1. TITLE AND APPROVAL PAGE

SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN (SSQAPP)
ADDENDUM TO GENERIC QAPP RFA #14069

Property:
Prime Tanning Facility
20 Sullivan Street, Berwick, Maine
EPA Brownfields Cleanup Grant # BF - 00A00037 - 0

Prepared By:
Credere Associates, LLC
776 Main Street, Westbrook, Maine 04092
(207) 828-1272

February 26, 2016

Below is a listing of the names, titles, signatures, and signature dates of officials approving this Site Specific Quality Assurance Project Plan (SSQAPP) Addendum:

FRANK GARDNER Digitally signed by FRANK GARDNER DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=FRANK GARDNER, dnQualifier=0000004413 Date: 2016.03.03 07:36:03 -05'00' 3/3/2016

Frank Gardner — Date
EPA Brownfields Project Officer

Bryan Hogan 03/03/2016

Bryan Hogan — Date
EPA Quality Assurance Officer

3/2/2016

Benjamin Guidi — Date
Maine DEP Project Manager

3/2/2016

John Stoll — Date
Town of Berwick, Town Planner, Grantee

Judd R. Newcomb 3/2/2016

Judd Newcomb, CG — Date
Credere Associates, LLC Quality Control Officer

Rip Patten 3/2/2016

Rip Patten, PE, LSP, LEED-AP — Date
Credere Associates, LLC Program Manager

TABLE OF CONTENTS

1. TITLE AND APPROVAL PAGE 1

2. INTRODUCTION 4

3. PROBLEM DEFINITION 5

3.1 Site Description 5
3.2 Site History 5
3.3 Prior Investigations 5

4. PROJECT DESCRIPTION & TIMELINE 12

4.1 Redevelopment Scenario 12
4.2 Proposed Project Timeline 12

5. CONCEPTUAL SITE MODEL 13

5.1 Site Description 13
5.2 Site History 13
5.3 Physical Setting 13
5.4 Source Areas & Current COCs 14
5.5 Nature and Extent of Contamination 15
5.6 Exposure Pathways and Potential Receptors 16
5.7 Conceptual Site Model Summary 17

6. SAMPLING DESIGN 19

6.1 Objectives 19
6.2 Sub-Slab Soil Vapor Screening 20
6.3 Asbestos Sampling 20
6.4 Lead-Paint Screening 20
6.5 PCB-Containing Building Material Sampling 20
6.6 Universal/Hazardous Waste Inventory 21
6.7 Waste Characterization Sampling 21
6.8 Ground Penetration Radar Survey 21
6.9 Test Pitting & Soil Sampling 21

7. SAMPLING AND ANALYTICAL METHOD REQUIREMENTS 23

7.1 Sub-Slab Soil Vapor Screening 23
7.2 Asbestos Sampling 23
7.3 Lead-Paint Screening 23
7.4 PCB-Containing Building Material Sampling 23
7.5 Universal/Hazardous Waste Inventory 24
7.6 Waste Characterization Sampling 24
7.7 Ground Penetrating Radar Survey 24
7.8 Test Pitting & Soil Sampling 24

8. REGULATORY STANDARDS 26

8.1 Sub-Slab Soil Vapor Screening Results....26
8.2 Asbestos Analytical Results....26
8.3 Lead-Paint Screening Results....26
8.4 PCB-Containing Building Material Sampling....26
8.5 Soil Sampling....26
8.6 Waste Characterization Sampling....27

FIGURES

Figure 1 .... Site Location Plan
Figure 2 .... Detailed Site Plan
Figure 3 .... Project Organization Flow Chart

TABLES

Table 1 .... Sample Reference Table
Table 2 .... Standard Operating Procedure (SOP) Reference Table

APPENDICES

Appendix A .... Analytical Sensitivity and Project Criteria Tables
Appendix B .... Current Project Schedule

2. INTRODUCTION

Credere Associates, LLC (Credere) was retained by the Town of Berwick, Maine (Berwick), to prepare this Site-Specific Quality Assurance Project Plan (SSQAPP). Berwick is using three U.S. Environmental Protection Agency (EPA) Brownfield Cleanup Grants (BF - 00A00037 - 0) to facilitate cleanup activities at the former Prime Tanning Facility located at 20 Sullivan Street in the Town of Berwick, Maine (the Site). *These grants are only for three (parcels 4, 5, and 6) of the seven parcels that make up the Prime Tanning facility; however, this SSQAPP has been prepared for all seven parcels in anticipation of possible use of EPA funds for future work on the other parcels.*

This SSQAPP Addendum is intended to address certain sampling that will occur as part of characterization prior to and during cleanup activities; specifically, sampling of hazardous building materials, and sampling of subgrade soil vapor.

This SSQAPP presents the following information:

- The problem definition including a site description and summary of background information for the Site
- Project description and timeline
- A preliminary conceptual site model (CSM)
- The cleanup objectives and proposed sampling design, techniques, and rationale
- Site-specific field sampling and analytical methodology
- Regulatory standards applicable to the Site for each proposed sampling media

This SSQAPP was prepared to be used in concert with Credere's Generic Quality Assurance Project Plan (QAPP) referenced under EPA Quality Assurance Tracking: Request for Assistance (RFA) #14069, revision dated April 15, 2014, which was prepared for all of Credere's EPA Brownfields work in Maine. The quality assurance and quality control (QA/QC) procedures outlined in Credere's Generic QAPP will be followed for this investigation program including sample collection, handling, and analysis of samples; chain-of-custody; and data management, documentation, validation and usability assessment. Sampling as outlined in this SSQAPP will not occur until receipt of approval from EPA and the Maine Department of Environmental Protection (DEP).

Figure 1 shows the general location of the Site in Berwick, Maine; **Figure 2** presents pertinent Site features; and **Figure 3** is Credere's Project Organization Flow Chart for the Prime Tanning project team.

3. PROBLEM DEFINITION

3.1 SITE DESCRIPTION

The Site is located at the center of downtown Berwick, Maine, at 20 Sullivan Street at the intersections of School Street (Route 9), Sullivan Street, and Wilson Street. The 8-acre Prime Tanning complex is currently owned by the Town of Berwick, and is identified as tax map U-4, lot 146, but had recently been subdivided into 7 contiguous lots (see Figure 2) covered mostly by one mill building which was constructed over many years with numerous additions. Additionally, there are several smaller out buildings on the property. The Site is located within a mixed residential and commercial area of Berwick.

The Site building is currently unheated. Previous heat was provided via fuel oil fired steam boilers. Fuel oil was stored in aboveground storage tanks (ASTs), which were removed during closure of the facility.

Water service is provided publicly by municipal Berwick Water Department. Electrical service is provided by Central Maine Power.

Wastewater is not currently generated at the Site. Historically, process wastewater was discharged to Prime Tanning's pretreatment plant prior to being discharged to the municipal wastewater system. The pretreatment plant operated from the 1970s to the facility closure in 2008. The pretreatment plant is located on an adjacent parcel (Lot 147) owned by the Town of Berwick. The pretreatment plant discharged to the adjacent wastewater pump station (Lot 148), which is also not part of the Site. Prior to the 1970s, discharges were likely directly to the channelized stream that runs beneath the Site building, which discharges to the Salmon Falls River.

3.2 SITE HISTORY

Manufacturing operations began on the Site as early as 1877 and the Site was occupied thereafter by a tannery, wool pulling works facility, a sash and door manufacturer, a reed manufacturer, a carriage manufacturer, an oil company, a laundry facility, a shoe factory, and a lumber company. Tannery operations occurred at the Site from approximately 1930 until 2008 when the mill closed and the Prime owners filed for bankruptcy protection. In 2014, the Town of Berwick acquired the Prime Tanning property because of 5 years of owed back property taxes.

3.3 PRIOR INVESTIGATIONS

The follow are summaries of prior environmental reports completed for the Site. Some investigations were completed for the Site as well as adjoining parcels to the north and northwest. Only information pertaining to the Site is summarized below.

Secondary Sourced Hazardous Waste Documents, 1985-1997

The following summary of older pertinent environmental information regarding the Site was summarized from Ransom Environmental Consultant, Inc.'s (Ransom's) June 14, 2010, Environmental Site Assessment (ESA) for the Site:

On June 21, 1985, Maine DEP inspected the Site for hazardous waste and associated violations. Improper storage area sizes, labeling, training plans, and contingency plans were identified as violations. A shut-off gate valve was installed for closure whenever chemicals or hazardous materials were handled at the facility; however, as a results of improper use, releases continued to occur to the Salmon Falls River. As a result of identified violations and continued discharges to the Salmon Falls River, a 1988 Administrative Consent Agreement and Enforcement Order required the installation of corrosion resistant tanks, restricting the unloading area at the facility, the completion of employee training, and sealing a floor drain. Prime Tanning agreed to prepare a contingency plan for the Site to address the new requirements and avoid future violations. However, a subsequent inspection on November 18, 1994, identified omissions from the contingency plan, improper spill containment, and improper labeling of hazardous waste as violations.

Additionally, Summit Environmental Consultants, Inc. (Summit) prepared closure documentation for removal of a 5,000-gallon mineral spirits of non-halogenated solvent waste storage tank from the Neutralization Plant that was used between 1986 and 1997.

Phase I ESA, ENSR Corp. (ENSR), October 2007

ENSR prepared a Phase I ESA for the Site on behalf of Meriturn Partners, and identified the following recognized environmental conditions (RECs) for the Site:

- Former tannery operations that likely included the use and disposal of oils, solvents, chromium solutions, and wastewater; as well as the potential burial of waste hide (leather) scraps.
- Potential use and disposal of petroleum or dry-cleaning chemicals associated with a former oil company and laundry facility.
- Potential release of petroleum from six underground storage tanks (USTs, 4 fuel oil, 1 diesel, 1 gasoline) removed from the Site with little or no documentation about conditions or closure
- Historical industrial use of the Blue Sort building that included processing of hides
- Likely industrial and sanitary discharge from the Site to the Salmon Falls River prior to connection to the municipal sewer in 1970

Secondary Sourced Hazardous Waste Documents and RCRA Closure, 2008-2010

The following summary of older pertinent environmental information regarding the Site was summarized from Ransom's June 14, 2010, ESA for the Site:

On September 10, 2008, Prime Tanning notified Maine DEP of their intention to close out their Large-Quantity Generator status in conjunction with closure of the Berwick, Maine, facility. The facility formerly generated D001 ignitable wastes derived from mineral spirits and D007 chromium wastes. The letter documented 33 spills of hazardous and non-hazardous materials to

the Site between 1983 and 2008, and the locations of hazardous waste storage and accumulation areas.

Tewhey Associates prepared a Hazardous Waste Closure Plan that outlined steps for closure of the Berwick facility in November 2008 in accordance with Maine DEP Chapter 851, Section 11. Per the plan, Maine DEP RAGs were to be used as cleanup goals during Site closure certification. Remedial actions included cleaning the internal floor trench system, assessment and remediation of the hazardous waste storage and satellite accumulation areas, testing and remediation of the dye/dry weigh up rooms, shutdown and remediation of the wastewater treatment plant (located off-Site), locating and properly disposing of leather residue, completing an inventory, proper documentation, and shipment of remaining chemicals and chemical waste, and conducting a historical assessment and interviews.

Maine DEP provided conditional approval of the plan on November 20, 2008, particularly highlighting the need to remove all leather waste from the Site. To address DEP's conditions, subsequent plan addendums indicated, per interviews, waste material was not intentionally disposed onsite but were temporarily stored south of Wilson Street with a gravel fill cover (Addendum No. 1); and test pitting was proposed for additional investigation (Addendum No. 2).

Tewhey Associates prepared a Test Pit Program at Prime Tanning Berwick letter report date February 16, 2009. The report indicated leather scraps were identified in test pits excavated along Wilson Street. Based on these results and the need for removal of the observed leather wastes Addendum No. 3 recommended further delineation of leather wastes.

A Follow-up Test Pit Program letter report dated April 8, 2009, indicated an approximately 6-inch layer of dark-brown to black leather waste at a depth of 2.5 feet below ground surface (bgs) underlain by clay was identified on the northern portion of the Site along Wilson Street. Leather waste was estimated to be approximately 200 cubic yards in an area of 800 square yards. Removal of the overlying 2.5 feet of sand, removal and offsite disposal of the leather waste, and backfilling with sand and additional fill as necessary was recommended.

On April 22-23, 2009, approximately 400 tons of leather debris was removed from the parking lot north of the main facility. After this removal action, the RCRA Closure Certification was submitted to Maine DEP in May 2009. The report documented chemicals formerly used at the Site, disposal of hazardous and universal wastes, remediation and cleaning of the floor drain system, cleaning the treatment plant pipelines, emptying ASTs, disposal of leather scraps, and consolidating machinery and unused chemicals to the Prime Tanning's Hartland, Maine, facility. As of June 2010, Maine DEP indicated closure activities appeared to have met closure requirements.

Phase I ESA, Ransom, June 14, 2010

Ransom prepared a Phase I ESA for Southern Maine Regional Planning Commission (SMRPC) on behalf of Prime Tanning Co. Inc. and identified the following RECs and other environmental concerns for the Site:

- Former tannery operations including documented use and release of oils and hazardous materials at the Site including observed oil and chemical staining throughout the facility
- Former use of portions of the Site by an oil company and laundry facility, and potential use, storage and disposal of petroleum or dry-cleaning chemicals
- Historical generation, storage, and releases of hazardous materials at the Site that may have impacted soil, soil vapor, and/or groundwater
- The lack of information available about conditions or closure of diesel or fuel oil USTs, and potential release of petroleum from these former USTs
- Documented buried leather debris (hides) identified on the Site and the unknown construction history of the Site buildings indicate hides, leather scraps, construction/demolition debris, or other solid waste may have been buried at the Site
- Use, storage and potential releases of oil and/or hazardous materials associated with historical occupation by a shoe factory and lumber company
- Unknowns associated with the former garage in the northwest portion of the Site
- Historical uses of adjacent and upgradient properties including industrial uses may have impacted environmental conditions at the Site
- Potential release to soil and groundwater as evidence by oil and chemical staining throughout the tannery facility

Additionally, the following non-scope items were identified in the Phase I ESA:

- Suspect asbestos containing building materials (ACM), polychlorinated biphenyl (PCB)-containing building materials, and lead-based paint (LBP) observed in/on the Site buildings

PCB Caulk Screen, Summit, August 26, 2010

Summit collected ten (10) samples of caulking associated with exterior wall and window systems and submitted them for PCB analysis. No PCBs were detected above the laboratory reporting limits in the ten caulking samples.

Asbestos Identification Survey, Summit, September 1, 2010

Summit collected samples of suspect ACM throughout the Site buildings. Asbestos was identified in the following:

- Pipe insulation and mudded fittings
- 9 inch by 9 inch green floor tile and associated mastic
- Refractory mud in boilers
- Brown and gray asphalt sidings on interior walls
- Various roofing materials on 20 different roof areas

- Various asphalt sidings on exterior walls
- Mastic and expansion joint on exterior piping
- Window caulking

Phase II ESA, St. Germain-Collins (SGC), October 15, 2010

Based on previous Phase I ESA findings and conclusions, SGC identified six Areas of Concern (AOC) for the Site, as follows:

- AOC 1 – Tannery South
- AOC 2 – Tannery Central
- AOC 3 – Tannery North
- AOC 4 – Lot 133 (offsite parking lot)
- AOC 5 – Lot 95 (offsite former residential lot)
- AOC 6 – Lot 130 (offsite warehouse)

Contaminants of concern for the investigation were petroleum hydrocarbons, solvents, metals, polycyclic aromatic hydrocarbons (PAHs), and PCBs. SGC collected soil vapor, soil, and ground water samples for analysis. Based on results SGC concluded the following:

- Vapor intrusion is a concern based on the detection of 1,3-butadiene, tetrachloroethylene (PCE) and chloroform exceeding the residential and commercial soil gas targets (SGTs) in AOC 1 and AOC 2.
- Soil across the Site contained leather, brick, wood and metal debris.
- PAHs were detected in AOCs 1, 3, 4, and 6; however, results were considered representative of the urban environment.
- Lead results exceeded the residential and commercial RAGs in AOCs 1, 3, and 4.
- Methyl tert-butyl ether (MTBE), vinyl chloride and naphthalene were detected in groundwater in AOCs 1, 2, and 3 exceeding the Maximum Exposure Guidelines (MEGs). These compounds were not found in soil gas samples collected from the Site; therefore, were not considered to have an exposure pathway.
- Due to Site limitations, soil and groundwater was not assessed in areas beneath the Site buildings.

Maine DEP VRAP No-Action Assurance Letter, December 3, 2010

Maine DEP issued a No Action Assurance Letter on December 3, 2010, under their Voluntary Response Action Program (VRAP). This letter releases the VRAP applicants and future owner from certain environmental liabilities under the following conditions:

- Preparation of a Soil Management Plan (SMP) for Maine DEP approval prior to Site excavation or foundation removal in AOCs 1, 2, 3, or 6 (AOC locations are provided in the 2010 Phase II ESA report).
- Notification of Maine DEP prior to Site excavation or foundation removal on AOCs 1, 2, 3, or 6, and oversight of such work by a qualified environmental professional. If contaminated soil is identified, the Maine DEP must be notified and additional soil characterization and/or remedial actions may be required.
- If contaminated soil is to be left in place and not covered with a new foundation, a cover system consisting of a cover/marker layer and at least 12 inches of clean fill, or a Maine DEP-approved impervious layer, must be installed.
- If a new building is constructed, a vapor management system to prevent the potential migration of petroleum and VOC vapors into the structure must be developed and stamped by a Maine Professional Engineer, and approved by the Maine DEP.
- If existing buildings are to remain in place, indoor air quality sampling must be conducted and results must comply with current appropriate regulatory guidelines/standards for the proposed reuse of the building. If indoor air samples do not meet these guidelines, a remedial plan must be submitted to the Maine DEP for review and approval.
- If building demolition/renovation activities are to be conducted onsite, potentially hazardous building construction materials (e.g., asbestos) must be handled and disposed of appropriately.
- Additional investigation is required to determine if PCE vapors are migrating off-Site. If the Site is being considered for residential use, additional investigation and remediation may be required.
- Groundwater extraction shall be prohibited without the written permission of the Maine DEP. It is understood that public water will be supplied to the property if future redevelopment requires potable water.
- Upon completion of the redevelopment and any associated remediation, a Declaration of Environmental Covenants consistent with the final Certificate of Completion or No Further Action letter, that is acceptable to the Maine DEP, must be prepared and recorded at the York County Registry of Deeds.

Preliminary Feasibility Study, Summit, January 6, 2011

Based on previous Phase I and Phase II ESA findings and conclusions and the past uses of areas of the Site, Summit identified areas beneath the building slabs with varying levels of potential for soil contamination based. Summit then evaluated two remedial alternatives for contaminated soil at the Site after potential removal of buildings and building slabs and foundations at the Site. These options included

- Option 1: Cover Entire Site and Option 2: Cover Areas with a Higher Potential for Soil Contamination. Summit estimated Option 1: Cover Entire Site to cost, which included

covering the entire Site with a marker layer over the exposed soil surface, and placement/compaction of a 12-inch soil cover, which they estimated to cost $312,000.

- Option 2: Cover Areas with a Higher Potential for Soil Contamination, which included covering those areas of Site which they identified with "medium to high" potential for subsurface contamination, as described above. This option was estimated to cost $228,000.

Supplemental Site Investigation, SGC, January 18, 2011

Based on previous Phase II ESA findings, SGC performed additional investigation to clarify the extent of PCE in soil vapor that was identified on the southern end of the Site. The results indicated PCE and/or trichloroethylene (TCE) exceeded residential and/or commercial SGTs in 5 locations across the southern half of the Site, and these and/or other VOCs were detected in soil gas below applicable SGTs at all locations sampled on the Site. SGC concluded a PCE source area appeared to be beneath the main tannery complex. SGC recommended additional characterization of VOCs in soil gas.

Phase I ESA and Phase I ESA Update, SGC, May 25, 2012, and August 9, 2013, respectively

SGC completed a Phase I ESA on May 25, 2012 on behalf of Verrill Dana. The report was updated after a period of 180 days on August 9, 2013. The Phase I ESAs identified the following RECs:

- The presence of heavy chemical and oil staining in the main tannery building, in proximity to trench drains whose connection to the sewer system could not be confirmed
- The long history of the Site as a tannery, involving the storage, use, and possible release of petroleum products and hazardous substances
- The detection of soil, groundwater, and soil vapor contamination on the Site
- Government spill reports documenting petroleum and chemical releases

4. PROJECT DESCRIPTION & TIMELINE

4.1 REDEVELOPMENT SCENARIO

The current redevelopment plans for the Site involves the redevelopment of some portions of the buildings and demolition of others. The proposed redevelopment includes the following:

Lot 1 (69,041 total ft^2)	31,000 square feet (ft^2) light industrial (reuse of existing building)
	8,000 ft^2 office (reuse of existing building)
Lot 2 (90,491 total ft^2)	42,500 ft^2 light industrial (reuse of existing building)
Lot 3 (33,503 total ft^2)	79,000 ft^2 3-story mixed use retail and residential (new construction)
Lot 4 (69,630 total ft^2)	69,000 ft^2 "Main Street" and parking area (new construction)
Lot 5 (18,708 total ft^2)	8,500 ft^2 convenience retail (new construction)
Lot 6 (39,011 total ft^2)	39,000 ft^2 greenspace and trail (new construction)
Lot 7 (21,654 total ft^2)	52,000 ft^2 3-story mixed retail and residential (reuse and new construction)

4.2 PROPOSED PROJECT TIMELINE

This project is expected to be completed in multiple phases over one or more years. A current project schedule covering all aspects of this project, including this SSQAPP, is included as **Attachment B**. This is a dynamic schedule and tasks may be performed later based on document regulatory review time, contractor availability, and development schedule.

5. CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) was developed using the findings of the previous investigations and will be updated in subsequent reports as new information becomes available. This CSM includes a description of the physical setting of the Site, Contaminants of Concern (COCs), nature and extent of contamination, exposure pathways, and potential human and environmental receptors.

5.1 SITE DESCRIPTION

A detailed Site description consisting of Site use, Site location as depicted on **Figure 1**, and Site utilities is included in **Section 1.2**.

5.2 SITE HISTORY

A description of Site history as it relates to current environmental conditions at the Site is included in **Section 1.3**.

5.3 PHYSICAL SETTING

Topography

According to the United States Geological Survey (USGS) Topographic Map of the Somersworth Quadrangle, Maine, topography at the Site is generally gently sloping to the southwest towards the Salmon Falls River. An excerpt from this map is included as **Figure 1**.

Geological Characteristics

Surficial Geology

According to the Maine Geological Survey (MGS) Surficial Geology map of the Somersworth Quadrangle, Maine, the Site is mapped as glacial till consisting of silt, clay, sand and gravel of variable composition. Soil borings from previous investigations indicate that surficial geology is layered sand, silty sand, and clay deposits. Artificial fill including leather scraps, metal, glass, and rubble were also identified on the Site.

Bedrock Geology

According to the MGS Bedrock Geology of the Somersworth Quadrangle, Maine, map, bedrock beneath the Site consists of Silurian feldspathic quartz-biotite granofels, calc-silicate granofels and subordinate quartz-biotite schist of the Berwick Formation. During drilling of soil borings and excavation of test pits across the Site, refusal indicating possible bedrock was encountered at 4 to 12 feet, although some locations went to up to 20 feet bgs without refusal.

Hydrology

Surface water at the Site drains to municipal storm drains that discharge to the Salmon Falls River (approximately 200 feet to the south) or to a channelized stream that runs across the Site

and discharges to the Salmon Falls River. The Salmon Falls River flows to the southeast and discharges to Piscataqua River and then to the Atlantic Ocean.

Previous investigation identified depths to groundwater across the Site ranging from approximately 3 to 6 feet bgs. Groundwater at the Site flows south towards the Salmon Falls River.

Changing Climate Concerns

Based on the National Oceanic and Atmospheric Administration (NOAA) interactive map of Sea Level Rise and Coastal Flooding Impacts (http:/coast.noaa.gov/slr/viewer/), sea level rise of up to 6 feet and associated increased coastal flooding is not expected to impact the Site.

The Site is located within 250-feet of the Salmon Falls River. According to FEMA Flood Zone Map 2301440006B, the southern tip of the Site is located within Zone AE, where base flood elevations have been determined during inundation by a 100 year flood; however, the majority of the Site is within zone X, which have been determined to be outside the 500 year flood plain. Greater storm frequency and intensity in a changing climate may result in more frequent high water levels and more frequent flooding of the southern portion of the Site. Increased frequency of extreme weather events may also impact exterior portions of the Site, and may results in increased erosion of improperly stabilized surface soil.

Based on the nature of the contaminants at the Site, a changing groundwater level may impact exposure to certain contaminants at the Site due to the changing distance between the water table and Site foundations.

Based on the nature of the proposed reuse of the Site, changing temperature, wildfires, changing dates of ground thaw/freezing, changing ecological zone, and saltwater intrusion table are not likely to effect the Site.

5.4 SOURCE AREAS & CURRENT COCS

Source Areas

Specific sources areas have not been identified at the Site to date; however, surface soil impacts appear ubiquitous across the Site. Buried leather waste and hides have previously been documented to contain COCs and are known to be present in the subsurface, and and partial remediation of leather waste has occurred in the northern portion of the Site. SGC speculated a VOC source area may be present beneath the main tannery building.

The Site buildings are also a source area for hazardous building materials.

COCs

Based on the identified source areas and previous environmental investigations, the following are COCs for the Site:

- PAHs including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and/or indeno(1,2,3-cd)pyrene) exceeding applicable residential and commercial RAGs
- Lead exceeding applicable residential and/or commercial RAGs
- Chromium associated with subsurface tannery/leather waste
- PCE and TCE soil gas concentrations exceeding residential and/or commercial SGTs and other VOCs in soil gas
- MTBE, vinyl chloride, chromium, and naphthalene in groundwater
- Asbestos in Site building components
- Lead in lead-paint coated surfaces
- PCBs in certain untested building materials (e.g., paints and light ballasts)
- Mercury and/or PCBs in certain universal wastes

5.5 NATURE AND EXTENT OF CONTAMINATION

PAHs and lead in surface and accessible soil were identified throughout the Site, and surface soil in all areas of the Site are conservatively considered to contain these COCs above applicable residential and/or commercial RAGs.

VOCs, SVOCs, PAHs, dioxin, and metals are associated with buried hides and other solid wastes including wood chips, urban fill, ash/coal ash, railroad ties, and leather tannery scraps in numerous areas of the Site. Hides have previously been remediated from the northern parking lot portion of the tannery facility, but were also documented on other areas. The lateral extent on other areas of the Site, including beneath the Site building, is not fully known and is considered a data gap, but will be delineated prior to remediation.

Chromium and naphthalene in groundwater were identified above applicable standards in the northern portion of the Site. MTBE was identified above applicable standards in groundwater in two locations across the southern and central portion of the Site. Vinyl chloride was identified above applicable standards in groundwater at GW-108 on the central portion of the Site. Based on limited groundwater data and limitations associated with Site building locations, the extent of these impacts and possible sources have not been well assessed. Based on the lack of continuity of detections of these compounds across the Site, the COCs are likely localized to near the wells. This was not assessed further as the Site is serviced by public potable water. Potential source areas beneath the Site building are a data gap, and will be further characterized prior to remediation.

PCE, TCE, 1,3-butadiene, and chloroform were identified in soil vapor on the Site at concentrations exceeding applicable residential and/or commercial SGTs across the southern half of the Site. Other VOCs were detected in soil gas below applicable SGTs at all locations previously sampled on the Site. The extent and source of VOCs in soil gas has not be fully characterized; however, SGC speculated the source appeared to be beneath the main tannery building. Potential source areas beneath the Site building are a data gap, and will be characterized prior to remediation. Since groundwater does not appear to be impacted by these compounds, the source is presumed to be contained to soil; however, in a changing climate a rising water table may come into contact with contaminated soil., thereby mobilizing the compounds to groundwater and possibly increasing indoor air concentrations.

ACM were identified throughout the Site building, including pipe insulation, cement board, tank insulation, floor tiles and associated mastic, mudded boiler insulation, asphalt siding on interior and exterior walls, a lab table, and most roof areas of the Site buildings.

The quantity of universal/hazardous or other regulated wastes in the Site building has not been fully characterized and will be further characterized prior to remediation.

5.6 EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS

Exposure pathways describe how a human or environmental receptor comes into contact with contaminants that may be present at the Site. Potential migration pathways through groundwater, surface water, air, soils, sediments, and biota were considered for each COC and each source. A migration pathway is considered an exposure pathway if there is a mechanism of contaminant release from primary or secondary sources, a transport medium, and a point of potential contact with receptors. Both current and potential future releases and migration pathways to receptors are considered. Exposure pathways presented in the CSM include the following:

Inhalation:	This pathway is primarily associated with soil or groundwater contamination within 30 (petroleum volatiles) to 100 (non-petroleum volatiles) feet of an occupied structure or preferential pathway. This pathway is applicable when receptors may inhale impacted media in the form of contaminated vapor. This pathway is also applicable when contaminated soil and/or groundwater are exposed via an excavation.
Dermal Absorption:	Exposure via dermal absorption occurs when receptors are exposed to chemical concentrations present in soil, groundwater, surface water, or hazardous building materials through direct contact with the skin.
Active Ingestion:	The active ingestion pathway represents exposure which may occur through the active ingestion of contaminant concentrations via a drinking water supply well, through agricultural products, or through direct consumption of soil (e.g., typically by children or improper hygiene/health and safety of soil workers).

Incidental Uptake:	This pathway is applicable when receptors may incidentally inhale or ingest impacted media in the form of contaminated dust, soil, chips, or airborne asbestos fibers.

Potential Receptors are categorized by duration of exposure and intensity of use at the Site. The receptor categories described in the CSM include the following:

Resident:	The residential receptor is defined by high durational exposure and high intensity usage which may occur through gardening, digging, and recreational sports. This group includes the occupants of a residential property or a residential neighborhood, or a daycare.
Commercial Workers:	Commercial receptors are those that are present at the Site for long durations but with low intensity exposure such as indoor office workers.
Excavation or Construction Worker:	Excavation or construction workers are present at the Site for short durations though intensity of use is high, such as during non-routine activities including construction or utility work. Examples include utility and construction contractors and landscapers.
Recreational or Park User:	Park users are characterized by low duration, i.e. less than two hours per day, and low intensity usage such as that which would occur during activities such as walking, shopping, and bird watching. For this project, this receptor class would apply to visitors to the Site and patrons of the restaurants, hotel, or other future commercial businesses at the Site.

5.7 CONCEPTUAL SITE MODEL SUMMARY

The COCs associated with contaminated soil and fill materials have the potential to impact future excavation/construction workers during the redevelopment, and future residents, park users, and commercial workers after redevelopment if the soil is not remediated appropriately. The potential exposure pathways to impacted soil are dermal absorption through contact with impacted media, active ingestion through consumption of impacted media (typically by children or soil workers), and incidental uptake of airborne soil particles that have migrated due to soil disturbance and wind erosion.

The COCs associated with contaminated groundwater have the potential to impact future excavation/construction workers during the redevelopment. The potential exposure pathways to impacted groundwater would be dermal absorption through contact with impacted media or inhalation of vapors from volatile COCs.

Volatile COCs in soil vapor on the Site could impact future residents, park users, and commercial workers after redevelopment via intrusions of vapor into indoor spaces and inhalation of volatile COCs.

If hazardous building materials (HBM, i.e., asbestos, lead paint, PCBs) are not properly addressed during redevelopment, primary impacted media would include indoor air, and interior

and exterior surfaces. The COCs associated with these items have the potential to impact future residents, park users, commercial workers, and construction workers. The potential exposure pathways to HBM are dermal absorption through contact with impacted media, active ingestion through consumption of impacted media (typically by children or soil workers), and incidental uptake of residual airborne particles or dust.

6. SAMPLING DESIGN

6.1 OBJECTIVES

This sample design outlines activities associated with the first phase of cleanup, which includes supplemental characterization of building materials, sub-slab vapor contamination, the abatement of hazardous building materials, removal of buildings, and characterization of soil beneath the current Site buildings. Sampling outlined here has been designed to fulfill the following objectives:

- Target potential subsurface source areas of contamination beneath the existing Site buildings and pre-characterize these areas for future offsite disposal
- Confirm the extent of hazardous building materials in the Site building and abate or manage these materials in accordance with applicable laws and regulations

The following tasks are proposed to address these objectives:

- Sub-slab soil gas screening prior to building removal
- Supplemental characterization of building materials, including sampling of potential asbestos, sampling of potential PCB-containing building materials, screening for lead in paint, and an inventory of universal or other regulated building component wastes.
- Abatement of asbestos by removal
- Removal and proper disposal of universal and other regulated wastes
- Removal of the Site buildings on Lots 4, 5, and 6, which may contain LBP or PCBs, to facilitate access to contamination beneath the buildings
- After removal of Site buildings, perform a ground penetrating radar (GPR) survey of the Site
- Excavate test pits and screen soil in areas beneath the current building, including areas of interest identified during subgrade soil vapor screening and the GPR survey
- Collect laboratory samples to characterize soils in areas identified as potential source areas for VOC contamination.

Each sampling task required for these cleanup activities is described in the following sections. **Table 1** includes the number and type of samples that are proposed to be collected, cross-referenced with the appropriate standard operating procedure (SOP). **Table 2** is an SOP reference table detailing the version of each SOP that will be used during the field sampling program.

Please note that laboratory samples will only be collected in accordance with the below sampling design for areas with EPA funding (Lots 4, 5, and 6). Laboratory sampling for the remaining lots (1, 2, 3, and 7) will not be conducted until EPA funding or other funding becomes available, but will be in accordance with the below sampling design.

6.2 SUB-SLAB SOIL VAPOR SCREENING

To obtain relative data beneath the building slabs that have previously been unassessed, 28 sub-slab soil gas points (SGPs) (CA-SG-1 through CA-SG-28) will be installed to identify hotspots and potential sub-slab source areas. Sub-slab screening data will be used in combination with post-demolition sub-slab observation and GPR results to assess the best locations for test pit excavation. Approximate locations of screening points will be laid out in a grid pattern and are depicted on **Figure 2**; however, locations will be biased in the field toward areas of suspected contamination (i.e., evidence of releases, historical fixtures, etc.).

6.3 ASBESTOS SAMPLING

An asbestos survey of the Site building has previously been completed by others. Credere will perform limited additional characterization of ACM in the Site building to ensure the previous survey is complete, confirm locations and quantities of ACM, and characterize any previously untested suspect materials. Sample results will be used to properly manage ACM during redevelopment of the Site. Credere anticipates up to 35 different suspect ACM samples (CA-PACM-1 through CA-PACM-35) will be collected in triplicate (i.e., 105 total samples). This sampling will be performed in accordance with Maine DEP Chapter 425 - Asbestos Management Rules. The number of samples actually collected will be dependent on the number and volume of suspect materials that are encountered.

After the abatement is complete, air clearance samples are required to confirm the efficacy of the abatement work according to Maine DEP Chapter 425 - Asbestos Management Rules. A minimum of 2 samples (CA-AC-1 [containment designation] through CA-AC-2 [containment designation]) per containment area will be collected.

6.4 LEAD-PAINT SCREENING

Painted surfaces throughout the Site buildings will be screened for lead in paint using an X-ray fluorescence (XRF) meter. The number of screening points will be dependent on the number of different types/colors of painted surfaces encountered in/on the Site building.

6.5 PCB-CONTAINING BUILDING MATERIAL SAMPLING

Previous PCB sampling focused only on caulking on the Site buildings. To supplement this previous characterization of the potential presence of PCB-containing building materials, the Site building will be inspected and additional suspect materials will be inventoried and considered for sampling. Materials that typically contain PCBs include caulk/sealants, paint, and mastics/adhesives that were manufactured between approximately 1930 and 1980 and are most commonly in areas that endure high wear, weather, high heat, or moisture. Example typical materials and locations that PCBs are encountered include, but are not limited to:

- exterior caulks and sealants around doors and window or within expansion joints (samples previously collected)
- paints in high heat or moisture areas such as boiler rooms, equipment rooms, locker rooms, bathrooms, or basements

- paints in high traffic or wear areas such as hallways or building entrances
- mastics beneath floor tiles

Up to 16 samples (CA-PCB-1 through CA-PCB-16) of materials, most likely to contain PCBs will be collected for analysis; however, the number of samples actually collected will be dependent on the number and volume of suspect materials that are encountered. Samples will be collected to assess if any hazards are present associated with PCBs in building materials and if the building materials are regulated as PCB bulk product waste as defined by 40 CFR 761.3, or as regulated Special Waste. If based on the initial results, additional assessment of PCB-containing building materials are needed, approval for additional samples will be proposed and approved under a separate SSQAPP amendment. Data will be used to properly manage building materials that may contain PCBs during restoration or demolition of the Site building.

6.6 UNIVERSAL/HAZARDOUS WASTE INVENTORY

Materials that once removed from use meet the definition of universal/hazardous waste according to the Maine DEP Chapter 850 – Identification of Hazardous Wastes include, but are not limited to, fluorescent lighting, fire alarms, thermostats (containing mercury), and lead-acid batteries. These types of materials at the Site will be inventoried. Inventory results will be used to properly manage universal and/or hazardous wastes prior to demolition of the Site building.

6.7 WASTE CHARACTERIZATION SAMPLING

Universal waste and other regulated building components or contents, and building material waste that are generated during the cleanup may require waste characterization sampling prior to offsite disposal. As necessary, samples will be collected and submitted for laboratory analysis prior to removal from the Site. Some universal waste or other regulated building components or contents may be adequately labeled and identifiable and may not warrant sampling in such instances.

6.8 GROUND PENETRATION RADAR SURVEY

After removal of the Site building, Credere will contract with DigSmart of Maine (DigSmart) to perform a geophysical survey to include ground penetrating radar (GPR) and possible metal detection at the Site to locate subsurface anomalies and potential source areas for further investigation.

6.9 TEST PITTING & SOIL SAMPLING

After the removal of the Site buildings and building foundation slabs, review of sub-slab screening data, and completion of the GPR survey, Credere will submit existing data, field observations, and figures to Maine DEP and EPA for consultation in determining appropriate test pitting number and locations. Test pits will be advanced to further refine suspect source areas and improve understanding of subsurface conditions that have not previously been explored due to the presence of the Site buildings.

Based on discussions with Maine DEP and EPA, locations of interest for test pitting and field observations will be areas of staining, petroleum or solvent odors, buried tannery solid waste, subsurface anomalies, or other areas as determined during consultation with Maine DEP and EPA.

During test pitting, if potential VOC source areas are identified (Based on field screening and observations), laboratory samples will be collected and analyzed for VOCs.

Specific test pit locations and number of samples will be provided in an SSQAPP Amendment after collection of required data and consultation with Maine DEP and EPA.

7. SAMPLING AND ANALYTICAL METHOD REQUIREMENTS

The proposed sampling activities will be conducted according to **Table 1**. Field activities will be conducted in accordance with the SOPs included in Credere's Generic Maine QAPP RFA #14069, which are referenced on **Table 2**.

7.1 SUB-SLAB SOIL VAPOR SCREENING

Temporary SGPs will be installed through the foundation slab in the Site building. A hole will be drilled through the concrete floor slab using a 3/8-inch drill bit and rotary hammer drill. Immediately upon breaking through the slab, tubing will be placed in the hole with modeling clay used to temporarily seal the hole at the surface. The hole will be screened using a ppbRAE 2000 PID, or equivalent, for at least 5 minutes and the maximum observed concentration as well as concentration every 30 seconds will be recorded. Sub-slab conditions and slab thickness will be observed. Immediately after observations, the hole will be filled with hydraulic bentonite clay. No laboratory analysis is proposed at this time. If sampling takes more than one day, the last five samples from the day before will be rescreened before beginning new locations.

7.2 ASBESTOS SAMPLING

Any sampling of suspect ACM at the Site will be conducted by a Maine Certified Asbestos Inspector and in accordance with Maine DEP Chapter 425 - Asbestos Management Rules. At least three discrete bulk samples will be collected from each type of homogenous suspect ACM. Minor destructive sampling may be required; however, will be conducted in areas infrequently accessed such as the equipment storage room or boiler room, areas obscured from view such as behind doors, or inside closets, and in a manner as not to compromise the building envelope. Samples will be analyzed by EMSL Analytical, Inc. (EMSL) of South Portland, Maine, using Polarized Light Microscopy (PLM) according to EPA Method 600/R-93/116.

Asbestos clearance air samples will be collected by Credere's Air Monitor according to Maine DEP Chapter 425 - Asbestos Management Rules. Air filter samples will be analyzed by EMSL using Phase Contrast Microscopy (PCM) according to National Institute of Occupational Safety and Health (NIOSH) Method 7400.

7.3 LEAD-PAINT SCREENING

Painted surfaces will be screened for the presence of lead using an XRF. Each accessible color and type of paint throughout the Site building will be screened and documented. Paints with screening concentrations of lead exceeding 1.0 milligram per square centimeter (mg/cm^2) will be considered LBP; however, paints with any concentration of lead will be considered lead-containing paint (LCP).

7.4 PCB-CONTAINING BUILDING MATERIAL SAMPLING

The building will be surveyed to locate the materials that are most likely to contain concentrations of PCBs exceeding the PCB bulk waste criteria. Samples will be collected using dedicated disposable tools and placed in laboratory provided glassware. Samples will be

analyzed for PCBs by Absolute Resource Associates (ARA) of Portsmouth, New Hampshire, using EPA Method 8082A and Soxhlet extraction method 3540C.

7.5 UNIVERSAL/HAZARDOUS WASTE INVENTORY

Materials as described in **Section 6.6** will be manually counted.

7.6 WASTE CHARACTERIZATION SAMPLING

Universal and Other Regulated Wastes

As required, universal and other regulated wastes identified within the Site building during the cleanup may be sampled for waste disposal characterization analysis. The specific analyses required by RCRA or by the disposal facility acceptance requirements will vary, therefore some or all of the following EPA Publication SW-846 analyses may need to be performed to characterize various unlabeled wastes: extractable petroleum hydrocarbons (EPH), VOCs, semi-volatile organic compounds (SVOCs), PCBs, RCRA 8 metals, pesticides, herbicides, ignitability, corrosivity, and reactivity. Alternately, some of these materials may be adequately labeled and identifiable, and may not warrant sampling in such instances. TCLP analysis will only be completed at the request of the accepting facility.

Building Material Waste

Building materials from the Site that are scheduled for off-site disposal as part of the cleanup will be sampled for waste disposal characterization analysis. Consistent with known Site conditions and applicable disposal facility requirements, disposal characterization will include analysis of the waste stream for total lead and/or PCBs. TCLP analysis will only be completed at the request of the accepting facility.

The building material waste stream will be sampled in accordance with ASTM E1908-10. It is anticipated that at least one (1) composite sample will be collected per 250 tons of waste to be disposed.

7.7 GROUND PENETRATING RADAR SURVEY

DigSmart will perform their GPR survey by transecting the Site in a continuous grid, along approximate North-South axis followed by East-West axis. Subsurface anomalies will be reported to Credere in real time, Credere will document the location of the anomalies, if any.

7.8 TEST PITTING & SOIL SAMPLING

Soil will be removed from the test pits by an excavator and stockpiled adjacent to the test pit on polyethylene sheeting to prevent surface contamination of the adjoining area. Test pits will be excavated until native soil is encountered unless the maximum extent of the excavator is encountered first. The sidewalls of the test pit will be logged in the field by a Credere geologist.

Soil will be collected for field screening in continuous 2-foot intervals, and will be screened for VOCs using a PID. Staining, odors, and evidence of fill materials will be noted.

Based on field screening results, VOC laboratory samples will be collected directly from a freshly scooped excavator bucket using a dedicated soil syringe immediately after exposure to the atmosphere to prevent loss of volatiles and degradation. These samples will be submitted to ARA and analyzed for VOCs.

After sampling, soil will be returned to the excavation in the approximate order it was removed. Soil will be compacted with the excavator bucket in 1-foot lifts. The surface will be finished such that no hazards are protruding from the ground (e.g., sheets of metals, large metal scraps).

8. REGULATORY STANDARDS

Sample results will be compared to the applicable state and/or federal standards/guidelines described below. **Appendix A** includes Analytical Sensitivity and Project Criteria Tables for the Site, which compares regulatory standards for each contaminant to the analytical limits of the laboratory method used.

8.1 SUB-SLAB SOIL VAPOR SCREENING RESULTS

PID screening results will be used on a relative basis to identify the areas of greatest contamination. Results will be used as one of several data sources for the selection of test pit locations after the removal of the building and foundation slab.

8.2 ASBESTOS ANALYTICAL RESULTS

Laboratory analytical results for asbestos bulk samples will be compared to the limit of 1.0% by weight as specified in Maine DEP Chapter 425 - Asbestos Management Regulations.

Laboratory analytical results for asbestos air samples will be compared to the limit of a total fiber count of less than or equal to 0.010 fibers per cubic centimeter (f/cc) of air (as analyzed by PCM) as specified in Maine DEP Chapter 425 - Asbestos Management Regulations.

8.3 LEAD-PAINT SCREENING RESULTS

Any detection of lead requires management during renovation in accordance with OSHA Lead in Construction Standard (29 CFR 1926.62) and proper waste characterization and disposal in accordance with State of Maine Solid Waste Management Regulations (06-096 CMR 400 et seq.) and Hazardous Waste Management Rules (06-096 CMR 850 et seq.).

8.4 PCB-CONTAINING BUILDING MATERIAL SAMPLING

PCB sample results will be compared to the 40 CFR 761.3 definition of PCB bulk product waste (50 milligrams per kilogram [mg/kg]). Materials that have been analyzed to contain total PCBs at a concentration of equal to or greater than 1 mg/kg but less than 50 mg/kg are not regulated by the Toxic Substance Control Act (TSCA) for disposal as long as they remain in use. However, if these materials are removed from use, such as through demolition or renovation, they must be disposed of at a facility that is licensed to accept this waste. Building materials which have been analyzed to contain total PCBs at a concentration of less than 1 mg/kg are unrestricted for future use and/or disposal.

8.5 SOIL SAMPLING

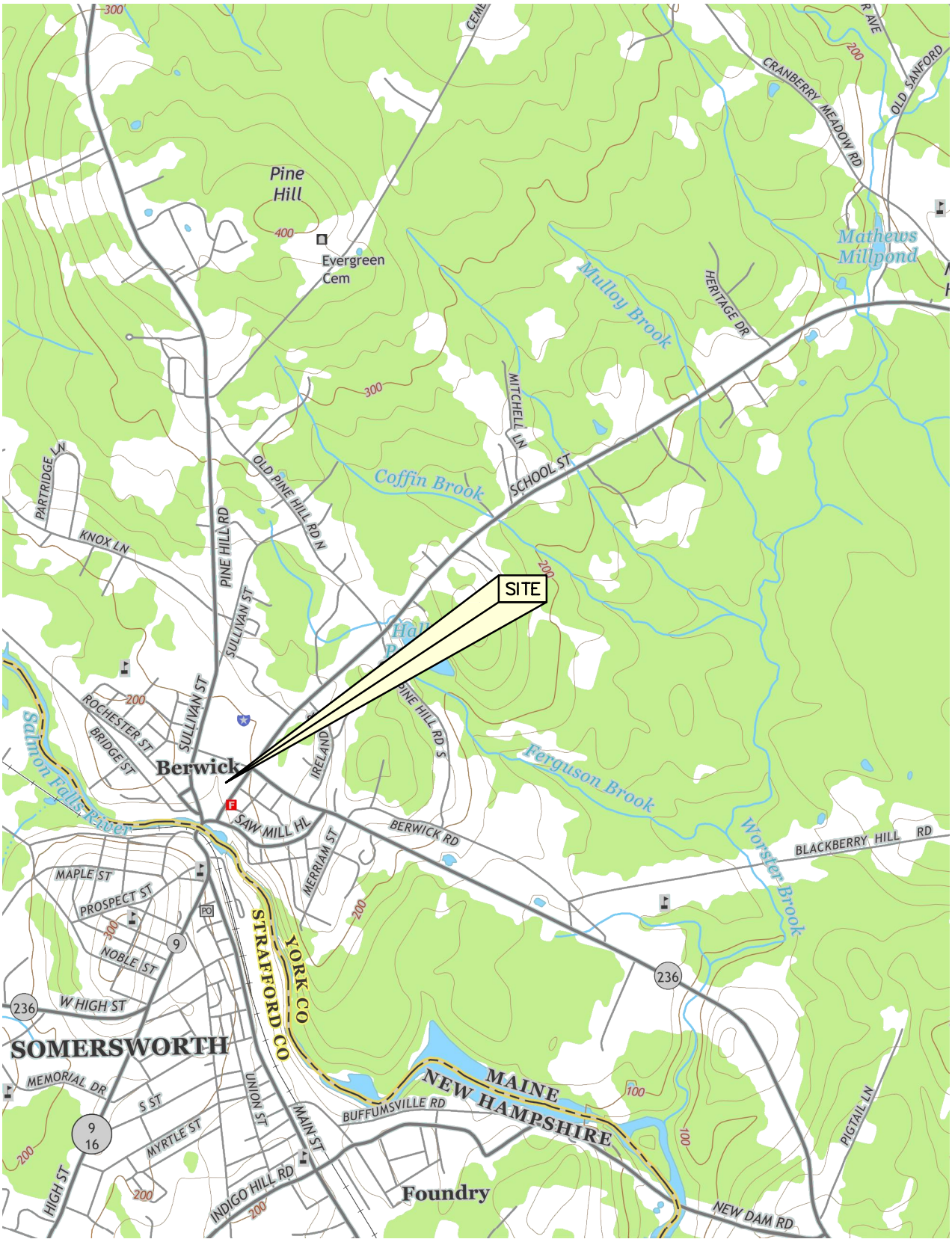
Laboratory results for soil samples will be compared to the February 5, 2016, Maine DEP Remedial Action Guidelines (RAGs) for Sites Contaminated with Hazardous Substances to assess if soil requires offsite disposal. To characterize metals as hazardous or non-hazardous, metals results will be compared to the exceeding the “20 times” rule comparing 20 times the TCLP limit to the total bulk concentration. If results exceed the 20 times rule, TCLP analysis

will be authorized and TCLP results will be compared to the limits per EPA Method 1311 and US EPA D Codes for characteristically hazardous wastes.

8.6 WASTE CHARACTERIZATION SAMPLING

Laboratory results for waste disposal characterization samples will be compared to the TCLP limits per EPA Method 1311 and US EPA D Codes for characteristically hazardous wastes or using the "20 times" rule comparing 20 times the TCLP limit to the total bulk concentration and compared to disposal facility requirements for an appropriate disposal facility.

FIGURES



USGS QUADRANGLE INFORMATION: SOMERSWORTH MAINE 7.5 MINUTE SERIES 2015

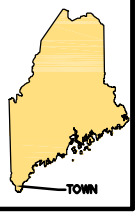
DRAWN BY: MTG	DATE: 12/01/15
CHECKED BY: JBO	PROJECT: 15001312

FIGURE 1 - SITE LOCATION PLAN

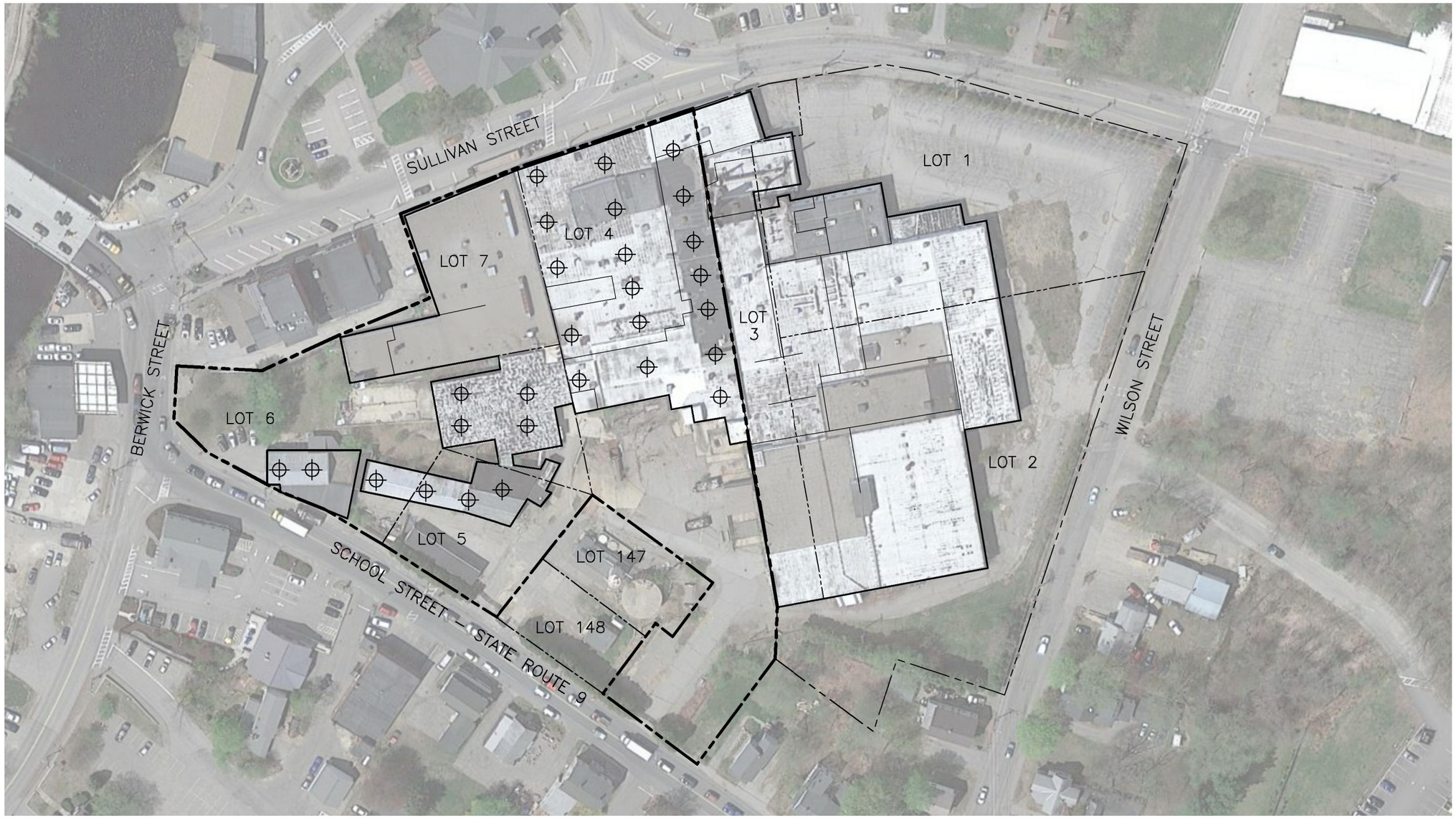
CREDERE ASSOCIATES, LLC
776 MAIN STREET
WESTBROOK, MAINE 04092
TEL: 207.828.1272
FAX: 207.887.1051
WWW.CREDERELLC.COM

PRIME TANNING FACILITY
20 SULLIVAN STREET
BERWICK, MAINE

GRAPHIC SCALE
2,000 0 1,000 2,000
1 inch = 2,000 ft.



J:\CREDERE\15001312 prime tanning\Berwick Master Plan\PrimeTanning SSQAPP.dwg plot date: 12/1/2015 9:35 AM



NOTES

1. EXISTING FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND BASED ON A COMBINATION OF AERIAL IMAGERY DOWNLOADED FROM GOOGLE EARTH, TOWN OF BERWICK TAX MAP, AND OTHER FIGURES FROM PREVIOUSLY PUBLISHED HISTORICAL REPORTS BY OTHERS.
2. PARCEL BOUNDARIES ARE APPROXIMATE AND BASED ON THE OCTOBER 8, 2014, DRAWING ENTITLED "FINAL PLAN – TANNERY ROW" FILED AT THE YORK COUNTRY REGISTRY OF DEEDS.

LEGEND

- SITE BOUNDARY
- PARCEL BOUNDARY
- BUILDING FOOTPRINT
- INTERIOR BUILDINGS WALL
- ⊕ PROPOSED SUB–SLAB SOIL VAPOR SCREENING LOCATIONS TO BE LABELED IN THE FIELD CA–SG–1 THROUGH CA–SG–28

GRAPHIC SCALE
100 50 0 100
1 inch = 100 ft.

FIGURE 2
DETAILED SITE PLAN

PRIME TANNING COMPANY
35 SULLIVAN STREET
BERWICK, MAINE

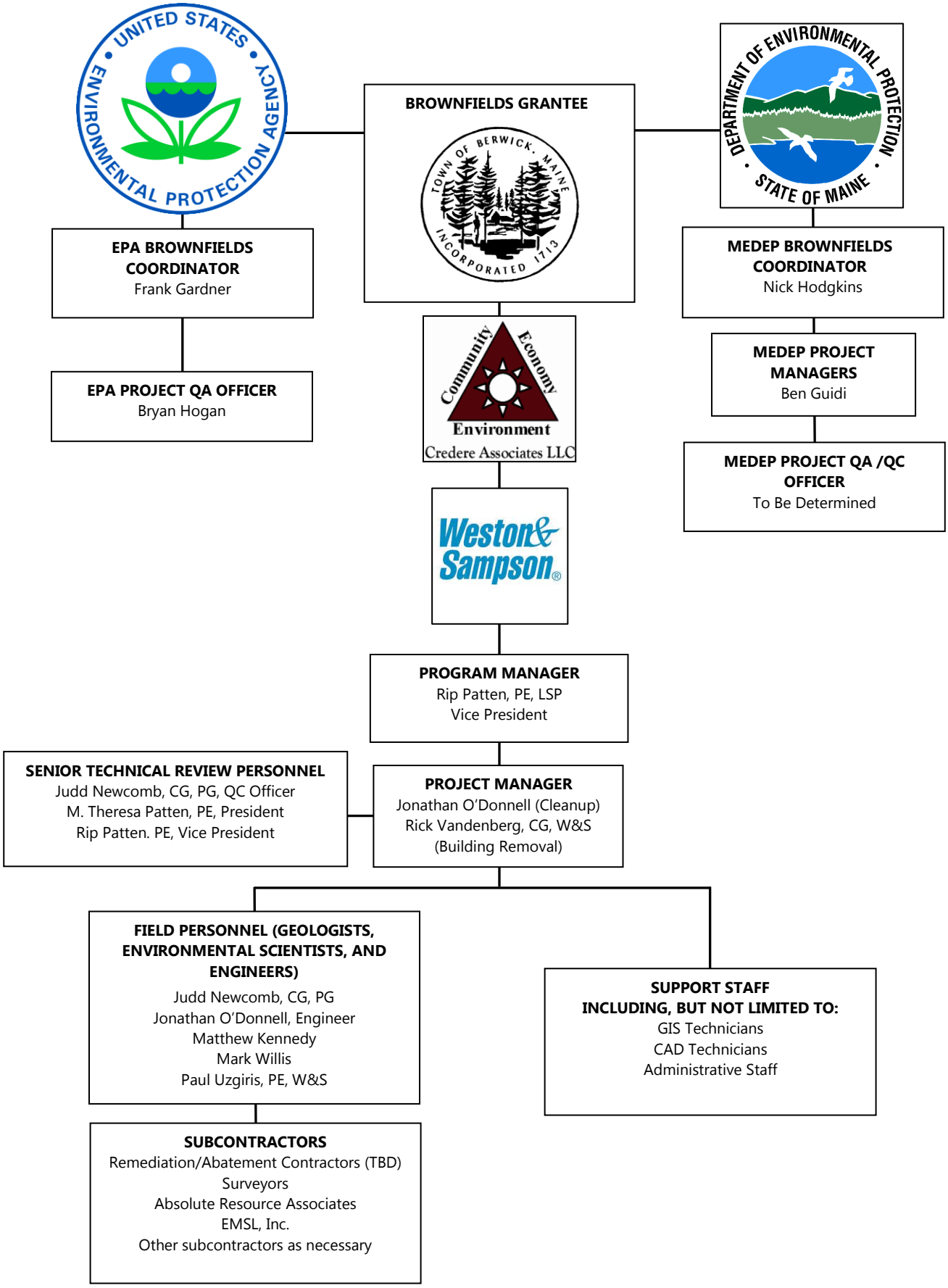
DRAWN BY: MTG
CHECKED BY: JBO
DATE: 12/01/15
PROJECT: 15001312

CREDERE ASSOCIATES, LLC
776 MAIN STREET
WESTBROOK, MAINE 04092
TEL: 207.828.1272
FAX: 207.887.1051
WWW.CREDERELLC.COM

Economy Community Environment

J:\CREDERE\15001312 prime tanning\Berwick Master Plan\PrimeTanning SSQAPP_ASD.dwg plot date: 3/3/2016 9:23 AM

Figure 3 – Project Organization Flow Chart



TABLES

Table 1: Sample Reference Table
Prime Tanning Facility
20 Sullivan Street
Berwick, Maine

Media to be Collected	Proposed Sample IDs	Sample Type	Sample Rationale	Sample Depth (feet bgs)	Field Analysis/ Observations	# of Samples for Analysis	QA/QC Samples	Analytical Method	Sample Container Information & Preservative (per location)*	Laboratory To be Used
Sub-Slab Soil Vapor	CA-SG-1 through CA-SG-28	Sub-Slab Soil Gas	To provide data for further characterization (GPR and test pitting) after the Site building is removed.	NA	Visual PID (ppb)	28 (field screening only)	None Anticipated	Field screened for VOCs using a ppbRAE Plus PID	None	None
Lead Paint	LBP-1 LBP-2 etc.	Lead Paint Screening	XRF Screening of paint on the Site buildings for lead content .	NA	Visual XRF	estimated 80	None Anticipated	Field Screened using X-Ray Fluorescence (XRF) Meter	None	None
Asbestos Containing Materials	CA-PACM-1(A-C) through CA-PACM-35(A-C)	Bulk materials	Three samples will be collected from each suspected asbestos-containing material	NA	Visual	estimated 105	Triplicate Sampling	Polarized Light Microscopy (PLM) EPA 600/R-93/116	Plastic zipper bags	EMSL, South Portland, Maine
	CA-AC-1 CA-AC-2	Air sample on filter media	Air clearance sampling will be conducted prior to releasing the asbestos work area			Min. 2 per work area	1 field blank	Phase Contrast Microscopy (PCM) NIOSH 7400	Filter in dedicated cassette	
PCB Building Materials	CA-PCB-1 through CA-PCB-16	Bulk Product	Additional characterization samples as required of bulk product building materials	NA	Visual	16	Minimum 1 duplicate per material type	PCBs - EPA 8082A with Soxhlet 3540C	4 oz. amber glass (chilled to 4°C)	Absolute Resource Associates, Portsmouth, NH
Universal and Other Regulated Wastes	CA-UW -1	Miscellaneous universal or other regulated waste materials as needed	Sampling for waste characterization	NA	Visual	1 per waste stream, as needed per Section 7.4 of the text	None Anticipated	RCRA 8 Metals - EPA 6010C/7471B VOCs - EPA 8260C SVOCs - EPA 8270D TPH - XXXXX PCBs - EPA 8082A Herbicides - EPA 8151A Pesticides - EPA 8081 Flashpoint/Ignitability - EPA 1030 pH - SW-846 7.2 Sulfide/Cyanide Reactivity - EPA 9045C, 7.3.4.2, 7.3.3.2 TCLP Lead (EPA 1311)	Various, including: 40 mL VOAs, Methanol Preserved 40 mL VOAs, HCl Preserved 4- 4 oz. glass (chilled to 4°C) 8 oz. HDPE	
Building Material Waste	CA-(waste type)-WC - 1	Characterizing waste materials for off-Site disposal	Sampling for waste characterization	NA	Visual	1 per waste stream or 250 tons of bulk material	None Anticipated	Lead - EPA 6010C/7471B PCBs - EPA 8082A TCLP Lead (EPA 1311)	4- 4 oz. glass (chilled to 4°C)	
Soil	CA-TP-1 (depth) etc.	Test Pit Soil Sample	Assess posible VOC source areas. **(Will be summarized in SSQAPP Amendment prior to collection.)**	TBD	Visual	TBD based on field screening results.	TBD	VOCs - EPA 8260C	40 mL VOAs, Methanol Preserved	

Notes:

Gray shading - indicates samples are contingent upon prior analytical results or conditions encountered in the field.

[1] Additional sample IDs may be necessary dependent on field conditions.

* - Additional details regarding analytical method, sample preservation, sample volume, and hold times can be found in Appendix D of Credere's Generic Maine QAPP.

TBD - To be determined in the field

NA - not applicable

RCRA 8 Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

bgs - below ground surface

PID - photoionization detector

VOC - volatile organic compound

PCB - polychlorinated biphenyl

PCM - Phase Contrast Microscopy

TCLP - Toxicity characteristic leaching procedure

SVOC - semi-volatile organic compound

Table 2: Standard Operating Procedure (SOP) Reference Table
Prime Tanning Facility
20 Sullivan Street
Berwick, Maine

Field SOPs

Field SOPs

SOP	SOP Description	Date
ASTM E1908-10	Standard Guide for Sample Selection of Debris Waste from a Building Renovation or Lead Abatement Project for Toxicity Characteristic Leaching Procedure Testing for Leachable Lead	2010
Credere-003	SOP for Test Pit Sampling	October 2006
Credere-004	SOP for Log Book Entries	October 2006
DR#011	Field Screening of Soil Sampling Using Photoionization and Flame-Ionization Detectors. Rev. 2 3/16/09	March 16, 2009
DR#024	Safety Protocol For the Use of The Innov-X Portable X-Ray Fluorescence Metals Analyzer. Rev. 1 6/9/06	June 9, 2006
DR#025	Protocol For Collecting Data Using an Innov-X Field Portable X-Ray Fluorescence Spectrometer For Certain Metals In Solid Media. Rev. 1 2/20/09	February 20, 2009
DR#026	Protocol For Collecting Soil Gas Samples. Rev. 00 2/20/09	February 20, 2009
DR#027	Protocol For Collecting Sub Slab Soil Gas Samples. Rev. 00 3/12/09	March 12, 2009
EPA SOP No. 2011 for Chip, Wipe, and Sweep Sampling	PCB Bulk Characterization Sampling and Wipe Verification Sampling	November 16, 1994
EPASOP#2009	Drum Sampling	November 16, 1994
EPASOP#2015	Air Sampling for Asbestos	November 17, 1994
MEDEP Chapter 425	Sampling of Asbestos	April 3, 2011
RMW-DR-006	Protocol for Collecting Soil Samples	April 3, 2009
RMW-DR-010	Protocol for Collecting Samples from Containers	March 11, 2009
RMW-DR-012	Chain of Custody Protocol	April 3, 2009
RMW-DR-017	Equipment Decontamination Protocol	March 23, 2009

Laboratory SOPs

SOP	SOP Description	Date
EMSL: PLM SOP	Polarized Light Microscopy	November 12, 2010
EMSL NIOSH 7400 SOP	Asbestos and Other Fibers by PCM	October 21,2011
RL-3	Preparation & Analysis of Organo-Chlorine Pesticides in Soil and Water Samples by Method 8081B	January 2013
RL-4	Analysis of Polychlorinated Biphenyls in Soil and Water Extracts by EPA 8082	January 2013
RL-5	Trace Metals by ICP EPA 200.7/6010C	January 2013
RL-6	Mercury Analysis by Cold Vapor Methods 245.1, 7470A/7471B	January 2013
RL-8	TCLP SW 846 Method 1311	January 2013
RL-9	Analysis of VOCs in Water and Solid Samples by EPA Method 8260B	April 2014
RL-10	Cyanide by EPA Methods 4500CN-E,C and EPA 9014	January 2013
RL-12	Preparation and analysis of PAHs, Base/Neutrals, and Acids by EPA Method 8270D	August 2011
RL-17	pH by Method SM 4500 H+B and SW-846 9045C	January 2013
RL-18	Sulfide by Method SM 4500-S2D+F	January 2013
RL-19	Ignitability/Flashpoint	August 2011
RL-23	Chlorinated Herbicides by GC Using Methylation Derivatization	August 2010
RL-25	Extractable Petroleum Hydrocarbons - MADEP 2004-1.1	August 2011

APPENDIX A

Analytical Sensitivity and Project Criteria Tables

As of the date of this SSQAPP Addendum, the current state and/or federal standards have been reviewed for accuracy.

Asbestos in Solids by PLM by EPA Method 600/R		
Analyte	**Laboratory Practical Quantitation Limit**	**Regulatory Guideline[1]**
Asbestos	0.20%	1%

Notes:
[1] - Maine Department of Environmental Protection (MEDEP) Chapter 425: Asbestos Management Regulations, April 3, 2011
PQL from EMSL of Cinnamonsin, New Jersey

Asbestos in Air via Filter Media by PCM by NIOSH Method 7400		
Analyte	**Laboratory Practical Quantitation Limit[1]**	**Regulatory Standard[2]**
Asbestos	7.0 fibers/mm^2 on filter	0.01 fibers/cc air

Notes:

PQL from EMSL of Cinnamonsin, New Jersey

[1] - Sample volume will be adjusted to give 100 to 1300 fibers/mm^2 where possible then the quantitative result is calculated versus the sample volume for regulatory comparison.

[2] - Maine Department of Environmental Protection (MEDEP) Chapter 425: Asbestos Management Regulations, April 3, 2011

PCBs in Building Materials by EPA Method 8082A				
Analyte	**Laboratory Practical Quantitation Limit**	**Remediation Waste Cleanup Goals 40 CFR 761.61**		**Regulatory Standard (40 CFR 761.3)**
		High Occupancy	**Low Occupancy**	
PCB-1016	0.2	1 (Total)	25 (Total)	50 (Total)
PCB-1221	0.2			
PCB-1232	0.2			
PCB-1242	0.2			
PCB-1248	0.2			
PCB-1254	0.2			
PCB-1260	0.2			

Notes:

All values in mg/kg

PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

VOCs in Soil by EPA Method 8260C						
Analyte	Laboratory Practical Quantitation Limit	Regulatory Guideline[1]				
		Leaching to Groundwater	Residential	Park User	Commercial Worker	Excavation Construction Worker
1,1,1,2-tetrachloroethane	0.1	0.2	550	910	1,800	9,300
1,1,1-trichloroethane	0.1	520	10,000	10,000	10,000	10,000
1,1,2,2-tetrachloroethane	0.1	0.026	71	120	240	2,200
1,1,2-trichloroethane	0.1	0.10	250	410	830	5,400
1,1-dichloroethane	0.1	1	2,500	4,200	8,400	10,000
1,1-dichloroethene	0.1	2.5	8,500	10,000	10,000	10,000
1,1-dichloropropene	0.1	NE	NE	NE	NE	NE
1,2,3-trichlorobenzene	0.1	NE	1,700	2,800	10,000	420
1,2,3-trichloropropane	0.1	NE	0.005*	NE	NE	NE
1,2,4-trichlorobenzene	0.1	8.6	490	820	1,600	430
1,2,4-trimethylbenzene	0.1	NE	62*	NE	NE	NE
1,2-dibromo-3-chloropropane (DBCP)	0.1	NE	3.2	5.4	47	51
1,2-dibromoethane (EDB)	0.1	NE	7.1	12	24	180
1,2-dichlorobenzene	0.1	11	5,100	8,500	10,000	10,000
1,2-dichloroethane	0.1	0.036	160	260	520	3,700
1,2-dichloropropane	0.1	NE	390	650	1,300	5,500
1,3,5-trimethylbenzene	0.1	NE	780*	NE	NE	NE
1,3-dichlorobenzene	0.1	0.075	34	57	340	6,200
1,3-dichloropropane	0.1	NE	3,400	5,700	10,000	10,000
1,4-dichlorobenzene	0.1	4.3	2,600	4,400	8,800	10,000
1,4-dioxane	2	NE	110	180	290	3,300
2,2-dichloropropane	0.1	NE	NE	NE	NE	NE
2-butanone (MEK)	0.3	NE	10,000	10,000	10,000	10,000
2-chlorotoluene	0.1	NE	1,600*	NE	NE	NE
2-hexanone	0.5	NE	210*	NE	NE	NE
4-chlorotoluene	0.1	NE	1,600*	NE	NE	NE
4-isopropyltoluene	0.1	NE	2100*	NE	NE	NE
4-methyl-2-pentanone (MIBK)	0.4	NE	10,000	10,000	10,000	10,000
acetone	2	10,000	10,000	10,000	10,000	10,000
benzene	0.1	0.51	85	140	850	150
bromobenzene	0.1	NE	300*	NE	NE	NE
bromochloromethane	0.1	NE	160*	NE	NE	NE
bromodichloromethane	0.1	NE	230	380	770	6,200
bromoform	0.1	NE	1,400	2,300	3,600	10,000
bromomethane	0.2	NE	240	400	2,400	930
carbon disulfide	0.1	NE	10,000	10,000	10,000	10,000
carbon tetrachloride	0.1	0.55	200	340	680	2,800
chlorobenzene	0.1	1.1	3,400	5,700	10,000	10,000
chloroethane	0.1	NE	1,700	2,800	10,000	10,000
chloroform	0.1	NE	460	760	1,500	10,000
chloromethane	0.1	NE	10,000	10,000	10,000	10,000
cis-1,2-dichloroethene	0.1	0.14	340	570	3,400	6,200
cis-1,3-dichloropropene	0.1	NE	NE	NE	NE	NE
dibromochloromethane	0.1	NE	170	280	560	4,300
dibromomethane	0.1	NE	25*	NE	NE	NE

VOCs in Soil by EPA Method 8260C						
Analyte	Laboratory Practical Quantitation Limit	Regulatory Guideline[1]				
		Leaching to Groundwater	Residential	Park User	Commercial Worker	Excavation Construction Worker
dichlorodifluoromethane	0.1	NE	10,000	10,000	10,000	10,000
diethyl ether	0.1	NE	16,000*	NE	NE	NE
ethylbenzene	0.1	0.81	1,300	2,200	4,300	10,000
hexachlorobutadiene	0.1	NE	130	220	370	240
isopropylbenzene	0.1	NE	2,100*	NE	NE	NE
m&p-xylenes	0.1	26	10,000	10,000	10,000	10,000
methyl t-butyl ether (MTBE)	0.1	0.19	5,100	8,500	10,000	10,000
methylene chloride	0.1	NE	1,000	1,700	10,000	10,000
naphthalene	0.1	1.7	2,500	4,200	10,000	10,000
n-butylbenzene	0.1	NE	3,900*	NE	NE	NE
n-propylbenzene	0.1	NE	3,400*	NE	NE	NE
o-xylene	0.1	26	10,000	10,000	10,000	10,000
sec-butylbenzene	0.1	NE	7,800*	NE	NE	NE
styrene	0.1	NE	10,000	10,000	10,000	10,000
tert-butylbenzene	0.1	NE	7,800*	NE	NE	NE
tetrachloroethene	0.1	2.7	1,000	1,700	10,000	10,000
tetrahydrofuran (THF)	0.5	NE	18,000*	NE	NE	NE
toluene	0.1	8.1	10,000	10,000	10,000	10,000
trans-1,2-dichloroethene	0.1	2.4	3,400	5,700	10,000	10,000
trans-1,3-dichloropropene	0.1	NE	NE	NE	NE	NE
trichloroethene	0.1	0.23	85	140	850	140
trichlorofluoromethane	0.1	NE	10,000	10,000	10,000	10,000
vinyl chloride	0.1	0.013	0.48	0.49	66	600

Notes:
All values are in mg/kg.
Hampshire
1 - Maine Department of Environmental Protection (MEDEP) Remedial Action Guidelines (RAGs) for Sites Contaminated with Hazardous Substances, February 5, 2016. unless marked with an *.

NE = Regulatory guideline not established

* - United States Environmental Protection Agency Regions 3, 6, and 9. (accessed 4/12/12). Regional Screening Levels for Chemical Contaminants at Superfund Sites. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm

VOCs for Waste Characterization by EPA Method 8260C			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
1,1,1,2-tetrachloroethane	0.1	2	Will be compared to disposal facility acceptance criteria
1,1,1-trichloroethane	0.1	2	
1,1,2,2-tetrachloroethane	0.1	2	
1,1,2-trichloroethane	0.1	2	
1,1-dichloroethane	0.1	2	
1,1-dichloroethene	0.1	1	
1,1-dichloropropene	0.1	2	
1,2,3-trichlorobenzene	0.1	2	
1,2,3-trichloropropane	0.1	2	
1,2,4-trichlorobenzene	0.1	2	
1,2,4-trimethylbenzene	0.1	2	
1,2-dibromo-3-chloropropane (DBCP)	0.1	2	
1,2-dibromoethane (EDB)	0.1	2	
1,2-dichlorobenzene	0.1	2	
1,2-dichloroethane	0.1	2	
1,2-dichloropropane	0.1	2	
1,3,5-trimethylbenzene	0.1	2	
1,3-dichlorobenzene	0.1	2	
1,3-dichloropropane	0.1	2	
1,4-dichlorobenzene	0.1	2	
1,4-dioxane	2	50	
2,2-dichloropropane	0.1	2	
2-butanone (MEK)	0.3	10	
2-chlorotoluene	0.1	2	
2-hexanone	0.5	10	
4-chlorotoluene	0.1	2	
4-isopropyltoluene	0.1	2	
4-methyl-2-pentanone (MIBK)	0.4	10	
acetone	2	50	
benzene	0.1	2	
bromobenzene	0.1	2	
bromochloromethane	0.1	2	
bromodichloromethane	0.1	1	
bromoform	0.1	2	
bromomethane	0.2	2	
carbon disulfide	0.1	2	
carbon tetrachloride	0.1	2	
chlorobenzene	0.1	2	
chloroethane	0.1	2	
chloroform	0.1	2	
chloromethane	0.1	2	
cis-1,2-dichloroethene	0.1	2	
cis-1,3-dichloropropene	0.1	2	
dibromochloromethane	0.1	2	
dibromomethane	0.1	2	

VOCs for Waste Characterization by EPA Method 8260C			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
dichlorodifluoromethane	0.1	2	Will be compared to disposal facility acceptance criteria
diethyl ether	0.1	5	
ethylbenzene	0.1	2	
hexachlorobutadiene	0.1	1	
isopropylbenzene	0.1	2	
m&p-xylenes	0.1	2	
methyl t-butyl ether (MTBE)	0.1	2	
methylene chloride	0.1	5	
naphthalene	0.1	5	
n-butylbenzene	0.1	2	
n-propylbenzene	0.1	2	
o-xylene	0.1	2	
sec-butylbenzene	0.1	2	
styrene	0.1	2	
tert-butylbenzene	0.1	2	
tetrachloroethene	0.1	2	
tetrahydrofuran (THF)	0.5	10	
toluene	0.1	2	
trans-1,2-dichloroethene	0.1	2	
trans-1,3-dichloropropene	0.1	2	
trichloroethene	0.1	2	
trichlorofluoromethane	0.1	2	
vinyl chloride	0.1	2	

Notes:

PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

SVOCs for Waste Characterization by EPA Method 8270D			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
1,2,4-trichlorobenzene	0.5	5	Will be compared to disposal facility acceptance criteria
1,2-dichlorobenzene	0.2	2	
1,3-dichlorobenzene	0.2	2	
1,4-dichlorobenzene	0.2	2	
1,4-dioxane	2	50	
2,4,5-trichlorophenol	0.2	2	
2,4,6-trichlorophenol	0.2	2	
2,4-dichlorophenol	0.5	5	
2,4-dimethylphenol	0.2	2	
2,4-dinitrophenol	5	50	
2,4-dinitrotoluene	0.2	2	
2,6-dinitrotoluene	0.2	2	
2-chloronaphthalene	0.5	5	
2-chlorophenol	0.5	5	
2-methylnaphthalene	0.05	1	
2-methylphenol	0.2	2	
2-nitroaniline	0.2	2	
2-nitrophenol	0.2	2	
3,3-dichlorobenzidine	3	30	
3-nitroaniline	0.2	2	
4,6-dinitro-2-methylphenol	2	20	
4-bromophenyl phenyl ether	0.2	2	
4-chloro-3-methylphenol	0.2	2	
4-chloroaniline	0.2	2	
4-chlorophenyl phenyl ether	0.5	5	
4-methylphenol	0.2	2	
4-nitroaniline	0.5	5	
4-nitrophenol	2	10	
acenaphthene	0.05	1	
acenaphthylene	0.05	1	
aniline	0.2	2	
anthracene	0.05	1	
azobenzene	0.2	2	
benzidine	3	30	
benzo(a)anthracene	0.05	0.50	
benzo(a)pyrene	0.05	0.20	
benzo(b)fluoranthene	0.05	0.50	
benzo(g,h,i)perylene	0.05	1	
benzo(k)fluoranthene	0.05	1	
benzoic acid	5	50	
benzyl alcohol	0.2	2	
bis(2-chloroethoxy)methane	0.2	5	
bis(2-chloroethyl)ether	0.2	2	
bis(2-chloroisopropyl) ether	0.2	2	
bis(2-ethylhexyl)phthalate	0.5	5	
butyl benzyl phthalate	0.5	5	
carbazole	0.2	2	
chrysene	0.05	1	
dibenzo(a,h)anthracene	0.05	1	
dibenzofuran	0.05	1	
diethyl phthalate	0.5	5	
dimethylphthalate	0.5	5	
di-n-butylphthalate	0.5	5	

SVOCs for Waste Characterization by EPA Method 8270D			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
di-n-octyl phthalate	0.5	2	
fluoranthene	0.05	1	
fluorene	0.05	1	
hexachlorobenzene	0.2	2	
hexachlorobutadiene	0.2	2	
hexachlorocyclopentadiene	1	10	
hexachloroethane	0.2	2	
indeno(1,2,3-cd)pyrene	0.05	0.50	
isophorone	0.5	5	
naphthalene	0.05	1	
nitrobenzene	0.2	2	
N-nitrosodimethylamine	0.2	2	
N-nitroso-di-N-propylamine	0.2	2	
N-nitrosodiphenylamine	0.2	2	
pentachlorophenol	1	10	
phenanthrene	0.05	1	
phenol	0.2	2	
pyrene	0.05	1	

Notes:

PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

TPH for Waste Characterization by EPA Method 8100		
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Regulatory Criteria**
Total Petroleum Hydrocarbons	200	Will be compared to disposal facility acceptance criteria

Notes:
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

PCBs for Waste Characterization by EPA Method 8082A			
Aroclor	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
Aroclor 1016	0.2	0.3	Will be compared to disposal facility acceptance criteria
Aroclor 1221	0.2	0.3	
Aroclor 1232	0.2	0.3	
Aroclor 1242	0.2	0.3	
Aroclor 1248	0.2	0.3	
Aroclor 1254	0.2	0.3	
Aroclor 1260	0.2	0.3	

Notes:

PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

RCRA 8 Metals for Waste Characterization by EPA Method 6010C			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
Arsenic	0.5	8	Will be compared to disposal facility acceptance criteria
Barium	2	50	
Cadmium	0.2	4	
Chromium	2	50	
Lead	0.5	8	
Selenium	2	50	
Silver	0.4	7	

Notes:

PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

Mercury for Waste Characterization by EPA Methods 7470A (aqueous) and 7471B (solid)			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
Mercury (elemental)	0.02	0.2	Will be compared to disposal facility acceptance criteria
Mercury (chloride)		0.2	

Notes:
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

Pesticides for Waste Characterization by 8081B			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
DDD	0.04	0.05	Will be compared to disposal facility acceptance criteria
DDE	0.04	0.05	
DDT	0.04	0.05	
Aldrin	0.04	0.05	
alpha-BHC	0.04	0.05	
Chlordane	0.04	0.05	
beta-BHC	0.04	0.05	
Dieldrin	0.04	0.05	
Endosulfan	0.04	0.05	
Endrin	0.04	0.05	
Endrin	0.04	0.05	
gamma-BHC (Lindane)	0.04	0.05	
Heptachlor	0.04	0.05	
Heptachlor Epoxide	0.04	0.05	
Methoxychlor	0.04	0.05	
Toxaphene	0.2	0.4	

Notes:
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

Herbicides for Waste Characterization by EPA Method 8151A			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Criteria**
2,4,5-T	0.042	1.20	Will be compared to disposal facility acceptance criteria
2,4-D	0.042	1.20	
2,4-DB	0.042	1.20	
p-Nitrophenol	0.34	10^	
Dalapon	2^	1.20	
Dicamba	0.042	2.50	
Dichlorprop	0.084	1.20	
Dinoseb	0.042	2.50	
MCPA	0.084	380*	
MCPP	13*	380*	
Pentachlorophenol	13*	10^	
Silvex (2,4,5-TP)	1^	1.20	

Notes:

PQLs from Pheonix Labs of Manchester, CT (via ARA)

Reactive Sulfides for Waste Characterization by Method SM 4500-S^{2-}D+F			
Analyte	**Soil Laboratory Practical Quantitation Limit (mg/kg)**	**Groundwater Laboratory Practical Quantitation Limit (µg/L)**	**Regulatory Guideline**
Reactive sulfides	0.4	0.04	Will be compared to disposal facility acceptance criteria

Notes:
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

Reactive Cyanides for Water Waste Characterization by Methods 4500CN-E,C and EPA Method 9014		
Analyte	**Laboratory Practical Quantitation Limit**	**Regulatory Guideline**
Reactive cyanides	0.02	Will be compared to disposal facility acceptance criteria

Notes:
All values are in µg/L
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

Reactive Cyanides for Soil Waste Characterization by Methods 4500CN-E,C and EPA Method 9012B		
Analyte	**Laboratory Practical Quantitation Limit**	**Regulatory Guideline**
Reactive cyanides	0.48	Will be compared to disposal facility acceptance criteria

Notes:
All values are in mg/L
PQLs from Pheonix Environmental Laboratories of Manchester, CT (subbed through Absolute Resource Associates of Portsmouth, New Hampshire)

pH in Water by Method SM 4500 H+B and SW-846 9045C		
Analyte	**Laboratory Practical Quantitation Limit**	**Regulatory Guideline**
pH	NA	Disposal facility acceptance criteria

Notes:
All values are in pH units
PQLs from Absolute Resource Associates of Portsmouth, New Hampshire

TCLP Analysis by EPA Method 1311 and Total Constituent Analysis in Solids						
EPA HW No. 1	Contaminant	Laboratory Practical Quantitation Limit for TCLP Analysis (mg/L)	TCLP Regulatory Limit (mg/L)	Laboratory Practical Quantitation Limit for Total Constituent Analysis (mg/kg)	Regulatory Limit for Total Constituent Analysis (Equal to 20 times TCLP Limit) (mg/kg)	Method for Total Constituent Analysis
D004	Arsenic	< 0.08	5.0	< 0.5	100	EPA 6010
D005	Barium	< 0.5	100	< 2.5	2000	EPA 6010
D006	Cadmium	< 0.04	1.0	<0.2	20	EPA 6010
D007	Chromium	< 0.5	5.0	< 2.5	100	EPA 6010
D008	Lead	< 0.08	5.0	< 0.5	100	EPA 6010
D009	Mercury	< 0.2	0.2	< 4	4	EPA 7470A/7471B
D010	Selenium	< 0.5	1.0	< 2.5	20	EPA 6010
D011	Silver	< 0.07	5.0	< 0.35	100	EPA 6010
D012	Endrin	< 0.008	0.02	< 0.16	0.4	EPA 8081
D013	Lindane	< 0.008	0.4	< 0.16	8	EPA 8081
D014	Methoxychlor	< 0.008	10	< 0.16	200	EPA 8081
D015	Toxaphene	< 0.008	0.5	< 0.16	10	EPA 8081
D016	2,4-D	< 10	10	< 200	200	EPA 8151
D017	2,4,5-TP (Silvex)	< 1.0	1.0	< 20	20	EPA 8151
D018	Benzene	< 0.2	0.5	< 4	10	EPA 8260
D019	Carbon tetrachloride	< 0.2	0.5	< 4	10	EPA 8260
D020	Chlordane	< 0.03	0.03	< 0.6	0.6	EPA 8081
D021	Chlorobenzene	< 0.2	100	< 4	2000	EPA 8260
D022	Chloroform	< 0.2	6.0	< 4	120	EPA 8260
D023	o-Cresol	< 0.5	200	< 10	4000	EPA 8270
D024	m-Cresol	< 0.5	200	< 10	4000	EPA 8270
D025	p-Cresol	< 0.5	200	< 10	4000	EPA 8270
D026	Cresol	< 0.5	200	< 10	4000	EPA 8270
D027	1,4-Dichlorobenzene	< 0.2	7.5	< 4	150	EPA 8260
D028	1,2-Dichloroethane	< 0.2	0.5	< 4	10	EPA 8260
D029	1,1-Dichloroethylene	< 0.2	0.7	< 4	14	EPA 8260
D030	2,4-Dinitrotoluene	< 0.1	0.13	< 2	2.6	EPA 8270
D031	Heptachlor (and its epoxide)	< 0.008	0.008	< 0.16	0.16	EPA 8081
D032	Hexachlorobenzene	< 0.1	0.13	< 2	2.6	EPA 8270
D033	Hexachlorobutadiene	< 0.5	0.5	< 10	10	EPA 8270
D034	Hexachloroethane	< 0.5	3.0	< 10	60	EPA 8270
D035	Methyl ethyl ketone	< 2	200	< 40	4000	EPA 8260
D036	Nitrobenzene	< 0.5	2.0	< 10	40	EPA 8270
D037	Pentrachlorophenol	< 0.5	100	< 10	2000	EPA 8270
D038	Pyridine	< 0.5	5.0	< 10	100	EPA 8270
D039	Tetrachloroethylene		0.7	< 4	14	EPA 8260
D040	Trichloroethylene	< 0.2	0.5	< 4	10	EPA 8260
D041	2,4,5-Trichlorophenol	< 0.5	400	< 10	8000	EPA 8270
D042	2,4,6-Trichlorophenol	< 0.5	2.0	< 10	40	EPA 8270
D043	Vinyl chloride	< 0.2	0.2	< 4	4	EPA 8260

APPENDIX B

Draft Project Schedule

Prime Tanning Cleanup and Redevelopment
DRAFT Projected Schedule
Last Updated, January 29, 2016

Date	Task
Nov./Dec. 2015	Updated Topo and Boundary Survey, Locate Utilities, Slab Survey, Fire System Assessment
Jan./Feb. 2016	Prepare and Submit Draft ABCA/RAP, CRP, SSQAPP, SHPO Submission, Updated VRAP
	Start 30-day Public Comment Period for Draft ABCA/RAP
	Finalize CRP & SSQAPP.
	Perform Additional Site Characterization (ACM, Lead Paint, PCBs, Universal, Vapor)
	SHPO Approval
	Public Meeting for Draft ABCA/RAP
	Progress with development? Draft end-use designs available?
	Draft Engineering and Bidding Documents, Phase I Cleanup (Abatement, Demolition, Slab Removal)
Mar. 2016	Finalize ABCA
	Permitting
	Bidding, Lots 4, 5, & 6 Phase I Cleanup Contracting (Building Abatement, Building Removal)
	Q4 2015 ACRES Reporting
Apr. 2016	Start Phase Lots 4, 5, & 6 I Cleanup
May. To Aug. 2016	Complete Phase Lots 4, 5, & 6 III Cleanup (Redvelopment, Soil Cover?) Engineering & Design, Contracting
Jun. 2016	Finish Lots 4, 5, & 6 Phase I Cleanup, Characterize Under Slabs
	Draft Engineering and Bidding Documents, Lots 4, 5, & 6 Phase II Cleanup (Soil Removal)
	Bidding, Lots 4, 5, & 6 Phase II Cleanup Contracting
Jul. 2016	Start and Finish Lots 4, 5, & 6 Phase II Cleanup
Aug. 2016	Bidding, Lots 4, 5, & 6 Phase III Cleanup, Contracting?
Sep. 2016	Start Lots 4, 5, & 6 Phase III Cleanup
2017	Finish Lots 4, 5, & 6 Phase III Cleanup
	Cleanup on Lots 1, 2, 3, & 7