

Petra Cliffs Climbing Center & Mountaineering School
105 Briggs Street
Burlington, VT 05401



June 22, 2018

Chittenden County Regional Planning Commission
Dan Albrecht
110 W Canal St #202
Winooski, VT 05404

Dear Mr. Albrecht and the Brownfields Advisory Committee,

This letter is to request additional funding through the CCRPC for hazardous assessment at 75 Briggs Street, Burlington VT as part of a Phase II ESA in collaboration with KAS, Inc. Petra Cliffs was awarded funds for a Phase I ESA and for the petroleum portion of the costs for a Phase II ESA in March, with the indication that the committee may reevaluate once the disposition of CCRPC's proposal to EPA for an FY18 Assessment Grant was known. Since that time, we were pleased to learn that CCRPC has been awarded a \$300,000 Assessment Grant. Based on this award, we respectfully request that the committee re-consider funding the remaining hazardous (non-petroleum) portion of the Phase II ESA in the amount of \$16,658, in accordance with our original application.

It is understood that the Brownfields Committee would like to prioritize project with a housing component and, although our project does not provide housing, it will provide many benefits to the community. Petra Cliffs is a place to play and learn for all ages and abilities. From toddlers to retirees, climbing is a healthy way to move the body and to engage the brain in a social environment. As a therapeutic component, Petra Cliffs is an important fixture in the Burlington community, serving not only people who can afford to pay for recreation, but numerous departments from the Howard Center including Children, Youth and Family Services, Autism Spectrum Program, Living Skills, the Baird School, Centerpoint School, Respite, Early Childhood Program, and more. Petra Cliffs also works with Vermont Works for Women and the Dirt Divas Program, with Spectrum Youth & Family Services, King Street Center, NFI, Vermont Adaptive, and others. After school programs offer extended care options for working families, and the addition of drop-in child care will allow parents and caregivers to maintain fitness and wellness.

The 75 Briggs Street site was chosen because of its proximity to the existing business at 105 Briggs Street with an 18 year history in the community and neighborhood. A large portion of customers currently access Petra Cliffs by bus, bike, walking or running. The new location will be closer to the Burlington bike path and to the Pine Street bus stop. In addition to climbing, yoga and fitness, Petra Cliffs will offer community events such as films, speakers, workshops, youth events, collaborative events with City Market and other South End businesses, participation in the South End Art Hop and will host a local artist gallery.

The land at this site will be revitalized into a welcoming space for guests to recreate, socialize and learn after a long history of industrial use (please see Site Plan attachments). Green space will be added for a play lawn (a community garden is also being considered), numerous trees will be added for shading, and the proposed site cleanup will greatly mitigate the impacts of surface water. By designing a green building on the site, Petra Cliffs is striving to be environmentally responsible and resource-efficient over the life cycle of the project.

Thank you for your time and consideration of this request.

Sincerely,

Andrea & Stephen Charest
Owners
Petra Cliffs Climbing Center & Mountaineering School
802-657-3872
andrea@petracliffs.com / steve@petracliffs.com



March 13, 2018

Andrea and Stephen Charest
Alpinism, LLC dba Petra Cliffs
105 Briggs Street
Burlington, VT 05401

589 Avenue D, Suite 10
PO Box 787
Williston, VT 05495

RE: **Work Plan and Cost Estimate** – Brownfields Phase II Environmental Site Assessment (ESA), 75 Briggs Street, Burlington, Vermont

www.kas-consulting.com

802 383.0486 p
802 383.0490 f

Dear Andrea and Steve,

KAS, Inc. has prepared a Work Plan to conduct a Brownfields Phase II ESA at 75 Briggs Street in Burlington, Vermont in anticipation of redeveloping this site into a new Petra Cliffs Climbing Center. The cost and fee schedule to implement the enclosed work plan is as follows:

KAS will implement the Brownfields Phase II ESA at 75 Briggs Street in Burlington on a fixed price basis for **\$28,234**. A total of 41% of the work (\$11,576) is associated with petroleum investigative activities and 59% hazardous investigative activities (\$16,658). A cost breakdown by task is also attached to this letter.

The labor and expense breakdown is as follows:

Category	Classification	Units	Rate
Labor	KAS Project Manager	58 hr	\$95
	KAS Draftsperson	8 hr	\$65
	KAS Field Technician	15 hr	\$65
	KAS QA Officer	57 hr	\$80
	KAS Senior Scientist	11 hr	\$115
	KAS Administrator	4 hr	\$55
	KAS Expenses	1 LS	\$1,597
Expense	Eastern Analytical Laboratory (soil)	1 LS	\$9,275
	Drilling Allowance	1 LS	\$3,247
	EMSL Laboratories (soil gas)	1 LS	\$1,065

This price is based on KAS rates and subcontractor cost schedules in effect as of the date of this letter and Work Plan. The pricing and schedule assumes favorable weather conditions are present. If this does not hold true, KAS will notify you, and the CCRPC, if it is involved in funding the Phase II ESA, and discuss alternative steps to complete the Phase II ESA in a timely manner.



Andrea and Steve Charest
March 13, 2018
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KAS is pleased to present this Work Plan and associated Cost and Fee Schedule. Please feel free to contact me with any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Erik Sandblom".

Erik Sandblom, PE
Vice President and Principal Engineer

Enclosures: Brownfields Phase II ESA 75 Briggs Street Burlington
Detailed Cost Breakdown

Cc: Dan Albrecht, CCRPC
Sarah Bartlett, VTDEC

PHASE II ESA
75 Briggs Street, Burlington, VT
1/24/2018
BROWNFIELDS, SOIL, SOIL GAS, GROUNDWATER SAMPLING

WORK ELEMENT	UNITS	CATEGORY	QTY	RATE/	ELEMENT	MARKUP @ 15%	ADJ	SUBTOTAL
DEVELOP WORK PLAN AND QAPP PREPARATION								
KAS LABOR WP PREP	HR	PRINCIPAL	7	\$115.00	\$805.00		\$805.00	
KAS LABOR HASP PREP	HR	PROJECT MANAGER	1	\$95.00	\$95.00		\$95.00	
KAS LABOR GENERAL COORDINATION	HR	PROJECT MANAGER	8	\$95.00	\$760.00		\$760.00	
KAS LABOR QAPP PREPARATION	HR	QAO	12	\$80.00	\$960.00		\$960.00	\$2,620.00
PREMARK								
PREMARK	HR	PROJECT MANAGER	1	\$95.00	\$95.00		\$95.00	
MILEAGE	EA	EXPENSE	12	\$0.58	\$6.96		\$6.96	\$101.96
SOIL SAMPLING/SG INSTALL (1 day)								
KAS LABOR TASK COORD	HR	PROJECT MANAGER	3	\$95.00	\$285.00		\$285.00	
BORINGS-TRAVEL	HR	PROJECT MANAGER	1	\$95.00	\$95.00		\$95.00	
SOIL BORINGS/SAMPLING	HR	PROJECT MANAGER	8	\$95.00	\$760.00		\$760.00	
MILEAGE	EA	EXPENSE	12	\$0.58	\$6.96		\$6.96	
PID	DAY	EXPENSE	1	\$90.00	\$90.00		\$90.00	
SOIL PROBE MATERIALS	EA	EXPENSE	3	\$100.00	\$300.00		\$300.00	
SAMPLE KITS	EA	EXPENSE	6	\$15.00	\$90.00		\$90.00	\$1,626.96
T&K GEOPROBE SOIL BORINGS	EA	EXPENSE	1	\$2,823.32	\$2,823.32	\$423.50	\$3,246.82	\$3,246.82
SOILS LABORATORY 6 + 1 QAQC (VOC, SVOC, METALS)								
EA-VOCS M8260B	EA	LABORATORY	7	\$124.00	\$868.00	\$130.20	\$998.20	
SVOCs (PAHs - 8270 ABN) (Contam)	EA	LABORATORY	7	\$263.00	\$1,841.00	\$276.15	\$2,117.15	
TPH	EA	LABORATORY	7	\$68.00	\$476.00	\$71.40	\$547.40	
RCRA 8 METALS	EA	LABORATORY	7	\$90.00	\$630.00	\$94.50	\$724.50	
Metals Preparation	EA	LABORATORY	7	\$23.00	\$161.00	\$24.15	\$185.15	\$4,572.40
PCBs, pesitcides/herbicides - 8081A, 8082, i	EA	LABORATORY	6	\$329.00	\$1,974.00	\$296.10	\$2,270.10	
Specific Conductance	EA	LABORATORY	6	\$10.00	\$60.00	\$9.00	\$69.00	
pH	EA	LABORATORY	6	\$5.00	\$30.00	\$4.50	\$34.50	
Reactive Cyanide	EA	LABORATORY	6	\$55.00	\$330.00	\$49.50	\$379.50	
Reactive Sulfide	EA	LABORATORY	6	\$20.00	\$120.00	\$18.00	\$138.00	
Ignitability	EA	LABORATORY	6	\$45.00	\$270.00	\$40.50	\$310.50	\$3,201.60
SOIL GAS SAMPLING								
KAS LABOR TASK COORD	HR	PROJECT MANAGER	4	\$95.00	\$380.00		\$380.00	
TRAVEL	HR	TECH	1	\$65.00	\$65.00		\$65.00	
SOIL GAS SAMPLING	HR	TECH	6	\$65.00	\$390.00		\$390.00	
MILEAGE	EA	EXPENSE	12	\$0.58	\$6.96		\$6.96	
PID	DAY	EXPENSE	1	\$90.00	\$90.00		\$90.00	
SOIL GAS TUBING	EA	EXPENSE	1	\$50.00	\$50.00		\$50.00	
HELIUM DETECTOR RENTAL	EA	EXPENSE	1	\$100.00	\$100.00		\$100.00	
RENTAL SHIPPING	EA	EXPENSE	1	\$50.00	\$50.00		\$50.00	
PACK CANISTERS/SHIP	HR	TECH	1	\$65.00	\$65.00		\$65.00	
TEMP/HUMIDITY PEN RENTAL	DAY	EXPENSE	1	\$15.00	\$15.00		\$15.00	
HELIUM CANISTER (TRACER GAS)	EA	EXPENSE	1	\$20.00	\$20.00		\$20.00	\$1,231.96
SG LABORATORY								
EMSL TO 15 4 HR	EA	LABORATORY	4	\$242.00	\$968.00	\$96.80	\$1,064.80	
SHIPPING	EA	EXPENSE	4	\$100.00	\$400.00	\$40.00	\$440.00	\$1,504.80
GROUNDWATER MONITORING 4 WELLS + 2 QAQC								
KAS LABOR TASK COORD	HR	TASK MANAGER	2	\$95.00	\$190.00		\$190.00	
KAS LABOR GWM	HR	TECHNICIAN	6	\$65.00	\$390.00		\$390.00	
TRAVEL	HR	TECHNICIAN	1	\$65.00	\$65.00		\$65.00	
IP	DAY	EXPENSE	1	\$55.00	\$55.00		\$55.00	
LOW FLOW PUMPS	EA	EQUIPMENT	1	\$75.00	\$75.00		\$75.00	
TURBIDITY METER	DAY	EQUIPMENT	1	\$35.00	\$35.00		\$35.00	
pHCond METER	DAY	EQUIPMENT	1	\$100.00	\$100.00		\$100.00	
SAMPLE KITS	DAY	EXPENSE	4	\$15.00	\$60.00		\$60.00	
MILEAGE	EA	EXPENSE	12	\$0.55	\$6.60		\$6.60	\$976.60
GW LABORATORY 4 + 1 QAQC								
EA-PP13 METALS	EA	LABORATORY	5	\$125.00	\$625.00	\$93.75	\$718.75	
EA METALS PREP FEE	EA	LABORATORY	5	\$8.00	\$40.00	\$6.00	\$46.00	
EA-VOCS M8260B	EA	LABORATORY	5	\$128.00	\$640.00	\$96.00	\$736.00	\$1,500.75

DATA VERIFICATION/VALIDATION							
KAS LABOR VALIDATION	HR	QAO	45	\$80.00	\$3,600.00	\$3,600.00	
KAS LABOR REVIEW	HR	PRINCIPAL	1	\$115.00	\$115.00	\$115.00	\$3,715.00
SUMMARY REPORT							
REPORT PREPARATION	HR	PROJECT MANAGER	30	\$95.00	\$2,850.00	\$2,850.00	
REVIEW	HR	PRINCIPAL	3	\$115.00	\$345.00	\$345.00	
DRAFTING	HR	DRAFTSMAN	8	\$65.00	\$520.00	\$520.00	
ADMINISTRATION	HR	ADM	4	\$55.00	\$220.00	\$220.00	\$3,935.00
SUBTOTAL							\$28,233.85
BREAKDOWN							
KAS				\$14,647.48	52%		
EAI				\$9,274.75			
EMSL				\$1,064.80			
T&K				\$3,246.82		Petro	\$11,681.47 41.37%
						Haz	\$16,552.38 58.63%
Total				\$28,233.85			
						PM	58 \$5,510.00
						Draftperson	8 \$520.00
						Field Tech	15 \$975.00
						QA Officer	57 \$4,560.00
						Sr. Scientists	11 \$1,265.00
						Admin	4 \$220.00
						Expenses	1597 \$1,597.48
\$14,647.48							

Proposed Petra Cliffs 75 Briggs Street Burlington, Vermont 05401

WORK PLAN – BROWNFIELDS PHASE II ESA

March 13, 2018

Prepared for:

Petra Cliffs Climbing Center and
Mountaineering School
105 Briggs Street
Burlington, Vermont 05401



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1.0 Introduction / Background

This Work Plan for a Brownfields Phase II Environmental Site Assessment (ESA) at 75 Briggs Street, Burlington, Vermont (referred herein as “site” or “property”), has been prepared by KAS, Inc. (KAS) for Petra Cliffs Climbing Center and Mountaineering School (Petra Cliffs). This site is the location for a new proposed Petra Cliffs facility.

The site consists of an approximately 1.68 acre parcel of land to be subdivided from a larger parcel known as the Former Structural Steel Property and is currently occupied by the recently developed Onion River Co-op City Market South End. A Phase I ESA, Phase II ESA and Corrective Action Plan¹ (CAP) have been completed for the property by Stone Environmental and the CAP has been implemented coinciding with the construction of the new City Market South End. The CAP addressed Recognized Environmental Conditions (RECs) that were identified in Stone’s Phase I ESA for the portion of the parcel occupied by City Market. The purpose of this Phase II ESA investigation is to supplement the data presented in Stone’s Phase II ESA and to support the development of a CAP for the redevelopment of the remaining 1.68 acres to be occupied by Petra Cliffs’ new facility.

RECs contained in the Stone Phase I ESA that are to be addressed and are applicable to the 75 Briggs Street Site include the following:

- **REC 2:** Past use of Building #6² (former extent and current footprint) for machining, fuel storage, and blast cleaning.
- **REC 3:** Evidence of releases and past industrial use of Building #8.
- **REC 7:** Past operation of the Site by Gulf Oil Refinery for petroleum bulk storage.
- **REC 8:** Past use of two historic USTs by Vermont Structural Steel Corporation.
- **REC 10:** Past and current use of the site for vehicle and equipment maintenance.
- **REC 12:** Proximity of the Site and past use of the Site for rail conveyance.
- **REC 13:** Potential for Vapor Intrusion in existing and future Site buildings.

Specifically, the goals of this Phase II ESA are to:

- Evaluate potential soil gas risk to on-site and off-site receptors;
- Further characterize surficial and shallow soils for impacts from volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs);
- Collect soil characterization data specifically for completing a soil waste profile and coordinating for the eventual disposal of soil at a solid waste facility; and,
- Further characterize potential groundwater impacts.

The scope of work for this Phase II ESA has been developed based on the results of Stone’s Phase I ESA, Phase II ESA, and CAP. Petra Cliffs intends to participate in the Vermont Brownfields Reuse and Environmental Liability Limitation Program (BRELLA) and will submit an application to the Vermont Department of Environmental Conservation (VTDEC) once negotiations for the property sale have progressed further.

¹ Stone Environmental, Inc., 2016, *Corrective Action Plan, Former Vermont Structural Steel Property*, SMS Number: 770109, 207 Flynn Avenue, Burlington, Vermont, May 20.

² Note: All buildings identified in Stone’s Phase I ESA have been demolished with the exception of building #7, a garage along the southern property line.

Petra Cliffs also recognizes the need for an updated Phase I ESA for the 75 Briggs Street parcel during the due diligence process.

Petra Cliffs also intends to apply for site assistance from the Chittenden County Regional Planning Commission (CCRPC) through a grant from the U.S. Environmental Protection Agency (EPA). It is possible that funds may be available to help pay for the Phase II ESA and development of a CAP. The scope of work presented in this work plan has been developed based on the requirements of the CCRPC's grant and in accordance with the requirements of KAS' current contract with CCRPC for brownfields consulting.

2.0 Scope of Work

The following work scope is advanced. The following tasks will be completed in the Phase II ESA:

- Work Plan, Site specific QAPP addendum to KAS' approved Generic QAPP (RFA12098), and submittal, notifications, approvals, project coordination, and health and safety plan preparation;
- Environmental Conditions Assessment: soil vapor;
- Environmental Conditions Assessment: soils;
- Environmental Conditions Assessment: surficial groundwater;
- Laboratory data verification; and,
- Preparation of a summary report

2.1 Work Plan, QAPP Addendum, Approvals, Coordination, HASP

KAS has prepared a site specific work plan addressing the known site assessment data requirements (this document). The work plan needs to be approved by Petra Cliffs, the VTDEC, the CCRPC, and the EPA if grant funds are made available. Grant funding will also require the development of a site specific Quality Assurance Project Plan (QAPP) addendum for review and approval by the CCRPC, EPA Region 1, and the VTDEC. This document is necessary to set forth the conditions associated with collection and testing of environmental samples. The site-specific QAPP addendum will compliment KAS' approved Generic QAPP (RFA12098) for Brownfields work in the State of Vermont. KAS will respond to comments and will obtain site-specific QAPP addendum approval prior to on site work.

Permits/ Notifications/Approvals

KAS will research permitting requirements to allow the work elements to take place and will acquire necessary permits. At the present time the following permits, notifications and approvals are known:

- QAPP approval from the VTDEC and the EPA; and,
- Dig-safe notification and utility clearance.

Prior to intrusive subsurface work, KAS will work to locate existing subsurface utilities so they can be avoided. KAS will contact DigSafe at least 48 hours in advance of subsurface work so that member utility markouts can be made. KAS will also

coordinate with the City of Burlington Department of Public Works (DPW) to locate service utility lines and other lines that may exist on the property and which may not be marked by Dig-Safe. Costs for a private utility locating service have not been included and if it becomes apparent that these are needed, will be brought to light as soon as possible. Should other permitting requirements come to light during the course of the work, KAS will promptly notify the involved parties (none are anticipated).

Local Planning and Zoning and state permits associated with the redevelopment of the property will be the primary responsibility of Petra Cliff's civil / site design engineer, Lamoureux & Dickinson. KAS will assist Lamoureux & Dickinson and any other members of the design team as needed regarding the environmental cleanup aspects that come up during the permitting process.

Project Coordination

For any aspects that are funded by the CCRPC, it is expected that KAS would contract directly with the CCRPC. KAS will maintain active communications with the involved parties including Petra Cliffs, the current property owner, City Market, CCRPC, EPA and VTDEC. Notice of onsite activities will be given ahead of time to allow for attendance by the involved parties if desired. KAS will conduct necessary coordination/management activities to initiate and maintain contractual agreements required to allow the work to continue. All project documents including the QAPP and the Brownfields Phase II ESA report will be submitted to its client, Petra Cliffs and/or CCRPC, for review before distribution.

Health and Safety Plan (HASP)

A site-specific HASP will be prepared and implemented to govern the safety aspects of the job in accordance with the Vermont Occupational Safety and Health Administration (VOSHA) requirements. KAS will appoint one of its 40 hour OSHA 1910.120 trained persons as the Site Safety Officer with a backup also designated. No activities will take place on the site without a Site Safety Officer present. A copy of the HASP will be kept on site and will be available to other parties at any time requested. All HASP requirements will be passed onto subcontractors.

2.2 Environmental Assessment –Soil Vapor

A sub-slab and shallow soil vapor investigation will be performed to update the data collected by Stone Environmental in 2015 and to evaluate potential vapor intrusion impacts to on-site and off-site buildings. Soil vapor measurement will be conducted in the following locations, with justification provided:

- Former location of Building #8. This soil vapor sample will be completed to measure whether soil vapor levels have changed since the removal of Building #8 and its foundation. If concrete within the building foundation was acting as a source of VOCs in soil vapor, levels are expected to have decreased. The sample location will be skewed toward the east half of where this building was located, as that is where the highest concentrations of VOCs, tetrachloroethene (PCE) in particular, were previously measured.
- Below existing Building #7. A soil vapor sample will be collected from under Building #7 to evaluate whether conditions have changed since the data was collected in 2015. One sample will be collected from SG-05, SG-06, or SG-08 locations as these had the highest detected concentrations of PCE in 2015.

- Near the southern property line, in line with the residential building at 97 Briggs Street. The purpose of this test location will be to determine soil vapor concentrations in the direction of a nearby residence and to evaluate soil vapor intrusion risk at off site locations.

KAS will install a CoxColvin Vapor Pin™ device in the slab in Building #7, unless an adequate sampling device remains from the work that Stone completed in 2015. Other sample locations will consist of a vapor point consisting of 0.25" diameter rigid stainless steel tube installed at about three feet below surface grade (bsg). Leak tests will be performed on the devices to ensure an adequate seal is maintained.

Soil Vapor Sampling

Following installation, a discrete soil vapor sample will be collected from the each of the three soil vapor points at least 24 hours after the devices are installed. The devices will first be purged of three to five volumes of air with a calibrated low-flow pump. A maximum 4-hour sampling will then be conducted using a dedicated 6-liter Summa vacuum canister and flow regulator. The soil vapor air samples will be collected for laboratory analysis of VOCs in air via EPA Method TO-15. One outdoor air sample will be collected in an upwind location of the sampling area. Lastly, an air quality sample will be collected from the probe with a photoionization detector (PID).

Sampling information will be recorded on a sampling data sheet in accordance with KAS' Soil Vapor Sampling Procedure. Quality Assurance/Quality Control measures will be taken to ensure that the sample collected from each soil vapor probe is representative of the soil vapor and not the atmosphere above it. Helium will be used as a tracer gas to verify the quality and integrity of each soil vapor probe's seal to the ambient air. A helium detector will be used on-site to verify the integrity of the seal.

The samples will be transported under chain of custody procedures to EMSL Laboratories, Inc. of Cinnaminson, NJ for analysis.

2.3 Environmental Assessment –Soils

KAS will conduct an environmental assessment of subsurface soils beneath the property to supplement and update data available through the investigations completed by Stone Environmental in 2015 and to collect waste characterization analytical data for the eventual disposal of soil from the site at an authorized waste disposal facility. A Geoprobe drill rig will be used to collect soil samples throughout the property for field and laboratory testing. The soil borings will be completed in the approximate locations indicated on the Site Plan / Sampling Plan in Appendix A. They are expected to be advanced to depths of 10 to 15 bsg, and will be adjusted depending on where groundwater or bedrock is encountered in a boring. Soil borings will be logged in detail in the field and VOC concentrations will be measured with a PID at varying depths of each boring.

A discrete soil sample will be collected from each boring at the depth that is observed to likely be the most impacted by environmental contamination. This determination will be made by PID screening results and visual and olfactory observation. If elevated impacts are not noted then the sample will be obtained from the 0 – 18 inch bsg zone. The exact sample interval will be dependent on the noted thickness of the overlying surface material (asphalt, gravel, and/or sod). If a noticeable distinction between a fill and native layer is identified, distinct layers will be chosen for the sampling and analysis. Drill cuttings will be placed back in the boring upon completion of sampling.



Six discrete soil samples and one duplicate sample will be collected for laboratory analysis of the following constituents, at a minimum:

- VOCs via EPA Method 8260b;
- Polycyclic aromatic hydrocarbons (PAHs) via EPA Method 8270d;
- Total Petroleum Hydrocarbons (TPH) via EPA Method 8100; and,
- RCRA 8 metals via EPA Method 6010/6020.

Prior to collecting the soil samples, KAS will coordinate with Casella Waste Systems, Inc., the most probable receiver of soil waste generated during the construction project, on the sampling plan and determine what other parameters must be tested for to meet their requirements for receiving the waste. For the purposes of this work plan, it is expected that soil samples will additionally be analyzed for the following:

- Semi Volatile Organic Compounds (SVOCs) via EPA Method 8270 ABN (this would replace method 8270d in the above list);
- PCBs via EPA Method 8081A;
- Pesticides via EPA Method 8082;
- Herbicides via EPA Method 8151;
- Specific Conductance;
- pH;
- Reactive Cyanide;
- Reactive Sulfide; and,
- Ignitability.

The samples will be transported under chain of custody procedures to Eastern Analytical Laboratories of Concord, New Hampshire (EAL) for analysis.

2.4 Environmental Assessment –Surficial Groundwater

Some of the soil boring locations will be completed as groundwater monitoring wells to further evaluate groundwater quality at the site and to confirm that off-site groundwater impacts are not a concern relative to this site. Three locations are identified on the Site Map / Sampling Plan as “SB/GW” that are expected to be completed as monitoring wells, if groundwater is encountered in these borings. If Stone’s GW-9 monitoring well is found and is in adequate condition, it will be used as a groundwater monitoring point in lieu of constructing a new one.

Each monitoring well will be constructed of 1” PVC plastic with a 0.010” factory slotted screen. The screen will be placed to span the water table. A coarse sand pack will be placed around the screen, and a bentonite seal will be placed above the sand pack. Each monitoring well will be flush-finished with a compression fitting and steel road box.

All groundwater monitoring wells will be developed using a peristaltic pump after their installation; however, no groundwater samples will be collected at that time. The pumped water will be disposed of on the ground unless free product is measured in the well(s). The locations and top of casing elevations of the new monitoring wells, if installed, will be surveyed to a relative datum at the time the wells are drilled.

Water quality sampling will take place at least one week following well installation. Prior to groundwater sample collection, depth to water and depth to product (if present) will be measured in monitoring wells from the top of casing reference point.

These data will be used to calculate the water level elevations and to determine the shallow groundwater flow direction and horizontal gradient beneath the site.

The monitoring wells will be sampled utilizing KAS protocol #12 for low flow sampling with submersible pumps and disposable tubing. Purge water will be disposed of on site. All samples will be analyzed by the following methods:

- Volatile Organic Compounds (VOCs) via EPA Method 8260b; and,
- Priority Pollutant metals via EPA Method 6020/6020.

A duplicate sample will be collected for all test parameters and a trip blank will be collected and analyzed for VOCs. Samples will be submitted to Eastern Analytical, Inc. (EAI) for analysis.

2.5 Laboratory Data Validation / Verification

Following receipt of laboratory analytical data and laboratory quality assurance information, KAS' quality assurance officer (QAO) will perform data verification /validation as described in the QAPP. The verification will evaluate the usability of the data generated during the investigation including soil laboratory analytical data, and will determine whether data quality objectives (DQO) are met. Parameters to be evaluated will be described in the QAPP. The QAO will prepare a data verification report that notes whether DQOs are met, and will render an opinion as to whether the data generated during the investigation are usable for the intended purposes.

This task is only required if EPA grant funds are utilized.

2.6 Report Preparation and Submission

A Brownfields Supplemental Phase II ESA report will be prepared for review and approval. The report will be prepared and reviewed by environmental professionals.

A description of the methodologies and results will be included as will a list of deviations from the approved QAPP document, if any occur. Comparison with past environmental data (Stone) and applicable quality standards will be made. The Brownfields assessment report will contain: a site map, sampling locations; updated conceptual site model, including vapor intrusion risk assessment; laboratory analytical data and data validation report; recommendations for the CAP, conclusions; and other recommendations, as applicable.

3.0 Staffing / Organization

The project will be managed and overseen by KAS. Clare Santos, PE of KAS will be the designated project manager and point of contact. Her efforts will be overseen by Jeremy Roberts, PG. Mr. Erik Sandblom, P.E. will provide additional oversight to maintain consistency with anticipated CAP objectives and the re-development efforts. Mr. Roberts, Ms. Santos, and Mr. Sandblom are all environmental professionals as defined by ASTM and EPA. Toni Baitz will serve as the Quality Assurance Officer.

KAS will conduct all required coordination, notification, preparation of the site specific QAPP addendum, pre-marking, environmental assessment and sampling, documentation of all work, data validation/verification, and report preparation.

KAS' subcontractors will include: T&K Drilling of Troy, New Hampshire (drilling efforts), Eastern Analytical Inc. and EMSL Laboratories (laboratory testing).

4.0 Implementation Schedule

The schedule in Appendix B provides an estimate of KAS' implementation time requirements. The Phase II ESA will take approximately 8 weeks once authorized. QAPP approvals may take up to 30 days depending on EPA's work load. If EPA grant funds are not utilized, and a QAPP with data validation is not required, then the Phase II ESA timeline will be closer to 5 weeks. KAS will work closely with all parties to make sure the work is completed in as short a time frame as possible.

5.0 MBE/WBE Fair Share Information

Approximately 52% of the work will be performed by KAS which is a certified WBE (Vermont Agency of Transportation) and a registered WBE (Vermont Department of Environmental Conservation). The balance of the work will be conducted by EAI, EMSL and T&K Drilling. None of these companies are, to KAS' knowledge, are MBE/WBE certified.

6.0 References

State of Vermont Agency of Natural Resources Department of Environmental Conservation Waste Management and Prevention Division, July 27, 2017, *Investigation and Remediation of Contaminated Properties Rule*.

ASTM International, July 2011, *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, Standard Practice E 1903-11.

Stone Environmental, May 20, 2016, *Corrective Action Plan, Former Vermont Structural Steel Property SMS Number: 770109, 207 Flynn Avenue, Burlington, Vermont*.

Stone Environmental, October 13, 2015, *Phase I Environmental Site Assessment, Draft Report, Former Vermont Structural Steel Property, Flynn Avenue/Briggs Street, Burlington, Vermont*.

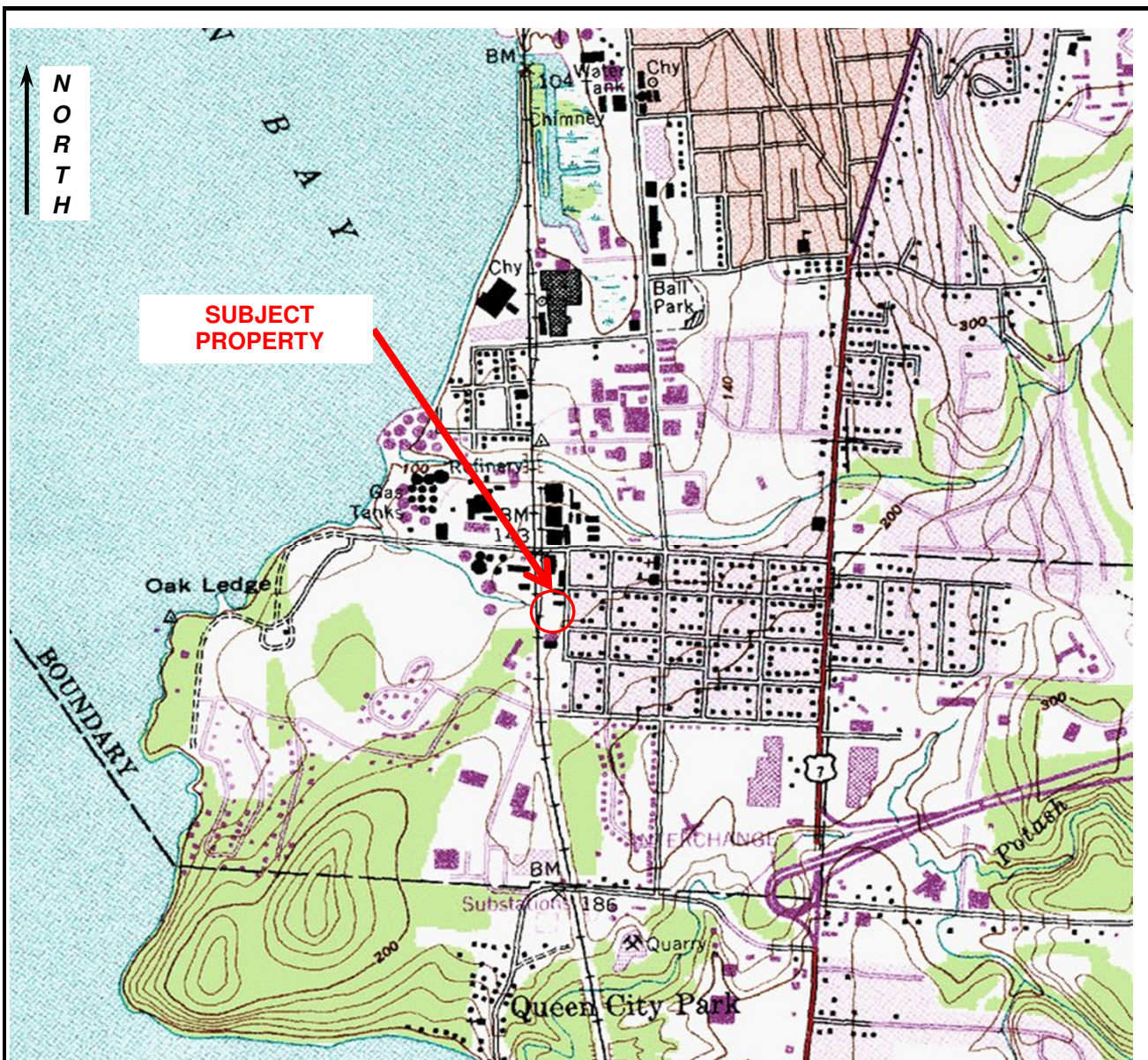


Appendix A

Site Maps

Site Location Map

Site Plan



KAS Job Number: 510170465

Source: Topoquest



Proposed Petra Cliffs
75 Briggs Street, Burlington, VT

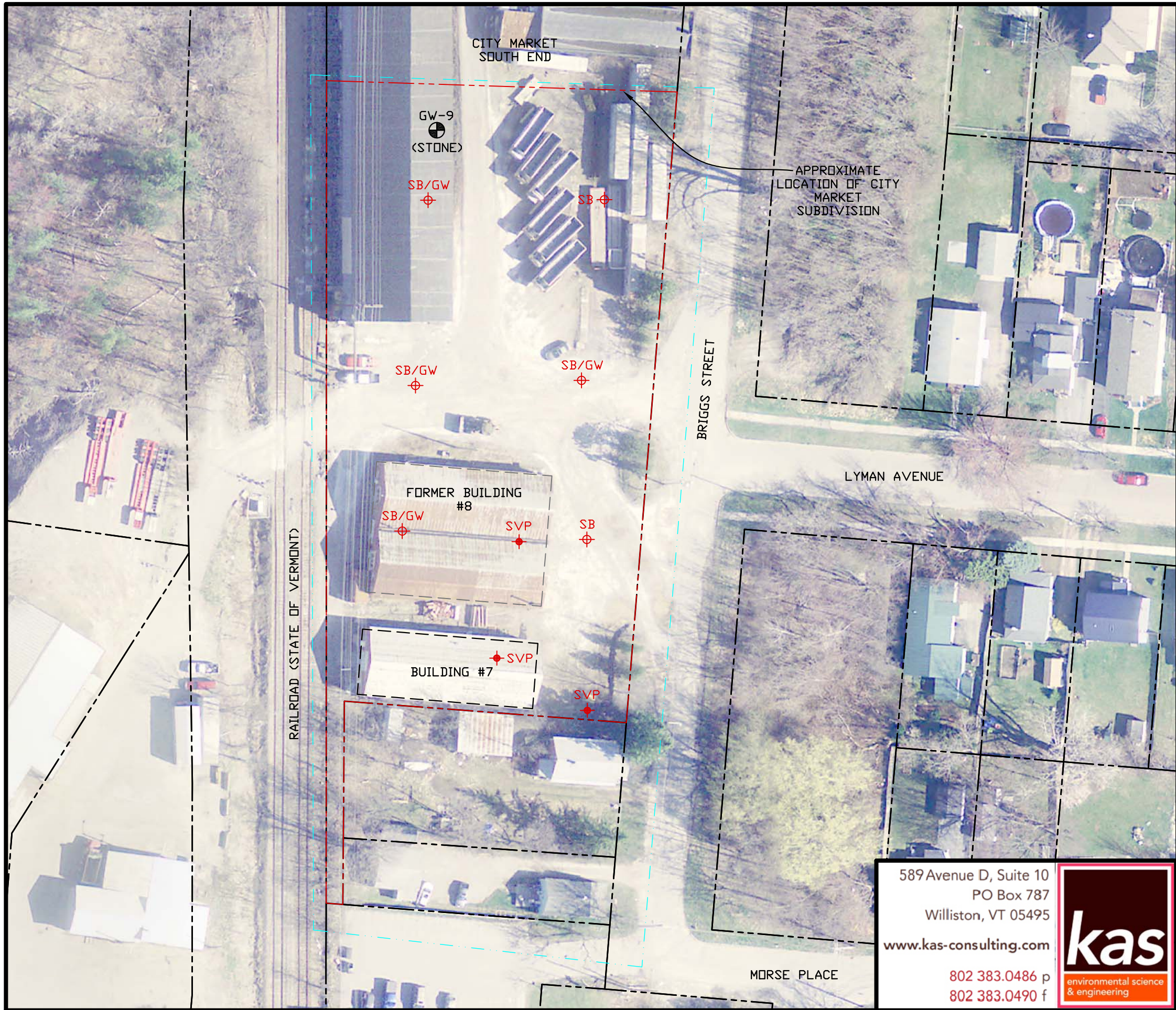
Site Location Map

Date: 01/24/18

Drawing No. 0

Scale: 1:24,000

By: ES



LEGEND

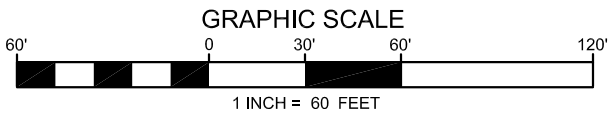
GW-9
(STONE) MONITORING WELL INSTALLED BY STONE ENVIRONMENTAL

--- PROPERTY LINE

--- PROJECT AREA (APPROXIMATE)

SB/MW SOIL BORING/GROUNDWATER SAMPLE LOCATION

SVP SOIL VAPOR SAMPLING LOCATION



NOTES:

1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY (2013) AND PARCEL MAP, AND STONE ENVIRONMENTAL "FIGURE 8: VOC EXCEEDANCES IN SOIL AND GROUNDWATER" FOR FORMER VT STRUCTURAL STEEL PROPERTY DATED 5/4/2016.

2. ALL UTILITIES, MONITORING WELLS, AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.

KAS #510170465
VTDEC #2017-4731

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Williston, VT 05495
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802.383.0486 p
802.383.0490 f



PROPOSED PETRA CLIFFS CLIMBING CENTER
75 BRIGGS STREET
BURLINGTON, VERMONT

SITE PLAN / SAMPLING PLAN

DATE: 1/24/18	DWG. #: 1	SCALE: 1"=60'	DRN: TB	APP: ES
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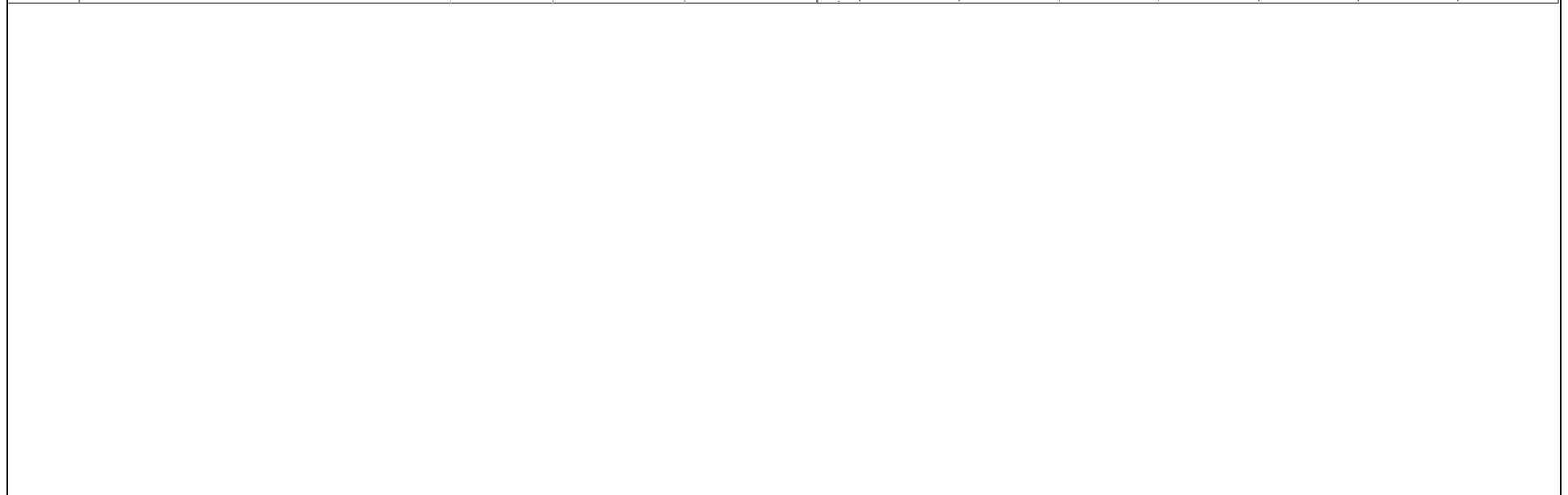




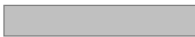





Appendix B

Implementation Schedule

Project Schedule: Supplemental Phase II ESA, 75 Briggs Street, Burlington, Vermont

ID	Task Name	Duration	Start	Finish	'18							Jan 28, '18							Feb 11, '18							Feb 25, '18							Mar 11, '18							Mar 25, '18							Apr 8, '18							Apr 22, '18																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Project: Current Schedule Date: Thu 1/25/18	Task		Milestone		External Tasks	
	Split		Summary		External MileTask	
	Progress		Project Summary		Split	