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May 6, 2014

Mr. Justin Dextradeur
Development Manager
Redstone
210 College Street, Suite 201
Burlington, Vermont 05401

Re: Phase II Environmental Site Assessment Report
247 Pearl Street
Burlington, Vermont
LAG Project #14023

Dear Mr. Dextraduer:

Lincoln Applied Geology, Inc. (LAG) is pleased to present the attached Phase II Environmental Site Assessment (ESA) Report detailing recent work efforts at the above referenced facility in Burlington, Vermont. Please do not hesitate to contact me at (802) 453-4384 with any questions or comments regarding this report.

Sincerely,
Lincoln Applied Geology, Inc.

Dagan Murray
Senior Hydrogeologist

DM/JR/SR:ih

Enclosures

ec: Brian Woods (VTDEC Brownfields Program)

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Phase II Environmental Site Assessment Report

Undeveloped Lot
247 Pearl Street
Burlington, Vermont

LAG Project #14023

May 6, 2014

Prepared for:

Mr. Justin Dextradeur
Development Manager
Redstone
210 College Street, Suite 201
Burlington, Vermont 05401

Prepared by:

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APPLIED GEOLOGY, INC.
Environmental Consultants

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1.0 INTRODUCTION AND BACKGROUND INFORMATION

The 247 Pearl Street Lot "the Site" in Burlington, Vermont (44° 28' 49.28" North, 73° 12' 31.47" West) as shown on Figures 1, 2, and 3, which depict the Site via a USGS Topographic Map, digital orthophotographic map, and a detailed surveyed Site Map, respectively. Figures 1 and 2 provide a view of the property and surrounding area, while Figure 3 provides Site-specific information and pertinent physical features.

The current property is undeveloped. However, a large two story building was previously located on the northern portion of the lot adjacent to Pearl Street. The property historically operated as a dental practice.

Several recognized environmental conditions (RECs) were identified in the April 11, 2014 Phase I Environmental Site Assessment (ESA) report prepared for the property. Lincoln Applied Geology, Inc. (LAG) has conducted this Phase II ESA in accordance with *ASTM E1903-11 Phase II Site Assessments* and the Vermont Department of Environmental Conservation (VTDEC) Investigation and Remediation of Contaminated Properties (IROCP) document (April 2012). This Phase II ESA is being carried out under contract with Redstone in response to several recognized environmental conditions (RECs) outlined in the April 11, 2014 Phase I ESA.

The Phase II ESA scope of work was outlined to investigate the following:

- Potential impacts to the subject property from the upgradient Pearl Street Mobil property which is listed as an active hazardous waste site.

- Polynuclear aromatic hydrocarbon (PAH) impacts to soil surrounding the former on-site structure that burned down at the property.

- Potential vapor encroachment along the eastern property boundary from soil and/or groundwater contamination identified in a geotechnical boring installed at the property in 2011 that may be resulting from off-site migration of a contaminant plume from the upgradient Pearl Street Mobil hazardous waste site.

2.0 SUBSURFACE INVESTIGATION ACTIVITIES

Investigation activities included: soil boring and monitoring well installation, soil screening and sampling, groundwater level gauging, monitoring well development, photoionization detector (PID) well headspace assays, and groundwater quality sampling. These investigation activities are summarized below.

2.1 Soil Boring and Monitoring Well Installation

On April 14 and April 15, 2014, LAG, in conjunction with T&K Drilling of Troy, New Hampshire installed six (7) soil borings at the Site (SB-1, SB-2, SB-3,

SB-4, SB-5, SB-6, and SB-7). Four of the seven borings were completed as 2" diameter poly vinyl chloride (PVC) monitoring wells (MW-1, MW-2, MW-3, and MW-4).

Soil boring SB-1 was installed adjacent (within 2 feet) of a 2011 geotechnical boring that reported a PID concentration of 188 ppm at a depth of 24 feet bg.

Soil boring and monitoring well locations are depicted on the Site Map presented as Figure 3. All drilling operations were performed in accordance with ASTM Method D-1586. Soil borings were conducted using hollow stem auger drilling methodologies with split spoon sampling. Detailed boring logs and monitoring well construction diagrams are included in Appendix A. Soil samples were collected from each boring and screened for concentrations of volatile organic compounds (VOCs) with a PID.

Soils encountered at the Site generally consisted of poorly graded medium sand with fine gravel from grade to 4 feet bg; poorly graded fine sand between 4 and 15 feet bg; silty fine sand between 15 and 25 feet; and silt below 25 feet. Certain areas of the lot had rubble fill between 5 and 15 feet, but are mostly focused on the south end of the lot. Bedrock was not encountered to a terminal investigation depth of 35 feet bg. Groundwater was encountered between 15 and 30 feet bg across the Site.

Weathered petroleum contamination was encountered in boring SB-1 between 19 and 24 feet. A peak PID reading of 1.1 parts per million (PPM) was recorded at 19 feet bg. PID readings were not measured in any other borings installed at the property.

2.2 VOC Soil Quality Results

VOC soil quality samples were collected from four (4) boring locations (SB-1, SB-2, SB-3, and SB-4) on April 14, 2014. Soil samples were analyzed at Green Mountain Laboratories, Inc. in Montpelier, Vermont for VOCs per EPA Method 8260. VOC results are presented in Table 1. Laboratory analytical reports are included in Appendix B.

Trace concentrations of total xylenes, 1,2,4-trimethylbenzene (TMB), sec-Butylbenzene, and p-Isopropyltoluene were reported above laboratory detection limits in SB-1, but were well below their respective VTDEC Residential Soil Screening Values (SSVs). VOCs were not reported in soil samples collected from borings SB-2 through SB-4.

The compounds detected in the soil sample from SB-1 are characteristic of gasoline contaminants.

2.3 PAH Soil Quality Results

Several PAHs were reported above VTDEC Residential Soil Screening Values (SSVs) in borings SB-6 and SB-7. Soil samples were collected from a target depth horizon of 2 to 10 feet bg and composited for analysis. SB-5 was installed within the footprint of the former on-site structure and borings SB-6 and SB-7 were installed off the southwest and southeast ends of the former structure in the parking lot.

Benzo(a)anthracene, Benzo(a)pyrene, and Benzo(b)fluoranthene were reported above their respective SSVs in the composite sample collected from SB-6. Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene were reported above their respective SSVs in the composite sample collected from SB-7. Fluoranthene and Pyrene were reported above laboratory method detection limits in SB-5, but below their respective SSVs.

Very limited PAH concentrations exist in the filled foundation of the former on-site structure. The composite soil sample included both non-native backfilled soils and native soils below the depth of the basement. LAG was not present at the structure fire but it is assumed charred material would have come in contact with the dirt floor basement and soil surrounding the building.

The PAH contamination identified in borings SB-6 and SB-7 installed in the parking lot indicate a historic source from either fill material brought to the site in the past or impacts to native soil from historical industrial processes in the Burlington area prior to a pavement cap at the Site.

2.4 Groundwater Elevation Data and Site Hydrogeology

On April 25, 2014, depth to groundwater measurements were collected from monitoring wells MW-1, MW-2, MW-3, and MW-4 at the Site. Liquid level monitoring data and calculated groundwater elevation data for the April 25th monitoring event is presented in Table 3.

Groundwater levels ranged from 8.18 feet (MW-4) to 27.33 feet (MW-2) below top of casing across the Site. Due to the permeability difference between the foundation backfill material and native silty sands at depth as well as the foundation walls of the former building still in the ground, the former basement of the on-site building is acting like a “bath tub” and artificially elevating groundwater elevations in the vicinity of MW-4.

The April 25, 2014 groundwater elevation data were used to generate the Groundwater Contour Map presented as Figure 4. Groundwater beneath the Site flows in a general south-southwest direction at an average hydraulic gradient of 19.1% (0.191 ft/ft) calculated between upgradient monitoring well MW-4 and the furthest downgradient monitoring well MW-3. The water table slope flattens

out on the southern half of the property with a hydraulic gradient of 5.7% (0.057 ft/ft) calculated between MW-1 and MW-3. This gradient is more typical of what is expected in the shallow unconfined aquifer beneath Burlington. It's obvious from the groundwater contour map and calculated gradients that the former building foundation is acting as an infiltration basin and artificially effecting groundwater gradient on the northern half of the property.

Hydrogeology in the area is highly controlled by the local topography and Lake Champlain, which is the ultimate discharge point for groundwater in the area. LAG feels the current monitoring network adequately characterizes groundwater flow beneath the site based on available groundwater flow records from the upgradient Pearl Street Mobil site and the typical southwest flow direction of shallow groundwater in this area of Burlington.

2.5 Well Headspace Monitoring Results

Each monitoring well headspace was screened with a PID to determine the presence of residual vapor phase contamination present in the vadose zone beneath the Site. PID assay results are presented in Table 4. Vapor phase contamination was not measured with a PID (0.0 ppm) in any monitoring well screened on April 25, 2014. As was the case with drilling, well headspace screening results indicate no residual adsorbed contamination in the vadose zone beneath the Site.

During LAG's site survey work a petroleum odor was noticed emanating from the manhole on the adjacent property to the east. LAG screened the catch basin with a PID and no readings were measured (0.0 ppm).

2.6 Low Flow Sampling Data

Low flow purging and sampling was conducted at all four monitoring locations (MW-1 through MW-4) on April 25, 2014. All monitoring wells were purged and sampled using standard low flow purging techniques in strict conformance with the *USEPA Region I Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells*. Low flow sampling logs for the April 25, 2014 event are included in Appendix D.

Overall field parameters were held within their appropriate ranges and stabilized at the point of groundwater sample collection. Turbidity values were within normal ranges for groundwater sampling. Temperature, pH, conductivity, dissolved oxygen, and oxidation reduction potential values recorded from all four monitoring wells confirm an aerobic aquifer environment and do not show any reducing zones indicating there are no on-site reducing zones within the aquifer that would represent subsurface contamination.

2.7 Groundwater Quality Results

Groundwater quality samples were collected from monitoring wells MW-1 through MW-4 on April 25, 2014. Groundwater samples were analyzed at Green Mountain Laboratories, Inc. in Montpelier, Vermont for VOCs per EPA Method 8260. Water quality results are summarized in Table 5 and the laboratory analytical reports are included in Appendix E. The April 25, 2014 water quality data were used to generate the Total Targeted VOC Map presented as Figure 5.

Toluene was the only compound reported above laboratory method detection limits in MW-1 at a concentration of 2.1 parts per billion (ppb), which is significantly below its respective Vermont Groundwater Enforcement Standard (VGES). No other VOCs were reported above laboratory method detection limits in monitoring wells MW-2, MW-3, or MW-4.

There appears to be no impact from VOCs to the underlying groundwater system beneath the 247 Pearl Street Property.

2.8 Site Survey

The property and nearby features were surveyed on April 25, 2014 to develop a base map for the Phase II ESA report and establish an elevation datum for the property. Top of casing elevations were surveyed for each monitoring well. These values were used in the determination of the slope and direction of the groundwater table beneath the Site. The survey was utilized to develop Figures 3 through 5 included in this report.

3.0 SENSITIVE RECEPTOR SURVEY

Potential sensitive receptors for the subject property are soil, groundwater, and indoor air for the proposed building structure.

Based on the soil and water quality data collected soil and groundwater are not impacted above regulatory levels, and as a result, soil and groundwater are not affected receptors.

Due to the limited soil and groundwater contamination identified, as well as the significant depth to the impacted soil and the water table, there appears to be no potential for vapor intrusion at the subject property.

While not a sensitive receptor currently because the system has not been installed, the proposed stormwater infiltration gallery will not adversely affect contamination in the subsurface due to significant vertical separation between the proposed infiltration gallery and the groundwater table.

4.0 CONCEPTUAL SITE MODEL

The 247 Pearl Street property sits on a terrace above adjacent properties to the east, south, and southwest. Underlying soils consist of coarse grained fill material in the upper 4 to 5 feet and grading from fine sand to silty fine sand and then a silt at depth. There is a strong fining downward sequence to the unconsolidated geology beneath the Site. Surface topography outlined on Figure 3 shows significant relief to the east and the south. There is 20 feet of elevation change between the 247 Pearl Street parking lot and the neighboring 267 Pearl Street property parking lot to the east. The 267 Pearl Street lot is down-cut into the terrace and at a lower elevation than the Pearl Street Mobil site and the subject property. The Pearl Street Mobil property and the subject property appear to be at roughly the same elevation.

The storm water catch basin on the 267 Pearl Street property is at an elevation of 78 feet. The 247 Pearl Street lot is at an elevation of 98 feet. The water table elevation at MW-1 is approximately 75 feet. If we assume a typical 24 to 30 inch burial for stormwater piping, the invert elevation for the catch basin should be somewhere around 75 to 76 feet. It is LAG's professional opinion that the stormwater piping elevation and associated trench is very close to the seasonal high water table elevation and is likely to intercept any dissolved phase contamination migrating in a southwesterly direction from the Pearl Street Mobil site. It is also expected that contamination would be diverted along this preferential pathway away from the subject property. The olfactory evidence of petroleum contamination in this catch basin likely confirms the storm sewer is acting as a preferential pathway for contamination in the area.

The contamination identified in SB-1/MW-1 is a bit puzzling given the characterized groundwater flow having a strong southerly component. MW-1 is due west of the identified contamination at the Pearl Street Mobil site and unless there is a preferential pathway, it is expected that the dissolved phase plume from the Pearl Street Mobil site would be oriented northeast to southwest across the 267 Pearl Street property. The petroleum compounds identified in the soil at 19 feet from SB-1 definitely have a gasoline signature. There are no known historic gasoline underground storage tanks on the 247 Pearl Street property, so this contamination is not the result of activities associated with the subject property.

5.0 CONCLUSIONS

Based on the assimilated data collected to date LAG presents the following conclusions:

- LAG installed seven soil borings (SB-1 through SB-7) at the Site. Soil borings were placed in the footprint and immediately downgradient of the former on-site structure, adjacent to the 2011 geotechnical boring that identified petroleum contamination, the southern end of the lot and southwestern corner of the lot.

Four of the seven soil borings were completed as 2-inch PVC groundwater monitoring wells.

- The two proposed soil borings for the northeast and northwest corners of the former building structure could not be installed due to proximity of overhead electric and the saturated fine textured backfill was not stable to allow for the weight of the drill rig.

- Soils encountered at the Site generally consisted of poorly graded medium sand with fine gravel from grade to 4 feet bg; poorly graded fine sand between 4 and 15 feet bg; silty fine sand between 15 and 25 feet; and silt below 25 feet. Certain areas of the lot had rubble fill between 5 and 15 feet, but are mostly focused on the south end of the lot. Bedrock was not encountered to a terminal investigation depth of 35 feet bg. Groundwater was encountered between 15 and 30 feet bg across the Site.

- Very trace soil contamination was encountered just above the saturated zone at 19 feet in soil boring SB-1. A peak PID reading of 1.1 ppm was reported in SB-1. PID readings were not encountered in any other soil boring installed at the Site.

- Trace VOCs (total xylenes, 1,2,4-trimethylbenzene, sec-butylbenzene, and p-isopropyltoluene) were reported in soils collected from SB-1 just above the water table at 19 feet. None of the reported compounds were above the VTDEC Residential Screening Values. No VOCs were reported in soil samples collected from SB-2 through SB-4.

- Several PAH compounds were reported above their respective VTDEC Residential SSVs in soil borings SB-6 and SB-7. Soil samples were composited from a depth of 2 to 10 feet bg.

- Based on the location of PAH detections beneath the paved parking lot it is assumed that PAH contamination is a result of historic fill brought to the site or impacts to native soils from the coal era industry in Burlington. PAHs are typically present in many downtown Burlington properties.

- Groundwater beneath the Site flows in a general south-southwest direction at an average hydraulic gradient of 19.1% (0.191 ft/ft) calculated between upgradient monitoring well MW-4 and the furthest downgradient monitoring well MW-3. The water table slope flattens out on the southern half of the property with a hydraulic gradient of 5.7% (0.057 ft/ft) calculated between MW-1 and MW-3. This gradient is more typical of what is expected in the shallow unconfined aquifer beneath Burlington. It's obvious from the groundwater contour map and calculated gradients that the former building foundation is acting as an infiltration basin and artificially effecting groundwater gradient on the northern half of the property.

- VOCs were not detected in any monitoring well headspace across the Site, confirming minimal to no residual vadose zone contamination exists in subsurface soils beneath the Site.

- Toluene was reported above laboratory method detection limits at 2.1 ppb in monitoring well MW-1, which is significantly below its respective VGES. VOCs were not reported above laboratory method detection limits in monitoring wells MW-2, MW-3, and MW-4.

- It's likely that the stormwater sewer system that cross-cuts the adjacent 267 Pearl Street property to the east will likely act as a preferential pathway for contamination migrating off-site from the Pearl Street Mobil property.

- Based on the PAH concentrations identified in soils down to 10 feet bg, the upper layers of soil are not suitable to be used as fill at another residential property, and as such should be handled in an appropriate manner if they will be taken off-site.

- No significant petroleum contamination exists at the subject property, and as such, there is no threat of vapor intrusion to any newly proposed structure or basement to be constructed at the subject property.

- Petroleum contamination identified at the subject property is a result of off-site issues and not from activities at the Site, and as such, should be the responsibility of the party liable for said contamination.

- All RECs have been adequately investigated and addressed in accordance with continuing obligations set forth in the ASTM standard. PAH contamination identified at the subject property is not likely due to the September 5, 2011 structure fire.

6.0 RECOMMENDATIONS

Based on the above findings and conclusions, LAG presents the following recommendations:

- No additional investigation related to the upgradient Pearl Street Mobil REC identified in the April 2014 Phase I ESA is recommended.

- No additional investigation related to the vapor encroachment REC identified in the May 2014 Phase I ESA Addendum is recommended.

- Resulting future petroleum contamination impacts, investigation of, and or corrective actions for, should be paid for by the Vermont Petroleum Cleanup Fund (PCF) through the responsible party for the off-site contamination impacting the 247 Pearl Street property.

- Based on the PAH concentrations identified in soils down to 10 feet bg, it is warranted to evaluate PAH soil conditions at the bottom depth of the proposed infiltration gallery to evaluate groundwater mounding and migration effects of residual PAH contamination that may be present in the soils in that area.

- All four monitoring wells should be sampled for PAHs to assess current groundwater concentrations and potential leaching potential of adsorbed vadose zone PAH soil contamination. This additional information will also aid in evaluation/impact assessment of the proposed stormwater infiltration gallery.

- If soils are to be stripped from upper portions of the site, they should be handled in accordance with VTDEC regulations.

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Tables

Project: Redstone - 247 Pearl Street
Location: Burlington, Vermont
LAG Project #14023

Table 1

VOC
Soil Quality Results
(ug/kg)

Sample Date	Compound	VTDEC Soil Screening Values (Residential) (ug/kg)	SB-1 (19')	SB-2 (21')	SB-3 (30')	SB-4 (25')
April 14, 2014	Benzene	**1,100**	<2	<2	<2	<2
	Toluene	**500,000**	2.5	<2	<2	<2
	Ethylbenzene	**540,000**	<2	<2	<2	<2
	Xylenes	**630,000**	4.2	<6	<6	<6
	Total BTEX		**6.7**	**ND/BQL**	**ND/BQL**	**ND/BQL**
	1,3,5-Trimethylbenzene	**780,000**	<2	<2	<2	<2
	1,2,4-Trimethylbenzene	**62,000**	2.4	<2	<2	<2
	sec-Butylbenzene	**3,900**	7.7	<2	<2	<2
	p-Isopropyltoluene	**-**	2.3	<2	<2	<2
	Naphthalene	**3,600**	<5	<5	<5	<5
	MTBE	**43,000**	<5	<5	<5	<5
	Total Targeted VOCs		**19.1**	**ND/BQL**	**ND/BQL**	**ND/BQL**

NOTES:
< - Contaminant not detected at specified detection limit
Shaded Cells > S-1 Standard and/or Leaching Value
ND/BQL - Non-Detect/Below Quantative Limit
All concentrations reported in ug/kg (ppb)

Project: Redstone - 247 Pearl Street
Location: Burlington, Vermont
LAG Project #14023

Table 2

PAH
Soil Quality Results
(ug/kg)

Sample Date	Compound	VTDEC Soil Screening Values (Residential) (ug/kg)	SB-5 (2-10')	SB-6 (2-10')	SB-7 (2-10')
April 15, 2014	1-Methylnaphthalene	**22,000**	<38.0	<38.0	<38.0
	2-Methylnaphthalene	**310,000**	<38.0	<38.0	<38.0
	Acenaphthene	**3,400,000**	<38.0	<38.0	<38.0
	Acenaphthylene	**NA**	<38.0	<38.0	<38.0
	Anthracene	**17,000,000**	<38.0	62.3	45.3
	Benzo(a)anthracene	**150**	<38.0	171	190
	Benzo(a)pyrene	**10**	<38.0	138	266
	Benzo(b)fluoranthene	**150**	<38.0	197	467
	Benzo(g,h,i)perylene	**NA**	<38.0	87.6	317
	Benzo(k)fluoranthene	**1,500**	<38.0	72.5	154
	Chrysene	**15,000**	<38.0	226	405
	Dibenzo(a,h)anthracene	**15**	<38.0	<38.0	50.7
	Fluoranthene	**2,300,000**	70.8	683	997
	Fluorene	**2,300,000**	<38.0	<38.0	<38.0
	Indeno(1,2,3-cd)pyrene	**150**	<38.0	109	361
	Naphthalene	**3,600**	<38.0	<38.0	<38.0
	Phenanthrene	**NA**	<38.0	368	469
	Pyrene	**1,700,000**	55.4	533	728

NOTES:
< - Contaminant not detected at specified detection limit
Shaded Cells > S-1 Standard and/or Leaching Value
ND - Non-Detect
All concentrations reported in ug/kg (ppb)

Project: Redstone - 247 Pearl Street
Location: Burlington, Vermont
LAG Project #14023

Table 3

Liquid Level Monitoring Data

April 25, 2014						
Well ID	**TOC Elevation**	**Total Well Depth**	**Depth to Product**	**Depth to Water**	**Product Thickness**	**Water Table Elevation**
MW-1	**98.97**	29.65	-	23.86	-	**75.11**
MW-2	**100.36**	29.55	-	27.33	-	**73.03**
MW-3	**97.56**	34.47	**-**	26.15	**-**	**71.41**
MW-4	**100.68**	24.30	**-**	8.18	**-**	**92.50**

Project: Redstone - 247 Pearl Street
Location: Burlington, Vermont
LAG Project #14023

Table 4

Photoionization Detector Results (PID) - ppm

Data Point	4-25-14
MW-1	0.0
MW-2	0.0
MW-3	0.0
MW-4	0.0
Catch Basin	0.0

NOTES:
ppm = parts per million

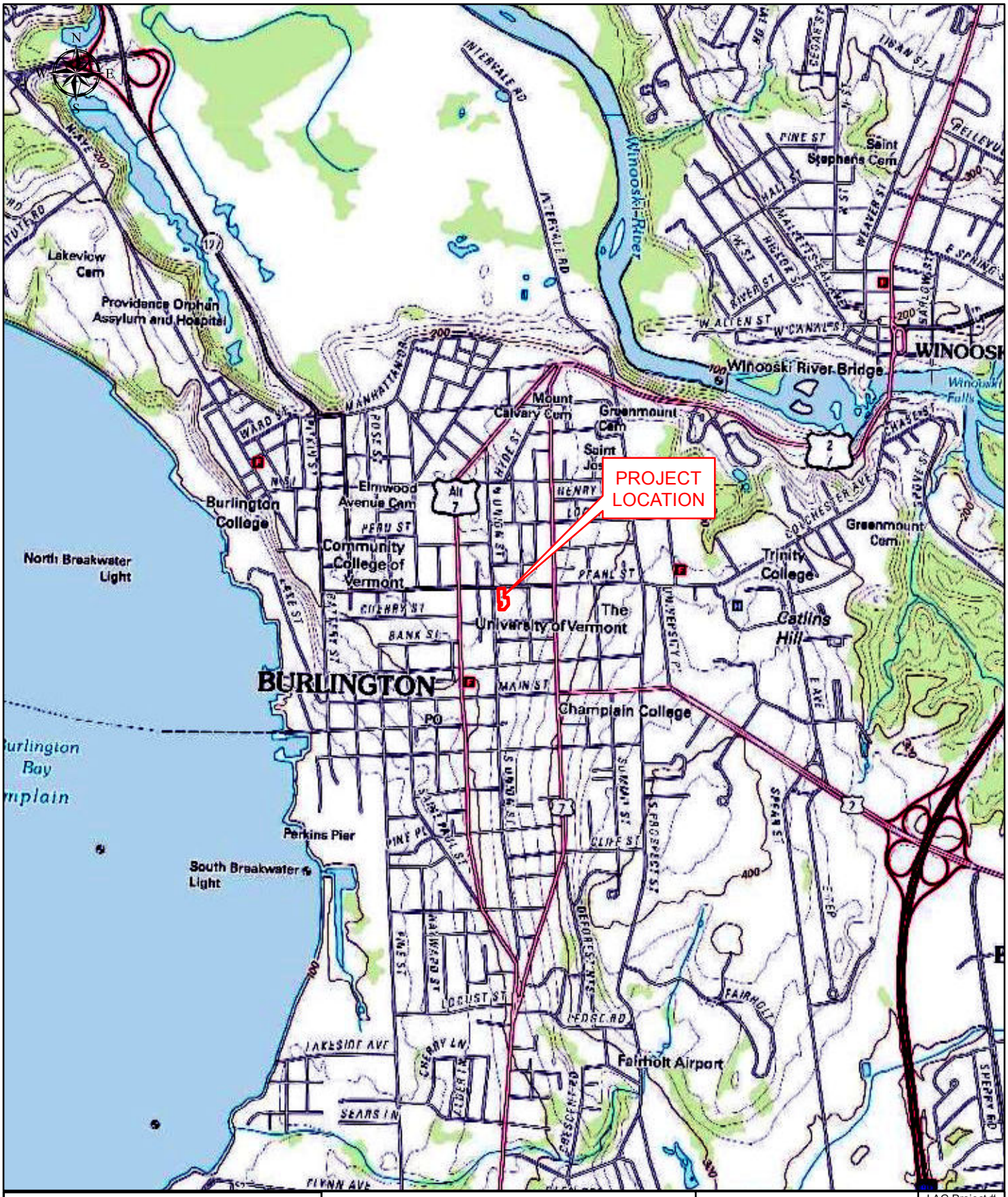
Table 5

Groundwater Quality Results (ppb)

Data Point	Compound	VGES (ppb)	4/25/14
MW-1	Benzene	5	<2
	Toluene	1,000	<2
	Ethylbenzene	700	<2
	Xylenes	10,000	2.1
	Total BTEX		2.1
	1,3,5-Trimethylbenzene	350	<2
	1,2,4-Trimethylbenzene		<2
	Naphthalene	20	<5
	MTBE	40	<5
	Total Targeted VOC's		2.1
MW-2	Benzene	5	<2
	Toluene	1,000	<2
	Ethylbenzene	700	<2
	Xylenes	10,000	<4
	Total BTEX		ND/BQL
	1,3,5-TrimethylBenzene	350	<2
	1,2,4-TrimethylBenzene		<2
	Naphthalene	20	<5
	MTBE	40	<5
	Total Targeted VOC's		ND/BQL
MW-3	Benzene	5	<2
	Toluene	1,000	<2
	Ethylbenzene	700	<2
	Xylenes	10,000	<4
	Total BTEX		ND/BQL
	1,3,5-TrimethylBenzene	350	<2
	1,2,4-TrimethylBenzene		<2
	Naphthalene	20	<5
	MTBE	40	<5
	Total Targeted VOC's		ND/BQL
MW-4	Benzene	5	<2
	Toluene	1,000	<2
	Ethylbenzene	700	<2
	Xylenes	10,000	<4
	Total BTEX		ND/BQL
	1,3,5-TrimethylBenzene	350	<2
	1,2,4-TrimethylBenzene		<2
	Naphthalene	20	<5
	MTBE	40	<5
	Total Targeted VOC's		ND/BQL

NOTES:
ppb = parts per billion
ND/BQL = Non-Detect/Below Quantitative Limit

Figures



Commercial Property
247 Pearl Street
Burlington, Vermont

Site Location Map

LINCOLN APPLIED GEOLOGY, INC.
Environmental Consultants

LAG Project #	14023
Date	Apr. 2014
Project Manager	DAM
Figure #	1

GIS Layers:
Tax Map Overlay

0 75 150

1"=75'

Commercial Property
247 Pearl Street
Burlington, Vermont

Area Map

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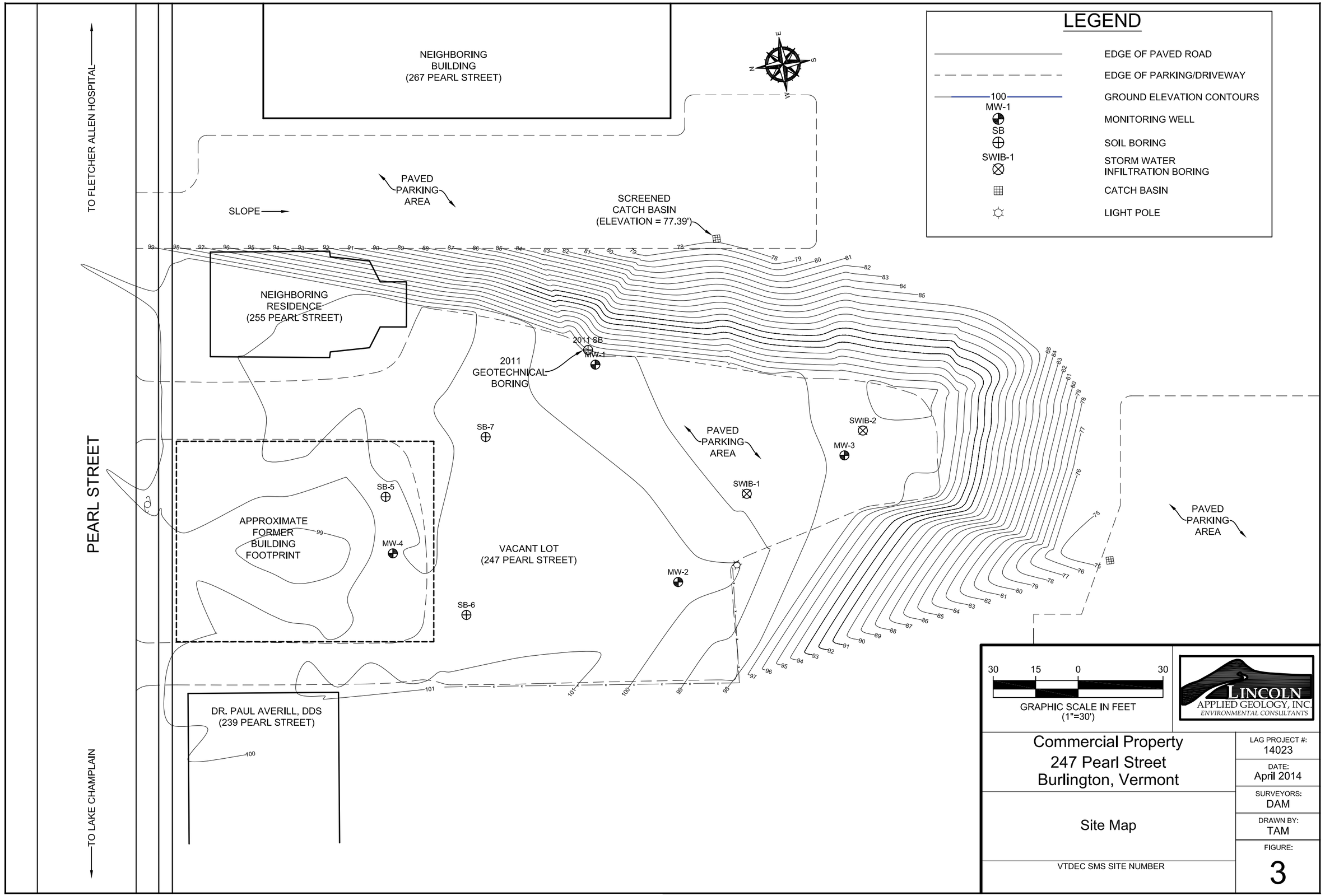
Environmental Consultants

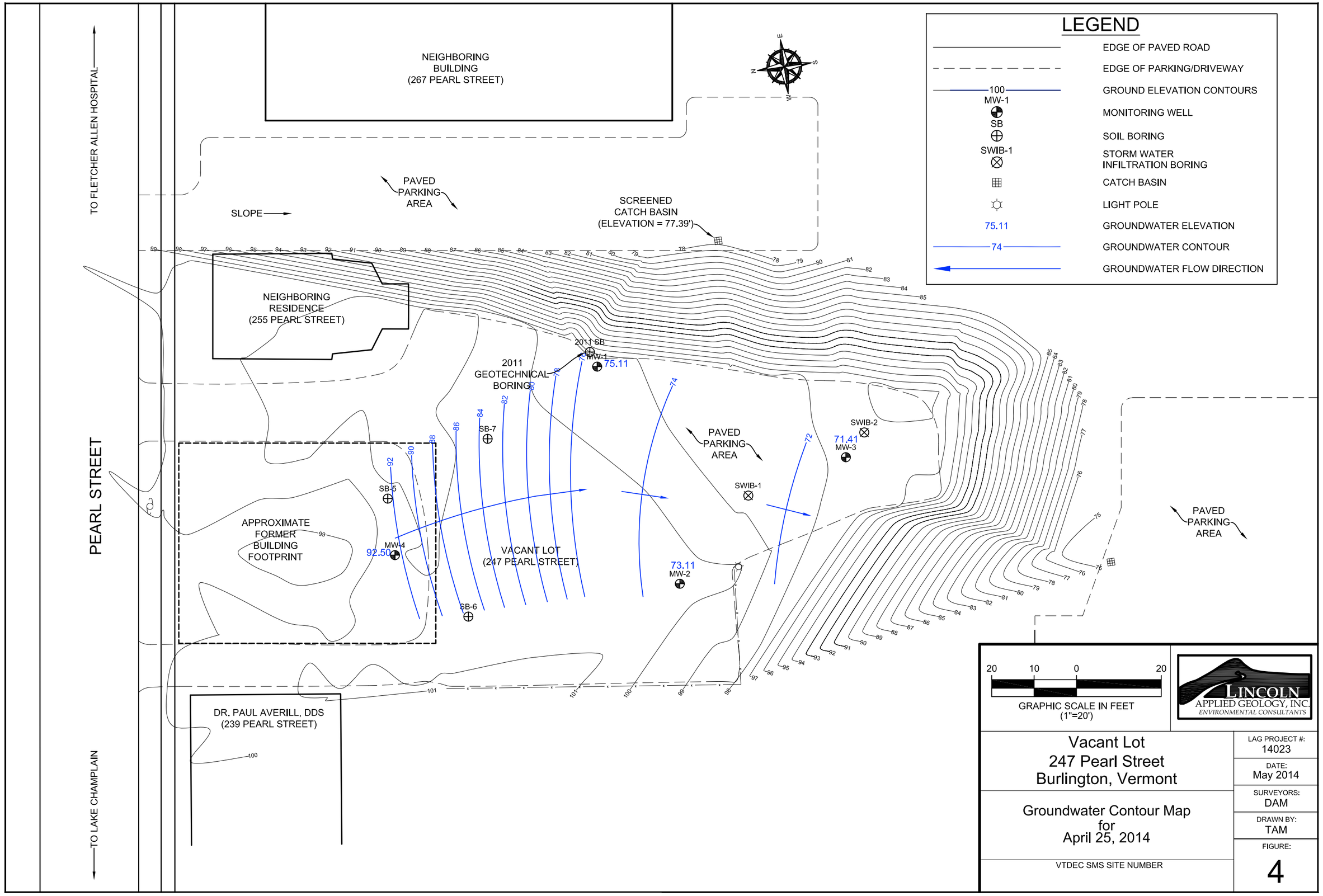
LAG Project #
14023

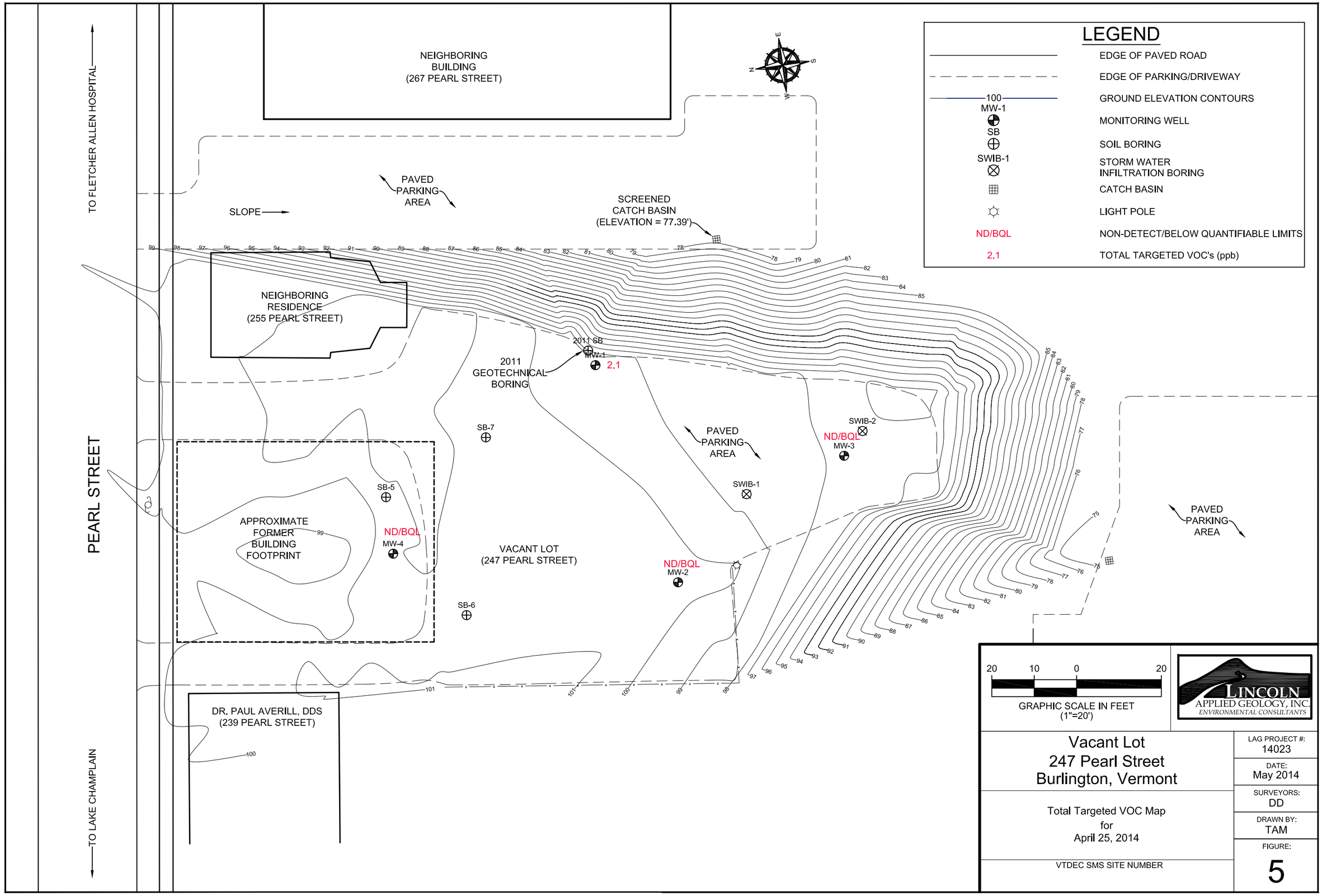
Date
Apr. 2014

Project Manager
DAM

Figure #
2


LEGEND
EDGE OF PAVED ROAD
EDGE OF PARKING/DRIVEWAY
100
GROUND ELEVATION CONTOURS
MW-1
MONITORING WELL
SB
SOIL BORING
SWIB-1
STORM WATER INFILTRATION BORING
CATCH BASIN
LIGHT POLE
TO FLETCHER ALLEN HOSPITAL
NEIGHBORING BUILDING (267 PEARL STREET)
PAVED PARKING AREA
SLOPE
SCREENED CATCH BASIN (ELEVATION = 77.39')
NEIGHBORING RESIDENCE (255 PEARL STREET)
2011 SB
MW-1
2011 GEOTECHNICAL BORING
SB-7
PAVED PARKING AREA
SWIB-2
MW-3
SWIB-1
SB-5
APPROXIMATE FORMER BUILDING FOOTPRINT
MW-4
VACANT LOT (247 PEARL STREET)
MW-2
SB-6
PAVED PARKING AREA
PEARL STREET
DR. PAUL AVERILL, DDS (239 PEARL STREET)
TO LAKE CHAMPLAIN
30 15 0 30
GRAPHIC SCALE IN FEET (1"=30')
LINCOLN APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS
Commercial Property
247 Pearl Street
Burlington, Vermont
Site Map
VTDEC SMS SITE NUMBER
LAG PROJECT #: 14023
DATE: April 2014
SURVEYORS: DAM
DRAWN BY: TAM
FIGURE: 3


LEGEND
EDGE OF PAVED ROAD
EDGE OF PARKING/DRIVEWAY
100
GROUND ELEVATION CONTOURS
MW-1
MONITORING WELL
SB
SOIL BORING
SWIB-1
STORM WATER INFILTRATION BORING
CATCH BASIN
LIGHT POLE
75.11
GROUNDWATER ELEVATION
74
GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
TO FLETCHER ALLEN HOSPITAL
NEIGHBORING BUILDING (267 PEARL STREET)
PAVED PARKING AREA
SLOPE
SCREENED CATCH BASIN (ELEVATION = 77.39')
NEIGHBORING RESIDENCE (255 PEARL STREET)
2011 SB
MW-1
75.11
2011 GEOTECHNICAL BORING
SB-7
SWIB-2
71.41
MW-3
PAVED PARKING AREA
SWIB-1
PEARL STREET
SB-5
APPROXIMATE FORMER BUILDING FOOTPRINT
MW-4
92.50
VACANT LOT (247 PEARL STREET)
73.11
MW-2
SB-6
PAVED PARKING AREA
DR. PAUL AVERILL, DDS (239 PEARL STREET)
TO LAKE CHAMPLAIN
20 10 0 20
GRAPHIC SCALE IN FEET (1"=20')
LINCOLN APPLIED GEOLOGY, INC. ENVIRONMENTAL CONSULTANTS
Vacant Lot
247 Pearl Street
Burlington, Vermont
Groundwater Contour Map
for
April 25, 2014
VTDEC SMS SITE NUMBER
LAG PROJECT #: 14023
DATE: May 2014
SURVEYORS: DAM
DRAWN BY: TAM
FIGURE: 4


LEGEND
EDGE OF PAVED ROAD
EDGE OF PARKING/DRIVEWAY
100
GROUND ELEVATION CONTOURS
MW-1
MONITORING WELL
SB
SOIL BORING
SWIB-1
STORM WATER INFILTRATION BORING
CATCH BASIN
LIGHT POLE
ND/BQL
NON-DETECT/BELOW QUANTIFIABLE LIMITS
2.1
TOTAL TARGETED VOC's (ppb)
TO FLETCHER ALLEN HOSPITAL
NEIGHBORING BUILDING (267 PEARL STREET)
PAVED PARKING AREA
SLOPE
SCREENED CATCH BASIN (ELEVATION = 77.39')
NEIGHBORING RESIDENCE (255 PEARL STREET)
2011 SB MW-1
2.1
2011 GEOTECHNICAL BORING
SB-7
PAVED PARKING AREA
SWIB-2
ND/BQL
MW-3
SWIB-1
PAVED PARKING AREA
PEARL STREET
SB-5
APPROXIMATE FORMER BUILDING FOOTPRINT
ND/BQL
MW-4
VACANT LOT (247 PEARL STREET)
ND/BQL
MW-2
SB-6
DR. PAUL AVERILL, DDS (239 PEARL STREET)
TO LAKE CHAMPLAIN
20 10 0 20
GRAPHIC SCALE IN FEET
(1"=20')
LINCOLN APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS
Vacant Lot
247 Pearl Street
Burlington, Vermont
Total Targeted VOC Map
for
April 25, 2014
VTDEC SMS SITE NUMBER
LAG PROJECT #: 14023
DATE: May 2014
SURVEYORS: DD
DRAWN BY: TAM
FIGURE: 5

Appendix A

Soil Boring Logs

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384

Client: Redstone		Project Number: 14023		Boring/Well: SB-1/MW-1
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/14/2014	Date Completed: 4/14/2014	Screen:		From: 20' To: 30'
Logged By: Dave Donahue	Checked By: Dagan Murray	Pack: Sand		From: 19' To: 30'
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: 17' To: 19'
Method: HSA Rig	Equipment: Split spoon	Native Material		From: 0' To: 17'
Boring Depth: 30'	Ground Surface Elevation:	Inner Casing: 2" 0.010 slot		
Initial GW Level: 21'	GW Level: 23.86	Outer Casing/Well Cover: Steel roadbox		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0' – 4'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, dry.	1' - 3'	30	1-1-2-2	0.0	10:06
4' – 10'	Concrete and coarse gravel: reddish brown, brown.	3' - 8'	0	no spoon	0.0	10:15
10' – 15'	Poorly graded fine sand (SP): olive brown, dry, dense, firm, no plasticity.	10' - 12'	75	2-2-3-4	0.0	10:20
15' – 30'	Silty fine sand (SM): olive brown, moist, dense, weathered petroleum odor @ 19', wet @ 21', sand lense @ 23' with orange staining,	15' - 17'	75	3-2-3-4	0	10:25
		19'	100	5-6-7-9	1.1	10:30
		20' - 22'	80	8-7-9-8	0.0	10:40
		25' - 27'	70	4-5-8-8	0.0	10:45
		30' - 32'	70	4-5-6-6	0.0	10:55

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @: 21'	21'	10:40	8260		
Bottom of Boring At: 30'					
Time At: 10:55					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384 Page__1__/__1__

Client: Redstone		Project Number: 14023		Boring/Well: SB-2/MW-2
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/14/2014	Date Completed: 4/14/2014	Screen:		From: 20' To: 30'
Logged By: Dave Donahue	Checked By: Dagan Murray	Pack: Sand		From: 19' To: 30'
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: 17' To: 19'
Method: HSA Rig	Equipment: Split spoon	Native Material		From: 0' To: 17'
Boring Depth: 27'	Ground Surface Elevation:	Inner Casing: 2" 0.010 slot		
Initial GW Level: 21'	GW Level: 27.33	Outer Casing/Well Cover: Steel roadbox		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, dry.	0' - 2'	25	2-1-3-1	0.0	11:55
5'						
5'	Poorly graded fine sand (SP): olive brown, dry, dense, firm, no plasticity.	5' - 7'	75	2-5-4-7	0.0	12:00
20'						
20'	Silty fine sand: olive brown, moist, dense, wet @ 21', dense, firm, medium plasticity	10' - 12'	75	2-8-13-5	0.0	12:05
27'						
		15' - 17'	60	10-23-19-22	0.0	12:12
		17' - 19'	75	10-14-17-19	0.0	12:15
		20' - 22'	90	1-2-3-4	0.0	12:25
		25' - 27'	75	1-3-4-5	0.0	12:32

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @: 21'	21'	12:30	8260		
Bottom of Boring At: 27'					
Time At:					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384

Client: Redstone		Project Number: 14023		Boring/Well: SB-3/MW-3
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/14/2014	Date Completed: 4/14/2014	Screen:		From: 25' To: 35'
Logged By: Dave Donahue	Checked By: Dagan Murray	Pack: Sand		From: 24' To: 35'
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: 22' To: 24'
Method: HSA Rig	Equipment: Split spoon	Native Material		From: 0' To: 22.'
Boring Depth: 35'	Ground Surface Elevation:	Inner Casing: 2" 0.010 slot		
Initial GW Level: 30'	GW Level: 26.15	Outer Casing/Well Cover: Steel roadbox		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, dry.	0' - 2'	25	2-2-2-2	0.0	
15'						
15'	Concrete	5' - 7'	25	2-1-3-6	0.0	
16'						
16'	Poorly graded fine sand (SP): brown, dry, dense, firm, no plasticity.	10' - 12'	30	2-2-3-3	0.0	
20'						
20'	Asphalt, Concrete, and Well Graded Gravel (GW): dark brown, loose, dry, slight weather petroleum odor from asphalt	15' - 17'	50	4-3-3-4	0.0	
22'						
22'	Silty fine sand: olive brown, moist, dense, wet @ 30', dense, firm, medium plasticity	20' - 22'	50	12-31-14-26	2.2	
35'						
		25' - 27'	0	12-30-refusal	-	
		30' - 32'	80	3-4-3-5	0.0	

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @: 30'	30'	15:15	8260		
Bottom of Boring At: 35'					
Time At:					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384 Page__1__/__1__

Client: Redstone		Project Number: 14023		Boring/Well: SB-4/MW-4
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/14/2014	Date Completed: 4/14/2014	Screen:		From: 15' To: 25'
Logged By: Dave Donahue	Checked By: Dagan Murray	Pack: Sand		From: 14' To: 25'
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: 12' To: 14'
Method: HSA Rig	Equipment: Split spoon	Native Material		From: 0' To: 12'
Boring Depth: 27'	Ground Surface Elevation:	Inner Casing: 2" 0.010 slot		
Initial GW Level: 20'	GW Level: 8.18	Outer Casing/Well Cover: Steel roadbox		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, dry.	0' - 2'	40	1-2-2-1	0.0	
5'						
5'	Poorly graded fine sand w/ Silt (SP-SM): olive brown, dry, dense, firm, no plasticity.	5' - 7'	80	5-6-12-11	0.0	
27'						
		10' - 12'	70	5-6-11-11	0.0	
		15' - 17'	75	16-22-30-35	0.0	
		20' - 22'	75	14-20-22-26	0.0	
		25' - 27'	70	4-6-11-13	0.0	

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @: 20'	25'	17:00	8260		
Bottom of Boring At: 27'					
Time At:					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384

Client: Redstone		Project Number: 14023		Boring/Well: SB-5
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/14/2014	Date Completed: 4/14/2014	Screen:		From: To:
Logged By: Dave Donahue	Checked By: Dagan Murray	Pack: Sand		From: To:
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: To:
Method: HSA Rig	Equipment: Split spoon	Native Material		From: To:
Boring Depth: 12'	Ground Surface Elevation:	Inner Casing:		
Initial GW Level:	GW Level:	Outer Casing/Well Cover:		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, moist, no odor.	0' - 2'	60	2-2-3-4	0.0	
12'						
		5' - 7'	80	5-6-6-6	0.0	
		10' - 12'	80	6-6-7-7	0.0	

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @:	2' - 12'		PAH 8270		
Bottom of Boring At: 12'					
Time At:					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384 Page__1__/__1__

Client: Redstone		Project Number: 14023		Boring/Well: SB-6
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/15/2014	Date Completed: 4/15/2014	Screen:		From: To:
Logged By: Dagan Murray	Checked By: Dagan Murray	Pack: Sand		From: To:
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: To:
Method: HSA Rig	Equipment: Split spoon	Native Material		From: To:
Boring Depth: 22'	Ground Surface Elevation:	Inner Casing:		
Initial GW Level:	GW Level:	Outer Casing/Well Cover:		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0' - 2'	Medium poorly graded sand with fine gravel (SP): brown, loose, friable, moist, no odor.	0' - 2'	30	21-17-10-8	0.0	
2' - 15'	Silty Fine Sand (SM): olive brown, dense, moist, plasticity increasing with depth, no odor.	2' - 4'	75	6-10-10-10	0.0	
15' - 17'	Poorly Graded Fine Sand (SP): tan, medium density, friable, dry.	4' - 6'	75	7-8-9-9	0.0	
17' - 22'	Silt (ML): grey, dense, medium plasticity, no odor, moist	6' - 8'	40	8-8-10-10	0.0	
		8' - 10'	60	10-10-12-12	0.0	
		15' - 17'	60	16-32-23-20	0.0	
		20' - 22'	60	8-10-12-12	0.0	

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @:	2' - 12'		PAH 8270		
Bottom of Boring At: 22'					
Time At:					

LINCOLN APPLIED GEOLOGY, INC. Environmental Consultants 163 Revell Drive, Lincoln, VT 05443 (802) 453-4384

Client: Redstone		Project Number: 14023		Boring/Well: SB-7
Project: Phase II ESA (247 Pearl Street)		**Well Construction Data**		
Date Started: 4/15/2014	Date Completed: 4/15/2014	Screen:		From: To:
Logged By: Dagan Murray	Checked By: Dagan Murray	Pack: Sand		From: To:
Drilling Co.: T&K Drilling	Driller: Kevin & Sean	Seal: Bentonite Chips		From: To:
Method: HSA Rig	Equipment: Split spoon	Native Material		From: To:
Boring Depth: 22'	Ground Surface Elevation:	Inner Casing:		
Initial GW Level:	GW Level:	Outer Casing/Well Cover:		

Sample Interval	Sample Description	Depth	%	Blow Counts	PID (ppm)	Time
0'	Well Graded Coarse Sand w/ Gravel (SW): dark brown, loose, friable, dry, no odor	0' - 2'	15	8-6-4-4	0.0	
2'						
2'	Silty Fine Sand (SM): olive brown, dense, moist, low plasticity, no odor.	2' - 4'	20	3-3-2-2	0.0	
9.75'						
9.75'	Poorly Graded Fine Sand (SP): tan, medium density, friable, dry.	4' - 6'	75	5-8-8-9	0.0	
15'						
15'	Silt (ML): olive brown, dense, medium plasticity, no odor, moist to wet @ 17'	6' - 8'	70	10-11-11-12	0.0	
22'						
		8' - 10'	60	10-12-17-18	0.0	
		15' - 17'	50	10-9-8-11	0.0	
		20' - 22'	60	13-22-27-20	0.0	

	Soil Samples			Water Samples	
	Interval	Time	Analysis	Time	Analysis
Wet @:	2' - 12'		PAH 8270		
Bottom of Boring At: 22'					
Time At:					

Appendix B

VOC Soil Quality
Laboratory Analytical Reports

April 14, 2014

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE NO.:	521E
ADDRESS:	163 Revell Drive	PROJECT NO.:	14023
	Lincoln, VT 05443	DATE OF SAMPLE:	4/14/201
SAMPLE LOCATION:	Redstone	DATE OF RECEIPT:	4/17/2014
SAMPLER:	Dave Donahue	DATE OF ANALYSIS:	4/24/2014
ATTENTION:	Dagan Murray	DATE OF REPORT:	4/25/2014

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method,
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration Standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Raul Sanchez
Chemical Services

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	521E
SAMPLE ID:	SB-1 (19')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	2.5
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	521E
SAMPLE ID:	SB-1 (19')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	BPQL
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	4.2
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	2.4
sec-butylbenzene	2	7.7
p-isopropyltoluene	2	2.3
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	106%	(86-118)
Toluene-d8	102%	(88-110)
4-Bromofluorobenzene	95%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	521E
SAMPLE ID:	SB-2 (21')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	BPQL
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	521E
SAMPLE ID:	SB-2 (21')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	2.4
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	BPQL
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	103%	(86-118)
Toluene-d8	100%	(88-110)
4-Bromofluorobenzene	91%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	521E
SAMPLE ID:	SB-3 (30')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	BPQL
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	521E
SAMPLE ID:	SB-3 (30')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (ug/Kg)	RESULT (ug/Kg)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	BPQL
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	106%	(86-118)
Toluene-d8	102%	(88-110)
4-Bromofluorobenzene	93%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	521E
SAMPLE ID:	SB-4 (25')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	521E
SAMPLE ID:	SB-4 (25')
ANALYSIS DATE:	4/24/2014
SAMPLE TYPE:	SOIL

PARAMETER	PQL (µg/Kg)	RESULT (µg/Kg)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	ND
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	107%	(86-118)
Toluene-d8	100%	(88-110)
4-Bromofluorobenzene	89%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

LINCOLN APPLIED GEOLOGY, INC.
Environmental Consultants

GML SAMPLE #

Client Name: Lincoln Applied Geology
Address: 163 Revell Dr., Lincoln Vt. 05443
Phone / Fax (802) 453-4384 (802) 453-5399
Project Name Redstone
Project Number 14027
Project Manager DAGAN MURRAY
Sampler Dave Donahue

Page 1 of 1

GML # #521E

#	Sample Location	Date	Time	# of Cont.	Pres.	Sample Type	Analysis Requested: 8260	Remarks
1	SD-1 (19')	4/14/14	10:45	2	DI/NONE	Soil	X	
2	SD-2 (21')	↓	12:30	↓	↓	↓	↓	
3	SD-3 (30')		15:15					
4	SD-4 (25')		17:00					

□ Digital Copy Requested

Chain of Custody

Relinquished By:	Date/Time: 4/16/14 @ 4:00	Received By: L. Shuttle	Date/Time: 4-17-14
Relinquished By:	Date/Time:	Received By:	Date/Time: 4:00
Relinquished By:	Date/Time:	Received By:	Date/Time:
Temperature Blank:	Vial Lot ID #:		

Appendix C

PAH Soil Quality
Laboratory Analytical Reports

April 15, 2014

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

Lincoln Applied Geology	100332
163 Revell Drive	
Lincoln, VT 05443	
Atten: Dagan Murray	

PROJECT: Redstone
WORK ORDER: **1404-06896**
DATE RECEIVED: April 17, 2014
DATE REPORTED: May 05, 2014
SAMPLER: Dagan Muray

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: Lincoln Applied Geology
PROJECT: Redstone
REPORT DATE: 5/5/2014

WORK ORDER: **1404-06896**
DATE RECEIVED: 04/17/2014

TEST METHOD: EPA 8270D

001 Site: SB-5 Date Sampled: 4/14/14 18:00 Analysis Date: 4/25/14 W FAA

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Ultrasonic Extraction	Completed		A		Naphthalene	< 38.0	ug/Kg, dry	A	
2-Methylnaphthalene	< 38.0	ug/Kg, dry	A		1-Methylnaphthalene	< 38.0	ug/Kg, dry	U	
Acenaphthylene	< 38.0	ug/Kg, dry	A		Acenaphthene	< 38.0	ug/Kg, dry	A	
Fluorene	< 38.0	ug/Kg, dry	A		Phenanthrene	< 38.0	ug/Kg, dry	A	
Anthracene	< 38.0	ug/Kg, dry	A		Fluoranthene	70.8	ug/Kg, dry	A	
Pyrene	55.4	ug/Kg, dry	A		Benzo(a)anthracene	< 38.0	ug/Kg, dry	A	
Chrysene	< 38.0	ug/Kg, dry	A		Benzo(b)fluoranthene	< 38.0	ug/Kg, dry	A	
Benzo(k)fluoranthene	< 38.0	ug/Kg, dry	A		Benzo(a)pyrene	< 38.0	ug/Kg, dry	A	
Indeno(1,2,3-cd)pyrene	< 38.0	ug/Kg, dry	A		Dibenzo(a,h)anthracene	< 38.0	ug/Kg, dry	A	
Benzo(g,h,i)perylene	< 38.0	ug/Kg, dry	A		BaP Toxic Equiv. Quotient	< 89.0	ug/Kg, dry	U	
B/N Surr.1 Nitrobenzene-d5	67	%	U		B/N Surr.2 2-Fluorobiphenyl	74	%	U	
B/N Surr.3 Terphenyl-d14	101	%	U		Unidentified Peaks	0		U	

TEST METHOD: EPA 8270D

002 Site: SB-6 Date Sampled: 4/15/14 08:57 Analysis Date: 4/25/14 W FAA

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Ultrasonic Extraction	Completed		A		Naphthalene	< 38.0	ug/Kg, dry	A	
2-Methylnaphthalene	< 38.0	ug/Kg, dry	A		1-Methylnaphthalene	< 38.0	ug/Kg, dry	U	
Acenaphthylene	< 38.0	ug/Kg, dry	A		Acenaphthene	< 38.0	ug/Kg, dry	A	
Fluorene	< 38.0	ug/Kg, dry	A		Phenanthrene	368	ug/Kg, dry	A	
Anthracene	62.3	ug/Kg, dry	A		Fluoranthene	683	ug/Kg, dry	A	
Pyrene	533	ug/Kg, dry	A		Benzo(a)anthracene	171	ug/Kg, dry	A	
Chrysene	226	ug/Kg, dry	A		Benzo(b)fluoranthene	197	ug/Kg, dry	A	RES
Benzo(k)fluoranthene	72.5	ug/Kg, dry	A	RES	Benzo(a)pyrene	138	ug/Kg, dry	A	
Indeno(1,2,3-cd)pyrene	109	ug/Kg, dry	A		Dibenzo(a,h)anthracene	< 38.0	ug/Kg, dry	A	
Benzo(g,h,i)perylene	87.6	ug/Kg, dry	A		BaP Toxic Equiv. Quotient	206	ug/Kg, dry	U	
B/N Surr.1 Nitrobenzene-d5	72	%	U		B/N Surr.2 2-Fluorobiphenyl	74	%	U	
B/N Surr.3 Terphenyl-d14	102	%	U		Unidentified Peaks	> 10		U	

TEST METHOD: EPA 8270D

003 Site: SB-7 Date Sampled: 4/15/14 10:20 Analysis Date: 4/25/14 W FAA

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Ultrasonic Extraction	Completed		A		Naphthalene	< 38.0	ug/Kg, dry	A	
2-Methylnaphthalene	< 38.0	ug/Kg, dry	A		1-Methylnaphthalene	< 38.0	ug/Kg, dry	U	
Acenaphthylene	< 38.0	ug/Kg, dry	A		Acenaphthene	< 38.0	ug/Kg, dry	A	
Fluorene	< 38.0	ug/Kg, dry	A		Phenanthrene	469	ug/Kg, dry	A	
Anthracene	45.3	ug/Kg, dry	A		Fluoranthene	997	ug/Kg, dry	A	
Pyrene	728	ug/Kg, dry	A		Benzo(a)anthracene	190	ug/Kg, dry	A	
Chrysene	405	ug/Kg, dry	A		Benzo(b)fluoranthene	467	ug/Kg, dry	A	RES
Benzo(k)fluoranthene	154	ug/Kg, dry	A	RES	Benzo(a)pyrene	266	ug/Kg, dry	A	
Indeno(1,2,3-cd)pyrene	361	ug/Kg, dry	A		Dibenzo(a,h)anthracene	50.7	ug/Kg, dry	A	
Benzo(g,h,i)perylene	317	ug/Kg, dry	A		BaP Toxic Equiv. Quotient	421	ug/Kg, dry	U	
B/N Surr.1 Nitrobenzene-d5	79	%	U		B/N Surr.2 2-Fluorobiphenyl	79	%	U	
B/N Surr.3 Terphenyl-d14	106	%	U		Unidentified Peaks	> 10		U	

CLIENT: Lincoln Applied Geology
PROJECT: Redstone
REPORT DATE: 5/5/2014

WORK ORDER: **1404-06896**
DATE RECEIVED: 04/17/2014

Report Summary of Qualifiers and Notes

Samples were received at the laboratory with a temperature of 15.5 degrees Celsius. Samples must be received in a cooler with sufficient ice to attain a temperature of 6 degrees Celsius or below. Samples must not be frozen.
RES: The resolution of the Benzo(b&k)fluoranthene isomers was <50% in the sample matrix.

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

№ 68933

Special Reporting Instructions/PO#: _____

Project Name: Redstone	Client/Contact Name: LAG, DAGAN MURRAY	Sampler Name: DAM
State of Origin: VT X NY __ NH __ Other __	Phone #: 453-4384	Phone #:
Endyne WO # 1404-06896	Mailing Address: LAG	Billing Address: LAG

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	FieldResults/Remarks	Due Date
SB-5	Soil		X	4/14/14 18:00	1	8oz Amber	NONE	#26		
SB-6	↓		↓	4/15/14 8:57	↓	↓	↓	↓		
SB-7	↓		↓	4/15/14 10:20	↓	↓	↓	↓		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
DM	4/16/14 7:00	[signature]	4/17/14 @ 14:30	Eileen Dooney	4/17/14@ 17:25

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	8082 PCB
4	Nitrite N	9	BOD	14	Turbidity	19	VT PCF	24	8260B	29	PP13 Metals
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Halocarbons	25	8270 B/N or Acid	30	Total RCRA8
31	Metals (Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn										
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other				
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other				
38	Other										

LAB USE ONLY
Delivery: Client
Temp: 15.5
Comment:

(White - Laboratory / Yellow - Client)

Page ____ of ____

Appendix D

Low Flow Sampling Logs

Project: Redstone 14023
Date: 4/25/14 Tech: JH

LOW FLOW MONITORING SHEET

Well: MW-1
Total Depth: 29.65'
Depth to Groundwater: 23.86'
PID Headspace: 0.0
Pump Depth: 25'
Sample Analysis: 8260

Time Min	Temperature (C)	Conductivity (Ms/Cm)	Dissolved Oxygen (mg/l)	pH	Oxidation Reduction Potential (millivolts)	Turbidity	Notes
0	12.49	3245	6.41	7.21	116.9	20	
2.5	12.44	3348	5.35	7.23	114.1	17	
5	12.46	3348	5.15	7.25	111.7	16	
7.5	12.47	3324	5.06	7.27	109.5	17	
10	12.46	3287	4.97	7.28	107.8	14	
12.5	12.45	3237	4.90	7.29	106.4	11	
15	12.42	3075	4.81	7.31	103.9	11	
17.5	12.43	3031	4.70	7.31	103.3	10.4	
20	12.45	3004	4.65	7.32	102.8	10	

Gallons Purged:
Sample Time:
Notes:

Project: Redstone 14023
Date: 4/25/14 Tech: JH

LOW FLOW MONITORING SHEET

Well: MW-2
Total Depth: 29.55'
Depth to Groundwater: 27.33'
PID Headspace: 0.0
Pump Depth: 29'
Sample Analysis: 8260

Time min	Temperature (C)	Conductivity (Ms/Cm)	Dissolved Oxygen (mg/l)	pH	Oxidation Reduction Potential (millivolts)	Turbidity	Notes
0	12.30	5134	7.12	7.59	112.4	110	
2.5	12.38	4948	6.00	7.52	116.3	80	
5	12.44	4764	5.76	7.48	117.6	60	
7.5	12.54	4594	5.60	7.45	117.1	40	
10	12.58	4502	5.51	7.44	116.0	45	
12.5	12.67	4479	5.41	7.45	112.8	40	

Gallons Purged:
Sample Time:
Notes:

Project: Redstone 1403
Date: 4/25/14 Tech: JH

LOW FLOW MONITORING SHEET

Well: MW-3
Total Depth: 34.47
Depth to Groundwater: 26.15
PID Headspace: 0.0
Pump Depth: 30'
Sample Analysis: 8260

Time min	Temperature (C)	Conductivity (Ms/Cm)	Dissolved Oxygen (mg/l)	pH	Oxidation Reduction Potential (millivolts)	Turbidity	Notes
0	12.13	3222	5.89	7.57	118.8	65	
2.5	12.30	3204	3.46	7.56	117.0	65	
5	12.28	3205	2.73	7.54	116.8	55	
7.5	12.27	3160	2.42	7.53	115.7	50	
10	12.55	3145	2.19	7.53	114.5	45	
12.5	12.37	3178	2.15	7.54	112.8	37	
15	12.35	3184	2.11	7.55	109.3	26	
17.5	12.49	3295	1.91	7.57	105.7	19	
20	12.69	3368	1.86	7.59	102.7	18	
22.5	12.84	3387	1.79	7.60	101.6	17.8	

Gallons Purged:
Sample Time:
Notes:

Project: Redstone 14023
Date: 4/25/14 Tech: JH

LOW FLOW MONITORING SHEET

Well: MW-4
Total Depth: 24.3'
Depth to Groundwater: 8.18'
PID Headspace: 0.0
Pump Depth: 17'
Sample Analysis: 8260

Time Min	Temperature (C)	Conductivity (Ms/Cm)	Dissolved Oxygen (mg/l)	pH	Oxidation Reduction Potential (millivolts)	Turbidity	Notes
0	10.21	533	7.36	7.88	88.6	10	
2.5	10.03	483	6.40	7.82	91.8	6.1	
5	9.83	454	6.14	7.75	95.7	8.7	
7.5	9.67	435	6.03	7.52	98.1	10	
10	9.64	416	5.95	7.43	99.8	7.2	
12.5	9.63	407	5.89	7.40	101.0	6.9	
15	9.50	394	5.83	7.35	102.8	5.9	
17.5	9.48	391	5.79	7.34	103.7	4.8	
20	9.50	390	5.77	7.34	104.0	4.7	

Gallons Purged:
Sample Time:
Notes:

Appendix E

Water Quality
Laboratory Analytical Reports

April 25, 2014

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE NO.:	525E
ADDRESS:	163 Revell Drive	PROJECT NO.:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	4/25/2014
SAMPLE LOCATION:	Redstone	DATE OF RECEIPT:	4/25/2014
SAMPLER:	Joseph Hagan	DATE OF ANALYSIS:	4/28/2014
ATTENTION:	Dagan Murray	DATE OF REPORT:	4/29/2014

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCL. The trip blank was prepared by the client with reagent water supplied by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method,
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration Standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Raul Sanchez
Chemical Services

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	525E
SAMPLE ID:	TRIP BLANK
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	525E
SAMPLE ID:	TRIP BLANK
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	ND
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	122%	(86-118)
Toluene-d8	103%	(88-110)
4-Bromofluorobenzene	98%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	525E
SAMPLE ID:	MW-3
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	525E
SAMPLE ID:	MW-3
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	ND
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	122%	(86-118)
Toluene-d8	103%	(88-110)
4-Bromofluorobenzene	98%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

2 Moonlight Terrace
Montpelier, VT 05602
Phone (802) 262-2004

LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	525E
SAMPLE ID:	MW-2
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	525E
SAMPLE ID:	MW-2
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	ND
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	123%	(86-118)
Toluene-d8	102%	(88-110)
4-Bromofluorobenzene	98%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

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LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	525E
SAMPLE ID:	MW-4
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	525E
SAMPLE ID:	MW-4
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	BPQL
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	BPQL
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	122%	(86-118)
Toluene-d8	103%	(88-110)
4-Bromofluorobenzene	97%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

GREEN MOUNTAIN LABORATORIES, INC.

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LABORATORY RESULTS

EPA METHOD 8260B

GML REF. #	525E
SAMPLE ID:	MW-1
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
Dichlorodifluoromethane	5	ND
Chloromethane	5	ND
Chloroethane	2	ND
Bromomethane	5	ND
Vinyl chloride	5	ND
Trichloromonofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
Methl t-butyl Ether (MTBE)	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
2,2-Dichloropropane	5	ND
Bromochloromethane	5	ND
Chloroform	5	ND
Carbontetrachloride	2	ND
1,1,1-Trichloroethane	5	ND
1,1-Dichloropropene	5	ND
Benzene	2	ND
1,2-Dichloroethane	2	ND
Trichloroethene	2	ND
Dibromomethane	2	ND
1,2-Dichloropropane	2	ND
Bromodichloromethane	2	ND
trans-1,3-Dichloropropene	2	ND
Toluene	2	ND
Tetrachloroethene	2	ND
cis-1,3-Dichloropropene	2	ND

GML REF. #	525E
SAMPLE ID:	MW-1
ANALYSIS DATE:	4/28/2014
SAMPLE TYPE:	WATER

PARAMETER	PQL (µg/L)	RESULT (µg/L)
1,1,2-Trichloroethane	2	ND
Dibromochloromethane	2	ND
1,3-Dichloropropane	2	ND
1,2-Dibromoethane	2	ND
Chlorobenzene	2	ND
Ethylbenzene	2	ND
1,1,1,2-Tetrachloroethane	2	ND
m+p-xylene	2	2.1
o-xylene	4	ND
Styrene	2	ND
Bromoform	2	ND
isopropylbenzene	5	ND
n-propylbenzene	2	ND
1,1,2,2-Tetrachloroethane	2	ND
o-chlorotoluene	5	ND
1,3,5-Trimethylbenzene	2	ND
1,2,3-Trichloropropane	2	ND
p-chlorotoluene	5	ND
tert-butylbenzene	2	ND
1,2,4-trimethylbenzene	2	BPQL
sec-butylbenzene	2	ND
p-isopropyltoluene	2	ND
1,3-Dichlorobenzene	2	ND
1,4-Dichlorobenzene	2	ND
n-butylbenzene	2	ND
1,2-Dichlorobenzene	2	ND
1,2-Dibromo-3-Chloropropane	5	ND
Hexachlorobutadiene	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
1,2,3-Trichlorobenzene	5	ND

Surrogates:		Limits
Dibromofluoromethane	123%	(86-118)
Toluene-d8	104%	(88-110)
4-Bromofluorobenzene	97%	(86-115)

ND = Not Detected
BPQL = Below Practical Quantitation Limit

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Page 1 of 1

GML # #535E

Client Name: Lincoln Applied Geology
Address: 163 Revell Dr., Lincoln Vt. 05443
Phone / Fax (802) 453-4384 (802) 453-5399
Project Name Redstone
Project Number
Project Manager Dagan Murray
Sampler Joseph Hagan

GML SAMPLE #	Sample Location	Date	Time	# of Cont.	Pres.	Sample Type	Analysis Requested: 8260 Full List	Remarks
1	Trip Blank	4/25/14	0730	2	HCL	H_2O		Rush !!!
2	MW-3		1045					
3	MW-2		1115					
4	MW-4		1145					
5	MW-1		1230					

□ Digital Copy Requested

Chain of Custody

Relinquished By: Joey Hagan	Date/Time: 4/25/14 1355	Received By: G Shuttle	Date/Time: 4/25/14	P.S.
Relinquished By:	Date/Time:	Received By:	Date/Time: ~~4/26/14~~	
Relinquished By:	Date/Time:	Received By:	Date/Time: 15:55	
Temperature Blank:	Vial Lot ID #:		Date/Time:	