. City of Rome Environmental Restoration Project BORING NO: MW-8

Depth (ft)	Sample Type	Description	Sample No./	interval (ft bgs)	Recovery (ft)	PID (ppm)	Headspace	Lithology	Notes / *Well Construction*
15	MC	SAA, petro odor, saturated, GRAVEL (rounded to sub rounded) and corase SAND.	4	15-20	3.0				 *Bottom of Screen 15.5ft*
16		Refusal @ 15.5ft							
17						92			
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

3.1.6 Ecology

Potential wildlife impacts were assessed for the site during field inspections. The site area is located in an urban section of the City of Rome, and the land use adjacent to the site consists of commercial and residential properties. The land-use in the area would discourage many types of wildlife from utilizing the site; however, cats were frequently observed at the site and are likely owned by neighbors of the site. In addition, other potential species that could inhabit or traverse the site environs include mice, voles, rats, squirrels, woodchucks, rabbits, raccoons, and opossum.

The potential pathway for surface exposure is ingestion/ absorption of contaminated surface soils, and future remedial alternative(s) considered for the site should address this potential exposure pathway. Additional exposure to subsurface soils and groundwater is possible for species that burrow or inhabit burrows and those species that prey on them. Since no large burrows were observed on the site, this analysis is limited to mice, voles, and rats being the species that could receive primary exposure to site contaminants. It is possible that some secondary exposure to contaminants could occur in predators that consume potentially-contaminated rodents.

3.2 Nature and Extent of Contamination

The following section discusses the results of the Site Characterization and summarizes the distribution of contaminants at the site. Summary tables of the laboratory data are found in Tables 1-5 and the complete laboratory reports are found in Appendix G.

3.2.1 Test Pit Investigation Results

Eight test pits were installed to investigate the presence of anomalies identified during the geophysical survey (Appendix B). The test pit locations are illustrated on Figure 2. The following table details visual observations made during the test pit installations:

Test Pit	Test Pit Results
TP-1	Minor staining at 2.5' bgs; no odor or PID detections.
TP-2	No contamination encountered. Three pipes and miscellaneous debris encountered.
TP-3	Minor staining at 2' bgs; no odors or PID detections. Encountered wall, debris, scrap metal, cobbles, and pipe.
TP-4	No contamination encountered. Encountered pipes and fittings.
TP-5	Slight staining; no odor or PID detections.
TP-6	No contamination encountered. Concrete, rebar, and coal encountered.
TP-7	No contamination encountered. Debris including concrete, timber, wheels, and tires encountered.
TP-8	No contamination encountered. Concrete block wall and active sanitary sewer line encountered.