

---

# Citizen's Bank 47 Merchants Row Rutland, Vermont

Site Coordinates: 43° 36' 50" North Latitude and 72° 58' 98" West Longitude  
Site Elevation: 560 AMSL  
SMS Site #2012-4346  
KAS Job #412120479

---

## INITIAL SITE INVESTIGATION REPORT

August 6, 2013

---

*Prepared for:*

MKF Properties, LLC  
P.O. Box 99  
Rutland, Vermont 05702



368 Avenue D, Suite 15  
PO Box 787  
Williston, VT 05495

[www.kas-consulting.com](http://www.kas-consulting.com)

802 383.0486 p  
802 383.0490 f



## Table of Contents

|            |   |          |
|------------|---|----------|
| <b>1.0</b> | <b>Introduction</b>   | <b>1</b> |
| <b>2.0</b> | <b>Scope of Work</b>  | <b>1</b> |
| <b>3.0</b> | <b>Site Description</b>   | <b>1</b> |
| 3.1        | Site and Vicinity   | 1        |
| 3.2        | Site and Area Features, Topography, Surface Water Bodies and Drainage | 1        |
| 3.3        | Abutters and Nearby Properties  | 1        |
| 3.4        | Utilities   | 1        |
| 3.5        | Previous Hazardous Materials Releases and Site History                | 1        |
| <b>4.0</b> | <b>Subsurface Explorations and Laboratory Analyses</b>                | <b>2</b> |
| 4.1        | Pre-Drilling Activities   | 2        |
| 4.2        | Monitoring Well Installation and Field Screening of Subsurface Soils  | 2        |
| 4.3        | Soil Sampling and Laboratory Analysis                                 | 3        |
| 4.4        | Groundwater Flow Direction and Gradient                               | 3        |
| 4.5        | Groundwater Sampling and Laboratory Analysis                          | 4        |
| <b>5.0</b> | <b>Site Hydrogeology</b>  | <b>4</b> |
| 5.1        | Contaminant Distribution  | 4        |
| 5.1.1      | Soil  | 4        |
| 5.1.2      | Groundwater   | 5        |
| <b>6.0</b> | <b>Conceptual Site Model</b>  | <b>5</b> |
| 6.1        | Site Conditions   | 5        |
| 6.2        | Geology   | 5        |
| 6.3        | Hydrogeology  | 5        |
| 6.4        | Apparent Source of Contamination                                      | 5        |
| 6.5        | Contaminant Transport   | 5        |
| 6.6        | Sensitive Receptor Risk Assessment                                    | 6        |
| 6.6.1      | Buildings in the Vicinity   | 6        |
| 6.6.2      | Utility Corridors   | 6        |
| 6.6.3      | Surface Water Bodies  | 7        |
| 6.6.4      | Public Water Supplies   | 7        |
| 6.7        | Impacted Third Parties  | 7        |
| <b>7.0</b> | <b>Conclusions</b>  | <b>7</b> |
| <b>8.0</b> | <b>Recommendations</b>  | <b>8</b> |
| <b>9.0</b> | <b>References</b>   | <b>8</b> |

## Appendices

|            |   |
|------------|---|
| Appendix A | Maps  |
| Appendix B | Soil Boring Logs and Well Construction Diagrams |
| Appendix C | Liquid Level Monitoring Data                    |
| Appendix D | Groundwater Quality Summary Data                |
| Appendix E | Soil Quality Summary Data                       |
| Appendix F | Analytical Laboratory Reports                   |
| Appendix G | Site Photographs                                |

---

## 1.0 Introduction

This report provides a summary of the methodology, results, conclusions, and recommendations completed as part of the Initial Site Investigation at the Citizen's Bank property located at 47 Merchants Row in Rutland, Vermont (see Site Location Map, Appendix A). This work was performed in accordance with the *Work Plan and Cost Estimate for an Initial Site Investigation* at the Citizen's Bank dated January 15, 2013 prepared by KAS, Inc. (KAS). The work plan was approved by Mr. Alex Geller of the Vermont Department of Environmental Conservation (VTDEC) in an electronic mail message dated January 22, 2013.

---

## 2.0 Scope of Work

This Initial Site Investigation was conducted to assess the degree and extent of petroleum impact to soil and groundwater in the vicinity of the former 1,000-gallon #2 fuel oil underground storage tank (UST) located on the Site property. Contamination was encountered in soils beneath the Site during the removal of the UST on December 19, 2012. Results of the following investigative tasks performed by KAS are presented: soil boring advancement and monitoring well installation; soil screening; groundwater sampling and analysis; and evaluation of sensitive receptors in the vicinity of the Site.

---

## 3.0 Site Description

### 3.1 Site and Vicinity

The Site is located on the west side of Merchants Row in Rutland, Vermont (Site Location Map, Appendix A). As of the date of this report, the Site was used by Citizen's Bank to house an office building and banking location. The Site is occupied by two buildings; one is located on the northern side of the property (bank) and the other is located on the southern end of the property (office). The bank building is located approximately 5-10 feet from the former UST location. A paved parking lot occupies the remainder of the Site between the two buildings.

The Site Map (Appendix A) shows the Site and relevant Site features.

### 3.2 Site and Area Features, Topography, Surface Water Bodies and Drainage

Based on a review of the topographic map and aerial photograph included in Appendix A, the Site lies at an approximate elevation of 560 feet above mean sea level (AMSL). The coordinates of the property at the site entrance are approximately 43° 36' 50" North Latitude and 72° 58' 98" West Longitude. Topography on the Site property is generally flat throughout with a slight slope to the south. East Creek is the closest surface water to the Site which is a tributary to the Otter Creek, located approximately ½ mile west of the Site. Based on Site topography, the surface drainage from the Site is anticipated to flow to the south and east towards Merchants Row. No drainage swales in the immediate vicinity of the Site were noted. Two storm water drainage catch basins and one combined storm water/sewer manhole are located on the Site property.

### 3.3 Abutters and Nearby Properties

The land use in the surrounding consists of commercial properties. The nearest neighboring building is located approximately 60-70 feet west of the former UST location. The northern and western portions of the property are abutted by a commercial building and parking lot, the southern portion of the property is abutted by West Street, and the eastern edge of the property is abutted by a Merchants Row.

### 3.4 Utilities

Public utilities in the area include telephone, electricity, water, and sewer. Electric and telephone lines are located overhead. Water and sewer are obtained from the City of Rutland and are located underground.

### 3.5 Previous Hazardous Materials Releases and Site History

Contamination was encountered in soils beneath the Site during the removal of one 1,000-gallon #2 fuel oil UST on December 19, 2012. The UST was noted to be in poor

condition upon removal. Soils in the vicinity of the UST were reported to have concentrations of up to 2,200 ppm in the saturated zone when subjected to headspace soils testing using a properly-calibrated photoionization detector (PID). A total of approximately 14 cubic yards of soil was removed from the tank pit and stockpiled on site. The limits of the contamination were not fully defined during the inspection and appeared to extend outside the tank pit<sup>1</sup>. All contaminated soils were placed on and covered with plastic poly sheeting. The former UST location is shown on the Site Map in Appendix A.

On January 11, 2013, KAS supervised the removal of the stockpiled contaminated soils. A total of 12.24 tons were removed. Soils were loaded by Fabian Earth Moving, Inc. of West Rutland, VT and transported by Casella Waste Services of Coventry, VT to be used as alternate daily cover<sup>2</sup>.

Fuel oil is composed of long hydrocarbon chains, particularly alkanes, cycloalkanes, and aromatics. In addition, they may contain small amounts of nitrogen, sulfur, and other elements as additives. The aromatic compounds make up about 35% of fuel oil, such as, benzene, toluene, and xylenes. The main contaminants of concern from the suspected petroleum release at the Site are benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene. The compound MTBE is also of concern since it has been commonly found to be present at sites with a fuel oil release likely due to the compound being mixed with fuel oil during the distribution processes<sup>3</sup>. No other releases of hazardous materials are known to have occurred on the Site and thus no other contaminants of concern are noted. A material safety data sheet (MSDS) for fuel oil is available on line at [www.msds.com/](http://www.msds.com/).

---

<sup>1</sup> UST Closure Assessment Report, KAS, Inc., December 2012.

<sup>2</sup> Contaminated Soil Loading and Disposal Report, KAS, Inc., January 25, 2013.

<sup>3</sup> Evidence of Contamination of Heating Oil and Diesel Fuel with MTBE, Gary A. Robbins and Brent J. Henebry

---

## 4.0 Subsurface Explorations and Laboratory Analyses

### 4.1 Pre-Drilling Activities

Prior to the initiation of subsurface activities at the Site, a Health and Safety Plan (HASP) was prepared for the Site in accordance with Occupational Safety and Health Administration (OSHA) requirements.

The Site property was premarked on May 8, 2013. DigSafe Number 20132307079 was obtained prior to the drilling activities. The City of Rutland was also contacted for clearance of drilling locations related to any underground utilities that may be in the area. All utilities that were marked out are indicated on the Site Map included in Appendix A.

### 4.2 Monitoring Well Installation and Field Screening of Subsurface Soils

Five soil borings, which were completed as monitoring wells RW13-01 through MW13-05, were advanced at the Site on June 10, 2013 by T&K Drilling of Troy, New Hampshire under the direct supervision of a KAS engineer. The soil borings were advanced using a hollow stem auger drill rig. The monitoring well and soil boring locations are indicated on the Site Map (Appendix A).

Soil samples were collected from the borings at approximate 2 – 5 foot intervals. The soil samples were logged by the supervising engineer and screened for the presence of VOCs using a MiniRae Lite model PID. Prior to screening, the PID was calibrated with isobutylene referenced to benzene. Soils were screened using the KAS Jar/Polyethylene Bag Headspace Screening Protocol. Soil characteristics and contaminant concentrations were recorded by the KAS scientist in detailed soil boring logs and monitoring well construction diagrams presented in Appendix B.

Each new well was constructed of 2" PVC plastic with a 0.010" factory slotted screen except for the well in the source area (RW13-01) which was constructed of 4" PVC to recover free product, if present. The screen was placed to span the water table. A coarse sand pack

was placed around the screen, and a bentoniteseal was placed above the sand pack. Each monitoring well was flush-finished with a compression fitting and a steel road box.

### **Subsurface Sediments**

Subsurface sediments encountered in the five soil borings consisted mostly of well graded sand overlying silt. Groundwater was observed at approximately 5 - 7 feet below surface grade (bsg) on the day of drilling. Bedrock refusal was not encountered in any of the borings to a maximum depth of 21 feet bsg. The monitoring wells were installed at a depth of 13-15 feet bsg. PID readings above background were observed in soil samples collected from all five of the borings at various depths. The PID readings above background ranged from 0.2 to 480 parts per million volume (ppmv). A fuel oil petroleum odor was noted in at least one of the soil samples collected at three of the locations (RW13-01, MW13-04 and MW13-05).

At two of the drilling locations outside the source area (SB13-03 and SB13-04) the soils were evaluated to determine if a clay confining layer is present beneath the Site and, if so, to evaluate the soils beneath the confining layer. These two borings were advanced to approximately 20 – 21 feet bsg and the soils consisted of well graded sand overlying silt. The silt layer started at approximately 4 – 10 feet bsg. The subsurface sediments did not change significantly in these two borings to depth. The findings indicated a clay confining layer was not present and after a discussion with Mr. Alex Geller on June 10, 2013 it was decided to not drill deeper at these locations.

Contaminated soil cuttings that were not used as backfill during the installation of monitoring wells MW11-1 through MW11-5 were placed into one 55-gallon drum for disposal. On June 20, 2013 the drum was picked up and properly disposed of by ENPRO of Burlington, Vermont.

### **4.3 Soil Sampling and Laboratory Analysis**

To further define the extent of subsurface petroleum contamination at the Site, a grab soil sample was collected from the soil borings where soil vapors exceeded 10 ppmv, as measured by the PID. The samples were submitted for laboratory analysis of volatile

organic compounds (VOCs) via EPA Method 8021B. A copy of the laboratory report is included in Appendix F.

A total of two soil samples were collected for laboratory analysis from the soil borings advanced on June 10, 2013. One sample was collected from soil boring RW13-01 at the 15-17 foot interval and one sample was collected from soil boring MW13-04 at the 5-7 foot interval. Select VOCs were detected above the laboratory reporting limits in the soil samples collected from soil boring MW13-04. None of the tested compounds were reported above the laboratory detection limits in the sample collected from RW13-01. The detection limits were all below regulatory standards. A summary table is included in Appendix E.

### **4.4 Groundwater Flow Direction and Gradient**

Depth to groundwater measurements were collected from all five monitoring wells (RW13-01 through MW13-05) on June 17, 2013. The well locations are shown on the Site Map in Appendix A.

The depth to water was subtracted from the top-of-casing elevation to obtain the relative water table elevation. Light non-aqueous phase liquid (LNAPL) was not measured or observed in the five monitoring wells. Depth to groundwater ranged from 5.28 feet bsg in MW13-04 to 9.05 feet bsg in MW13-03. A summary of the measured depths to water and calculated groundwater elevations is provided in Appendix C.

Water table elevations were plotted and contoured to illustrate the estimated gradient and direction of groundwater flow beneath the Site (see the Groundwater Contour Map, Appendix A). According to these data, groundwater is flowing to the west/southwest at an average hydraulic gradient ranging from 6.0 – 13.6%. Based on this groundwater flow regime, monitoring well MW13-04 is located crossgradient, monitoring wells MW13-02 and MW13-03 are located downgradient of the former UST, monitoring well RW13-01 is located in close proximity to the former UST pit, and monitoring well MW13-05 is located upgradient to the former UST.

## 4.5 Groundwater Sampling and Laboratory Analysis

A groundwater sampling event from the newly installed wells was conducted on June 17, 2013. A subsequent visit was conducted on June 20, 2013 to collect a sample from the basement sump of the Citizens Bank office building.

During the June 17, 2013 sampling event, groundwater samples were collected using disposable bailers. For Quality Assurance/Quality Control (QA/QC) purposes, one trip blank and one duplicate sample were submitted along with the groundwater samples collected during the sampling event. A sample could not be collected from the nearest catch basins (CB-1 and CB-2) or utility manhole on June 17 or June 20, 2013 due to the absence of water at these locations.

The groundwater samples collected on June 17, 2013 were submitted to Endyne for laboratory analysis of volatile organic compounds (VOCs) by EPA Method 8021B and total petroleum hydrocarbons (TPH) via EPA Method 8015-DRO. The sample collected on June 20, 2013 was submitted for analysis of VOCs via EPA Method 8021B.

The groundwater analytical results for the sampling events were compared to the Vermont Groundwater Enforcement Standards (VGES). Tabulated groundwater results can be found in Appendix D. A copy of the laboratory report is included in Appendix F.

None of the tested compounds via EPA Method 8021B were reported to be above the VGES in the groundwater samples collected from the five monitoring wells and basement sump. One of the tested compounds (MTBE) was reported above the laboratory reporting limits but below the VGES in the groundwater sample collected from MW13-03 and the basement sump. Two of the tested compounds were reported above the laboratory reporting limits but below the VGES in the sample collected from RW13-01. The total reported VOC concentrations ranged from 5.3 to 32.8 ug/L (ppb). TPH was reported in the samples collected from RW13-01, MW13-03, MW13-04 and MW13-05 at a low concentration ranging from 0.55 to 2.29 mg/L (ppm).

The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. The RPD is defined as 100 times the difference in reported concentration between sample and duplicate, divided by the mean of the two samples. A small RPD indicates good correlation between sample and duplicate. For the initial sampling event, the duplicate sample was collected from monitoring well RW13-01. An RPD ranging from 6.1 to 8.0% was calculated for the sample and duplicate indicating good precision. A tabular presentation of duplicate sample data and RPD results is included in Appendix D. Lack of spurious influence on sample results was demonstrated by none of the tested VOCs reported above detection limits in the trip blank.

---

## 5.0 Site Hydrogeology

### 5.1 Contaminant Distribution

#### 5.1.1 Soil

Based on a review of field screening data collected at the Site, it appears low to moderate levels of petroleum impacts to soils (adsorbed contamination) are present in the immediate vicinity and down gradient of the former UST tank pit at depths ranging from 5 to 17 feet bsg (soil borings SB13-01 and SB13-04). The highest PID readings in soils were recorded within the saturated zone. Sampling was difficult within the former UST pit due to the gravelly fill that was installed following the removal of the UST. Overall, no elevated PID readings or petroleum odors were noted with the vadose zone soils during the drilling activities.

A fuel oil odor was noted in various soil samples collected from three of the soil borings. PID readings decreased significantly within the silt layer as compared to the sand layers suggesting the silty soil is restricting the vertical movement of contamination within the saturated zone. The sand layers observed beneath the Site are likely where the majority of fuel oil contamination is travelling across the Site.

### 5.1.2 Groundwater

Groundwater analytical data collected at the Site indicate that dissolved petroleum constituents (VOCs) are present at concentrations below enforcement standards in groundwater in the vicinity of monitoring wells RW13-01, MW13-03 and the Citizen's Bank office building sump. A low concentration of TPH was also reported in the samples collected from all of the wells except MW13-02.

The highest levels of VOCs were noted in groundwater collected from MW13-03 which is located approximately 20 - 30 feet from the former UST. Lower levels were reported in groundwater collected from monitoring well RW13-01 and the basement sump. Based on the Contaminant Concentration Map included in Appendix A, the full extent of the dissolved phase contaminant plume has not been fully defined and appears to be primarily travelling towards the south/southwest. The contaminant plume has been adequately defined towards the east and west due to the absence of VOCs reported in monitoring wells MW13-02 and MW13-05.

---

## 6.0 Conceptual Site Model

### 6.1 Site Conditions

The Site in the immediate vicinity of the former UST is covered by paved parking and two buildings. Two structures reside on the property. The smaller building abuts the former UST pit to the north and consists of one story with no basement. This structure is used as a Citizen's Bank branch. The larger building is located approximately 80 feet to the south of the former UST and contains a basement. This building is used as office space by Citizen's Bank. This building contains a sump which is further discussed in Section 6.6. The topography of the site is generally flat with a slight slope towards the south. The area between the two buildings consists of a paved parking lot. The nearest off site building is located approximately 60 - 70 feet to the west. This building is used for commercial purposes.

### 6.2 Geology

Surficial deposits in the vicinity of the site are indicated to be either glacial till or pebbly marine sands according to the Surficial

Geological Map of the State of Vermont<sup>4</sup>. Bedrock is indicated as being Cambrian aged sedimentary rocks, either Dunham Dolomite or Cheshire Quartzite according to the Centennial Geological Map of the State of Vermont<sup>5</sup>.

Surficial soils encountered during the Site Investigation activities consisted primarily of well graded sand overlying silt with varying amounts of gravel. Native soils were observed to be moderately dense in nature. Based on a review of field screening data collected at the Site, saturated soils beneath the Site have a low to moderate permeability consisting of silt. The majority of saturated soils beneath the Site are located within a silt layer; however, it appears the top of the water table (as of June 2013) is located primarily within a well graded sand layer.

Bedrock was not observed at the Site to a depth of 21 feet bsg. Drilling refusal did not occur on June 10, 2013 during advancement of the five soil borings.

### 6.3 Hydrogeology

Depth to groundwater beneath the Site was observed to change slightly from west to east and east to west at a depth ranging from 5.28 to 9.02 feet bsg. Groundwater was documented to flow to the west/southwest under a hydraulic gradient ranging from approximately 6.0 – 13.6%.

### 6.4 Apparent Source of Contamination

Petroleum contamination was first detected at the Site in December 2012 during the removal of one #2 fuel oil UST. Subsurface petroleum contamination that is present beneath the Site has been attributed to a release from the former UST. The exact quantity of fuel released into the environment is not known at this time.

No other sources of contamination were positively identified during the initial site investigation.

### 6.5 Contaminant Transport

Based on the groundwater analytical data collected during the initial subsurface investigation conducted at the Site, it appears petroleum contamination is predominantly migrating in a general

---

<sup>4</sup> Surficial Geologic Map of Vermont

<sup>5</sup> Centennial Geologic Map of Vermont

west/southwesterly direction. Additional monitoring is needed to determine a trend in the groundwater flow direction.

The horizontal migration of petroleum contamination towards the west /southwest is believed to be primarily associated with a fine to coarse sand layer beneath the Site. This layer was encountered at saturated depths in three of the soil borings. PID readings decreased significantly within the silt layers observed immediately below the sand layers suggesting the silty soil is restricting the vertical movement of contamination within the saturated zone.

The migration of petroleum contamination towards the west/southwest is expected to continue due to the elevated concentrations of VOCs remaining in subsurface soil; specifically, within the source area. This migration of petroleum contamination appears to extend towards the nearby utility corridors and monitoring well MW13-03. Although not fully identified it is likely there are areas on-site where heavier pockets of contamination are present. The full extent of the contaminant plume was not defined during the initial site investigation.

## 6.6 Sensitive Receptor Risk Assessment

### 6.6.1 Buildings in the Vicinity

Significant petroleum impact to shallow soils (< 5 feet bsg) on site has not been observed. The on-site structure nearest the source area is slab on grade construction. Although the structure is located in close proximity to the removed UST its slab on grade construction lowers the potential risk for vapor intrusion. The Citizen's Bank office building located to the south of the source area contains a basement. It was reported to KAS on June 10, 2013 during the drilling event by the Citizen's Bank branch manager that petroleum odors have been noted within the office building basement following heavy precipitation. The basement was screened for VOCs using a PID on June 10 and June 20, 2013 and no readings above 0.0 ppmv were recorded. No odors were noted during the building inspections. An opening at the base in the northern basement wall was noted during the inspection. A small amount of water was noted to be draining out of this opening. No sheen or odor was noted on the water (see Photograph, Appendix G).

A sump was noted in the basement along the northern wall. A sample was collected from this location on June 20, 2013 and a concentration of MTBE was reported at 5.3 ug/L. The presence of MTBE in this sample along with the presence of MTBE in the vicinity of the source area suggests the contaminant plume has migrated towards the office building.

Additional data and monitoring is needed to fully quantify the immediate and future risk to the building from the migration of petroleum contamination.

The closest off site building is located approximately 60 - 70 feet west of the Site. This building does contain a basement; however, this building appears to be at an adequate distance and location away from the source area. There are other buildings located in the vicinity of the Site to the north, west, south, and east. However, all buildings are located at least 100 feet away and are not believed to be at risk to vapor intrusion at this time.

### 6.6.2 Utility Corridors

The closest buried utilities are municipal storm water and sewer lines located to the south and west in a downgradient location of the UST pit (see Site Map, Appendix A). No other utility corridors were identified in close proximity of the Site. The depth of groundwater in the vicinity of these utilities appears to be at or slightly below the depth of the buried lines.

The nearest catch basins (CB-1 and CB-2) were screened for VOCs using a PID on June 10, 2013 and a reading of 68 ppmv was noted at CB-2 along with a petroleum odor. No reading or odor was noted at CB-1. Petroleum odors and elevated PID readings were noted at the nearest utility manholes during the December 2012 UST removal. A petroleum sheen was previously noted in the combined storm water/sewer manhole located near MW13-02. This location was dry during the initial site investigation activities. At this time the most likely source of petroleum contamination in these utilities appears to be from the former fuel oil UST. The petroleum contamination has likely migrated along the utility corridors and entered the subsurface lines via cracks or breaks in the pipe.



### 6.6.3 Surface Water Bodies

The nearest surface water is East Creek, located approximately ½ mile west of the UST pit. There does not appear to be risk to the Creek given the distance between the Site and the surface water. No wetlands or other surface water has been observed in close proximity of the Site.

### 6.6.4 Public Water Supplies

The Site and surrounding properties are serviced by the public water system. No supply wells were observed in the immediate vicinity of the site. Information available online via the Vermont Department of Environmental Conservation, Water Supply Division (viewed online at [http://maps.vermont.gov/?site=ANR\\_wswelldriller](http://maps.vermont.gov/?site=ANR_wswelldriller)) indicates one private well within a half mile of the Site. This well is located more 600 feet away from the source area and is not believed to be at risk to the subsurface petroleum contamination at this time.

### 6.7 Impacted Third Parties

Based on the data collected during the initial site investigation no off-site properties appear to be at risk of being impacted by the contamination resulting from the Site. Additional data is needed to fully define the contaminant plume and to definitively determine whether off site impacts are present.

## 7.0 Conclusions

1. Based on the results of the initial site investigation and the tank closure assessments, KAS concludes that a release of petroleum has occurred at the Site. The amounts and duration of the release(s) are unknown; however, VOC concentrations are present in soil and groundwater beneath the Site and the nearby storm water and sewer utilities have been impacted;
2. Five soil borings were advanced on June 10, 2013 in the vicinity of the removed UST. Each of these borings were completed as monitoring wells (RW13-01 through MW13-05) on June 10, 2013;
3. Subsurface sediments encountered in the five soil borings consisted mostly of well graded sand overlies silt with varying amounts of gravel. PID readings above background were observed in soil samples collected from all five of the borings at various depths. The elevated PID readings above background ranged from 0.2 to 480 parts per million volume (ppmv);
4. Two of the borings were advanced deeper to evaluate the potential presence of a clay confining layer. No clay layer was encountered in the two borings;
5. A groundwater monitoring event was conducted on June 17, 2013. Groundwater flow was directed generally to the west/southwest at an approximate hydraulic gradient ranging from 6.0 – 13.6%;
6. Groundwater analytical results indicate that VOCs are present (below VGES) in groundwater in the vicinity of monitoring wells RW13-01, MW13-03 and the office building basement sump at total concentrations ranging from 5.3 to 32.8ug/L. TPH was reported in the samples collected from all the wells except MW13-02 at a low concentration ranging from 0.55 to 2.29 mg/L;
7. It was reported to KAS on June 10, 2013 that petroleum odors have been noted within the office building basement following heavy precipitation. The basement was screened for VOCs using a PID on June 10 and June 20, 2013 and no readings above 0.0 ppmv were recorded; however, a concentration of MTBE was reported in the sump sample collected at this location;
8. The nearest catch basins (CB-1 and CB-2) were screened for VOCs using a PID on June 10, 2013 and a reading of 68 ppmv was noted at CB-2 along with a petroleum odor. No reading or odor was noted at CB-1. At this time it appears the petroleum contamination has migrated along the utility corridors and entered the subsurface lines via cracks or breaks in the pipe;
9. The full extent of the contaminant plume was not defined during the initial site investigation and appears to be migrating



to the west and south towards the nearby subsurface utilities and Citizen's Bank office building;

10. Although not fully identified during the initial site investigation it is likely there are areas on-site where heavier pockets of contamination are present which are continuing to provide a source of contamination to nearby subsurface utilities; and,
11. One sensitive receptor (nearby utility corridors) other than soil and groundwater has been identified as being at risk to petroleum impact during this initial site investigation. Impacts to indoor air are possible within the Citizen's Bank office building and additional monitoring is needed over time.

---

## 8.0 Recommendations

Based on the results of the initial site investigation conducted at the Citizen's Bank property, KAS recommends a round of groundwater monitoring be conducted in September 2013 to monitor groundwater impacts and groundwater flow. A groundwater sample should be collected from all five monitoring wells, the building sump and all nearby utility manholes for analysis of the major petroleum compounds via EPA Method 8021B. The basement of the Citizen's Bank office building should be screened for VOCs using a PID.

The nearest utility lines should be inspected using a camera to determine where any breaks/cracks are present to better evaluate where the contamination is entering. Following this work the data should be evaluated to determine if the subsurface lines should be replaced and/or repaired. At this time KAS will also evaluate whether additional monitoring points are needed.

A work plan and cost estimate to conduct this work should be prepared.

---

---

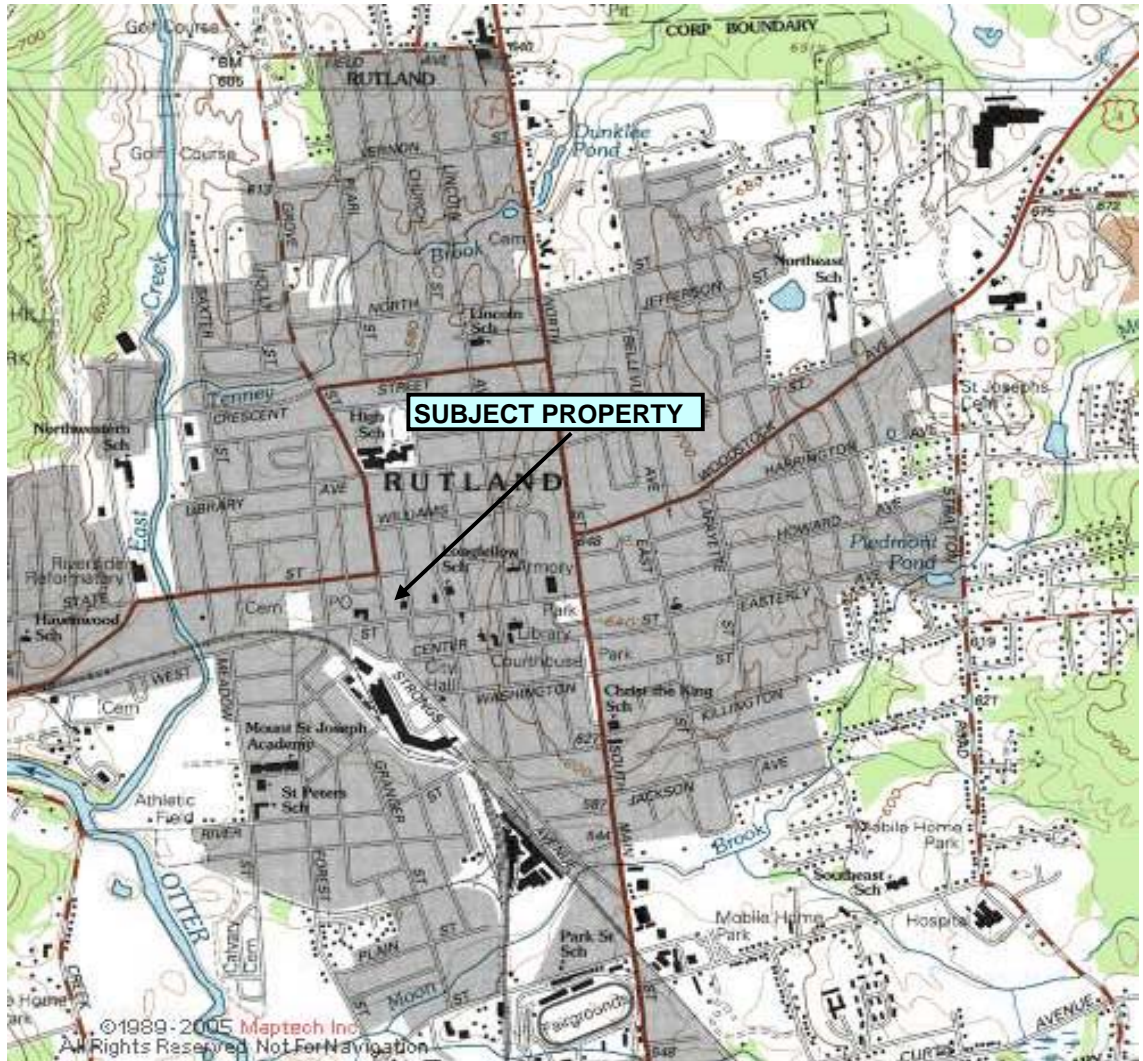
## 9.0 References

1. UST Closure Assessment Report, KAS, Inc. Citizen's Bank, Rutland, Vermont, December 21, 2012.
2. Contaminated Soil Loading and Disposal Report, KAS, Inc., Citizen's Bank, Rutland, Vermont, January 21, 2013.
3. Evidence of Contamination of Heating Oil and Diesel Fuel with MTBE, Gary A. Robbins and Brent J. Henebry
4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, Vermont Geological Survey.
5. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, Vermont Geological Survey.



## Appendix A

### Maps



KAS Job Number:

412120479

Source:

USGS Mapping 7.5' Rutland VT Quadrangle 1964, Photorevised 1987



**Citizen's Bank  
47 Merchants Row  
Rutland, Vermont**

Site Location Map  
USGS Mapping

Date: 12/20/12

Drawing No. 1

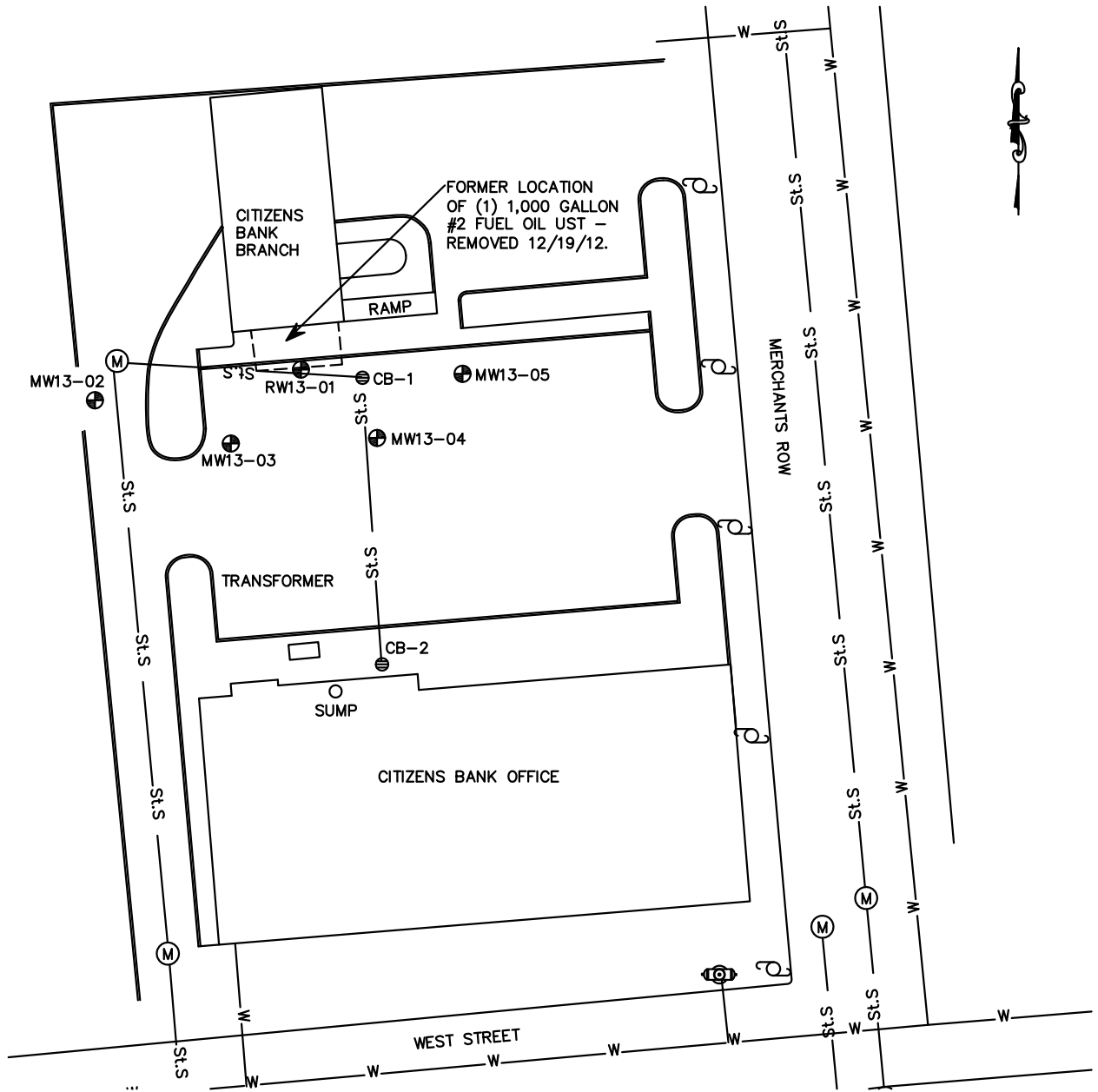
Scale: 1:48,000

By: JR



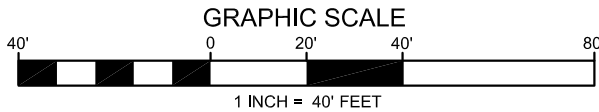
**AERIAL MAP  
CITIZEN'S BANK  
RUTLAND, VT**

Source: Google Earth, 2011



**LEGEND**

- MW13-04 MONITORING WELL
- CB-1 CATCH BASIN
- HYDRANT
- UTILITY POLE
- W — WATER LINE
- St.S — STORM SEWER
- MANHOLE



KAS #: 412120479  
VTDEC #: 2012-4346

368 Avenue D, Suite 15  
PO Box 787  
Williston, VT 05495  
[www.kas-consulting.com](http://www.kas-consulting.com)



802 383.0486 p  
802 383.0490 f

**CITIZEN'S BANK**  
47 MERCHANTS ROW  
RUTLAND, VERMONT

**SITE MAP**

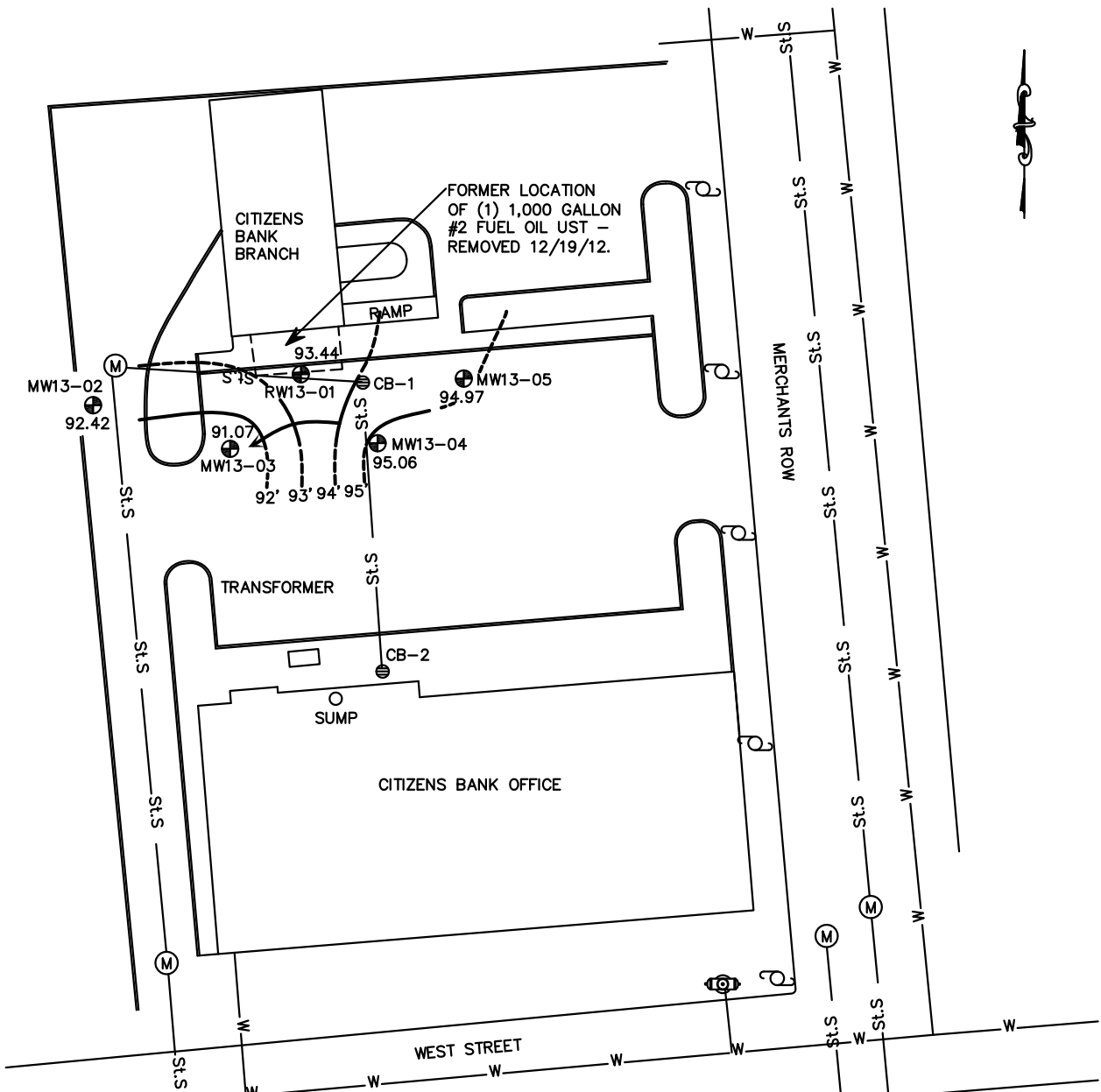
DATE: 8/5/13

DWG #: 1

SCALE: 1"=40'

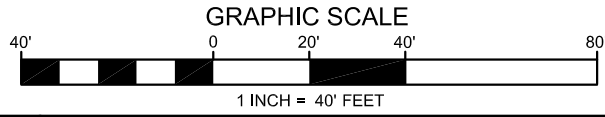
DRN.: BG

APP.: JR



**LEGEND**

- MW13-04 MONITORING WELL
- CB-1 CATCH BASIN
- HYDRANT
- UTILITY POLE
- W WATER LINE
- St.S STORM SEWER
- (M) MANHOLE
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- 93' GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)



KAS #: 412120479  
VTDEC #: 2012-4346

368 Avenue D, Suite 15  
PO Box 787  
Williston, VT 05495  
[www.kas-consulting.com](http://www.kas-consulting.com)

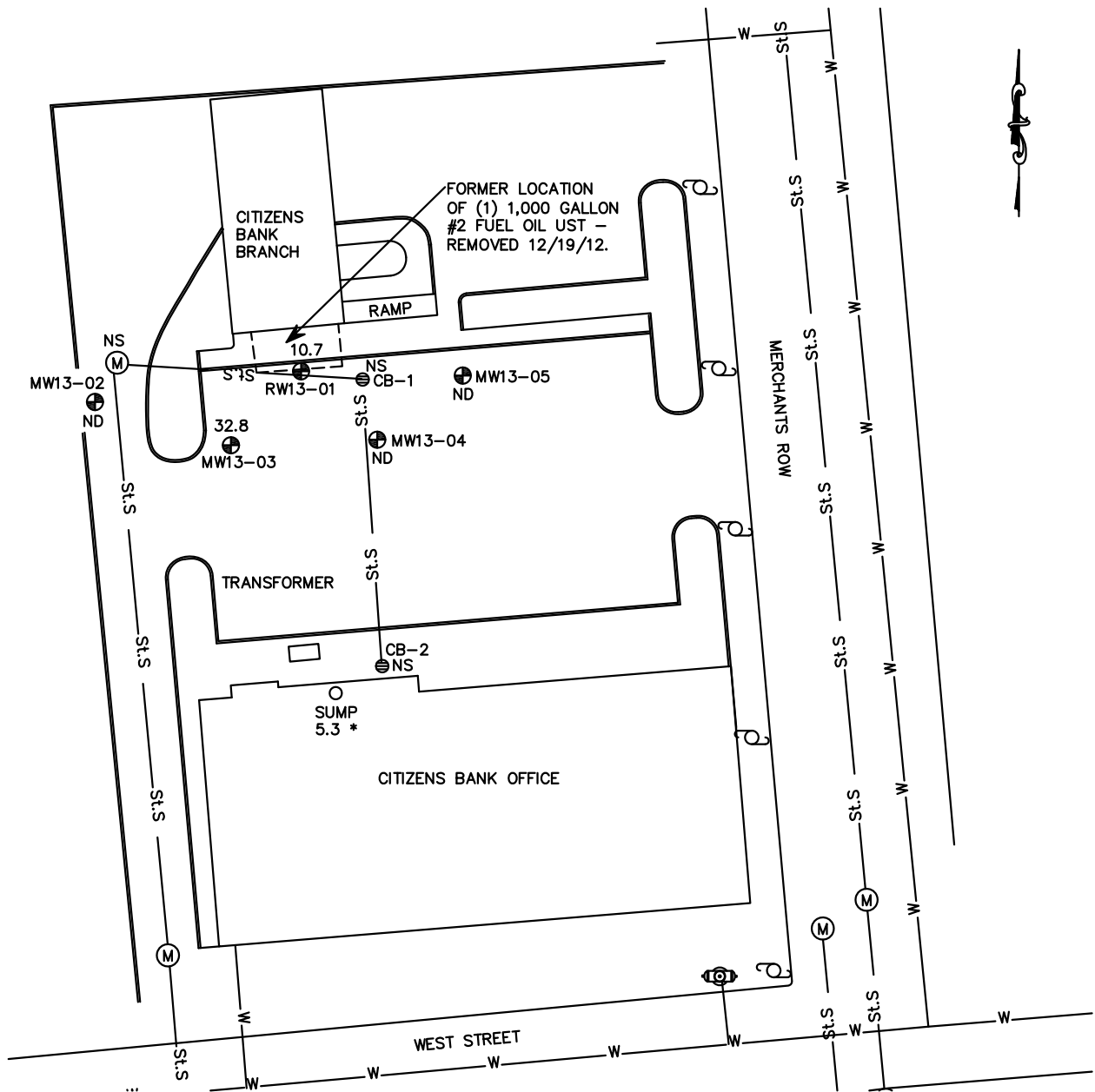


**CITIZEN'S BANK**  
47 MERCHANTS ROW  
RUTLAND, VERMONT

**GROUNDWATER CONTOUR MAP**

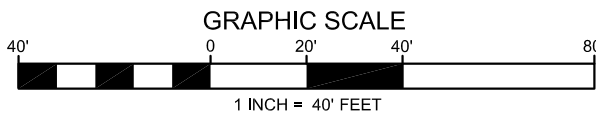
MEASURED 6/17/13

|              |          |               |          |          |
|--------------|----------|---------------|----------|----------|
| DATE: 8/5/13 | DWG #: 1 | SCALE: 1"=40' | DRN.: BG | APP.: JR |
|--------------|----------|---------------|----------|----------|



**LEGEND**

- MW13-04 MONITORING WELL
- CB-1 CATCH BASIN
- HYDRANT
- UTILITY POLE
- W — WATER LINE
- St.S — STORM SEWER
- MANHOLE



KAS #: 412120479  
VTDEC #: 2012-4346

368 Avenue D, Suite 15  
PO Box 787  
Williston, VT 05495  
[www.kas-consulting.com](http://www.kas-consulting.com)



**CITIZEN'S BANK**  
47 MERCHANTS ROW  
RUTLAND, VERMONT

**VOC CONTAMINANT CONCENTRATION MAP**

SAMPLED 6/17/13  
\* SAMPLED 6/20/13

802 383.0486 p  
802 383.0490 f

DATE: 8/5/13

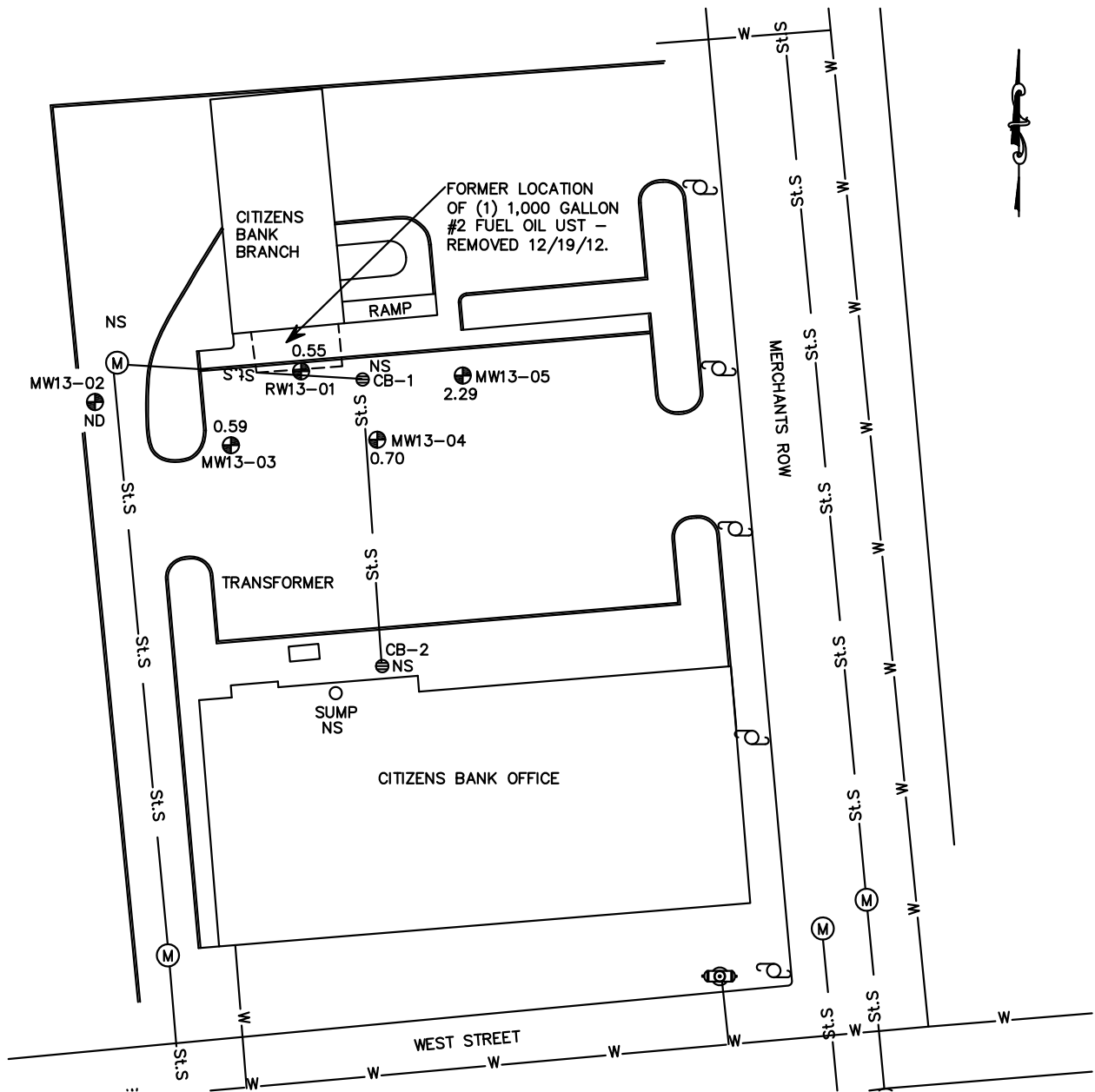
DWG #: 1

SCALE: 1"=40'

DRN.: BG

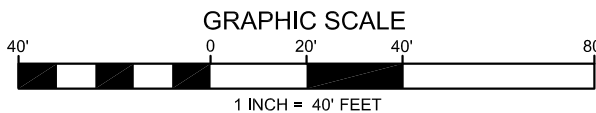
APP.: JR





**LEGEND**

- MW13-04 MONITORING WELL
- CB-1 CATCH BASIN
- HYDRANT
- UTILITY POLE
- W— WATER LINE
- St.S— STORM SEWER
- (M) MANHOLE



KAS #: 412120479  
VTDEC #: 2012-4346

368 Avenue D, Suite 15  
PO Box 787  
Williston, VT 05495  
[www.kas-consulting.com](http://www.kas-consulting.com)



802 383.0486 p  
802 383.0490 f

**CITIZEN'S BANK**  
47 MERCHANTS ROW  
RUTLAND, VERMONT

**TPH CONCENTRATION MAP**

SAMPLED 6/17/13

DATE: 8/5/13

DWG #: 1

SCALE: 1"=40'

DRN.: BG

APP.: JR



## **Appendix B**

### **Soil Boring Logs and Well Construction Diagrams**



**BORING LOG AND WELL CONSTRUCTION DIAGRAM**

**Well No: RW13-01**

**Site: CITIZEN'S BANK**

Town, State: Rutland, Vermont

KAS Project #: 412120479 Date Installed: 6/10/2013  
 Drilled by: T & K Drilling Drilling Method: HSA  
 Driller: Sean McGarry/Kevin Singleton Boring Diameter.: 12"  
 Logged by: Bretton Gardner Development Method: Disposable Bailer  
 Screened Length: 10 feet

| Well Construction | Pen/Rec(")       | Interval (') | Soil Characteristics   |
|-------------------|------------------|--------------|--|
|                   | BlowCounts       | PID (ppm)    |  |
|                   | 24/0<br>2-3-1-2  | 5-7          | No recovery due to gravelly fill   |
|                   | 24/0<br>2-2-1-2  | 7-9          | No recovery due to gravelly fill   |
|                   | 24/11<br>3-3-3-4 | 9-11<br>6.9  | Wet, Olive Gray, Silt (ML)<br>90% silt, 10% coarse gravel  |
|                   | 24/2<br>2-2-2-3  | 11-13<br>0.4 | Wet, Olive Gray/brown/black, Sandy Silt with Gravel (ML)<br>60% silt, 20% medium-coarse sand, 20% fine-coarse gravel |
|                   | 24/24<br>3-4-4-7 | 13-15<br>2.1 | Wet, Olive Gray, Silt (ML)<br>95% silt, 5% fine gravel   |
|                   | 24/21<br>2-3-1-2 | 15-17<br>21  | Wet, Light brown/Tan, Silt (ML)<br>90% silt, 10% fine-coarse gravel  |
|                   | 17'              |              | End of Exploration   |

Letter Symbol  
Graphic Symbol

ML  
ML  
ML  
ML

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- NR No Recovery
- Locking Plug.
- 4" ID, Schedule 40 PVC Riser.
- 4" ID, Schedule 40 PVC, 0.010" Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling, below grade
- Static Water Level, below top of casing



## BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: MW13-02

Site: CITIZEN'S BANK

Town, State: Rutland, Vermont

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| KAS Project #: 412120479              | Date installed: 6/10/2013             |
| Drilled by: T & K Drilling            | Drilling Method: HSA                  |
| Driller: Sean McGarry/Kevin Singleton | Boring Diameter.: 8.25"               |
| Logged by: Bretton Gardner            | Development Method: Disposable Bailer |
|                                       | Screened Length: 10 feet              |

| Grade = 0 | Well Construction | Pen/Rec(") | Interval (') | Soil Characteristics                | Letter Symbol | Graphic Symbol |
|-----------|-------------------|------------|--------------|-------------------------------------|---------------|----------------|
|           |                   | BlowCounts | PID (ppm)    |                                     |               |                |
| 0.5       |                   |            |              |                                     |               |                |
| 1.0       |                   |            |              |                                     |               |                |
| 1.5       |                   |            |              |                                     |               |                |
| 2.0       |                   |            |              |                                     |               |                |
| 2.5       |                   |            |              |                                     |               |                |
| 3.0       |                   |            |              |                                     |               |                |
| 3.5       |                   |            |              |                                     |               |                |
| 4.0       |                   |            |              |                                     |               |                |
| 4.5       |                   |            |              |                                     |               |                |
| 5.0       |                   |            |              |                                     |               |                |
| 5.5       |                   | 24/8       | 5-7          | Wet, Red, Poorly Graded Gravel (GP) | GP            |                |
| 6.0       |                   | 6-7-15-8   | 0.2          | 90% gravel, 10% fine-coarse sand    |               |                |
| 6.5       | ▼ -6.5' 6/10/13   |            |              |                                     |               |                |
| 7.0       |                   | 24/13      | 7-9          | Wet, Red/Tan/Olive Gray, Silt (ML)  | ML            |                |
| 7.5       | ▽ 7.58' 6/17/13   | 5-7-5-6    | 1.6          | 90% silt, 10% fine gravel           |               |                |
| 8.0       |                   |            |              |                                     |               |                |
| 8.5       |                   |            |              |                                     |               |                |
| 9.0       |                   | 24/19      | 9-11         | Wet, Olive Gray, Silt (ML)          | ML            |                |
| 9.5       |                   | 2-3-3-2    | 0.2          | 95% silt, 5% fine gravel            |               |                |
| 10.0      |                   |            |              |                                     |               |                |
| 10.5      |                   | 24/24      | 11-13        | Wet, Olive Gray, Silt (ML)          | ML            |                |
| 11.0      |                   | 2-2-3-3    | 0.7          | 100% silt                           |               |                |
| 11.5      |                   |            |              |                                     |               |                |
| 12.0      |                   | 24/18      | 13-15        | Wet, Olive Gray, Lean Clay (CL)     | ML            |                |
| 12.5      |                   | 1-1-2-3    | 0.3          | 100% silt                           |               |                |
| 13.0      |                   |            |              |                                     |               |                |
| 13.5      |                   |            |              |                                     |               |                |
| 14.0      |                   |            |              |                                     |               |                |
| 14.5      |                   |            |              |                                     |               |                |
| 15.0      |                   | 15'        |              | End of Exploration                  |               |                |

Legend

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> <li>NR No Recovery</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 2" ID, Schedule 40 PVC Riser.</li> <li> 2" ID, Schedule 40 PVC, 0.010" Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling, below grade</li> <li> Static Water Level, below top of casing</li> </ul> |
|---|---|



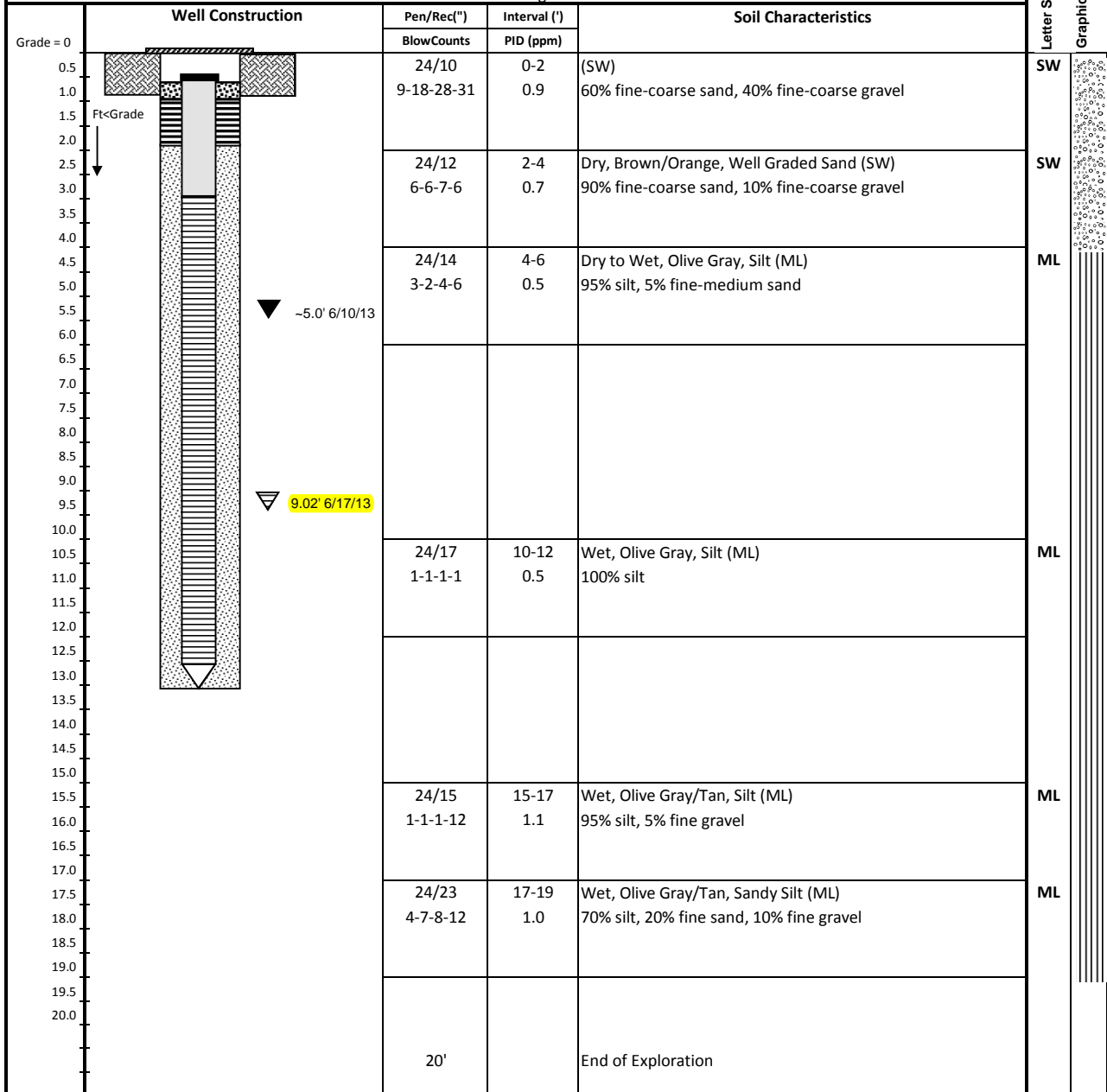
## BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: MW13-03

Site: CITIZEN'S BANK

Town, State: Rutland, Vermont

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| KAS Project #: 412120479              | Date installed: 6/10/2013             |
| Drilled by: T & K Drilling            | Drilling Method: HSA                  |
| Driller: Sean McGarry/Kevin Singleton | Boring Diameter.: 8.25"               |
| Logged by: Bretton Gardner            | Development Method: Disposable Bailer |
|                                       | Screened Length: 10 feet              |



Legend

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> <li>NR No Recovery</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 2" ID, Schedule 40 PVC Riser.</li> <li> 2" ID, Schedule 40 PVC, 0.010" Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling, below grade</li> <li> Static Water Level, below top of casing</li> </ul> |
|---|---|



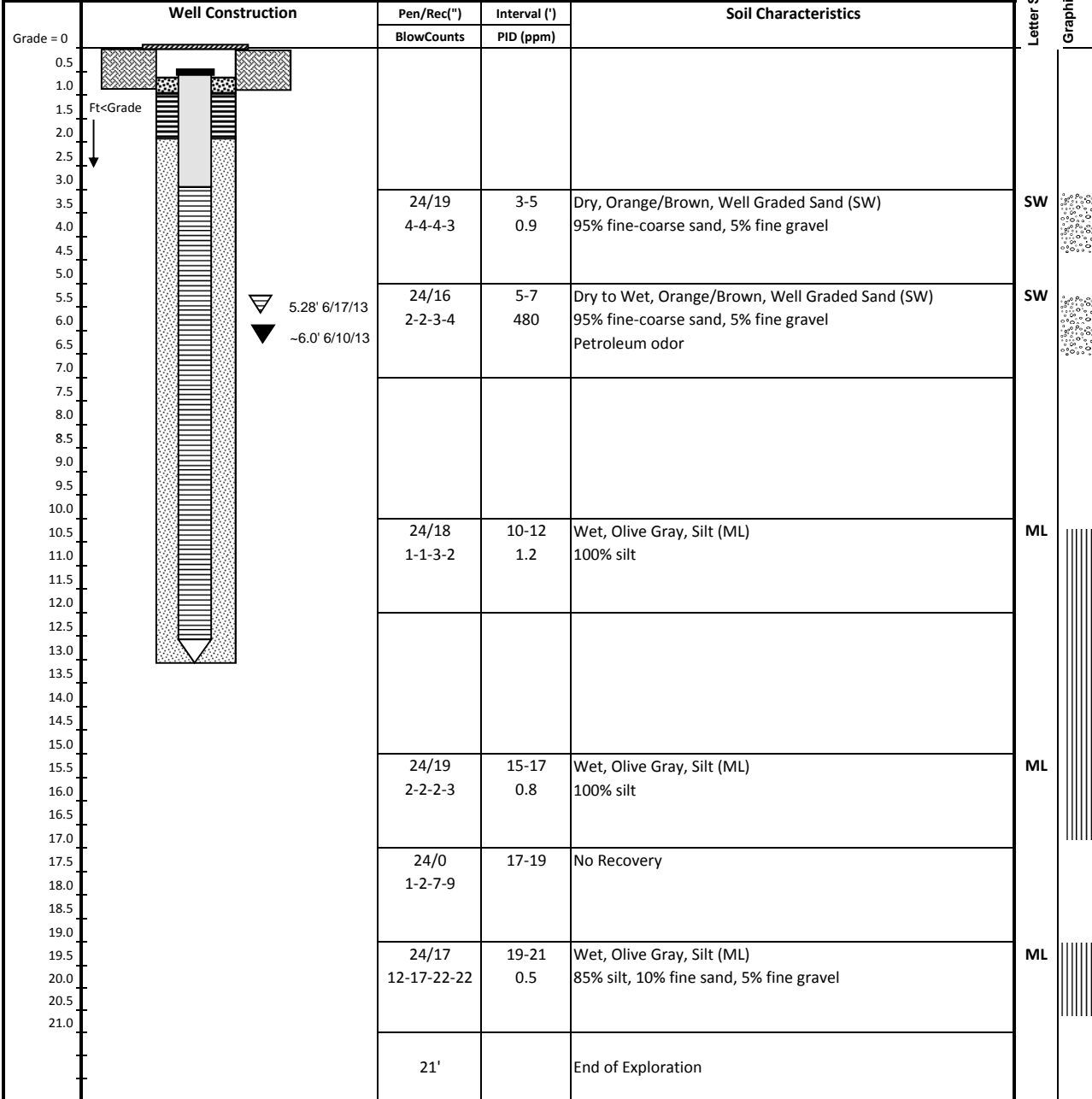
## BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: MW13-04

Site: CITIZEN'S BANK

Town, State: Rutland, Vermont

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| KAS Project #: 412120479              | Date Installed: 6/10/2013             |
| Drilled by: T & K Drilling            | Drilling Method: HSA                  |
| Driller: Sean McGarry/Kevin Singleton | Boring Diameter.: 8.25"               |
| Logged by: Bretton Gardner            | Development Method: Disposable Bailer |
|                                       | Screened Length: 10 feet              |



Legend

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> <li>NR No Recovery</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 2" ID, Schedule 40 PVC Riser.</li> <li> 2" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling, below grade</li> <li> Static Water Level, below top of casing</li> </ul> |
|---|---|



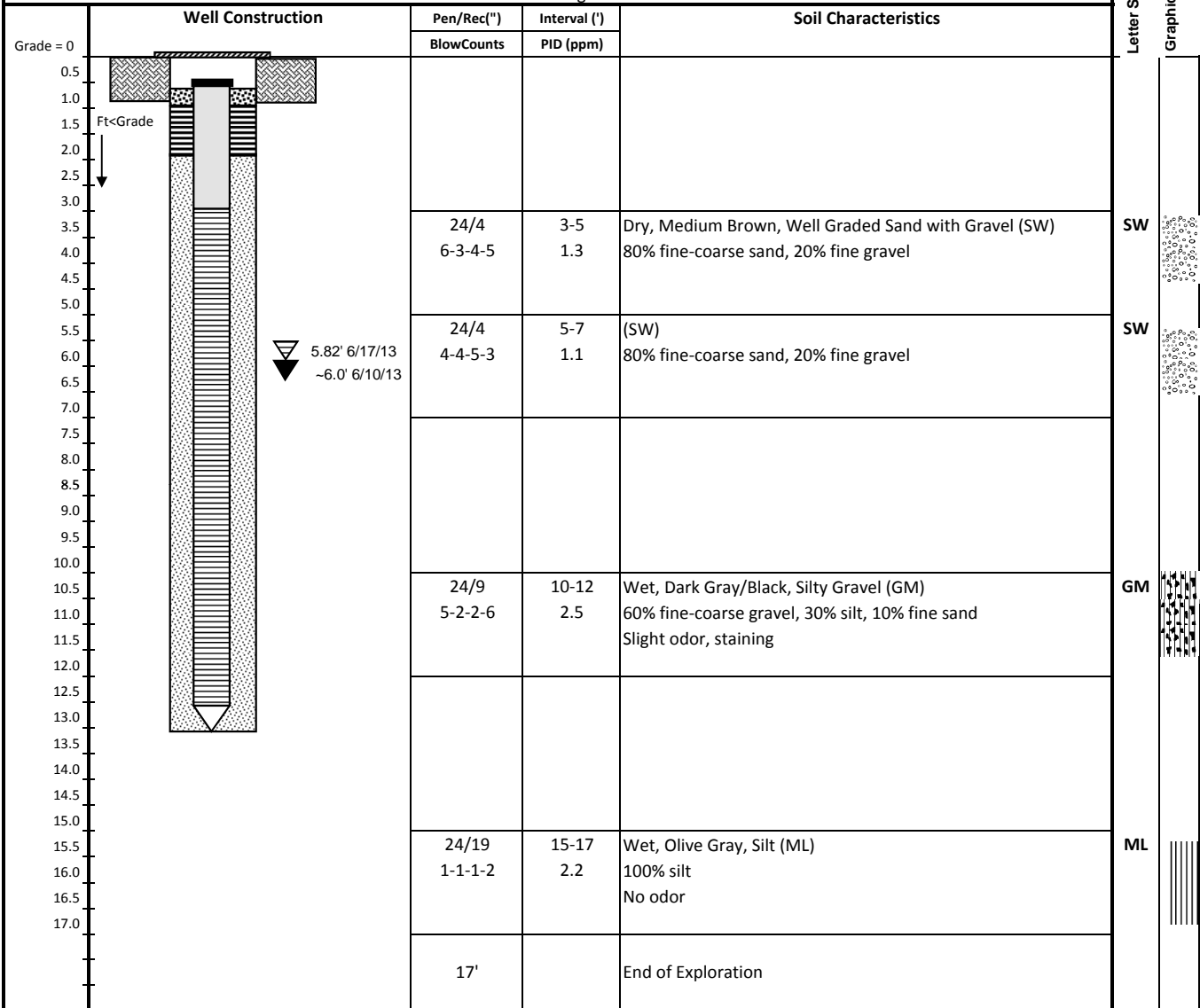
## BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: MW13-05

**Site: CITIZEN'S BANK**  
 Town, State: Rutland, Vermont

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| KAS Project #: 412120479              | Date Installed: 6/10/2013             |
| Drilled by : T & K Drilling           | Drilling Method: HSA                  |
| Driller: Sean McGarry/Kevin Singleton | Boring Diameter.: 8.25"               |
| Logged by: Bretton Gardner            | Development Method: Disposable Bailer |
|                                       | Screened Length: 10 feet              |

Letter Symbol  
Graphic Symbol



5.82' 6/17/13  
 ~6.0' 6/10/13

Legend

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li> Road Box with Bolt Down Cover, Set in Cement.</li> <li> Existing Surface.</li> <li> Bentonite Seal Placed in Annulus.</li> <li> Grade #1 Silica Sand Pack Placed in Annulus.</li> <li> Drill Cuttings Placed in Annulus.</li> <li>NR No Recovery</li> </ul> | <ul style="list-style-type: none"> <li> Locking Plug.</li> <li> 2" ID, Schedule 40 PVC Riser.</li> <li> 2" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen</li> <li> Plug Point</li> <li> Approximate Water Level During Drilling, below grade</li> <li> Static Water Level, below top of casing</li> </ul> |
|---|---|



## Appendix C

### Liquid Level Monitoring Data





**Liquid Level Monitoring Data  
Citizen's Bank  
Rutland, Vermont**

**Measurement Date: June 17, 2013**

| Well I.D. | Well Depth<br>btoc | Top of<br>Casing<br>Elevation | Depth To<br>Product<br>btoc | Depth To<br>Water<br>btoc | Product<br>Thickness | Specific<br>Gravity<br>Of Product | Water<br>Equivalent | Corrected<br>Depth<br>To Water | Corrected<br>Water Table<br>Elevation |
|-----------|--------------------|-------------------------------|-----------------------------|---------------------------|----------------------|-----------------------------------|---------------------|--------------------------------|---------------------------------------|
| RW13-01   | 15.00              | 100.46                        | -                           | 7.02                      | -                    | -                                 | -                   | -                              | 93.44                                 |
| MW13-02   | 13.00              | 100.00                        | -                           | 7.58                      | -                    | -                                 | -                   | -                              | 92.42                                 |
| MW13-03   | 13.00              | 100.12                        | -                           | 9.05                      | -                    | -                                 | -                   | -                              | 91.07                                 |
| MW13-04   | 13.00              | 100.34                        | -                           | 5.28                      | -                    | -                                 | -                   | -                              | 95.06                                 |
| MW13-05   | 13.00              | 100.79                        | -                           | 5.82                      | -                    | -                                 | -                   | -                              | 94.97                                 |

**HISTORIC GROUNDWATER ELEVATION**

| Well I.D. | 6/17/2013 |  |  |  |  |  |  |  |  |
|-----------|-----------|--|--|--|--|--|--|--|--|
| RW13-01   | 93.44     |  |  |  |  |  |  |  |  |
| MW13-02   | 92.42     |  |  |  |  |  |  |  |  |
| MW13-03   | 91.07     |  |  |  |  |  |  |  |  |
| MW13-04   | 95.06     |  |  |  |  |  |  |  |  |
| MW13-05   | 94.97     |  |  |  |  |  |  |  |  |

All Values Reported in Feet

btoc - Below Top of Casing

Elevations determined relative to top of casing of MW13-02, which was arbitrarily set at 100'

Site surveyed by KAS, Inc. on June 10, 2013



## Appendix D

### Groundwater Quality Summary Data



# Groundwater Quality Summary

Citizen's Bank  
Rutland, Vermont

**June 17, 2013 Groundwater Quality Summary Table**

| <i>Monitoring Well</i> | RW13-01<br>8021B | MW13-02<br>8021B | MW13-03<br>8021B | MW13-04<br>8021B | MW13-05<br>8021B | Sump*<br>8021B | VGES  |
|------------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|
| PARAMETER              |                  |                  |                  |                  |                  |                |       |
| Benzene                | ND<1.0           | ND<1.0           | ND<1.0           | ND<5.0           | ND<5.0           | ND<1.0         | 5     |
| Toluene                | ND<1.0           | ND<1.0           | ND<1.0           | ND<5.0           | ND<5.0           | ND<1.0         | 1000  |
| Ethylbenzene           | ND<1.0           | ND<1.0           | ND<1.0           | ND<5.0           | ND<5.0           | ND<1.0         | 700   |
| Xylenes                | ND<2.0           | ND<2.0           | ND<2.0           | ND<10.0          | ND<10.0          | ND<2.0         | 10000 |
| Total BTEX             | ND               | ND               | ND               | ND               | ND               | ND             | -     |
| MTBE                   | <b>9.5</b>       | ND<2.0           | <b>32.8</b>      | ND<10.0          | ND<10.0          | <b>5.3</b>     | 40    |
| 1,3,5-Trimethylbenzene | <b>1.2</b>       | ND<1.0           | ND<1.0           | ND<5.0           | ND<5.0           | ND<1.0         |       |
| 1,2,4-Trimethylbenzene | ND<1.0           | ND<1.0           | ND<1.0           | ND<5.0           | ND<5.0           | ND<1.0         | 350   |
| Naphthalene            | ND<2.0           | ND<2.0           | ND<2.0           | ND<10.0          | ND<10.0          | ND<2.0         | 20    |
| Total Targeted VOCs    | <b>10.7</b>      | ND               | <b>32.8</b>      | ND               | ND               | <b>5.3</b>     | -     |
| TPH-DRO                | <b>0.55</b>      | ND<0.40          | <b>0.59</b>      | <b>0.70</b>      | <b>2.29</b>      | NT             | -     |

All Values Reported in ug/L (ppb), except TPH which is reported in mg/L (ppm)

NT - Not Tested

TPH values are from EPA Method 8015

VGES - Vermont Groundwater Enforcement Standard (February 14, 2005)

ND - None detected above sample-specific compound detection limit

**Bold** font indicates a detected concentration.

Shaded values meet or exceed VGES

\* Sampled 6/20/13



**Citizen's Bank  
Rutland, Vermont  
Quality Assurance and Control Summary**

| PARAMETER                  | Date of Sample Collection |             |              |            |
|----------------------------|---------------------------|-------------|--------------|------------|
|                            | 6/17/2013                 |             |              |            |
|                            | Trip Blank                | RW13-01     | RW13-01 Dup. | RPD %      |
| MTBE                       | ND<2.0                    | <b>9.5</b>  | <b>10.1</b>  | <b>6.1</b> |
| Benzene                    | ND<1.0                    | ND<1.0      | ND<1.0       | n/a        |
| Toluene                    | ND<1.0                    | ND<1.0      | ND<1.0       | n/a        |
| Ethylbenzene               | ND<1.0                    | ND<1.0      | ND<1.0       | n/a        |
| Xylenes                    | ND<2.0                    | ND<2.0      | ND<2.0       | n/a        |
| 1,3,5-TMB*                 | ND<1.0                    | <b>1.2</b>  | <b>1.3</b>   | <b>8.0</b> |
| 1,2,4-TMB*                 | ND<1.0                    | ND<1.0      | ND<1.0       | n/a        |
| Naphthalene                | ND<2.0                    | ND<2.0      | ND<2.0       | n/a        |
| Total Reported VOCs M8260B | ND                        | <b>10.7</b> | <b>11.4</b>  | <b>6.3</b> |

The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. The RPD is defined as 100 times the difference in reported concentration between sample and duplicate, divided by the mean of the two samples. A small RPD indicates good correlation between sample and duplicate.

NOTES

Results reported above detection limits are indicated in bold

\* TMB = Trimethyl Benzene

EPA Method 8260B used for laboratory analysis

All values reported in ug/l (ppb) unless otherwise noted

ND<X - Not Detected (Detection Limit)



## Appendix E

### Soil Quality Summary Data



# Soil Quality Summary

Citizen's Bank  
Rutland, Vermont

**June 10, 2013 Soil Quality Summary Table**

| <i>Monitoring Point</i>   | RW13-01 | MW13-04      | IROCPP SSV |
|---------------------------|---------|--------------|------------|
| <i>Sample Depth (ft)</i>  | 15-17'  | 5-7'         | Industrial |
| <i>PID Reading (ppmv)</i> | 21      | 480          |            |
| <i>Sample Analysis</i>    | 8021B   | 8021B        |            |
| Benzene                   | ND<15.0 | ND<34.0      | 5,200      |
| Toluene                   | ND<15.0 | ND<34.0      | 45,000,000 |
| Ethylbenzene              | ND<15.0 | ND<34.0      | 27,000     |
| Xylenes                   | ND<30.0 | ND<68.0      | 36,000,000 |
| Total BTEX                | ND      | ND           | -          |
| MTBE                      | ND<30.0 | ND<68.0      | 220,000    |
| 1,3,5-Trimethylbenzene    | ND<15.0 | <b>654</b>   | 1,000,000  |
| 1,2,4-Trimethylbenzene    | ND<15.0 | <b>1,490</b> | 260,000    |
| Naphthalene               | ND<30.0 | ND<68.0      | 18,000     |
| Total Targeted VOCs       | ND      | <b>2,144</b> | -          |

All values reported in ug/kg, dry, unless otherwise indicated.

IROCP = April 2012 Investigation and Remediation of Contaminated Properties document.

SSV= Soil Screening Values from Appendix A of the IROCP

ND<xx = Not Detected< Detection Limit

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations above the industrial SSV are shaded.



## **Appendix F**

### **Analytical Laboratory Reports**



## Laboratory Report

|                       |        |
|-----------------------|--------|
| KAS, Inc.             | 100306 |
| PO Box 787            |        |
| Williston, VT 05495   |        |
| Atten: Jeremy Roberts |        |

PROJECT: 412120479 Citizens Bank  
WORK ORDER: **1306-09955**  
DATE RECEIVED: June 11, 2013  
DATE REPORTED: June 20, 2013  
SAMPLER: Bretton

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

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

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

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

Reviewed by:

Harry B. Locker, Ph.D.  
Laboratory Director

[www.endynelabs.com](http://www.endynelabs.com)



160 James Brown Dr., Williston, VT 05495  
Ph 802-879-4333 Fax 802-879-7103

d, Lebanon, NH 03766  
Ph 603-678-4891 Fax 603-678-4893





CLIENT: KAS, Inc.  
 PROJECT: 412120479 Citizens Bank  
 REPORT DATE: 6/20/2013

WORK ORDER: **1306-09955**  
 DATE RECEIVED: 06/11/2013

TEST METHOD: EPA 8260B

001 Site: RW 13-01 (15'-17') Date Sampled: 6/10/13 09:20 Analysis Date: 6/13/13 W MHM

| <u>Parameter</u>          | <u>Result</u> | <u>Unit</u> | <u>Nelac</u> | <u>Qual</u> | <u>Parameter</u>               | <u>Result</u> | <u>Unit</u> | <u>Nelac</u> | <u>Qual</u> |
|---------------------------|---------------|-------------|--------------|-------------|--------------------------------|---------------|-------------|--------------|-------------|
| Prep EPA 5035A High Level | complete      |             | A            |             | Methyl-t-butyl ether (MTBE)    | < 30.0        | ug/Kg, Dry  | A            |             |
| Benzene                   | < 15.0        | ug/Kg, Dry  | A            |             | Toluene                        | < 15.0        | ug/Kg, Dry  | A            |             |
| Ethylbenzene              | < 15.0        | ug/Kg, Dry  | A            |             | Xylenes, Total                 | < 30.0        | ug/Kg, Dry  | A            |             |
| 1,3,5-Trimethylbenzene    | < 15.0        | ug/Kg, Dry  | A            |             | 1,2,4-Trimethylbenzene         | < 15.0        | ug/Kg, Dry  | A            |             |
| Naphthalene               | < 30.0        | ug/Kg, Dry  | A            |             | Surr. 1 (Dibromofluoromethane) | 81            | %           | A            |             |
| Surr. 2 (Toluene d8)      | 85            | %           | A            |             | Surr. 3 (4-Bromofluorobenzene) | 122           | %           | A            |             |
| Unidentified Peaks        | 0             |             | U            |             |                                |               |             |              |             |

TEST METHOD: EPA 8260B

002 Site: MW 13-04 (5'-7') Date Sampled: 6/10/13 13:53 Analysis Date: 6/13/13 W MHM

| <u>Parameter</u>          | <u>Result</u> | <u>Unit</u> | <u>Nelac</u> | <u>Qual</u> | <u>Parameter</u>               | <u>Result</u> | <u>Unit</u> | <u>Nelac</u> | <u>Qual</u> |
|---------------------------|---------------|-------------|--------------|-------------|--------------------------------|---------------|-------------|--------------|-------------|
| Prep EPA 5035A High Level | Complete      |             | A            |             | Methyl-t-butyl ether (MTBE)    | < 68.0        | ug/Kg, Dry  | A            |             |
| Benzene                   | < 34.0        | ug/Kg, Dry  | A            |             | Toluene                        | < 34.0        | ug/Kg, Dry  | A            |             |
| Ethylbenzene              | < 34.0        | ug/Kg, Dry  | A            |             | Xylenes, Total                 | < 68.0        | ug/Kg, Dry  | A            |             |
| 1,3,5-Trimethylbenzene    | 654           | ug/Kg, Dry  | A            |             | 1,2,4-Trimethylbenzene         | 1,490         | ug/Kg, Dry  | A            |             |
| Naphthalene               | < 68.0        | ug/Kg, Dry  | A            |             | Surr. 1 (Dibromofluoromethane) | 101           | %           | A            |             |
| Surr. 2 (Toluene d8)      | 95            | %           | A            |             | Surr. 3 (4-Bromofluorobenzene) | 128           | %           | A            |             |
| Unidentified Peaks        | > 10          |             | U            |             |                                |               |             |              |             |





## Laboratory Report

|                       |        |
|-----------------------|--------|
| KAS, Inc.             | 100306 |
| PO Box 787            |        |
| Williston, VT 05495   |        |
| Atten: Jeremy Roberts |        |

PROJECT: 412120479 Citizens Bank  
WORK ORDER: **1306-10674**  
DATE RECEIVED: June 18, 2013  
DATE REPORTED: June 28, 2013  
SAMPLER: Joe Martell

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody located at the end of this report.

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

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

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

Reviewed by:

\_\_\_\_\_  
Harry B. Locker, Ph.D.  
Laboratory Director

[www.endynelabs.com](http://www.endynelabs.com)



160 James Brown Dr., Williston, VT 05495  
Ph 802-879-4333 Fax 802-879-7103

d, Lebanon, NH 03766  
Ph 603-678-4891 Fax 603-678-4893



**Laboratory Report**

CLIENT: KAS, Inc.  
 PROJECT: 412120479 Citizens Bank  
 REPORT DATE: 6/28/2013

WORK ORDER: **1306-10674**  
 DATE RECEIVED: 06/18/2013

TEST METHOD: EPA 8015B

|     |               |                        |                        |       |
|-----|---------------|------------------------|------------------------|-------|
| 001 | Site: MW13-01 | Sampled: 6/17/13 12:10 | Analysis Date: 6/24/13 | W FAA |
|-----|---------------|------------------------|------------------------|-------|

| Parameter                   | Result    | Unit | Nelac | Qual | Parameter          | Result  | Unit | Nelac | Qual |
|-----------------------------|-----------|------|-------|------|--------------------|---------|------|-------|------|
| Extraction Mod. EPA 3510C   | Completed |      | U     |      | C7-C10 TPH         | < 0.40  | mg/L | U     |      |
| C10-C28 TPH-DRO             | 0.55      | mg/L | N     |      | C28-C40 TPH        | < 0.40  | mg/L | U     |      |
| Tot. Petroleum Hydrocarbons | 0.55      | mg/L | U     |      | Hydrocarbon Window | C12-C22 |      | U     |      |

TEST METHOD: EPA 8021B

|     |               |                        |                        |       |
|-----|---------------|------------------------|------------------------|-------|
| 001 | Site: MW13-01 | Sampled: 6/17/13 12:10 | Analysis Date: 6/21/13 | W SJM |
|-----|---------------|------------------------|------------------------|-------|

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | 9.5    | ug/L | N     |      | Benzene                | < 1.0  | ug/L | N     |      |
| Toluene                     | < 1.0  | ug/L | N     |      | Ethylbenzene           | < 1.0  | ug/L | N     |      |
| Xylenes, Total              | < 2.0  | ug/L | N     |      | 1,3,5-Trimethylbenzene | 1.2    | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 1.0  | ug/L | N     |      | Naphthalene            | < 2.0  | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 105    | %    | N     |      | Unidentified Peaks     | >10    |      | N     |      |

TEST METHOD: EPA 8015B

|     |               |                        |                        |       |
|-----|---------------|------------------------|------------------------|-------|
| 002 | Site: MW13-02 | Sampled: 6/17/13 13:30 | Analysis Date: 6/24/13 | W FAA |
|-----|---------------|------------------------|------------------------|-------|

| Parameter                   | Result    | Unit | Nelac | Qual | Parameter          | Result | Unit | Nelac | Qual |
|-----------------------------|-----------|------|-------|------|--------------------|--------|------|-------|------|
| Extraction Mod. EPA 3510C   | Completed |      | U     |      | C7-C10 TPH         | < 0.40 | mg/L | U     |      |
| C10-C28 TPH-DRO             | < 0.40    | mg/L | N     |      | C28-C40 TPH        | < 0.40 | mg/L | U     |      |
| Tot. Petroleum Hydrocarbons | < 0.40    | mg/L | U     |      | Hydrocarbon Window | NA     |      | U     |      |

TEST METHOD: EPA 8021B

|     |               |                        |                        |       |
|-----|---------------|------------------------|------------------------|-------|
| 002 | Site: MW13-02 | Sampled: 6/17/13 13:30 | Analysis Date: 6/21/13 | W SJM |
|-----|---------------|------------------------|------------------------|-------|

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | < 2.0  | ug/L | N     |      | Benzene                | < 1.0  | ug/L | N     |      |
| Toluene                     | < 1.0  | ug/L | N     |      | Ethylbenzene           | < 1.0  | ug/L | N     |      |
| Xylenes, Total              | < 2.0  | ug/L | N     |      | 1,3,5-Trimethylbenzene | < 1.0  | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 1.0  | ug/L | N     |      | Naphthalene            | < 2.0  | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 105    | %    | N     |      | Unidentified Peaks     | 1      |      | N     |      |

TEST METHOD: EPA 8015B

|     |               |                        |                        |       |
|-----|---------------|------------------------|------------------------|-------|
| 003 | Site: MW13-03 | Sampled: 6/17/13 13:10 | Analysis Date: 6/24/13 | W FAA |
|-----|---------------|------------------------|------------------------|-------|

| Parameter                   | Result    | Unit | Nelac | Qual | Parameter          | Result  | Unit | Nelac | Qual |
|-----------------------------|-----------|------|-------|------|--------------------|---------|------|-------|------|
| Extraction Mod. EPA 3510C   | Completed |      | U     |      | C7-C10 TPH         | < 0.40  | mg/L | U     |      |
| C10-C28 TPH-DRO             | 0.59      | mg/L | N     |      | C28-C40 TPH        | < 0.40  | mg/L | U     |      |
| Tot. Petroleum Hydrocarbons | 0.59      | mg/L | U     |      | Hydrocarbon Window | C12-C22 |      | U     |      |

CLIENT: KAS, Inc.  
 PROJECT: 412120479 Citizens Bank  
 REPORT DATE: 6/28/2013

WORK ORDER: 1306-10674  
 DATE RECEIVED: 06/18/2013

TEST METHOD: EPA 8021B

003 Site: MW13-03 Sampled: 6/17/13 13:10 Analysis Date: 6/21/13 W SJM

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | 32.8   | ug/L | N     |      | Benzene                | < 1.0  | ug/L | N     |      |
| Toluene                     | < 1.0  | ug/L | N     |      | Ethylbenzene           | < 1.0  | ug/L | N     |      |
| Xylenes, Total              | < 2.0  | ug/L | N     |      | 1,3,5-Trimethylbenzene | < 1.0  | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 1.0  | ug/L | N     |      | Naphthalene            | < 2.0  | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 104    | %    | N     |      | Unidentified Peaks     | 6      |      | N     |      |

TEST METHOD: EPA 8015B

004 Site: MW13-04 Sampled: 6/17/13 13:30 Analysis Date: 6/24/13 W FAA

| Parameter                   | Result    | Unit | Nelac | Qual | Parameter          | Result  | Unit | Nelac | Qual |
|-----------------------------|-----------|------|-------|------|--------------------|---------|------|-------|------|
| Extraction Mod. EPA 3510C   | Completed |      | U     |      | C7-C10 TPH         | < 0.40  | mg/L | U     |      |
| C10-C28 TPH-DRO             | 0.70      | mg/L | N     |      | C28-C40 TPH        | < 0.40  | mg/L | U     |      |
| Tot. Petroleum Hydrocarbons | 0.70      | mg/L | U     |      | Hydrocarbon Window | C12-C22 |      | U     |      |

TEST METHOD: EPA 8021B

004 Site: MW13-04 Sampled: 6/17/13 13:30 Analysis Date: 6/21/13 W SJM

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | < 10.0 | ug/L | N     |      | Benzene                | < 5.0  | ug/L | N     |      |
| Toluene                     | < 5.0  | ug/L | N     |      | Ethylbenzene           | < 5.0  | ug/L | N     |      |
| Xylenes, Total              | < 10.0 | ug/L | N     |      | 1,3,5-Trimethylbenzene | < 5.0  | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 5.0  | ug/L | N     |      | Naphthalene            | < 10.0 | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 102    | %    | N     |      | Unidentified Peaks     | > 10   |      | N     |      |

TEST METHOD: EPA 8015B

005 Site: MW13-05 Sampled: 6/17/13 12:55 Analysis Date: 6/24/13 W FAA

| Parameter                   | Result    | Unit | Nelac | Qual | Parameter          | Result  | Unit | Nelac | Qual |
|-----------------------------|-----------|------|-------|------|--------------------|---------|------|-------|------|
| Extraction Mod. EPA 3510C   | Completed |      | U     |      | C7-C10 TPH         | < 0.40  | mg/L | U     |      |
| C10-C28 TPH-DRO             | 2.29      | mg/L | N     |      | C28-C40 TPH        | < 0.40  | mg/L | U     |      |
| Tot. Petroleum Hydrocarbons | 2.29      | mg/L | U     |      | Hydrocarbon Window | C12-C22 |      | U     |      |

TEST METHOD: EPA 8021B

005 Site: MW13-05 Sampled: 6/17/13 12:55 Analysis Date: 6/25/13 W SJM

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | < 10.0 | ug/L | N     |      | Benzene                | < 5.0  | ug/L | N     |      |
| Toluene                     | < 5.0  | ug/L | N     |      | Ethylbenzene           | < 5.0  | ug/L | N     |      |
| Xylenes, Total              | < 10.0 | ug/L | N     |      | 1,3,5-Trimethylbenzene | < 5.0  | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 5.0  | ug/L | N     |      | Naphthalene            | < 10.0 | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 101    | %    | N     |      | Unidentified Peaks     | > 10   |      | N     |      |

CLIENT: KAS, Inc.  
 PROJECT: 412120479 Citizens Bank  
 REPORT DATE: 6/28/2013

WORK ORDER: 1306-10674  
 DATE RECEIVED: 06/18/2013

TEST METHOD: EPA 8021B

006 Site: Trip Blank Sampled: 6/17/13 9:10 Analysis Date: 6/21/13 W SJM

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | < 2.0  | ug/L | N     |      | Benzene                | < 1.0  | ug/L | N     |      |
| Toluene                     | < 1.0  | ug/L | N     |      | Ethylbenzene           | < 1.0  | ug/L | N     |      |
| Xylenes, Total              | < 2.0  | ug/L | N     |      | 1,3,5-Trimethylbenzene | < 1.0  | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 1.0  | ug/L | N     |      | Naphthalene            | < 2.0  | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 103    | %    | N     |      | Unidentified Peaks     | 0      |      |       | N    |

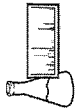
TEST METHOD: EPA 8021B

007 Site: MW13-01 Duplicate Sampled: 6/17/13 12:10 Analysis Date: 6/21/13 W SJM

| Parameter                   | Result | Unit | Nelac | Qual | Parameter              | Result | Unit | Nelac | Qual |
|-----------------------------|--------|------|-------|------|------------------------|--------|------|-------|------|
| Methyl-t-butyl ether (MTBE) | 10.1   | ug/L | N     |      | Benzene                | < 1.0  | ug/L | N     |      |
| Toluene                     | < 1.0  | ug/L | N     |      | Ethylbenzene           | < 1.0  | ug/L | N     |      |
| Xylenes, Total              | < 2.0  | ug/L | N     |      | 1,3,5-Trimethylbenzene | 1.3    | ug/L | N     |      |
| 1,2,4-Trimethylbenzene      | < 1.0  | ug/L | N     |      | Naphthalene            | < 2.0  | ug/L | N     |      |
| Surr. 1 (Bromobenzene)      | 104    | %    | N     |      | Unidentified Peaks     | >10    |      |       | N    |

Report Summary of Qualifiers and Notes

Method 8021B: Sample 002: The sample was not preserved to a pH < 2.  
 Method 8021B: Sample 003: The sample was not preserved to a pH < 2.



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

**CHAIN-OF-CUSTODY-RECORD**

No 65620

Special Reporting Instructions/PO#:

|   |  |                                   |
|---|--|-----------------------------------|
| Project Name: <u>Cajitzens Bank</u>   | Client/Contact Name: <u>Jeremy Roberts</u> | Sampler Name: <u>Joe Martell</u>  |
| State of Origin: <u>VT</u> <u>X</u> <u>NY</u> <u>   </u> <u>NH</u> <u>   </u> <u>Other</u> <u>   </u> | Phone #: <u>802-383-0486</u>               | Phone #: <u>802-383-0486</u>      |
| Endyne WO # <u>1306-16674</u>   | Mailing Address: <u>KAS, Inc.</u>          | Billing Address: <u>KAS, Inc.</u> |

| Sample Location   | Matrix           | Q<br>R<br>A<br>B | C<br>O<br>M<br>P | Date/Time Sampled | Sample Containers<br>No. Type/Size | Sample Preservation | Analysis Required | Field Results/Remarks | Due Date |
|-------------------|------------------|------------------|------------------|-------------------|------------------------------------|---------------------|-------------------|-----------------------|----------|
| MW13-01           | H <sub>2</sub> O | X                |                  | 6/17/13 12:10     | 4 40ml HCl                         | HCl                 | 19, 23            |                       |          |
| MW13-02           |                  |                  |                  | 13:30             | 4                                  |                     | 19, 23            |                       |          |
| MW13-03           |                  |                  |                  | 13:10             | 4                                  |                     | 19, 23            |                       |          |
| MW13-04           |                  |                  |                  | 13:30             | 4                                  |                     | 19, 23            |                       |          |
| MW13-05           |                  |                  |                  | 12:55             | 4                                  |                     | 19, 23            |                       |          |
| Temp Blank        |                  |                  |                  | 09:10             | 2                                  |                     | 19                |                       |          |
| MW13-01 Duplicate |                  |                  |                  | 12:10             | 2                                  |                     | 19                |                       |          |

Relinquished by: Joe Martell 6/17/13 16:28 Date/Time

Received by: John M Turner 6/18/13 10:30 Date/Time

Received by: E. J. J. J. J. 6/18/13 11:45 Date/Time

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



KAS, Inc.  
PO Box 787 100306  
Williston, VT 05495  
  
Atten: Jeremy Roberts

PROJECT: 412120479 Citizens Bank  
WORK ORDER: **1306-11048**  
DATE RECEIVED: June 21, 2013  
DATE REPORTED: June 25, 2013  
SAMPLER: Toni Poquette

### Laboratory Report

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

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

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

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

Reviewed by:

Harry B. Locker, Ph.D.  
Laboratory Director

[www.endynelabs.com](http://www.endynelabs.com)



160 James Brown Dr., Williston, VT 05495  
Ph 802-879-4333 Fax 802-879-7103

56 Etna Road, Lebanon, NH 03766  
Ph 603-678-4891 Fax 603-678-4893





**Laboratory Report**

DATE REPORTED: 06/25/2013

CLIENT: KAS, Inc.  
 PROJECT: 412120479 Citizens Bank

WORK ORDER: **1306-11048**  
 DATE RECEIVED 06/21/2013

| 001                         | Site: Sump |       | Date Sampled: 6/21/13 |                    | Time: 13:58 |       |       |
|-----------------------------|------------|-------|-----------------------|--------------------|-------------|-------|-------|
| Parameter                   | Result     | Units | Method                | Analysis Date/Time | Lab/Tech    | NELAC | Qual. |
| Vt Petroleum List 8021B     |            |       |                       |                    |             |       |       |
| Methyl-t-butyl ether (MTBE) | 5.3        | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Benzene                     | < 1.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Toluene                     | < 1.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Ethylbenzene                | < 1.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Xylenes, Total              | < 2.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| 1,3,5-Trimethylbenzene      | < 1.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| 1,2,4-Trimethylbenzene      | < 1.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Naphthalene                 | < 2.0      | ug/L  | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Surr. 1 (Bromobenzene)      | 104        | %     | EPA 8021B             | 6/24/13            | W SJM       | N     |       |
| Unidentified Peaks          | 1          |       | EPA 8021B             | 6/24/13            | W SJM       | N     |       |





## **Appendix G**

### **Site Photographs**



**Photographic Documentation**  
**Initial Site Investigation Activities**  
**Citizen's Bank**  
**47 Merchants Row, Rutland, Vermont**  
**KAS #412120479**

Photograph ID: 001  
Date: June 10, 2013  
Location:  
Citizen's Bank  
Direction:  
Looking north  
Comments:  
View of the former UST location  
and monitoring well RW13-01



Photograph ID: 002  
Date: June 10, 2013  
Location:  
Citizen's Bank  
Direction:  
Looking west  
Comments:  
View of the area west of the former  
UST location





**Photographic Documentation**  
**Initial Site Investigation Activities**  
**Citizen's Bank**  
**47 Merchants Row, Rutland, Vermont**  
**KAS #412120479**

Photograph ID: 003  
Date: June 20, 2013  
Location:  
Citizen's Bank Office Building  
Direction:  
Looking north  
Comments:  
View of the opening in the northern  
basement wall and sump within the  
Citizen's Bank office building

