



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUN 29 2012

Mr. Carlo Panarelli, Owner
CJP Construction, Inc.
31 Charlton Road
Dudley, MA 01571

Re: Authorization to discharge under the Remediation General Permit (RGP) –
MAG910000. East Village Square site located at 2 Worcester Road, Worcester County;
Authorization # MAG 910544

Dear Mr. Panarelli:

Based on the review of a Notice of Intent (NOI) submitted on your behalf by the firm Lockwood Remediation Technology LLC, for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named Owner and Operator, to discharge in accordance with the provisions of the RGP at that site. Your authorization number is listed above.

The checklist enclosed with this RGP authorization indicates the pollutants which you are required to monitor. Also indicated on the checklist are the effluent limits, test methods and minimum levels (MLs) for each pollutant. Please note that the checklist does not represent the complete requirements of the RGP. Operators must comply with all of the applicable requirements of this permit, including influent and effluent monitoring, narrative water quality standards, record keeping, and reporting requirements, found in Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete RGP and other information at: <http://www.epa.gov/region1/npdes/mass.html#dgp>.

Please note the enclosed checklist includes parameters that exceeded Appendix III limits. The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP. You may request deletion of any parameter on the check list not detected above the minimum levels (MLs) of concentration during the first six consecutive months of influent monitoring using a notice of change (NOC) application found in Appendix V of the RGP.

Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-

based ceiling limitations. For each parameter the dilution factor 11.0 for this site is within a dilution range greater than ten to fifty (>10 to 50), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for arsenic of 100 ug/L, trivalent chromium of 489 ug/L, hexavalent chromium of 114 ug/L, copper of 52 ug/L, lead of 13 ug/L, nickel of 290 ug/L, selenium of 50 ug/L, zinc of 666 ug/L and iron of 5,000 ug/L, are required to achieve permit compliance at your site.

Finally, please note the checklist of pollutants attached to this authorization is subject to a recertification if the operations at the site result in a discharge lasting longer than six months. A recertification can be submitted to EPA within six (6) to twelve (12) months of operations in accordance with the 2010 RGP regulations.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on October 1, 2012. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

Thank you in advance for your cooperation in this matter. Please contact Victor Alvarez at 617-918-1572 or Alvarez.Victor@epa.gov, if you have any questions.

Sincerely,



Thelma Murphy, Manager
Storm Water and Construction
Permits Section

Enclosure

cc: Kathleen Keohane, MassDEP
J.T. Gaucher, Director DPW
Paul Lockwood, LRT LLC

**2010 Remediation General Permit
Summary of Monitoring Parameters^[1]**

NPDES Authorization Number:	MAG910544
Authorization Issued:	June, 2012
Facility/Site Name:	East Village Square
Facility/Site Address:	2 Worcester Road, Webster, MA 01570, Worcester County
	Email address of owner: cjp@charter.net
Legal Name of Operator:	CJP Construction, Inc.
Operator contact name, title, and Address:	Mr. Carlo Panarelli, Owner, 31 Charlton Road, Dudley, MA 01571
	Email: Same as the Owner
Estimated date of Completion:	October 1, 2012
Category and Sub-Category:	Contaminated construction Dewatering. Sub-category B. Known Contaminated Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Mill Brook tributary to The French River

Monitoring & Limits are applicable if checked. All samples are to be collected as grab samples

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing **, Me#60.2/ML5ug/L
	2. Total Residual Chlorine (TRC) ¹	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
✓	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
	4. Cyanide (CN) ^{2, 3}	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
✓	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ML 2ug/L
✓	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ML 2ug/L
✓	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ML 2ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) ⁴	100 ug/L/ Me#8260C/ ML 2ug/L
✓	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
✓	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
✓	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
✓	14. Naphthalene ⁵	20 ug/L /Me#8260C/ML 2ug/L
✓	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o-DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m-DCB)	320 ug/L /Me#8260C/ ML 5ug/L
✓	18. 1,4 Dichlorobenzene (p-DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
✓	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
✓	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
✓	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
✓	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
✓	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
✓	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
✓	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
✓	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
✓	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
✓	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
✓	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L, Me#604 &625/ML 10ug/L
✓	33. Total Phthalates (Phthalate esters) ⁶	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
✓	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L & Me#625/ML 5ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
✓	a. Benzo(a) Anthracene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	b. Benzo(a) Pyrene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	c. Benzo(b)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	d. Benzo(k)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	e. Chrysene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	f. Dibenzo(a,h)anthracene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	g. Indeno(1,2,3-cd) Pyrene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
✓	h. Acenaphthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	i. Acenaphthylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	j. Anthracene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	l. Fluoranthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	m. Fluorene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	n. Naphthalene ⁵	20 ug/L / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	o. Phenanthrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	p. Pyrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) ^{8, 9}	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
✓	38. Chloride	Monitor only/Me# 300.0/ ML 100 ug/L

<u>Metal parameter</u>	<u>Total Recoverable Metal Limit @ H ¹⁰ = 50 mg/I CaCO₃ for discharges in Massachusetts (ug/I)</u> <u>11/12</u>	<u>Minimum level=ML</u>
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		Freshwater	Saltwater		
	39. Antimony	5.6/ML 10			
✓	40. Arsenic **	10/ML20	36/ML 20		
	41. Cadmium **	0.2/ML10	8.9/ML 10		
✓	42. Chromium III (trivalent) **	48.8/ML15	100/ML 15		
✓	43. Chromium VI (hexavalent) **	11.4/ML10	50.3/ML 10		
✓	44. Copper **	5.2/ML15	3.7/ML 15		
✓	45. Lead **	1.3/ML20	8.5/ML 20		
	46. Mercury **	0.9/ML0.2	1.1/ML 0.2		
✓	47. Nickel **	29/ML20	8.2/ML 20		
✓	48. Selenium **	5/ML20	71/ML 20		
	49. Silver	1.2/ML10	2.2/ML 10		
✓	50. Zinc **	66.6/ML15	85.6/ML 15		
✓	51. Iron	1,000/ML 20			

	Other Parameters	Limit
✓	52. Instantaneous Flow	Site specific in CFS
✓	53. Total Flow	Site specific in CFS
✓	54. pH Range for Class A & Class B Waters in MA	6.5-8.3; 1/Month/Grab ¹³
	55. pH Range for Class SA & Class SB Waters in MA	6.5-8.3; 1/Month/Grab ¹³
	56. pH Range for Class B Waters in NH	6.5-8; 1/Month/Grab ¹³
	57. Daily maximum temperature - Warm water fisheries	83°F; 1/Month/Grab ¹⁴
	58. Daily maximum temperature - Cold water fisheries	68°F; 1/Month/Grab ¹⁴
	59. Maximum Change in Temperature in MA - Any Class A water body	1.5°F; 1/Month/Grab ¹⁴
	60. Maximum Change in Temperature in MA - Any Class B water body- Warm Water	5°F; 1/Month/Grab ¹⁴
	61. Maximum Change in Temperature in MA - Any Class B water body - Cold water and Lakes/Ponds	3°F; 1/Month/Grab ¹⁴
	62. Maximum Change in Temperature in MA - Any Class SA water body - Coastal	1.5°F; 1/Month/Grab ¹⁴
	63. Maximum Change in Temperature in MA - Any Class SB water body - July to September	1.5°F; 1/Month/Grab ¹⁴
	64. Maximum Change in Temperature in MA -Any Class SB water body - October to June	4°F; 1/Month/Grab ¹⁴

Footnotes:

¹ Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).

² Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

³ Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).

⁴ BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

⁵ Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.

⁶ The sum of individual phthalate compounds (not including the #34, Bis (2-Ethylhexyl) Phthalate). The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁷ Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

⁸ In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses." Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁹ Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).

¹⁰ Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

¹¹ For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using $DF \times 1,000 \text{ ug/L}$ (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit = $1,000 \times 2 = 2,000 \text{ ug/L}$, etc. not to exceed the DF=5.

¹² Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).

¹³ pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.

¹⁴ Temperature sampling per Method 170.1



127 Hartwell Street, Suite 3
West Boylston, Massachusetts 01583
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

June 12, 2012

U.S. Environmental Protection Agency—Region 1
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, Massachusetts 02109-3912
Attn.: Remediation General Permit NOI Processing

**Reference: Notice of Intent
NPDES Remediation General Permit
2 Worcester Road
Webster, Massachusetts
LRT Reference #2-1044**

To whom it may concern:

On behalf of CJP Construction, Inc (CJP), Lockwood Remediation Technologies, LLC (LRT) has prepared this Notice of Intent (NOI) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP), Massachusetts General Permit (MAG910000). This NOI was prepared in accordance with the general requirements of the NPDES and related guidance documentation provided by the US Environmental Protection Agency (EPA). The completed NOI form is provided in Appendix A.

Site Information

This NOI has been prepared for the management of wastewater from dewatering during the construction of a commercial shopping center at a 9 acre-parcel located at 2 Worcester Road in Webster Massachusetts (the Site); please refer to Figure 1 Site Plan for a locus map and an overview of the immediate area surrounding the Site. The proposed work area is referred to as 2 Worcester Road Street and is bounded Worcester Road (Route 12) to the west and East Main Street (Route 16) to the south beyond which are commercial properties; to the east by Interstate 395 and to the north by St. Anthony's Cemetery. Refer to Figure 2 Site Plan for a depiction of the immediate Site and the proposed discharge point.

Work Summary

The proposed work scope is the construction of a shopping center at the Site. The Site will require dewatering from wells and/or sumps to reduce the water table below the target excavation. A Best Management Practices Plan is included in Appendix B. Water collected during construction dewatering activities is expected to contain naturally occurring metals (such as iron) and low levels of petroleum related compounds (such as VOCs and SVOCs). On May 22, 2012, an LRT representative

collected a ground water sample from a test pit within the proposed excavation area at the Site. This water sample was analyzed for the parameters required under the NPDES RGP. In addition, the pH of the proposed influent was measured to evaluate existing conditions. The laboratory data reports for these samples are provided in Appendix C. The analytical results indicated the presence of metals (arsenic, copper, iron, lead and zinc) and several compounds associated with petroleum hydrocarbons.

Discharge and Receiving Surface Water Information

Based on analytical sampling conducted by LRT, there were detectable concentrations of several VOCs and SVOCs and metals including arsenic, copper, iron, lead and zinc. VOCs and SVOCs will be reduced via granular activated carbon (GAC). Based on the dilution criteria for the Site (see explanation of dilution calculation below), only two metals (iron and lead) currently exceed the proposed discharge criteria. These elevated concentrations detected in the water characterization are assumed to be associated with the TSS. The TSS will be significantly reduced via settling occurring in influent equalization tank and then by the filtration that will occur via the wastewater treatment plant provided. Refer to Figure 3 for a proposed water treatment system layout.

Calculation of Dilution Criteria

For applications in Massachusetts, the following formula is used to calculate site specific dilution criteria:

$$DF = (Q_d + Q_s)/Q_d$$

DF = Dilution Factor

Q_d = Maximum flow rate of the discharge in cubic feet per second (cfs)

Q_s = Receiving water 7Q₁₀ flow (cfs) where 7Q₁₀ is the minimum flow for seven consecutive days with a reoccurrence interval of 10 years

The value for Q_d is the maximum expected flow rate for the site at 200 gpm or 0.446 cfs. The value for Q_s requires either a measured value from USGS or a calculated value. There are no published stream gauges listed for Mill Brook. LRT also reviewed other sources but there is not an estimated 7Q₁₀ in the immediate vicinity of the Site. LRT used the USGS model Stream Stats to estimate the 7Q₁₀. Stream Stats calculates the 7Q₁₀ based on known drainage conditions and precipitation figures and estimates using regression equations. The mean 7Q₁₀ for Mill Brook was calculated at 4.5 cfs. Using this Q for Q_s provides a Dilution Factor of **11.09**. The Stream Stats calculation sheet is included in Appendix D.

Consultation with Federal Services

LRT reviewed online electronic data viewers and databases from the Massachusetts Geographical Information System (MassGIS) and the Massachusetts Division of Fisheries and Wildlife (MassWildlife; Natural Heritage and Endangered Species Program), and the U.S. National Parks Service Natural Historic Places (NPS). Based on this review, neither the Site nor the point where the proposed discharge reaches the receiving surface water body are Areas of Critical Environmental Concern (ACEC), Habitats of Rare Wetland Wildlife, Habitats of Rare Species or Estimated Habitats of Rare Wildlife or listed as a National Historic Place.

Coverage under NPDES RGP

It is our opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of CJP, we are requesting coverage under the NPDES RGP for the discharge of wastewater during testing activities to the surface waters of Mill Brook located at the Site.

The enclosed NOI form provides required information on the general site conditions, discharge, treatment system, receiving water, and consultation with federal services. For this project, CJP is the operator and has operational control over the construction plans and specifications, including the ability to make modifications to those plans and specifications.

Please feel free to contact us at 774-450-7177 or at plockwood@lrt-llc.net if you have any questions or if you require additional information.

Sincerely,
Lockwood Remediation Technologies, LLC

Paul Lockwood

Paul Lockwood
President

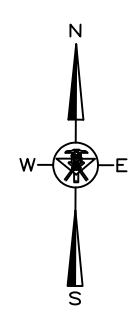
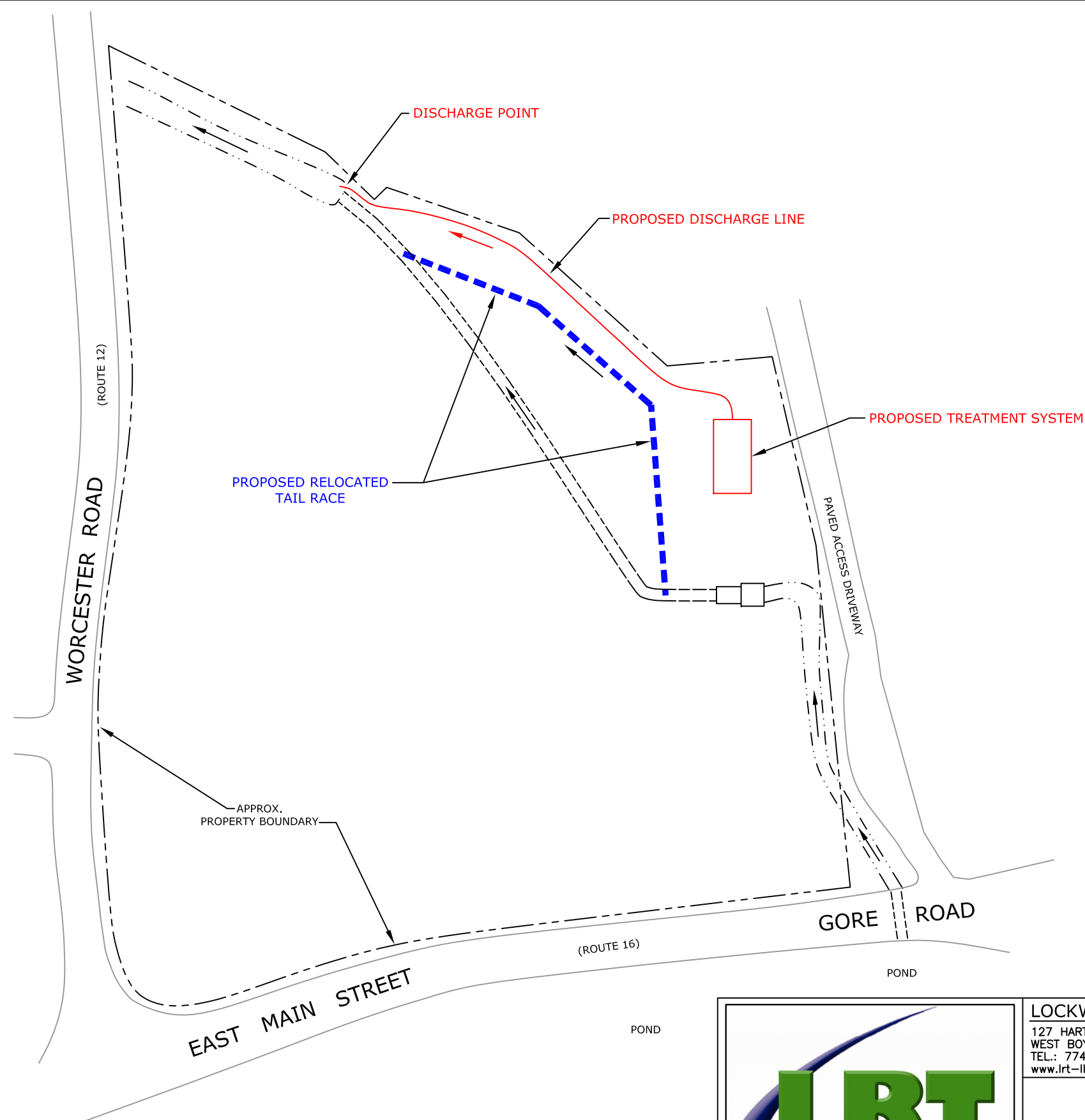
Attachments: Figure 1 Locus Plan
Figure 2 Site Plan
Figure 3 Proposed System Layout
Appendix A – NOI Form
Appendix B – Best Management Practices Plan
Appendix C – Laboratory Data
Appendix D – 7Q10 Calculation

Figures



Name: WEBSTER
 Date: 5/31/2012
 Scale: 1 inch equals 1000 feet

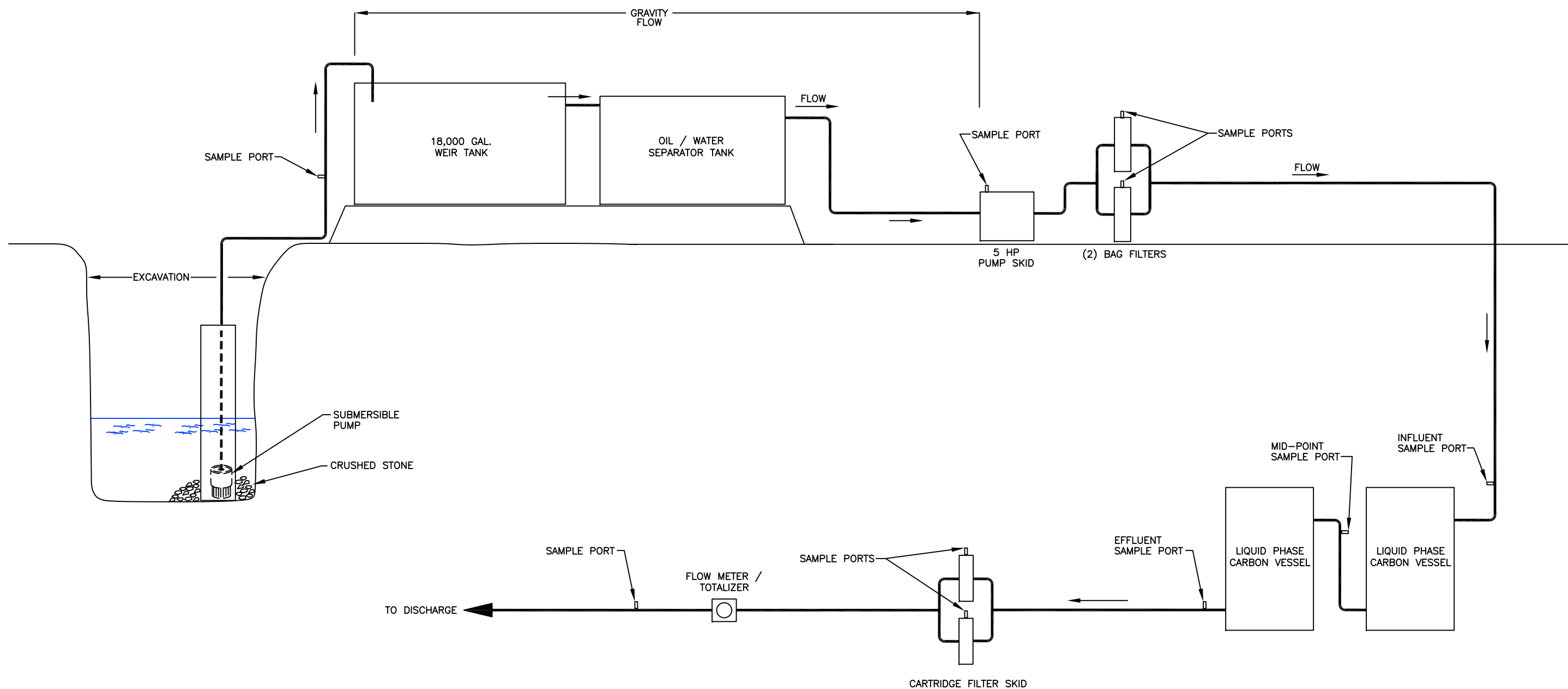
Location: 042° 03' 41.46" N 071° 51' 46.70" W WGS 84
 Caption: Figure-1 Site Locus Map
 2 Worcester Road (Rte. 12)
 Webster, MA



REFERENCE: PLAN ENTITLED "PAD PREPARATION PLAN" PREPARED BY MIDPOINT ENGINEERING & CONSULTING OF AUBURN, MA. PROJECT TITLE "EAST VILLAGE SQUARE", 2 WORCESTER ROAD WEBSTER, MA. PLAN DATED 3-16-11, PLAN SCALE: 1"= 40'.



LOCKWOOD REMEDIATION TECHNOLOGIES LLC		
127 HARTWELL STREET, SUITE 3 WEST BOYLSTON, MA 01583 TEL.: 774.450.7177 FAX: 888.835.0617 www.lrt-llc.net		
SITE PLAN		
SCALE: NOT TO SCALE	APP. BY: PL	DR. BY: K. HAZEL
DATE: 5/31/12		JOB NO.: 2-1044
CLIENT: CJP CONSTRUCTION, INC.		FIGURE 2
SITE: 2 WORCESTER ROAD WEBSTER, MA		



NOTE: SYSTEM IS RATED FOR FLOWS OF UP TO 200 G.P.M.



LOCKWOOD REMEDIATION TECHNOLOGIES LLC

127 HARTWELL STREET, SUITE 3
WEST BOYLSTON, MA 01583
TEL.: 774.450.7177 FAX: 888.835.0617
www.lrt-llc.net

*WATER TREATMENT SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM*

SCALE: NOT TO SCALE	DR. BY: K. HAZEL
DATE: 5/31/12	JOB NO.: 2-1044

CLIENT: CJP CONSTRUCTION, INC.

SITE: 2 WORCESTER ROAD WEBSTER, MA

FIGURE 3

Appendix A
NOI Form

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General facility/site information. Please provide the following information about the site:

a) Name of facility/site :		Facility/site mailing address:	
Location of facility/site : longitude: _____ latitude: _____	Facility SIC code(s):	Street:	
b) Name of facility/site owner :		Town:	
Email address of facility/site owner:	State:	Zip:	County:
Telephone no. of facility/site owner :			
Fax no. of facility/site owner :	Owner is (check one): 1. Federal____ 2. State/Tribal____ 3. Private____ 4. Other ____ if so, describe:		
Address of owner (if different from site):			
Street:			
Town:	State:	Zip:	County:
c) Legal name of operator :	Operator telephone no:		
	Operator fax no.:		Operator email:
Operator contact name and title:			
Address of operator (if different from owner):	Street:		
Town:	State:	Zip:	County:

d) Check Y for “yes” or N for “no” for the following: 1. Has a prior NPDES permit exclusion been granted for the discharge? Y___ N___, if Y, number:_____ 2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Y___ N___, if Y, date and tracking #:_____ 3. Is the discharge a “new discharge” as defined by 40 CFR 122.2? Y___ N___ 4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y___ N___	
e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y___ N___ If Y, please list: 1. site identification # assigned by the state of NH or MA: _____ 2. permit or license # assigned: _____ 3. state agency contact information: name, location, and telephone number: _____	f) Is the site/facility covered by any other EPA permit, including: 1. Multi-Sector General Permit? Y___ N___, if Y, number: _____ 2. Final Dewatering General Permit? Y___ N___, if Y, number: _____ 3. EPA Construction General Permit? Y___ N___, if Y, number: _____ 4. Individual NPDES permit? Y___ N___, if Y, number: _____ 5. any other water quality related individual or general permit? Y___ N___, if Y, number: _____
g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y___ N___	
h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls.	
<u>Activity Category</u>	<u>Activity Sub-Category</u>
I - Petroleum Related Site Remediation	A. Gasoline Only Sites _____ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) _____ C. Petroleum Sites with Additional Contamination _____
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites _____ B. VOC Sites with Additional Contamination _____ C. Primarily Heavy Metal Sites _____
III - Contaminated Construction Dewatering	A. General Urban Fill Sites _____ B. Known Contaminated Sites _____

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ____ B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ____ C. Hydrostatic Testing of Pipelines and Tanks ____ D. Long-Term Remediation of Contaminated Sumps and Dikes ____ E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) ____
---------------------------------------	---

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:	
b) Provide the following information about each discharge:	
1) Number of discharge points:	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)? Max. flow _____ Is maximum flow a design value ? Y___ N___ Average flow (include units) _____ Is average flow a design value or estimate? _____
3) Latitude and longitude of each discharge within 100 feet: pt.1: lat. _____ long. _____; pt.2: lat. _____ long. _____; pt.3: lat. _____ long. _____; pt.4: lat. _____ long. _____; pt.5: lat. _____ long. _____; pt.6: lat. _____ long. _____; pt.7: lat. _____ long. _____; pt.8: lat. _____ long. _____; etc.	
4) If hydrostatic testing, total volume of the discharge (gals): _____	5) Is the discharge intermittent ____ or seasonal ____? Is discharge ongoing? Y ___ N _____
c) Expected dates of discharge (mm/dd/yy): start _____ end _____	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

3. Contaminant information.

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)											
2. Total Residual Chlorine (TRC)											
3. Total Petroleum Hydrocarbons (TPH)											
4. Cyanide (CN)	57125										
5. Benzene (B)	71432										
6. Toluene (T)	108883										
7. Ethylbenzene (E)	100414										
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207										
9. Total BTEX ²	n/a										
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934										
11. Methyl-tert-Butyl Ether (MtBE)	1634044										
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650										

* Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

² BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

³ EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508										
14. Naphthalene	91203										
15. Carbon Tetrachloride	56235										
16. 1,2 Dichlorobenzene (o-DCB)	95501										
17. 1,3 Dichlorobenzene (m-DCB)	541731										
18. 1,4 Dichlorobenzene (p-DCB)	106467										
18a. Total dichlorobenzene											
19. 1,1 Dichloroethane (DCA)	75343										
20. 1,2 Dichloroethane (DCA)	107062										
21. 1,1 Dichloroethene (DCE)	75354										
22. cis-1,2 Dichloroethene (DCE)	156592										
23. Methylene Chloride	75092										
24. Tetrachloroethene (PCE)	127184										
25. 1,1,1 Trichloro-ethane (TCA)	71556										
26. 1,1,2 Trichloro-ethane (TCA)	79005										
27. Trichloroethene (TCE)	79016										

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014										
29. Acetone	67641										
30. 1,4 Dioxane	123911										
31. Total Phenols	108952										
32. Pentachlorophenol (PCP)	87865										
33. Total Phthalates (Phthalate esters) ⁴											
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	117817										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)											
a. Benzo(a) Anthracene	56553										
b. Benzo(a) Pyrene	50328										
c. Benzo(b)Fluoranthene	205992										
d. Benzo(k)Fluoranthene	207089										
e. Chrysene	21801										
f. Dibenzo(a,h)anthracene	53703										
g. Indeno(1,2,3-cd) Pyrene	193395										
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)											

⁴The sum of individual phthalate compounds.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
h. Acenaphthene	83329										
i. Acenaphthylene	208968										
j. Anthracene	120127										
k. Benzo(ghi) Perylene	191242										
l. Fluoranthene	206440										
m. Fluorene	86737										
n. Naphthalene	91203										
o. Phenanthrene	85018										
p. Pyrene	129000										
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.										
38. Chloride	16887006										
39. Antimony	7440360										
40. Arsenic	7440382										
41. Cadmium	7440439										
42. Chromium III (trivalent)	16065831										
43. Chromium VI (hexavalent)	18540299										
44. Copper	7440508										
45. Lead	7439921										
46. Mercury	7439976										
47. Nickel	7440020										
48. Selenium	7782492										
49. Silver	7440224										
50. Zinc	7440666										
51. Iron	7439896										
Other (describe):											

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

<i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y____ N____	If yes, which metals?
<i>Step 2:</i> For any metals which exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal:_____ DF:_____ Metal:_____ DF:_____ Metal:_____ DF:_____ Metal:_____ DF:_____ Etc.	Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y____ N____ If Y, list which metals:

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper	Oil/water separator	Equalization tanks	Bag filter	GAC filter
	Chlorination	De-chlorination	Other (please describe):			

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate(s)** (gallons per minute) of the treatment system:

Average flow rate of discharge _____ gpm Maximum flow rate of treatment system _____ gpm

Design flow rate of treatment system _____ gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct to receiving water _____	Within facility (sewer) _____	Storm drain _____	Wetlands _____	Other (describe): _____
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:					
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.					
d) Provide the state water quality classification of the receiving water _____					
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water _____ cfs Please attach any calculation sheets used to support stream flow and dilution calculations.					
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y____ N____ If yes, for which pollutant(s)? _____					
Is there a final TMDL? Y____ N____ If yes, for which pollutant(s)? _____					

6. ESA and NHPA Eligibility.

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

- a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?
A ____ B ____ C ____ D ____ E ____ F ____
- b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ____ N ____ Underway ____
- c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is “not likely to adversely affect” listed species or critical habitat received? Y ____ N ____
- d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.
- e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?
1 ____ 2 ____ 3 ____
- f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

7. Supplemental information.

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. **Signature Requirements:** The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name:	East Village Square
Operator signature:	<i>Carlo J. Panarelli</i>
Printed Name & Title:	CARLO J. PANARELLI, owner
Date:	6.13.12

Appendix B
Best Management Practices Plan



127 Hartwell Street, Suite 3
West Boylston, Massachusetts 01583
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

BEST MANAGEMENT PRACTICES PLAN

National Pollutant Discharge Elimination System – Remediation General Permit

Temporary Construction Dewatering
2 Worcester Road – Webster, Massachusetts

A Notice of Intent (NOI) for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the US Environmental Protection Agency (EPA) on behalf of the CJP Construction, Inc (CJP) by Lockwood Remediation Technologies, LLC (LRT) in anticipation of temporary construction site dewatering planned to occur during proposed construction of a shopping center at the above referenced site (the Site). This Best Management Practices Plan (BMPP) was prepared in accordance with the general requirements of the NPDES RGP, and related guidance documentation provided by the EPA. The BMPP is included as an Appendix to the NOI and will be posted at the Site during the time of the work as specified in the NOI.

Water Treatment and Management

Construction dewatering will be conducted from either sumps or deep wells located inside the excavation. The treatment system will include an equalization tank, pumps, filtration and carbon treatment and will at a minimum to reduce low concentrations of total suspended solids (TSS), volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). This NOI has been prepared for the management of dewatering from the Site; please refer to Figure 1 Locus Plan for an overview of the immediate area surrounding the Site. The proposed work area is referred to as 2 Worcester Road Street and is bounded Worcester Road (Route 12) to the west and East Main Street (Route 16) to the south beyond which are commercial properties; to the east by Interstate 395 and to the north by St. Anthony's Cemetery. Refer to Figure 2 Site Plan for a depiction of the immediate Site and the proposed discharge point.

Discharge Monitoring and Compliance

Routine Operation & Maintenance (O&M) will be completed on the water treatment system. Typical monitoring includes checking the condition of the treatment system and the collection of samples throughout the treatment system to verify the treatment system discharge is in compliance with the RGP. In the event that the system effluent is not within the discharge criteria of the RGP, modification to the treatment system may occur until discharge compliance can be consistently achieved. Please refer to Figure 3 for a layout of the proposed treatment system.

The total monthly discharge will be monitored by a non-resettable flow meter and totalizer. Monthly monitoring reports will be compiled and maintained at the Site. Employees who have direct or indirect responsibility for enduring compliance with the RGP will be trained by the treatment system operator.

Management of Treatment System Materials

Potential sources of pollutants from the Site include TSS, naturally occurring metals associated with the TSS, total petroleum hydrocarbons (TPH), VOCs and SVOCs are anticipated during construction dewatering activities. Dewatering effluent will be pumped directly to the treatment system from the excavation via hoses and sumps to minimize handling. The general contractor at the Site will establish staging areas on the Site away from the excavation and treatment system. Sediment collected in the frac tank used in the treatment system will be characterized and disposed of as soil at an appropriate receiving facility in accordance with the applicable laws and regulations. Any bag filters will be containerized and disposed of to an appropriate receiving facility. If used, any media (i.e. granular activated carbon, ion exchange resin) will be profiled and recycled at an approved receiving facility.

Appendix C

Laboratory Data

ANALYTICAL REPORT



Friday, May 25, 2012

Paul Lockwood
LRT, LLC
127 Hartwell Street, Suite 3
W. Boylston, MA 01583

GeoLabs, Inc.
45 Johnson Lane
Braintree MA 02184
Tele: 781 848 7844
Fax: 781 848 7811

TEL: (774) 450-7177
FAX:

Project: 2-1044
Location: Former Cranston Printworks

Order No.: 1205271

Dear Paul Lockwood:

GeoLabs, Inc. received 1 sample(s) on 5/22/2012 for the analyses presented in the following report.

The laboratory results in this report relate only to samples submitted.

All data for associated QC met method or laboratory specifications, except when noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



David Mick
Laboratory Director

For current certifications, please visit our website at www.geolabs.com

Certifications:

CT (PH-0148) - MA (M-MA015) - NH (2508) - NJ (MA009) - RI (LA000252)
Accredited in Accordance with NELAC

Date: 25-May-12

CLIENT: LRT, LLC
Project: 2-1044
Lab Order: 1205271

CASE NARRATIVE

Physical Condition of Samples

The project was received by the laboratory in satisfactory condition, with the following exception: head space present in all voas. The sample(s) were received undamaged.

Project Documentation

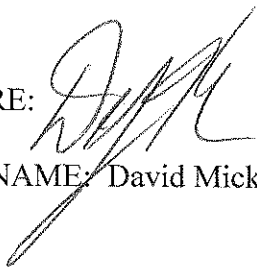
The project was accompanied by satisfactory Chain of Custody documentation.

Analysis of Sample(s)

All extractable samples were extracted and analyzed and any Volatile samples were analyzed within method specified holding times and according to GeoLabs documented Standard Operating Procedure. The following analytical anomalies or non-conformances were noted by the laboratory during the processing of these samples:

Several 8270 LCS % Recoveries are outside of recovery limits. 8270 surrogates were diluted out of sample.

SIGNATURE:



PRINTED NAME: David Mick

LAB DIRECTOR

DATE: 05/25/12

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC

Client Sample ID: Sample

Lab Order: 1205271

Collection Date: 5/22/2012 9:00:00 AM

Project: 2-1044

Date Received: 5/22/2012

Lab ID: 1205271-001

Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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NON-POLAR 1664A - E1664A

Analyst: Admin

Prep Method:

Prep Date:

Total Petroleum Hydrocarbons	115	5.00		mg/L	1	5/23/2012
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TOTAL SUSPENDED SOLIDS - SM2540D

Analyst: Admin

Prep Method:

Prep Date:

Total Suspended Solids	12000	4.00		mg/L	1	5/22/2012
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POLYCHLORINATED BIPHENYLS - SW8082

Analyst: KG

Prep Method: (SW3510B)

Prep Date: 5/23/2012 11:45:07 AM

Aroclor 1016	ND	0.266		µg/L	1	5/23/2012
Aroclor 1221	ND	0.266		µg/L	1	5/23/2012
Aroclor 1232	ND	0.266		µg/L	1	5/23/2012
Aroclor 1242	ND	0.266		µg/L	1	5/23/2012
Aroclor 1248	ND	0.266		µg/L	1	5/23/2012
Aroclor 1254	ND	0.266		µg/L	1	5/23/2012
Aroclor 1260	ND	0.266		µg/L	1	5/23/2012
Surr: Decachlorobiphenyl Sig 1	35.1	30-150		%REC	1	5/23/2012
Surr: Decachlorobiphenyl Sig 2	38.8	30-150		%REC	1	5/23/2012
Surr: Tetrachloro-m-Xylene Sig 1	57.1	30-150		%REC	1	5/23/2012
Surr: Tetrachloro-m-Xylene Sig 2	84.8	30-150		%REC	1	5/23/2012

TOTAL METALS BY ICP - SW6010B

Analyst: QS

Prep Method: (SW3010A)

Prep Date: 5/23/2012 11:36:41 AM

Antimony	ND	0.00600		mg/L	1	5/23/2012
Arsenic	0.0340	0.0133		mg/L	1	5/23/2012
Cadmium	ND	0.00400		mg/L	1	5/23/2012
Chromium	ND	0.0700		mg/L	1	5/23/2012
Copper	0.199	0.0200		mg/L	1	5/23/2012
Iron	26.4	0.120		mg/L	2	5/23/2012
Lead	0.0510	0.0100		mg/L	1	5/23/2012
Nickel	ND	0.100		mg/L	1	5/23/2012
Selenium	ND	0.0500		mg/L	1	5/23/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC

Client Sample ID: Sample

Lab Order: 1205271

Collection Date: 5/22/2012 9:00:00 AM

Project: 2-1044

Date Received: 5/22/2012

Lab ID: 1205271-001

Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICP - SW6010B

Analyst: QS

Prep Method: (SW3010A)

Prep Date: 5/23/2012 11:36:41 AM

Silver	ND	0.00200		mg/L	1	5/23/2012
Zinc	0.250	0.180		mg/L	1	5/23/2012

TOTAL MERCURY - E245.1

Analyst: EC

Prep Method: (SW7470A/E245.1)

Prep Date: 5/25/2012 10:51:17 AM

Mercury	ND	0.0005		mg/L	1	5/24/2012
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SEMIVOLATILE ORGANICS - SW8270C

Analyst: Jsi

Prep Method: (SW3510)

Prep Date: 5/23/2012 11:43:14 AM

1,2,4-Trichlorobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
1,2-Dichlorobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
1,2-Dinitrobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
1,3-Dichlorobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
1,3-Dinitrobenzene	ND	801		µg/L	250	5/23/2012 5:21:00 PM
1,4-Dichlorobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
1,4-Dinitrobenzene	ND	801		µg/L	250	5/23/2012 5:21:00 PM
2,3,4,6-Tetrachlorophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,4,5-Trichlorophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,4,6-Trichlorophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,4-Dichlorophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,4-Dimethylphenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,4-Dinitrophenol	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
2,4-Dinitrotoluene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2,6-Dinitrotoluene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2-Chloronaphthalene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2-Chlorophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2-Methylnaphthalene	378	321		µg/L	250	5/23/2012 5:21:00 PM
2-Methylphenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2-Nitroaniline	ND	321		µg/L	250	5/23/2012 5:21:00 PM
2-Nitrophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
3,3'-Dichlorobenzidine	ND	321		µg/L	250	5/23/2012 5:21:00 PM
3-Methylphenol/4-Methylphenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC

Client Sample ID: Sample

Lab Order: 1205271

Collection Date: 5/22/2012 9:00:00 AM

Project: 2-1044

Date Received: 5/22/2012

Lab ID: 1205271-001

Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANICS - SW8270C

Analyst: Jsi

Prep Method: (SW3510)

Prep Date: 5/23/2012 11:43:14 AM

3-Nitroaniline	ND	321		µg/L	250	5/23/2012 5:21:00 PM
4,6-Dinitro-2-Methylphenol	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
4-Bromophenyl Phenyl Ether	ND	321		µg/L	250	5/23/2012 5:21:00 PM
4-Chloro-3-Methylphenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
4-Chloroaniline	ND	801		µg/L	250	5/23/2012 5:21:00 PM
4-Chlorophenyl Phenyl Ether	ND	321		µg/L	250	5/23/2012 5:21:00 PM
4-Nitroaniline	ND	321		µg/L	250	5/23/2012 5:21:00 PM
4-Nitrophenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Acenaphthene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Acenaphthylene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Acetophenone	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Aniline	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Anthracene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Azobenzene	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Benz(a)Anthracene	325	32.1		µg/L	250	5/23/2012 5:21:00 PM
Benzidine	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Benzo(a)Pyrene	607	32.1		µg/L	250	5/23/2012 5:21:00 PM
Benzo(b)Fluoranthene	290	32.1		µg/L	250	5/23/2012 5:21:00 PM
Benzo(g,h,i)Perylene	561	321		µg/L	250	5/23/2012 5:21:00 PM
Benzo(k)Fluoranthene	144	32.1		µg/L	250	5/23/2012 5:21:00 PM
Benzyl Alcohol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Bis(2-Chloroethoxy)Methane	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Bis(2-Chloroethyl)Ether	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Bis(2-Chloroisopropyl)Ether	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Bis(2-Ethylhexyl)Phthalate	ND	641		µg/L	250	5/23/2012 5:21:00 PM
Butyl Benzyl Phthalate	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Carbazole	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Chrysene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Dibenz(a,h)Anthracene	ND	32.1		µg/L	250	5/23/2012 5:21:00 PM
Dibenzofuran	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Diethyl Phthalate	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Dimethyl Phthalate	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Di-n-Butyl Phthalate	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Di-n-Octyl Phthalate	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Fluoranthene	420	321		µg/L	250	5/23/2012 5:21:00 PM
Fluorene	ND	321		µg/L	250	5/23/2012 5:21:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC
 Lab Order: 1205271
 Project: 2-1044
 Lab ID: 1205271-001

Client Sample ID: Sample
 Collection Date: 5/22/2012 9:00:00 AM
 Date Received: 5/22/2012
 Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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SEMIVOLATILE ORGANICS - SW8270C

Analyst: Jsi

Prep Method: (SW3510)

Prep Date: 5/23/2012 11:43:14 AM

Hexachlorobenzene	ND	801		µg/L	250	5/23/2012 5:21:00 PM
Hexachlorobutadiene	ND	801		µg/L	250	5/23/2012 5:21:00 PM
Hexachlorocyclopentadiene	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Hexachloroethane	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Indeno(1,2,3-cd)Pyrene	330	32.1		µg/L	250	5/23/2012 5:21:00 PM
Isophorone	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Naphthalene	1410	321		µg/L	250	5/23/2012 5:21:00 PM
Nitrobenzene	ND	321		µg/L	250	5/23/2012 5:21:00 PM
N-Nitrosodimethylamine	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
N-Nitrosodi-n-Propylamine	ND	321		µg/L	250	5/23/2012 5:21:00 PM
N-Nitrosodiphenylamine	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Pentachlorophenol	ND	801		µg/L	250	5/23/2012 5:21:00 PM
Phenanthrene	490	321		µg/L	250	5/23/2012 5:21:00 PM
Phenol	ND	321		µg/L	250	5/23/2012 5:21:00 PM
Pyrene	915	321		µg/L	250	5/23/2012 5:21:00 PM
Pyridine	ND	1600		µg/L	250	5/23/2012 5:21:00 PM
Surr: 2,4,6-Tribromophenol	0	15-110	S	%REC	250	5/23/2012 5:21:00 PM
Surr: 2-Fluorobiphenyl	0	30-130	S	%REC	250	5/23/2012 5:21:00 PM
Surr: 2-Fluorophenol	0	15-110	S	%REC	250	5/23/2012 5:21:00 PM
Surr: Nitrobenzene-d5	0	30-130	S	%REC	250	5/23/2012 5:21:00 PM
Surr: Phenol-d6	0	15-110	S	%REC	250	5/23/2012 5:21:00 PM
Surr: Terphenyl-d14	0	30-130	S	%REC	250	5/23/2012 5:21:00 PM

NOTES:

Surrogates diluted out.

VOLATILE ORGANIC COMPOUNDS - SW8260B

Analyst: ZC

Prep Method:

Prep Date:

1,1,1,2-Tetrachloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1,1-Trichloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1,2,2-Tetrachloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1,2-Trichloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1-Dichloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1-Dichloroethene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,1-Dichloropropene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2,3-Trichlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC

Client Sample ID: Sample

Lab Order: 1205271

Collection Date: 5/22/2012 9:00:00 AM

Project: 2-1044

Date Received: 5/22/2012

Lab ID: 1205271-001

Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS - SW8260B

Analyst: ZC

Prep Method:

Prep Date:

1,2,3-Trichloropropane	ND	50.0		µg/L	10	5/23/2012 6:14:00 PM
1,2,4-Trichlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2,4-Trimethylbenzene	479	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2-Dibromo-3-Chloropropane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2-Dibromoethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2-Dichlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2-Dichloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,2-Dichloropropane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,3,5-Trimethylbenzene	172	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,3-Dichlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,3-Dichloropropane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
1,4-Dichlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
2,2-Dichloropropane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
2-Butanone	ND	100		µg/L	10	5/23/2012 6:14:00 PM
2-Chloroethyl Vinyl Ether	ND	50.0		µg/L	10	5/23/2012 6:14:00 PM
2-Chlorotoluene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
2-Hexanone	ND	100		µg/L	10	5/23/2012 6:14:00 PM
4-Chlorotoluene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
4-Isopropyltoluene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
4-Methyl-2-Pentanone	ND	50.0		µg/L	10	5/23/2012 6:14:00 PM
Acetone	ND	500		µg/L	10	5/23/2012 6:14:00 PM
Acrolein	ND	500		µg/L	10	5/23/2012 6:14:00 PM
Acrylonitrile	ND	500		µg/L	10	5/23/2012 6:14:00 PM
Benzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Bromobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Bromochloromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Bromodichloromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Bromoform	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Bromomethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Carbon Disulfide	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Carbon Tetrachloride	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Chlorobenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Chloroethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Chloroform	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Chloromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
cis-1,2-Dichloroethene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT: LRT, LLC

Client Sample ID: Sample

Lab Order: 1205271

Collection Date: 5/22/2012 9:00:00 AM

Project: 2-1044

Date Received: 5/22/2012

Lab ID: 1205271-001

Matrix: GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS - SW8260B

Analyst: ZC

Prep Method:

Prep Date:

cis-1,3-Dichloropropene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Dibromochloromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Dibromomethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Dichlorodifluoromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Ethylbenzene	779	20.0		µg/L	10	5/23/2012 6:14:00 PM
Hexachlorobutadiene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Isopropylbenzene	78.7	20.0		µg/L	10	5/23/2012 6:14:00 PM
Methyl Tert-Butyl Ether	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Methylene Chloride	ND	50.0		µg/L	10	5/23/2012 6:14:00 PM
Naphthalene	7610	5000		µg/L	500	5/23/2012 1:31:00 PM
n-Butylbenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
n-Propylbenzene	46.1	20.0		µg/L	10	5/23/2012 6:14:00 PM
sec-Butylbenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Styrene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
tert-Butylbenzene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Tetrachloroethene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Toluene	166	20.0		µg/L	10	5/23/2012 6:14:00 PM
trans-1,2-Dichloroethene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
trans-1,3-Dichloropropene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Trichloroethene	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Trichlorofluoromethane	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Vinyl Chloride	ND	20.0		µg/L	10	5/23/2012 6:14:00 PM
Xylenes, Total	1870	20.0		µg/L	10	5/23/2012 6:14:00 PM
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%REC	10	5/23/2012 6:14:00 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%REC	10	5/23/2012 6:14:00 PM
Surr: Dibromofluoromethane	99.8	70-130		%REC	10	5/23/2012 6:14:00 PM
Surr: Toluene-d8	103	70-130		%REC	10	5/23/2012 6:14:00 PM

CHLORIDE - E300.0

Analyst: SUB

Prep Method:

Prep Date:

Chloride	35.7	3.00		mg/L	1	5/24/2012
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NOTES:

Sample was analyzed by Phoenix Environmental Laboratories, M-CT007.

Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

ANALYTICAL REPORT

Reported Date: 25-May-12

CLIENT:	LRT, LLC	Client Sample ID:	Sample
Lab Order:	1205271	Collection Date:	5/22/2012 9:00:00 AM
Project:	2-1044	Date Received:	5/22/2012
Lab ID:	1205271-001	Matrix:	GROUNDWATER

Analyses	Result	Det. Limit	Qual	Units	DF	Date Analyzed
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CYANIDE, TOTAL - SM4500-CN-C,E						Analyst: RP
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Prep Method:

Prep Date:

Cyanide, Total	ND	0.0200		mg/L	1	5/24/2012
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TRIVALENT CHROMIUM IN WATER - 6010C&3500						Analyst: RP
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Prep Method:

Prep Date:

Trivalent Chromium,Cr3+	ND	0.070		mg/L	1	5/24/2012
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HEXAVALENT CHROMIUM - SM3500-CR-D						Analyst: JC
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Prep Method:

Prep Date:

Chromium, Hexavalent	ND	0.0500		mg/L	1	5/22/2012 4:00:00 PM
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TOTAL RESIDUAL CHLORINE - HACH 8167						Analyst: RP
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Prep Method:

Prep Date:

Total Residual Chlorine	ND	5.00		mg/L	25	5/22/2012 4:20:00 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	BRL	Below Reporting Limit
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside recovery limits		

GeoLabs, Inc.

45 Johnson Lane ~ Braintree MA 02184 ~ 781 848 7844 ~ 781 848 7811

Appendix D
7Q10 Calculation



Streamstats Ungaged Site Report

Date: Wed Jun 13 2012 12:23:22 Mountain Daylight Time
Site Location: Massachusetts
NAD27 Latitude: 42.0624 (42 03 45)
NAD27 Longitude: -71.8637 (-71 51 49)
NAD83 Latitude: 42.0625 (42 03 45)
NAD83 Longitude: -71.8632 (-71 51 48)
ReachCode: 01100001000583
Measure: 67.34
Drainage Area: 10.5 mi2

Low Flows Basin Characteristics			
100 % Statewide Low Flow (10.5 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.5	1.61	149
Mean Basin Slope from 250K DEM (percent)	4.13	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.16	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Probability of Perennial Flow Basin Characteristics			
100 % Perennial Flow Probability (10.5 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	10.5 (above max value 1.99)	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	41.21	0	100
Percent Forest (percent)	48.67	0	100
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low Flows Streamflow Statistics					
Statistic	Flow (ft ³ /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	10.5	18		6.03	18.2
D60	7.64	20		4.23	13.7
D70	4.65	24		2.35	9.1
D75	3.6	26		1.81	7.08
D80	3.16	28		1.44	6.86
D85	2.43	32		1.05	5.53
D90	1.94	37		0.8	4.6
D95	1.19	46		0.43	3.16
D98	0.74	60		0.23	2.25
D99	0.56	65		0.16	1.79
M7D2Y	1.14	50		0.41	3.08
AUGD50	2.49	33		1.06	5.73
M7D10Y	0.53	71		0.15	1.77

The equation for estimating the probability of perennial flow is applicable for most areas of Massachusetts except eastern Buzzards Bay, Cape Cod, and the Island regions. The estimate obtained from the equation assumes natural flow conditions at the site. The equation also is best used for sites with drainage areas between 0.01 to 1.99 mi2, as errors beyond for basins beyond these bounds are unknown.

Probability of Perennial Flow Statistics		
Statistic	Value	Standard Error (percent)
PROBPEREN	0.99	