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April 13, 2020

Ms. Jennifer Hughes
Environmental Program Manager
Merrimack Valley Planning Commission
160 Main Street
Haverhill, Massachusetts 01830

Mr. Tom Barrasso
Director of Energy and Environmental Affairs
City of Amesbury, Community and Development Department
62 Friend Street
Amesbury, Massachusetts 01913

**SUBJECT: Data Gap Analysis
Former Trader Allen's Truck Stop
21 Pond View Avenue, Amesbury, Massachusetts
Release Tracking Numbers (RTNs)#3-25667, 3-25880, 3-25885, and 3-30391**

Dear Ms. Hughes and Mr. Barrasso:

Credere Associates, LLC (Credere) performed a Data Gap Analysis (DGA) of the former Trader Allen Truck Stop (Site) located at 21 Pond View Avenue in Amesbury, Massachusetts (**Figure 1**). This work is funded by Merrimack Valley Planning Commission's (MVPC's) EPA funded Brownfields Assessment program on behalf of the City of Amesbury (City). The Site has been previously assessed using EPA Brownfields funding, but this work is needed to identify remaining data gaps in consideration of the long environmental history including documented releases of the following hazardous substances and petroleum products at the Site: arsenic, beryllium, chromium, nickel, certain polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl's (PCBs), hexachlorobutadiene, methylene chloride, gasoline and fuel oil. The identification of these releases has led to four (4) RTNs for the property. Only one of these RTNs has been closed (3-30391 via a Response Action Outcome [RAO]). As such, more work is necessary to achieve regulatory closure of the other three RTNs and/or to understand what cleanup needs to be implemented as a part of future Site redevelopment activities. This will help the Site get closer to regulatory closure with an intent to ultimately expedite the future sale of the property along with its redevelopment to a higher and better use.

Credere's DGA consisted of reviewing online available environmental records using Massachusetts Department of Environmental Protection (MassDEP's) Waste Site & Reportable

Release database (i.e. Mass Searchable Sites) to research pertinent information about the Site, its use history, and history of environmental response actions. Credere developed a list of outstanding work that is needed to complete MassDEP required response actions and achieve a MassDEP Permanent Solution (PS). Credere will define preliminary budgets for each remaining work item to assist MVPC with determining if this Site is a candidate for further assessment through its EPA funded Brownfields program.

The remainder of this letter describes the Site, a history of its use, prior environmental work completed to date, Credere's assessment of outstanding work along with a budget for this work:

Site Description

The Site is located on an approximately 6.77-acre parcel to the north of residences along the western side of Route 150, to the south of Hunt Road, and to the east of South Martin Road. The Site is currently used as a parking lot and is owned by the City of Amesbury, who acquired the property in 1994 for back taxes.

The Site is primarily vegetated land with a paved parking area in the general center of the Site. Two Site buildings were formerly within the paved parking area and included: one building used as a truck service station with office space, and the other building was a diner/motel. The truck facility burned down in March 2005, and the diner/motel was acquired and removed by the American Diner Museum of Providence, Rhode Island, the same month. As such, there are currently no Site buildings on the Site (see **Figure 2**).

History of Use

Since the 1950s, petroleum products were used and stored onsite related to automotive service station, filling station, and truck facility activities. The following underground storage tanks (USTs) and aboveground storage tanks (ASTs) are documented for the Site:

UST/AST	Quantity	Type of Tank
UST	4	3,000-5,000-gallon gasoline
	2	10,000-gallon diesel
	1	6,000-gallon fuel oil
AST	1	275-gallon fuel oil
	1	60-gallon grease
	1	600-gallon motor oil
	1	300-gallon antifreeze
	3	30,000-gallon liquid natural gas

The USTs were removed in May 2006 (overseen by TRC), resulting in the two additional RTN's discovered during UST removal (3-25880 discovered during the diesel fuel UST removal and 3-25885 during the gasoline UST removal). Evidence of contamination was not observed during removal of the fuel oil UST. It is presumed the ASTs were removed in conjunction with building removal from the Site (i.e., circa 2005).



The southwest adjoining property is a large auto salvage yard. Waste Management, Inc. owns Titcomb Pit Landfill, which occupies land to the west of the Site. An undeveloped property adjoins the Site to the east across Route 150. Residential properties adjoin the Site to the South. Interstate 495 adjoins the Site to the north.

Soil generated during grading activities for an offsite urban redevelopment project were reportedly stockpiled onsite between 2003 and 2005. This stockpiled soil was removed by 2009. In 2009, as part of closure activities for the north-adjoining Titcomb Pit Landfill, the former pump islands were removed under oversight by TRC and the parking area was repaved for use by Waste Management employees. In addition, a retention pond was constructed immediately north of the parking area (offsite). From 2015 to present, it appears additional materials (e.g., gravel, sand, etc.) are stored onsite prior to utilization.

Prior Environmental Reports

Phase I Environmental Site Assessment (ESA), Higgins Environmental Associates, Inc. (HEA), December 11, 2002¹

HEA completed a Phase I ESA for the City of Amesbury dated December 11, 2002 which also included an active soil gas survey, sampling of two previously installed groundwater monitoring wells, and test pitting as part of the Phase I ESA during November and December 2002.

- Soil Gas Survey – HEA completed an active soil gas survey on a fifty-foot square grid across the exterior of the Site. Each survey location was screening with a photoionization detector (PID). Results indicated most readings were between non-detect and 3 parts per million by volume (ppm_v), with the higher readings between 3 and 6.9 ppm_v observed near the UST area.
- Monitoring Well Sampling – Two groundwater monitoring wells that were previously installed onsite (MW-051 and MW-104; installation details unknown) were sampled as part of this Phase I ESA for laboratory analysis of volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), and halogenated volatile organic compounds (HVOCs). Laboratory results indicated no exceedances of the Massachusetts Department of Environmental Protection (MassDEP) 310 CMR 40.00: Massachusetts Contingency Plan (MCP) Method 1 Groundwater Standards GW-2 standard; however, numerous compounds were detected above laboratory reporting limits.
- Test Pitting – HEA advanced 24 test pits throughout the Site. Some solid waste was encountered in the west-central portion of the Site. No laboratory samples were collected from the test pit excavations.

The HEA Phase I indicated that groundwater impacts by volatile organic compounds (VOCs) identified at the upgradient Titcomb Pit Landfill were consistent with those identified in Site groundwater by HEA. Based on test pits excavated in November 2002, HEA concluded that buried wastes extend onto the west-central portion of the Site from the adjacent Titcomb Pit Landfill. The

¹ This report was not available to Credere for review. Details of this report were summarized in the February 2007 Phase I Site Investigation Report prepared by TRC.

HEA assessment also indicated that potentially contaminated stormwater runoff generated from the abutting automotive salvage yard could impact the Site property.

Subsurface Investigation, TRC Environmental Corporation (TRC), 2004-2005²

TRC conducted subsurface investigations at the Site on behalf of MVPC in 2005, which included a ground penetrating radar (GPR) survey, soil boring advancement, monitoring well installation, surface soil sampling, and sampling of drain solids.

- **GPR Survey** – The GPR survey was conducted on April 20, 2005 and covered six individual areas across the Site. The GPR survey identified seven subsurface anomalies consistent with six documented USTs for the Site. The seventh anomaly was located near the Site entrance along Pond View Avenue. The suspected location of the seventh UST (6,000-gallon fuel oil) could not be included in the GPR survey due to thick vegetation.
- **Soil Borings** – Ten soil borings were advanced in December 2004 (two soil borings) and April 2005 (eight soil borings) as part of the subsurface investigations (B-1 through B-10), eight of which were completed as monitoring wells (MW-1, MW-3 through MW-8, and MW-10). A total of 11 soil samples were collected for laboratory analysis of one or a combination of the following: volatile organic compounds (VOCs), VPH, EPH, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and MCP metals. Results indicated the following contaminants were detected in exceedance of the MassDEP MCP Method 1: Soil Category S-1 Standards S-1/GW-2 standard: C9-C10 aromatics, arsenic, beryllium, chromium, and nickel. TRC concluded soil contamination was limited to the approximate 2 to 8-foot depth interval and metals appeared to be limited horizontally to the central portion of the property near the former truck facility/service station.
- **Groundwater Sampling** – Eight groundwater samples were collected in January 2005 (two samples) and June 2005 (six samples) for laboratory analysis of one or a combination of the same compounds as the soil samples, with the exclusion of pesticides. Results indicated the PCB aroclor 1260 was detected in exceedance of the MCP GW-3 criteria in one monitoring well. TRC concluded further sampling is warranted to determine if these results are reproducible and therefore representative of the Site groundwater conditions at this location.
- **Surface Soil Sampling** – Two surface soil samples were collected on April 22, 2005 in the area of reported stained soils on the western portion of the Site (SS-1 and SS-2). The surface soil samples were submitted for laboratory analysis of VPH, EPH, and MCP metals. Result indicated no detected exceedances of S-1/GW-2 criteria.
- **Drain Solids Sampling** – Three samples were collected on June 8, 2005 from the material that had accumulated in the floor drains of the former truck facility Site building (Sludge-1 through Sludge-3). The drain solid samples were submitted for laboratory analysis of EPH, polycyclic aromatic hydrocarbons (PAHs), and MCP metals. Results indicated

² This report was not available to Credere for review. Details of this report were summarized in the February 2007 Phase I Site Investigation Report prepared by TRC.

numerous petroleum contaminants and metals were detected in the drain solid samples. TRC concluded the results suggested a release to the subsurface via the floor drains.

Immediate Response Action (IRA) Plan, TRC, July 11, 2006

TRC completed an IRA Plan for the MassDEP on behalf of the City of Amesbury regarding the UST releases Release Tracking Numbers (RTNs) 3-25880 which was assigned on May 12, 2006 for the one diesel release and 3-25885 which was assigned on May 11 for one gasoline release at the Site.

The Plan summarized the following IRA activities for both RTNs which MassDEP had previously orally approved:

- Report the condition of the diesel USTs to MassDEP after they are removed from the ground as soon as practical
- Continue to conduct an assessment of conditions via field screening/sampling
- Removal of up to 20 cubic yards to impacted soil incidental to the investigation process
- If utilities such as storm drains are present near the release site, conduct a field inspection and screening and report findings to MassDEP
- Report observations as noted above to the MassDEP spill support line or via email

Specific additional IRA activities proposed for approval to be implemented at the Site as part of this IRA plan included the following:

- Planning and permitting
- Mobilization to perform exploratory excavation of contaminated soil
- Exploratory excavation of soil and environmental oversight
- Post-excavation confirmatory soil characterization
- Soil stockpile waste characterization
- Offsite soil management and Site restoration
- Closure documentation

IRA Status Report, TRC, January 26, 2007

TRC prepared this status report for the MassDEP on behalf of the City of Amesbury regarding the completion of activities outlined in the 2006 IRA Plan. Exploratory excavation of contaminated soil was performed on October 3, 2006. Approximately 50 cubic yards (30 cubic yards more than the originally approved 20 cubic yards) of petroleum-impacted soil was excavated from the former diesel and gasoline UST areas.

Five post-excavation confirmatory soil samples were collected from the excavation area. The samples were submitted for laboratory analysis of EPH (east and west sidewalls of diesel UST



excavation), EPH and VPH (north sidewall of diesel UST excavation), and VPH and lead (north sidewall and base of gasoline excavation area). Results were compared to the MCP S-1/GW-2. Laboratory analytical results indicated the north sidewall of the diesel excavation area contained concentrations of C9-C10 aromatics, C9-C18 aliphatics, and C11-C22 aromatics in exceedance of the S-1/G-2 standards. An existing pump island inhibited the exploratory excavation from continuing north, which led to residual contamination left in place.

TRC concluded that IRA activities will be complete once the pump island is removed and the remaining petroleum-contaminated soil north of the diesel UST area is excavated and removed.

As of the date of this status report, the excavated soil remained stockpiled at the Site; therefore, no soil stockpile waste characterization had been performed. It was later reported this stockpile was removed from the Site on October 1, 2007.

Phase I – Initial Site Investigation Report, TRC, February 9, 2007

TRC completed a Phase I Site Investigation for MVPC to present the concentrations of oil and hazardous materials detected in soil and groundwater at the Site in support of the Tier Classification addressing RTN 3-25667. TRC outlined the following additional investigation activities that comprised the conceptual Phase II Scope of Work (SOW) for the Site based on prior environmental assessment at the Site:

- Re-sampling of the eight groundwater monitoring wells to verify PCB and metals results
- Geophysical investigation to investigate the location/presence of subsurface disposal systems, storm sewers, and other buried utilities
- Investigate the discharge locations of the floor drains to target as needed supplemental investigations
- Additional soil boring/soil sampling to verify soil conditions and support risk assessment calculations
- Additional test pit explorations to evaluate the potential for solid waste encroachment associated with the adjacent Titcomb Pit Landfill

Phase I – Initial Site Investigation Report, TRC, May 2007

TRC completed a Phase I Site Investigation for MVPC to present the concentrations of oil and hazardous materials detected in soil and groundwater at the Site in support of the Tier Classification addressing RTNs 3-25880 and 3-25885. Conclusions were consistent with the conclusions of the February 2007 Phase I Site Investigation for RTN 3-25667.

Phase II Comprehensive Site Assessment (CSA) SOW, TRC, December 18, 2009

TRC prepared a Phase II CSA SOW for the City of Amesbury on behalf of MVPC to address identified contamination related to RTNs 3-25667, 3-25880, and 3-25885. The proposed SOW included the following:



- Advancement of 21 additional soil borings (B-11 through B-31)
 - B-11 through B-20 analyzed for arsenic, chromium, hexavalent chromium, nickel, pH, and oxidation-reduction potential (ORP)
 - B-21 through B-31 analyzed for VPH and EPH
- Collection of six groundwater samples from existing groundwater monitoring wells for analysis of VPH, EPH, PCBs, total MCP metals, and dissolved MCP metals

To Credere's knowledge, this work was never executed.

RTN 3-30391 Class B-1 Response Action Outcome Statement and Supporting Information, HEA, October 20, 2011

A release notification was received by MassDEP on October 14, 2011 and assigned RTN 3-30391 regarding stockpiled soils onsite. HEA subsequently prepared the Response Action Outcome (RAO) Statement with supporting information for the City of Amesbury, dated October 20, 2011. The stockpiled soil is understood to be urban fill generated offsite during grading activities for an urban development project placed onsite between 2003 and 2005. The stockpile is located within the base of a small sand and gravel pit, adjacent to the Titcomb Pit Landfill.

Five composite soil samples were collected from the stockpiled soil (UFILL#1 through UFILL#5) and submitted for laboratory analysis of metals, VOCs, SVOCs, PCBs, total petroleum hydrocarbons (TPH), flashpoint, reactivity, corrosivity, conductivity, and percent solids. Results indicated an exceedance of arsenic and total chromium above the S-1 criteria from UFILL#1 and UFILL#4. These specific areas were divided into three parts for additional sampling (UFILL#1A/B/C and UFILL#4A/B/C). The additional samples were submitted for laboratory analysis of total chromium. No exceedances of total chromium were detected in these subsequent stockpile soil samples.

Using this data, HEA completed a Method 1 Risk Characterization and concluded a Condition of No Significant Risk currently exists for this RTN.

Notice of Non-Compliance with the MCP, MassDEP, August 5, 2013

The MassDEP issued a letter Notice of Noncompliance with the MCP for the Site addressed to the City of Amesbury, dated August 5, 2013. The MassDEP the following required next steps and applicable due dates:

- By October 4, 2013, submit and IRA Status Report or an IRA Completion Report
- By February 4, 2014, submit a Phase II Report and a Phase III Remedial Action Plan
- By May 4, 2014, submit a Phase IV Report
- By November 4, 2014, submit a RAO Statement

IRA Status Report No. 1, HEA, October 4, 2013

In response to the August 5, 2013 Notice of Noncompliance issued by MassDEP, HEA prepared this IRA Status Report No. 1 for the City of Amesbury. After reviewing the environmental assessment history for the Site, HEA concluded no additional IRA activities have occurred as part of the written July 11, 2006 IRA Plan, with the exception of approximately 50 cubic yards of petroleum contaminated soil generated during removal of the USTs removed from the Site on October 1, 2007.

IRA Status Report No. 2, HEA, April 3, 2014

HEA submitted a follow up IRA Status Report in accordance with the August 5, 2013 Notice of Noncompliance requiring IRA Status Reports to be prepared every six months until an IRA Completion Statement is submitted. No additional IRA activities have taken place since the October 2013 IRA Status Report.

Correspondence, MassDEP, June 12, 2019

MassDEP issued a letter to the City of Amesbury regarding the identification of the Site as a disposal site which requires cleanup and response actions. MassDEP encouraged the City of Amesbury to undertake the necessary remedial actions and outlined liability provisions, response actions and applicable deadlines, and procedures to follow to undertake response actions in the letter correspondence.

Summary of Site RTNs

The following table summarizes each RTN that is associated with the Site and its current status:

RTN	Current Status	Material Released	Action Taken
3-25667	Active	Historical Undocumented Releases	<ul style="list-style-type: none"> February 9, 2007: Phase I – Initial Site Investigation Report December 18, 2009: Phase II CSA SOW prepared but never executed August 5, 2013: Notice of Non-Compliance issued by MassDEP
3-25880	Active	Diesel from UST	<ul style="list-style-type: none"> May 12, 2006: RTN assigned by MassDEP July 11, 2006: IRA Plan submitted to MassDEP January 26, 2007: IRA Status Report submitted to MassDEP. Report detailed removal of approx. 50 cubic yards of petroleum-contaminated soil with residual contaminated soil left in place
3-25885	Active	Gasoline from UST	<ul style="list-style-type: none"> May 2007: Phase I – Initial Site Investigation Report December 18, 2009: Phase II CSA SOW prepared but never executed August 5, 2013: Notice of Non-Compliance issued by MassDEP



RTN	Current Status	Material Released	Action Taken
3-30391	Closed	Stockpiled soil	<ul style="list-style-type: none"> October 14, 2011: Release notification received by MassDEP. Stockpile was sampled for laboratory analysis resulting in no exceedance of applicable regulatory criteria October 20, 2011: RAO Statement submitted to MassDEP

Findings and Opinions

Credeere evaluated the known cumulative environmental assessment and remedial activities previously conducted at the Site to assess if any data gaps exist. A discussion of the results of the evaluation are discussed below:

- Eight groundwater monitoring wells were installed and subsequently sampled from 2004 to 2005. Results indicated PCB concentrations in exceedance of the GW-2 standard in one location (MW-5). No groundwater sampling has been conducted since, although extensive Site renovations and regrading have occurred, resulting in the likely loss of all monitoring wells. The groundwater monitoring wells should be located, if possible, and resampled. If the groundwater monitoring wells were destroyed during Site renovation activities, new groundwater monitoring wells should be installed in appropriate locations and sampled to assess the existing groundwater conditions.
- The 6,000-gallon fuel oil UST removed in May 2005 was not assessed with laboratory samples due to the lack of evidence of contamination (visual, olfactory, PID response). The tank grave requires assessment to confirm no evidence of a release from this former UST remains onsite.
- The location of any/all subsurface utilities is unknown. A geophysical investigation should be conducted to document the location of subsurface utilities and stormwater structures.
- Identify the discharge locations of the former floor drains and identify if additional assessment is warranted relating suspected releases to the floor drains. Due to the extensive onsite renovation, the foundation to this building was removed, therefore it may not be possible to trace the floor drains to the discharge location. A geophysical survey should be attempted so any onsite terminus can be investigated.
- Petroleum-contaminated soil was observed in general from 2 to 8 feet below ground surface in the vicinity of the former USTs. Some petroleum-contaminated soil was removed in 2006, however residual contamination is documented to have been left in place due to the presence of the pump station limiting the excavation. Additional petroleum-contaminated soil removal has not occurred at the Site to date. Soil borings should be advanced at appropriate locations to delineate the remaining petroleum-impacted soil and assess the existing subsurface soil conditions.
- Solid waste was documented in the northern portion of the Site in 2002, however the full extent has not yet been delineated.



Conclusions and Recommendations

Based on the findings and opinions of the DGA, Credere concludes that there are several data gaps that need to be further assessed. Prior to initiating any field work to assess these gaps, a Tier I or Tier II Extension must be submitted to MassDEP notifying them of the intent to perform additional response actions. The Tier II Extension report should also stipulate the following steps and deadlines toward assessing the IRA Condition.:

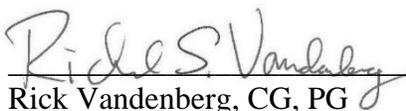
- A reassessment of current groundwater concentrations and flow direction
- A Site-wide geophysical survey to document subsurface conditions
- An assessment of floor drains discharge locations
- A more definitive assessment of residual petroleum-impacted soil

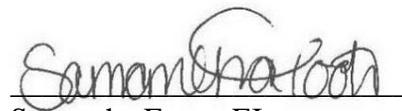
Based on information gathered during this additional assessment, Credere can determine whether the active RTNs 3-25880 and 3-25885 can be closed out and linked to the existing RTN 3-25667. This would simplify the reporting requirements toward attaining compliance with the MCP which will require submittal of a Phase II Comprehensive Site Assessment (Phase II CSA). The deadline of the Phase II CSA should be discussed with representatives of the MassDEP also.

The methods of the proposed assessment will be incorporated into a Brownfields Site-Specific Quality Assurance Project Plan (SQAPP) that will be provided to pertinent project stakeholder for review prior to commencing any additional field work and prior to submittal of the Tier II Extension request. The SSQAPP will be devised in consultation with our LSP and with likely include other investigation work aimed getting the Site closer to regulatory closure.

If you should have any questions or comments regarding the above review, please feel free to contact me at (207) 828-1272 ext. 30.

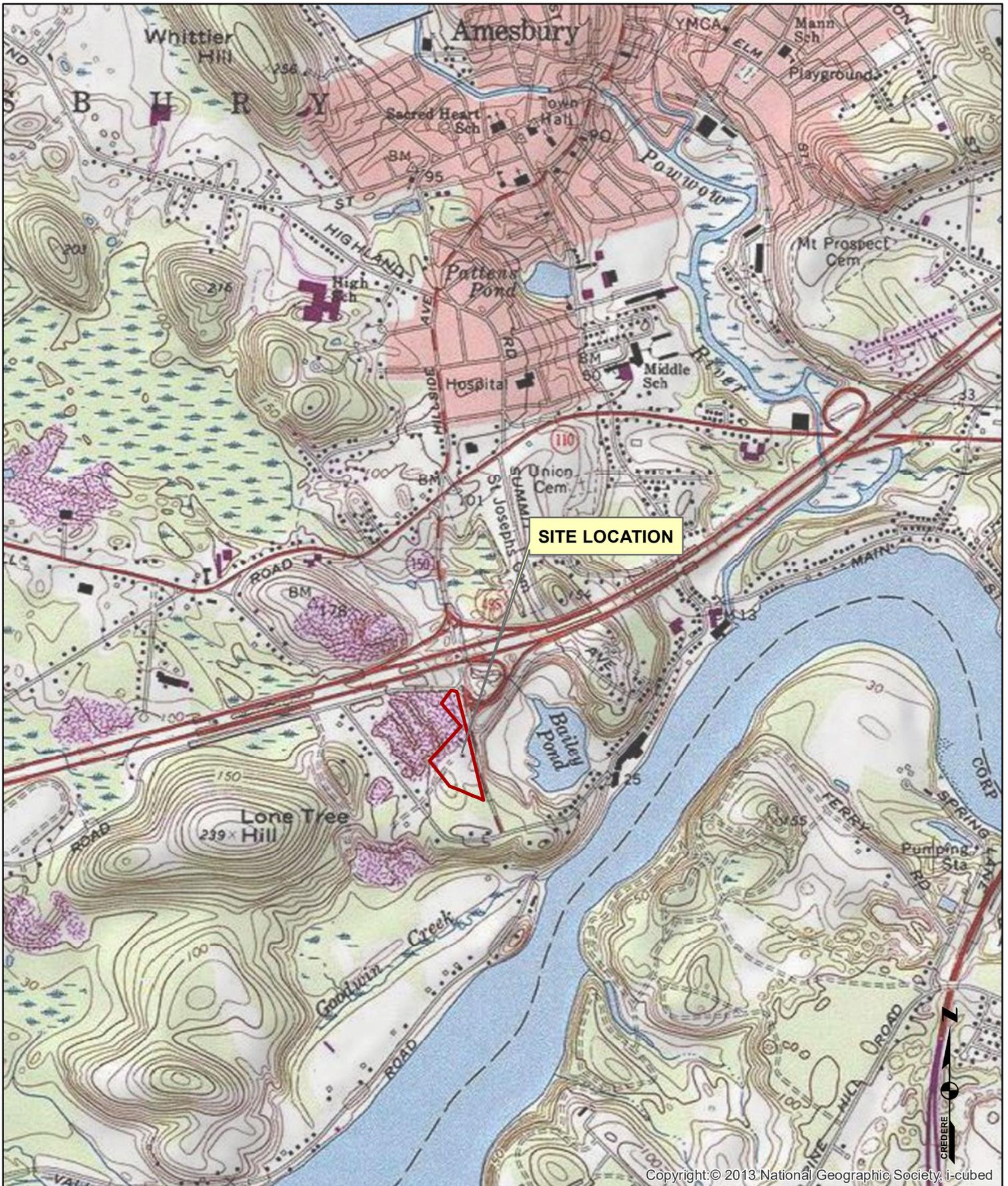
Sincerely,
Credere Associates, LLC


Rick Vandenberg, CG, PG
Senior Project Manager


Samantha Foote, EI
Engineer I

cc: Jennifer Hughes, MVPC

Enclosures: Figure 1 – Site Location Plan
Figure 2 – Detailed Site Plan



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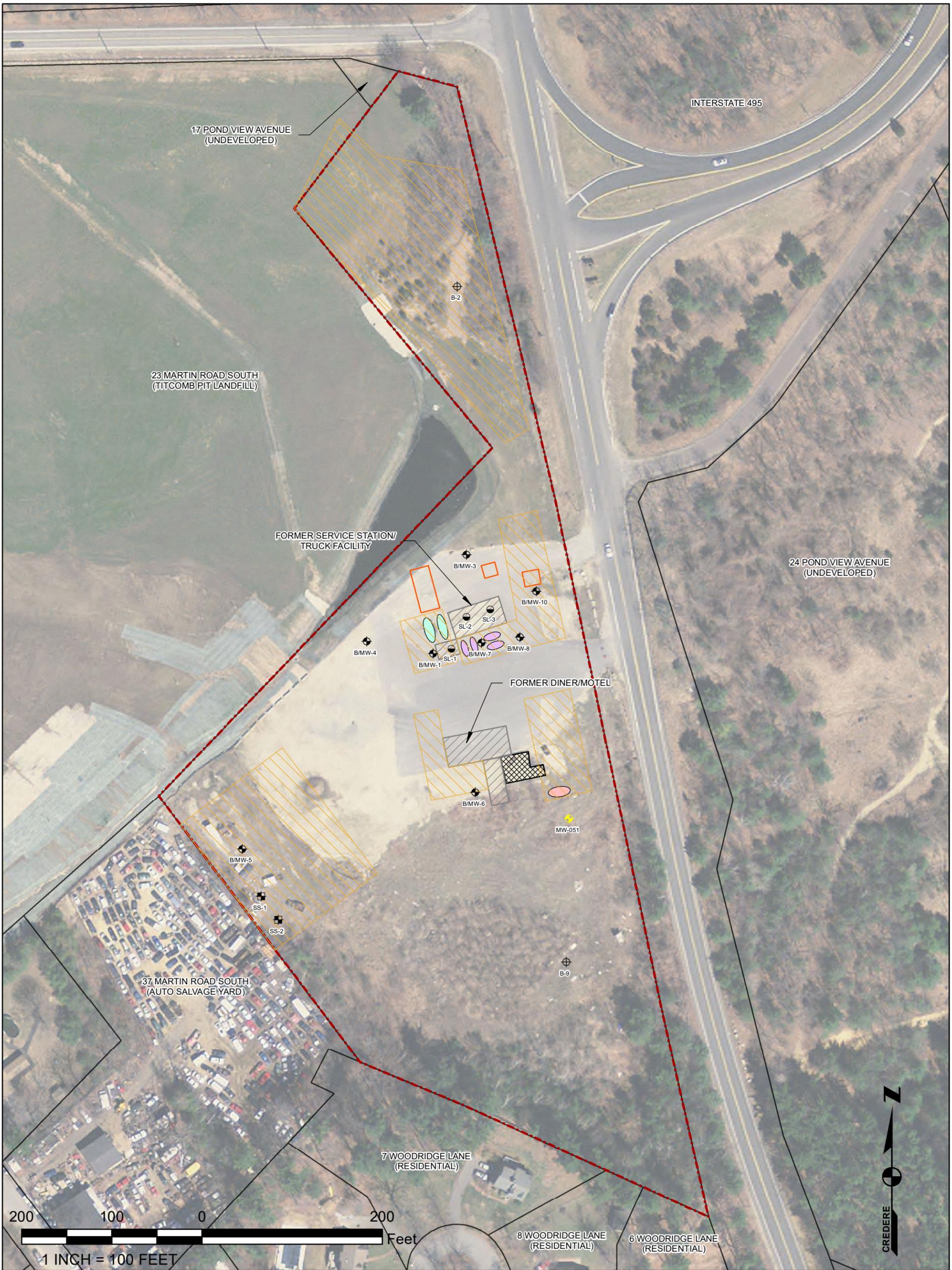
FIGURE 1 SITE LOCATION PLAN

FORMER TRADER ALLEN'S
TRUCK STOP
21 POND VIEW AVENUE
AMESBURY, MASSACHUSETTS

1,000 0 2,000 Feet

1 INCH = 2,000 FEET

AMESBURY



NOTES:
 1. EXISTING CONDITIONS AND FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM THE CITY OF AMESBURY, ESRI ORTHO IMAGES, MASSACHUSETTS OFFICE OF GIS, AND PRIOR ENVIRONMENTAL REPORTS.
 2. THE LOCATION OF MW-104 COULD NOT BE ASCERTAINED.
 3. THE LOCATION OF THE 24 TEST PITS EXCAVATED BY HIGGINS ENVIRONMENTAL ASSOCIATES IN 2002 COULD NOT BE ASCERTAINED.

DRN BY: **SAF** DATE: **03/26/2020**
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FIGURE 2 DETAILED SITE PLAN

FORMER TRADER ALLEN'S TRUCK STOP
 21 POND VIEW AVENUE
 AMESBURY, MASSACHUSETTS

- MONITORING WELL (UNKNOWN, PRIOR TO 2002)
- SOIL BORING (TRC, 2004/2005)
- SLUDGE SAMPLE (TRC, 2004/2005)
- SURFACE SOIL SAMPLE (TRC, 2004/2005)
- SOIL BORING/MONITORING WELL (TRC, 2004/2005)
- FORMER BUILDING FOOTPRINT
- AREA SURVEYED BY GPR (2005)
- FORMER FUEL OIL UST
- FORMER GASOLINE UST
- FORMER DIESEL UST
- FORMER PUMP ISLANDS
- REMAINING BUILDING FOUNDATION
- SITE BOUNDARY
- PARCEL BOUNDARY