REMEDIAL ACTION PLAN

Former Leatherworks Site
Girard, Trumbull County, Ohio

October 25, 2019

1.0 PURPOSE OF REMEDY

The purpose of this remedial action plan (RAP) is to outline the procedures necessary to mitigate the environmental concerns identified at the site to achieve VAP standards and support a No Further Action (NFA) status and the issuance of a Covenant Not to Sue by the Ohio EPA in accordance with the VAP rules and regulations. This RAP focuses on the portion of the former Leatherworks site located east of the Youngstown Beltway Co. Railroad (formerly Conrail R.R.) as shown on the attached *Site Location on U.S.G.S. Topographic Map*.

1.1 Background

According to historical records and facility maps, the subject Property was owned by the Ohio Leather Company from approximately 1902 through 1972. The Ohio Leather Company produced finished leather from animal hides with processes including washing, fleshing, depilation, bating, tanning, dying, and tempering. Many chemicals were used during the tanning process including sodium sulfide and chloride, lime, ammonia salts, sulfuric acid, chromium sulfate, and mercury. From approximately 1974 through 1994, the site was owned by D.L & S.G. Realty (aka Berk Realty) and was used for material storage, including titanium metal shavings, used grinding wheels, 55-gallon drums, and totes of high pH solids. Various companies owned by Berk Realty operated on and/or utilized the Property during this time period. The property has been vacant and unused since 1994. A large fire destroyed the remaining large building on the site in 1995.

Currently, the main southern parcel contains a small gatehouse, concrete pump house, several pits, building foundations, brick and demolition debris pile, and two concrete reservoirs filled with soil, vegetation, and demolition debris. The northern portion of the Property is located north of Squaw Creek and contains two former lagoons partially filled with seasonal storm runoff water, a small amount of tires, and discarded debris. Also, on this portion of the property is a concrete “clarifier” reservoir filled with water, some concrete foundations, and a small water treatment plant consisting of several open-topped concrete vaults and piping. Although not considered for remedy or No Further Action (NFA) status under the current Remedial Action Plan (RAP), the western triangular portion of the site – located between the railroad tracks that define the western boundary of the main portion of the former Leatherworks Property – is vacant and almost entirely wooded. Evidence of a former drum disposal area, a burn pile, and disposal of animal hides has been found scattered throughout this area. Property features are depicted on the attached *Site Detail Map*.

Brownfield Restoration Group, LLC (BRG) performed a Phase II Property Assessment (Phase II) pursuant to the Ohio EPA Voluntary Action Program (VAP) rule at the site beginning in February 2015 and prepared a Phase II Property Assessment report dated April 12, 2016. Funding for this assessment work was received by the Western Reserve Port Authority through a Brownfield Coalition Assessment Grant administered by the U.S. Environmental Protection Agency (USEPA). Phase II activities were conducted in accordance with the USEPA-approved Property-specific Sampling and Analysis Plan (SAP) and Quality Assurance Protection Plan (QAPP) for work completed under the Brownfield assessment grant.

As a result of the targeted assessment work performed at the Property, the following ten VAP Identified Areas (IAs) were investigated:

Identified Area	Description	Source of Determination
IA-1	Historical Use for Leather Tanning Operations and Metal Storage/Disposal	Historical land use review
IA-2	Titanium Shavings/ Drum Accumulation Area 1 (79 drums west of Bldg. 8 & 9)	Historical land use review
IA-3	Drum Accumulation Area 2 (30 drums between reservoirs)	Historical land use review
IA-4	Drum Accumulation Area 3 (30 drums south of Bldg. 25)	Historical land use review
IA-5	Rail Spur	Historical land use review
IA-6	Transformer House and Engine Room	Historical land use review
IA-7	Oil/Gas Well	Historical land use review – site inspection
IA-8	Historical Use for Wastewater Treatment Plant	Historical land use review
IA-9	Three Wastewater Treatment Lagoons	Historical land use review – site inspection
IA-10	Disposal of Coal-related Waste	Historical land use review

Soil sample analyses from the IAs demonstrated that VAP direct-contact standards for commercial/industrial (C/I) land use were exceeded at several areas of the Property. IAs and soil sampling locations are shown on the attached *Identified Area Location Map* and *Sampling Location Map,* respectively. The chemicals of concern (COCs) that were found to exceed applicable C/I direct-contact standards include antimony, arsenic, lead, mercury, PCBs, and total petroleum hydrocarbons (TPH). The most prevalent of these COCs was lead, with the other COCs being identified above applicable standards in relatively small and isolated areas. Soil direct contact standards for lead exceed VAP Construction/Excavation (C/E) land use standards in one of the lagoons in IA-9. Additionally, the lagoons

also exceed several VOC, PAH, and metals standards for ecological receptors. Soil sampling locations exceeding VAP standards and requiring a remedy are identified on the attached map - *Areas of Property Subject to Proposed Soil Remediation.* Ground water beneath the targeted property only slightly exceeds Unrestricted Potable Use Standards (UPUS) for arsenic at three ground water monitoring well locations (MW-1, MW-5, and MW-26) and for lead in one ground water monitoring well (MW-1).

1.2 Primary Objectives of the RAP

Implementation of the remedial actions outlined herein will result in the site meeting the required VAP standards to support an NFA and covenant not to sue. Remedial actions must be implemented in the eight remediation areas (REMs) as shown on the attached figure – *Areas of Property Subject to Proposed Soil Remediation*. In order to achieve the stated purpose of the RAP, the following objectives must be met:

- The soil in the former Waste Water Treatment Plant lagoons (REM-1 and REM-2) exceeds VAP standards for sensitive ecological receptors and must be mitigated.
- Soil in the upper two feet on the Property must meet direct contact standards in accordance with Environmental Covenants restricting land use to Commercial/Industrial (C/I) worker activities.
- Soil below the upper two feet on the property must meet direct contact standards for Construction/Excavation (C/E) workers.
- Soil within any portion of the site to be used for a trailhead as part of a bike/hike system and/or access to the Mahoning River must meet recreational use standards.
- The ground water ingestion pathway on the Property must be eliminated. The data indicates that the shallow ground water exceeds UPUS at three locations on the Property but satisfies the VAP ground water response requirement that UPUS be met at the downgradient Property boundaries.

This RAP provides the current status of each of the criteria required to achieve NFA under the VAP and an outline of the suggested means for addressing these items.

2.0 SUMMARY OF REMEDIES

Remedies to be employed at the Property to ensure compliance with applicable standards consist of environmental covenants (land use restrictions) and active remediation (soil removal and site grading to meet the direct-contact point of compliance) as described below.

2.1 Environmental Covenants (Land Use Restrictions)

Land use and activity restrictions will be placed on the entire Property to ensure compliance with applicable standards. The land use restrictions will limit future use of the Property to commercial

and/or industrial activities, as necessary, with the exception of the portion of the property that may be utilized as part of a public access trailhead, which will require recreational land use. In addition, the extraction of ground water for any potable purposes will be prohibited on the entire Property. These land use restrictions will be described in an Environmental Covenant negotiated by the Volunteer with the Ohio EPA and filed with the Trumbull County Recorder's Office.

2.2 Active Soil Remediation

Soil remediation will consist of the placement of two feet of clean fill or the excavation and off-site disposal of remediation areas exceeding direct contact C/I land use standards as delineated in the attached figure - *Areas of Property Subject to Proposed Soil Remediation*. Soil remediation areas REM-1, -2, and -5 are proposed to be subject to two feet of clean fill placement and will require a pre- and post-fill elevation survey by a state licensed surveyor to document sufficient fill thickness. Note: 'clean soil' in this context means soil that meets the VAP direct-contact standard for C/I land use. It is planned to use the soil that comprises the mound beneath the current concrete above ground storage tank (AST) associated with the water treatment plant clarifier. After this AST is removed, this soil will be readily available and ideally located for use as fill over REM-1 and REM-2. Remediation areas REM-3, -4, and -6 through -8 are proposed to be mitigated through active soil removal and off-site disposal at a licensed disposal facility.

The Environmental Consultant will direct and document (including truck logs and a photographic log) the soil removal and the clean fill transport, placement, and grading activities to be performed by the Remediation Contractor. The Remediation Contractor will be responsible for providing all labor, material, equipment, and any permits that may be required to perform the following tasks:

REM-1 AREA (East Lagoon)

- Grade the soil berm into the interior of the former east lagoon and transport, place, and grade sufficient clean fill to more or less match the lagoon to surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

  East Lagoon Fill Volume = 7,675 feet^2 x 4 feet (depth)
  = 30,700 feet^3
  = **1,137 yards^3**

REM-2 AREA (West Lagoon)

- Grade the soil berm into the interior of the former west lagoon and transport, place, and grade sufficient clean fill to more or less match the lagoon to surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

  West Lagoon Fill Volume = 10,375 feet^2 x 4feet (depth)
  = 41,500 feet^3
  = 1**,537 yards^3**

FILL SOURCE FOR REM-1 & REM-2

A water clarifier, which is a large aboveground storage tank (AST) or reservoir associated with the former waste water treatment plant, is situated on an elevated mound of soil in the vicinity of the former lagoons. The soil mound is planned to be used as an on-site source of clean fill for the backfilling of the former lagoons that comprise REM-1 and REM-2. The following actions will be required to use this soil as a clean fill source:

- Remove the accumulated water and sludge from the AST associated with the water treatment plant. Analytical results indicate that the water meets UPUS and likely represents accumulated precipitation. Accordingly, it is anticipated that this water can be drained from the AST onto the site, although proper protection of surface water quality (e.g., turbidity, erosion, etc.) must be implemented during this procedure.
- It is assumed that the accumulated sludge at the bottom of the AST may require off-site disposal at an approved solid waste facility. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

  Sludge Volume = π x r^2 (AST base) x 2 feet (est. sludge thickness)
  = 3.14 x 38 $feet^2$ x 2 feet
  = 9,073 $feet^3$
  = 336 $yards^3$ (x 1.5 ton/ $yards^3$)
  = **504 tons**

- Upon emptying the AST, the concrete structure will be demolished and crushed into a rubble size suitable for use as riprap (approximately 2 feet by 2 feet), transported, and placed along the on-site portion of the embankment along Squaw Creek.
- Grade/transport the soil mound beneath the concrete AST onto the REM-1and REM-2 areas such that the impacted areas are covered by a minimum of two feet of fill meeting C/I direct-contact standards. If needed, additional clean fill will be imported from an off-site source approved by the Environmental Consultant to complete the backfilling of remediation areas REM-1 and REM-2. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

  Soil Mound Volume = 100 feet x 100 feet x 8 feet (height)
  = 80,000 $feet^3$
  = **2,963 $yards^3$**

REM-3 AREA (Mercury and TPH)

- Excavate soil within this REM area to a depth of two feet. Load and transport soil to an off-site disposal facility licensed to accept non-hazardous waste of this nature.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to replace the excavated soil and match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

  REM-3 Excavation/Fill Volume = 1,156 $feet^2$ x 2 feet (depth)
  = 2,312 $feet^3$

= 85.63 yards^3
= **128.44 tons**

REM-4 AREA (PCBs)

- Excavate soil within this REM area to a depth of two feet. Load and transport soil to an offsite disposal facility licensed to accept non-hazardous waste of this nature.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to replace the excavated soil and match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

REM-4 Excavation/Fill Volume = 4,628 feet^2 x 2 feet (depth)
= 9,256 feet^3
= 324.81 yards^3
= **514.22 tons**

REM-5 AREA (Lead)

- Because this portion of the site is relatively lower in elevation than the existing surrounding area, the soil exceeding VAP direct-contact standards in this REM area will not be excavated and removed, but rather will be covered with two feet of clean fill. This will allow REM-5 to meet applicable VAP standards while also leveling the site to facilitate future redevelopment.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to cover the REM-5 area with two feet of clean fill and more or less match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

REM-5 Fill Cover Volume = 27,745 feet^2 x 2 feet (depth)
= 55,490 feet^3
= 2,055.19 yards^3
= **3,082.78 tons**

REM-6 AREA (Arsenic)

- Excavate soil within this REM area to a depth of two feet. Load and transport soil to an offsite disposal facility licensed to accept non-hazardous waste of this nature.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to replace the excavated soil and match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

REM-6 Excavation/Fill Volume = 2,081 feet^2 x 2 feet (depth)
= 4,162 feet^3
= 154.15 yards^3
= **231.22 tons**

REM-7 AREA (Antimony and Lead)

- Excavate soil within this REM area to a depth of two feet. Load and transport soil to an offsite disposal facility licensed to accept non-hazardous waste of this nature.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to replace the excavated soil and match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

REM-7 Excavation/Fill Volume = 2,119 feet^2 x 2 feet (depth)
= 4,328 feet^3
= 156.96 yards^3
= **235.44 tons**

REM-8 AREA (Lead)

- Excavate soil within this REM area to a depth of two feet. Load and transport soil to an offsite disposal facility licensed to accept non-hazardous waste of this nature.
- Procure, transport, place and grade sufficient off-site clean fill (fill source to be approved by the Environmental Consultant) to replace the excavated soil and match the surrounding existing grade. The following assumptions and calculations have been made for the purpose of this portion of the RAP:

REM-8 Excavation/Fill Volume = 16,364 feet^2 x 2 feet (depth)
= 32,728 feet^3
= 1,212.15 yards^3
= **1,818.22 tons**

Upon completion of these remedial actions, the soil beneath the Property will meet generic direct-contact standards for C/I land use. The former lagoons that comprise REM-1 and REM-2 will be closed (i.e., filled) and will no longer contain sediments.

2.2.4 Ground Water Remediation

Analytical results indicate that the shallow ground water at the site only slightly exceeds UPUS for arsenic at three ground water monitoring well locations (MW-1, MW-5, and MW-26) and for lead in one ground water monitoring well (MW-1). These monitoring wells are each located on the interior of the Property. Ground water at monitoring wells located downgradient around the periphery of the Property (i.e., MW-10, MW-11, and MW-23) meet UPUS. With respect to potential surface water impact, only the lead concentration in MW-23 at 6.2 µg/l (standard is 5.1 µg/l) exceeds an applicable surface water standard at a location that may mix with the water of Squaw Creek. Refer to the attached figure - *Ground Water Analytical Results Above UPUS/Surface Water Standards* for subject well locations and ground water COC concentrations. Some surface water sampling may be required to demonstrate that within the mixing zone of the creek, this lead concentration in the ground water will certainly be dissipated to acceptable levels. The next deeper ground water aquifer must also be checked for residual impact from legacy operations at the site. However, based on the current data, the VAP ground water

response requirements for off-Property migration appear likely to be met and a remedy may only be required to prevent on-Property exposure to ground water exceeding UPUS. This objective will be addressed via a ground water use restriction (see section 2.1) that will prohibit the extraction of ground water for any potable purposes.

2.5 Risk Mitigation Plan

In the event that future excavations at the site are performed for any purpose (e.g., future construction or utility service), then the potential exists for C/E workers to contact subsurface soils that exceed applicable VAP generic direct-contact standards. Therefore, a Risk Mitigation Plan (RMP) will be prepared to protect C/E workers from unacceptable risks during the time that soil from excavations is exposed during work of this nature. The RMP will also provide guidelines for properly managing any contaminated media that must be removed from the Property and requirements for restoring any breaches of the soil point-of-compliance on the surface of the Property.

3.0 VERIFICATION OF COMPLIANCE WITH STANDARDS

Upon completion of the active remedies described in Section 2.0 of this RAP, verification of compliance with applicable VAP standards will be performed. The methods of compliance verification will be dependent on the nature of the remedy, as described in the following summaries:

- *Soil* – some additional confirmation sampling will be necessary to fully define the horizontal limits of soil contamination proposed to be remediated in order to achieve compliance with direct-contact soil standards for C/I receptors. The proposed confirmation sampling and analysis and existing assessment data will be relied upon to ensure a complete remedy. In areas subject to the placement of two feet of clean fill, a pre-and post-fill survey completed by a state licensed surveyor will be required to demonstrate fill thickness and successful remediation.
- *Ground Water* – to be verified via supplemental ground water sampling and possibly surface water sampling from Squaw Creek. Existing monitoring wells and creek samples will be used to obtain confirmation that VAP ground water response requirements, as may be applicable, are met.

The analytical results of verification sampling, as described above, will be used to prepare a VAP demonstration to be submitted to the Ohio EPA that documents applicable standards have been met as a result of the remedial actions implemented.

4.0 PROJECT SCHEDULE

Applicable standards for this Voluntary Action are based on generic VAP standards, site-specific modeling, and institutional controls. Based on the findings of the Phase II Property Assessment, the Property is anticipated to comply with the applicable standards as set forth under the Voluntary Action Program following the completion of the proposed soil remedial actions and implementation of the proposed land use restrictions described herein. The estimated time required to complete the major elements of remedial work for this project is provided below:

Task Description	Duration	Completion Time form Start Date
Prepare Soil Remediation Bid Documents	3.0 months	3.0 months
Solicit Bids & Select Contractor	1.5 months	4.5 months
Soil Remedial Actions	3.0 months	7.5 months
Confirmation Sampling/Analysis	1 month	8.5 months
Remedial Action Report	2.0 months	10.5 months
NFA Preparation	1.5 months	12.0 months

Assuming approximately six months for the Ohio EPA review of the NFA and response to any issues or questions that arise during review, it is expected that the Property could have a Covenant Not to Sue issued within approximately18 months of initiating work on this RAP.

This RAP was prepared by:

Jim C. Smith, CP -121

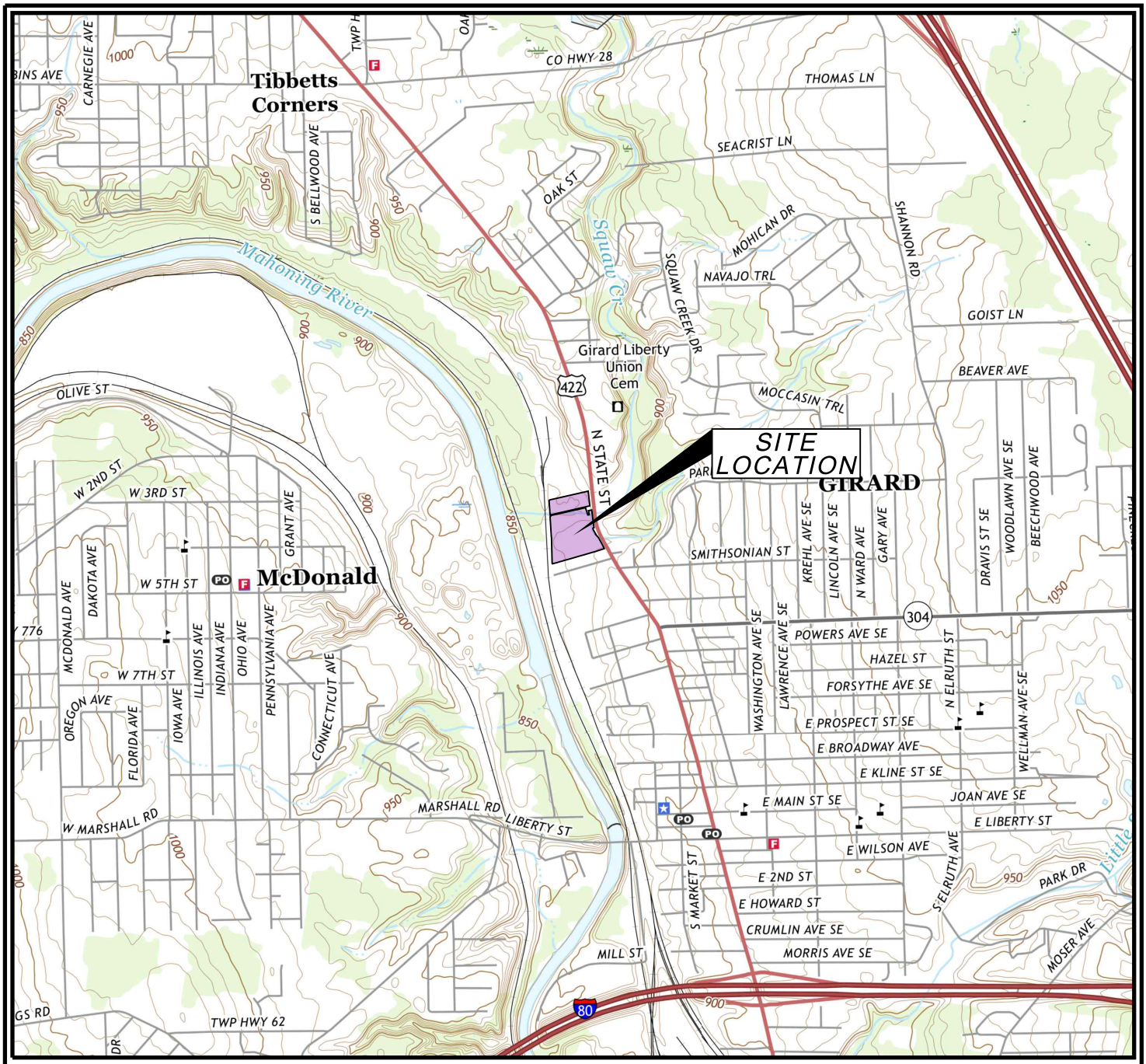
Attachments:

Figures

Site Location on U.S.G.S. Topographic Map
Site Detail map
Identified Area Location Map
Sampling Location Map
Areas of Property Subject To Proposed Soil Remediation
Ground Water Analytical Results Above UPUS / Surface Water Standards

Tables

Proposed Remediation Cost Estimate



SCALE 1:24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1988

QUADRANGLE LOCATION

GEOGRAPHIC COORDINATE-
LATITUDE: N. 41° 09' 55.78"
LONGITUDE: W. 80° 42' 28.99"
HORIZONTAL DATUM: NAD83

USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)
QUADRANGLE:

GIRARD, OHIO 2013

BROWNFIELD RESTORATION GROUP, LLC

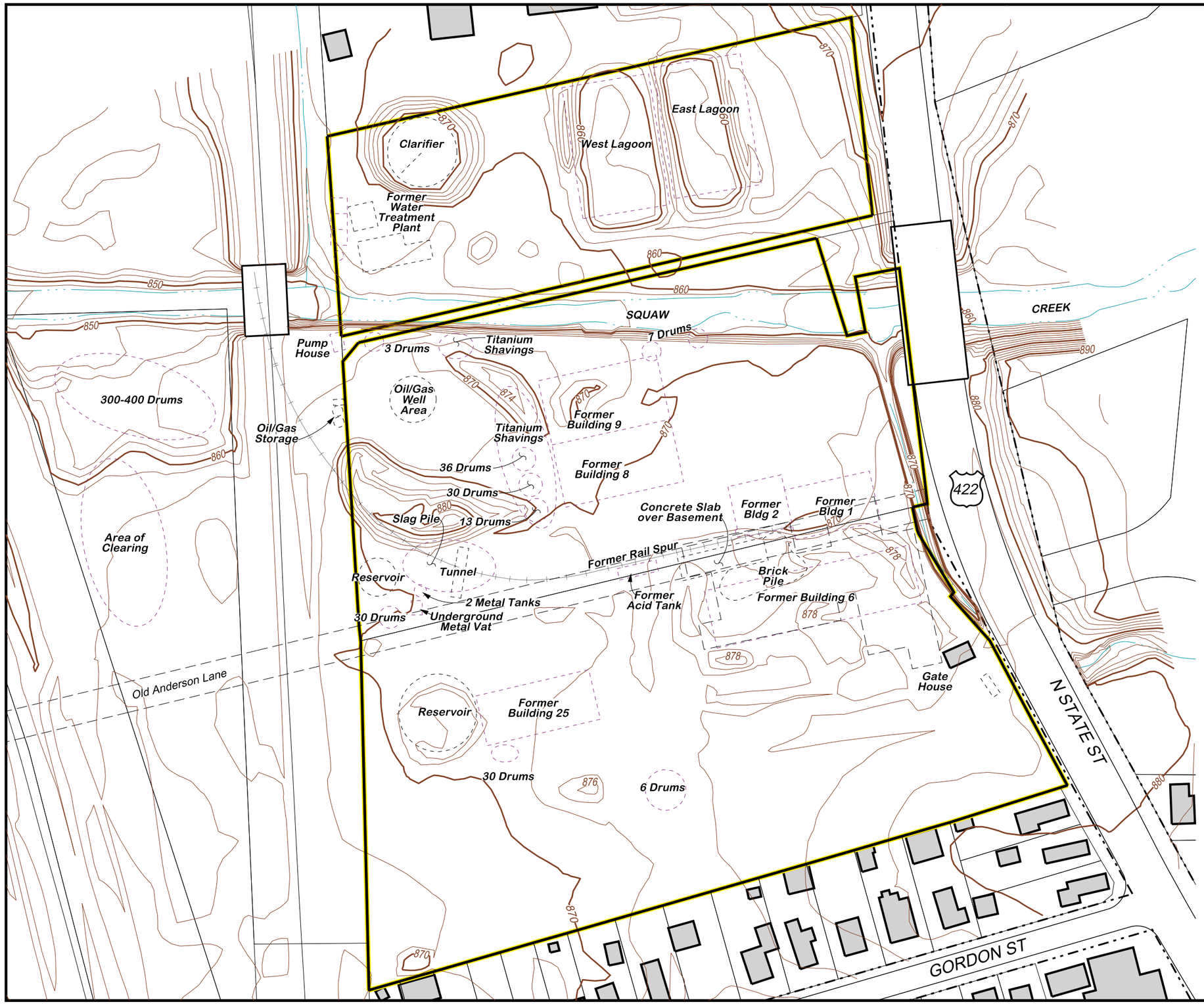
1000 S. Cleveland-Massillon Rd.
Suite 106
Akron, OH 44333

Phone: (330) 668-4600
Fax (330) 668-8464

Site Location on U.S.G.S. Topographic Map

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: U.S.G.S.	Date: January 2019	Project No. 10043



Notes

1) Planimetrics are from the Trumbull County GIS department dated January 2014, parcels dated April 2014. Contours are from 2011.

2) All purple, dashed features are interpreted from a Site Reconnaissance Map of a Phase I ESA by McCabe Engineering dated October 2003. Many of those features were adjusted according to the 1978 Sanborn Fire Insurance map. Locations are very approximate.

Bench Marks

BM#1 - Top bolt of fire hydrant located north of gas well tank farm.
Elev. 100.00 (assumed)

BM#2 - top of concrete structure surrounding sewer line above Squaw Creek.
Elev. 91.70

W E S

0 50 100

Scale in Feet

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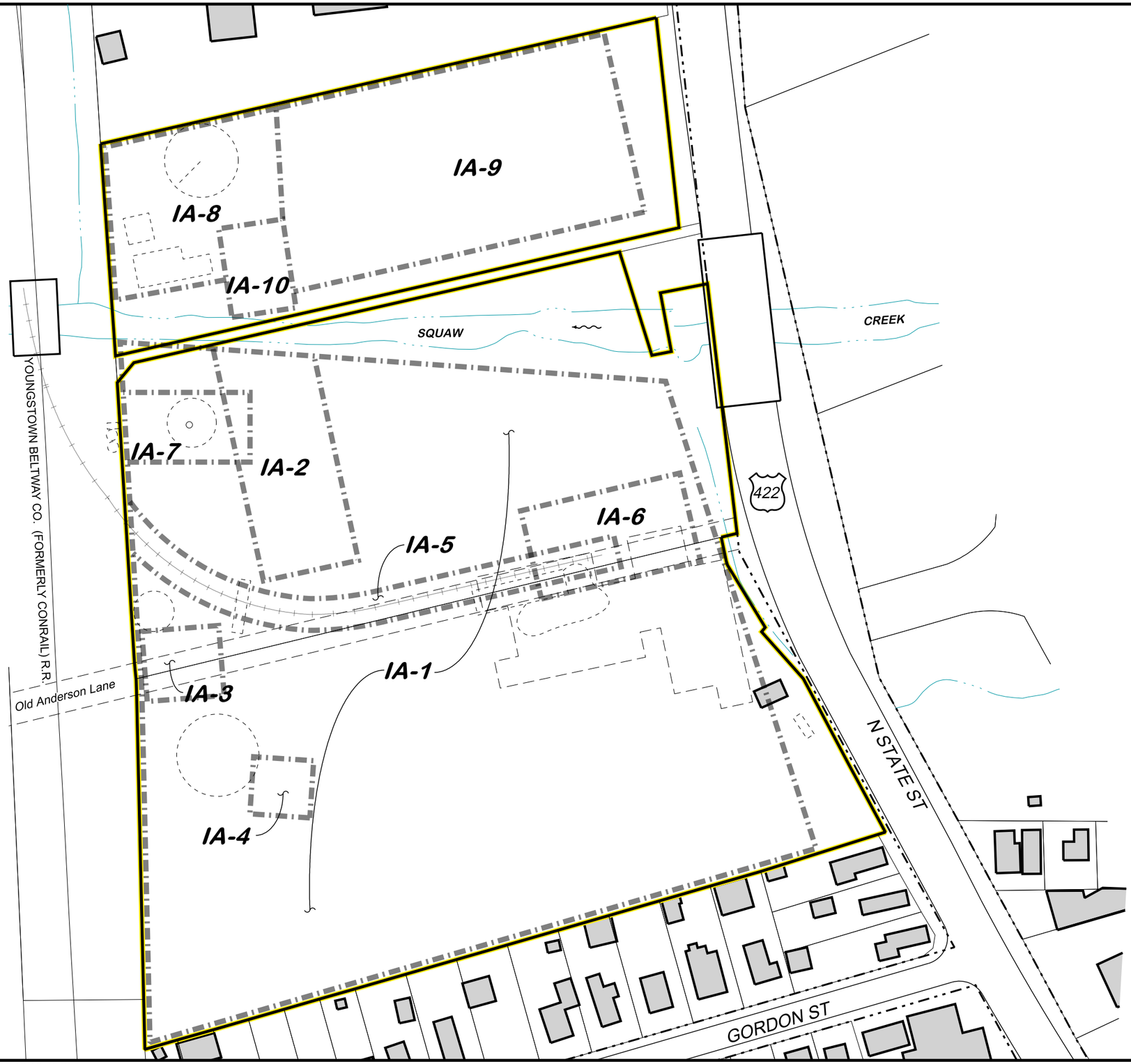
Site Detail Map

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: J. Kaufman	Date: January 2019	Project No. 10043



Identified Areas

IA-1: Historical Use for Leather Tanning Operations and Metals Storage/Disposal

IA-2: Titanium Shavings/Drum Accumulation Area #1 (79 drums west of bldg. 8 & 9)

IA-3: Drum Accumulation Area #2 (30 drums between reservoirs)

IA-4: Drum Accumulation Area #3 (30 drum south of bldg. 25)

IA-5: Rail Spur

IA-6: Former Transformer House and Engine Room

IA-7: Oil/Gas Well

IA-8: Historical Use for Waste Water Treatment Plant

IA-9: Three Waste Water Treatment Lagoons

IA-10: Disposal of Coal-related Waste

Legend

Identified Area

Identified Areas are interpreted from Figures 4A, 4B and 4C of a Phase I ESA by Turn-Key Environmental, Inc. dated September 23, 2013 and a Phase I ESA by McCabe Engineering dated October 2003. Locations are very approximate.

W E S

0 50 100

Scale in Feet

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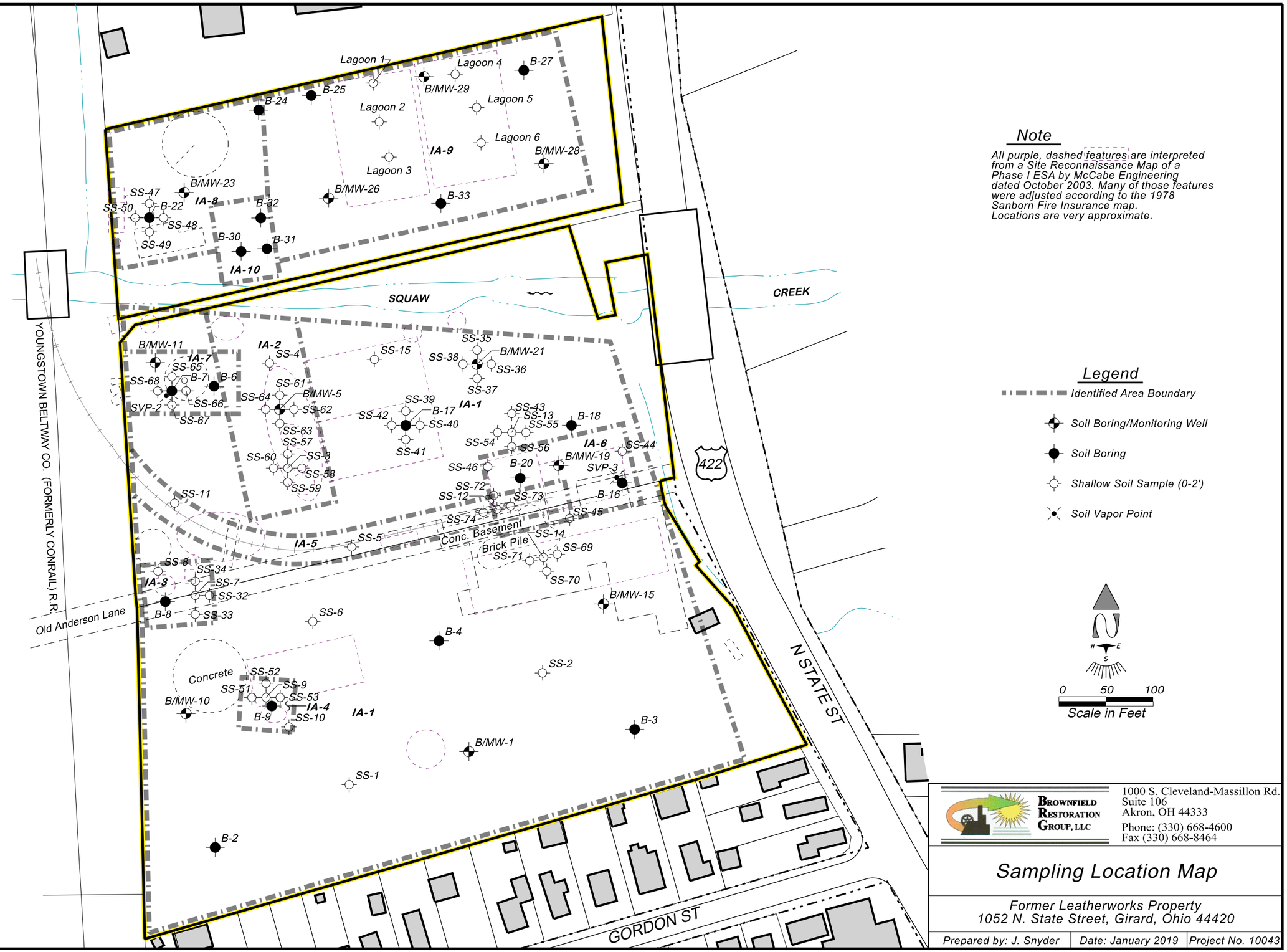
Identified Area Location Map

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: J. Kaufman | Date: January 2019 | Project No. 10043



Note

All purple, dashed features are interpreted from a Site Reconnaissance Map of a Phase I ESA by McCabe Engineering dated October 2003. Many of those features were adjusted according to the 1978 Sanborn Fire Insurance map. Locations are very approximate.

Legend

- Identified Area Boundary
- Soil Boring/Monitoring Well
- Soil Boring
- Shallow Soil Sample (0-2')
- Soil Vapor Point

W E S

0 50 100

Scale in Feet

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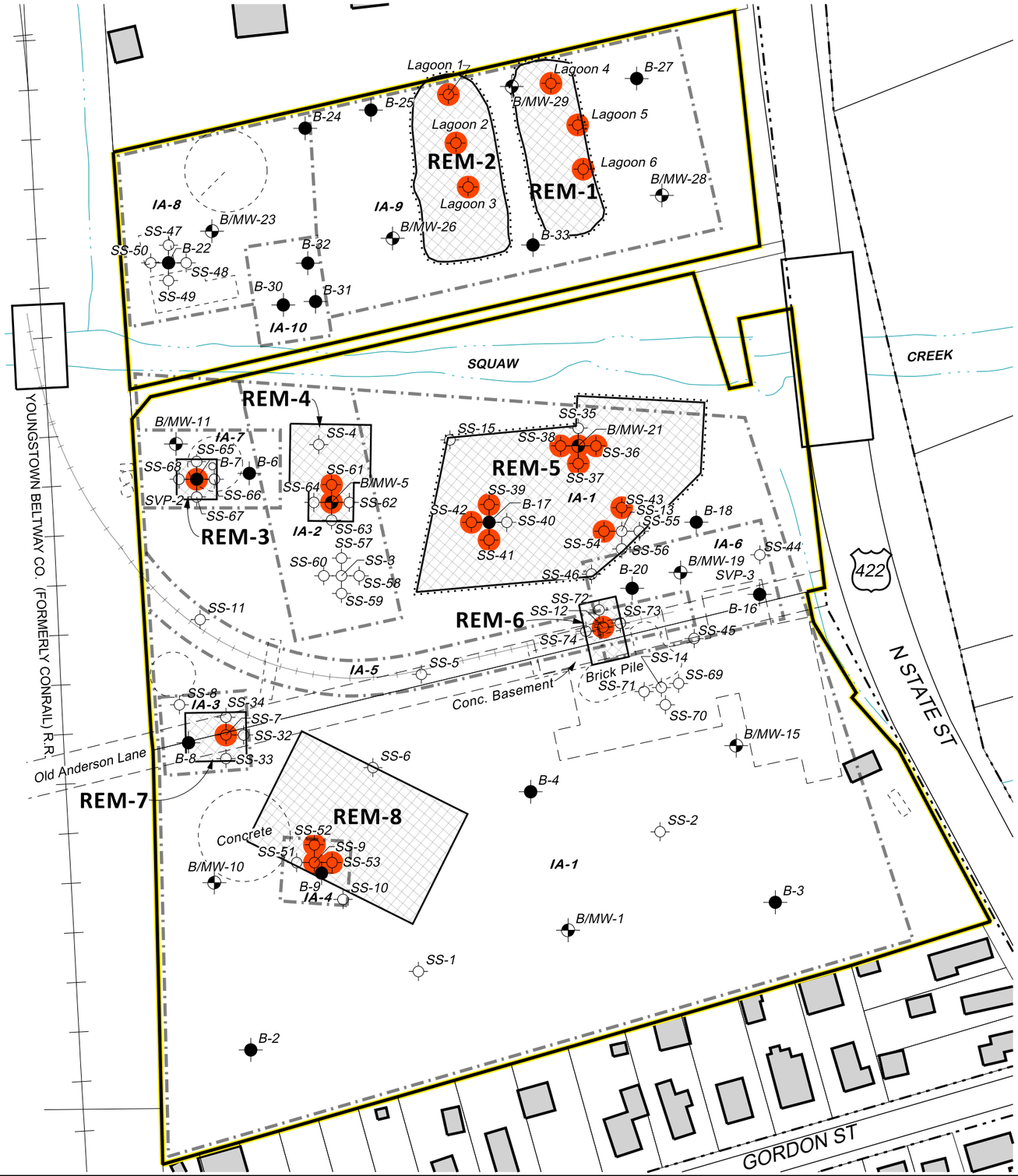
Sampling Location Map

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: J. Snyder | Date: January 2019 | Project No. 10043



Estimate of Quantities

SF x 2or4 = CF ÷27 = CY x 1.5 = Ton

Area	Description	Sq. Ft.	Depth	Cu. Ft.	Cu. Yd.	Ton
Subject to Two feet or Four feet of fill placement						
REM-1	East lagoon-*	7,675	4'	30,700	1,137.04	1,705.56
REM-2	West lagoon-*	10,375	4'	41,500	1,537.04	2,305.56
REM-5	Lead	27,745	2'	55,490	2,055.19	3,082.78
Subject to Soil Removal/Disposal/Replacement						
REM-3	Mercury & TPH	1,156	2'	2,312	85.63	128.44
REM-4	PCBs	4,628	2'	9,256	342.81	514.22
REM-6	Arsenic	2,081	2'	4,162	154.15	231.22
REM-7	Antimony & Lead	2,119	2'	4,238	156.96	235.44
REM-8	Lead	16,364	2'	32,728	1,212.15	1,818.22

* Sediment exceeds ecological standards

Soil exceeds C/I direct contact soil standards

Legend

- Exceeds VAP Standards at 0-2' Depth
- Shallow Soil Sample (0-2')
- Soil Boring
- Soil Boring/Monitoring Well
- Soil Vapor Point
- Identified Area Boundary
- Proposed Soil Remediation Area: excavation/disposal
- Proposed Soil Remediation Area: clean fill placement

W E S

0 50 100

Scale in Feet

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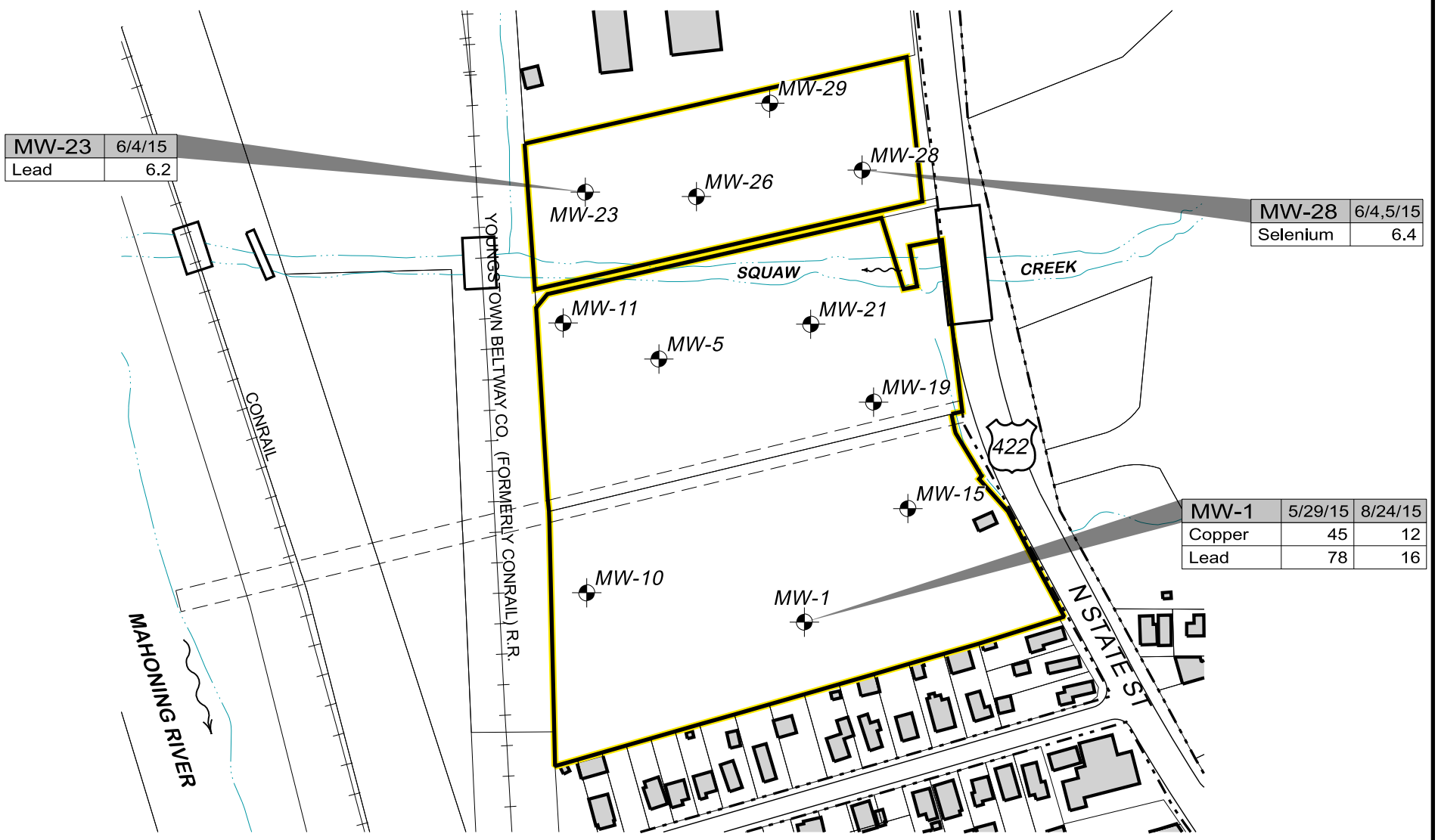
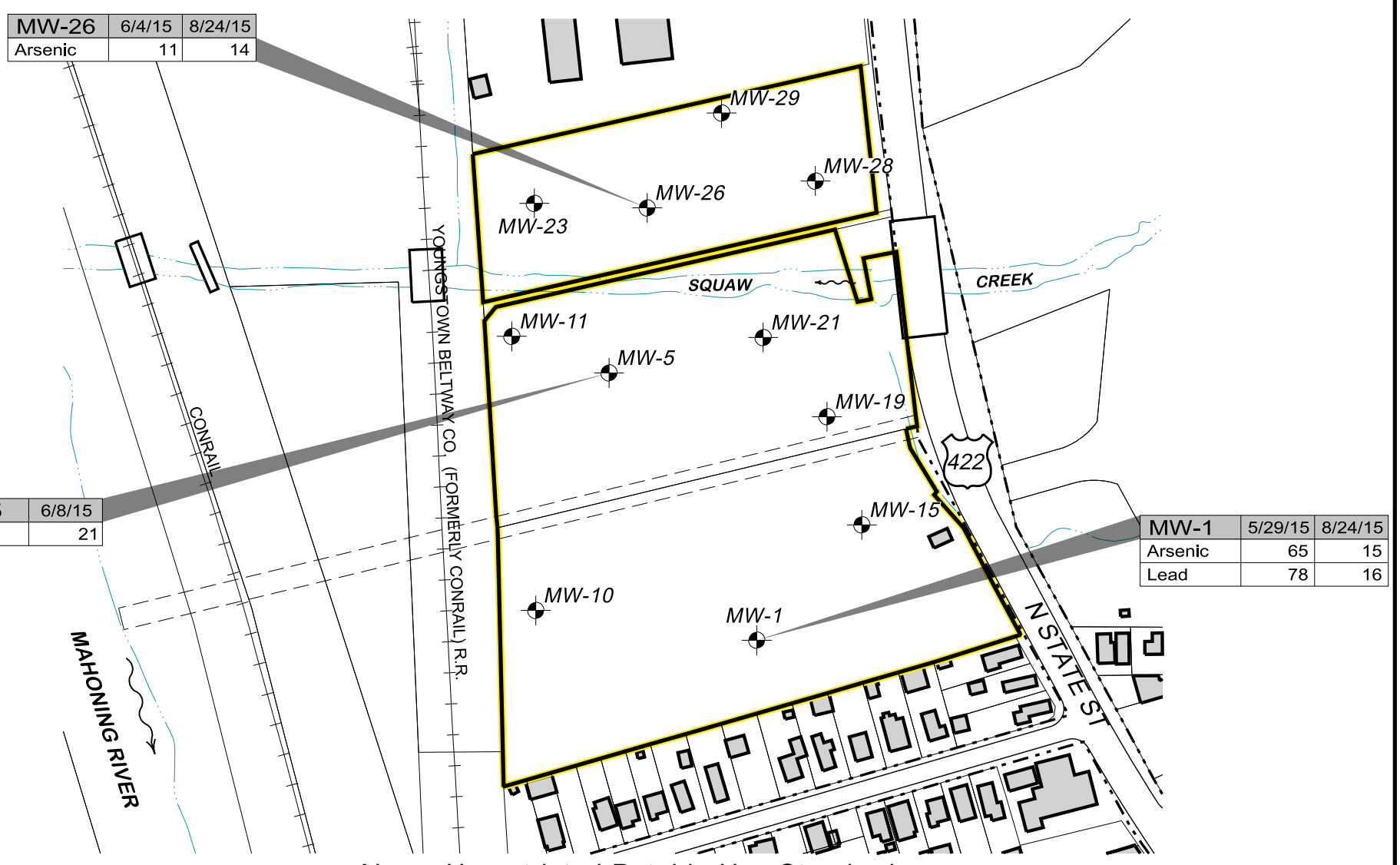
Areas of Property Subject to Proposed Soil Remediation

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: P. Kuonen | Date: January 2019 | Project No. 10043



Above Surface Water Standards



Above Unrestricted Potable Use Standards

Notes

1) All Results and Standards in µg/L or ppb.
2) Surface water standards applied are criteria for Ohio River Basin Aquatic Life Outer Mixing Zone Average.

W E S

0 100 200

Scale in Feet

Standards

ANALYTE	UPUS	SURFACE WATER
Arsenic	10	150
Copper	1,300	9.3
Lead	15	5.1
Selenium	50	5

Legend

Moniotoring Well

Subject Property

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Ground Water Analytical Results Above UPUS/Surface Water Standards

Former Leatherworks Property
1052 N. State Street, Girard, Ohio 44420

Prepared by: P. Kuonen | Date: January 2019 | Project No. 10043

BROWNFIELD RESTORATION GROUP, LLC

PROPOSED REMEDIATION COST ESTIMATE
Leatherworks Site
Girard, Trumbull County, Ohio

October 25, 2019
BRG Project No. 10043

PETROLEUM CLEANUP/REMEDIATION

Task 1 - Project Management & Coordination					
Labor					
40	hr.	Certified Professional	$140.00	/hr.	$5,600.00
20	hr.	Senior Project Manager	$120.00	/hr.	$2,400.00
40	hr.	Senior Project Geologist	$95.00	/hr.	$3,800.00
20	hr.	Clerical Office Support Staff	$40.00	/hr.	$800.00
Expenses					
250	mi.	Vehicle Mileage	$0.52	/mi.	$130.00
			Subtotal		**$12,730.00**
Task 2 - Remedial Actions					
Labor (Oversight, Documentation, Specifications Development)					
10	hr.	Certified Professional	$140.00	/hr.	$1,400.00
40	hr.	Senior Project Geologist	$95.00	/hr.	$3,800.00
150	hr.	Staff Geologist	$80.00	/hr.	$12,000.00
Direct Costs (Remediation Contractor)					
1	ls	Mobilization/Demobilization	$5,000.00	/ls	$5,000.00
1	ls	Erosion Control / Site Access Upgrade	$4,000.00	/ls	$4,000.00
1	ls	SSHASP / Permits / Bond	$4,500.00	/ls	$4,500.00
REM-1 and REM-2 (East & West Lagoon Closures)					
0.60	acre	Site Clearing	$8,000.00	/acre	$4,800.00
2,674	cu.yds.	Clean Soil Import & Placement (source from beneath clarifier AST)	$4.00	/cu.yd.	$10,696.00
2,963	sq.yd.	Seeding	$1.00	/sq.yd.	$2,963.00
Clarifier AST Removal					
504	tons	Sludge Removal/Disposal from AST	$70.00	/ton	$35,280.00
4,536	sq.ft.	Concrete AST Removal	$5.00	/sq.ft.	$22,680.00
1	ls	Transport/Place Concrete Rubble at Squaw Creek Embankment	$7,000.00	/ls	$7,000.00
REM-3 (Non-Hazardous Mercury and TPH)					
128	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$8,960.00
128	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$3,328.00
REM-4 (Non-Hazardous PCBs)					
514	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$35,980.00
514	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$13,364.00
REM-5 (Non-Hazardous Lead)					
0	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$0.00
3,083	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$80,158.00
REM-6 (Non-Hazardous Arsenic)					
231	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$16,170.00
231	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$6,006.00
REM-7 (Non-Hazardous Antimony and Lead)					
235	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$16,450.00
235	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$6,110.00
REM-8 (Non-Hazardous Lead)					
1,818	tons	Excavate, Transport, Off-Site Disposal	$70.00	/ton	$127,260.00
1,818	tons	Procure, Transport, Place Clean Fill, Seeding	$26.00	/ton	$47,268.00
Expenses					
1,875	mi.	Vehicle Mileage (Travel for Oversight/Documentation)	$0.52	/mi.	$975.00
			Subtotal		**$476,148.00**

BROWNFIELD RESTORATION GROUP, LLC

PROPOSED REMEDIATION COST ESTIMATE
Leatherworks Site
Girard, Trumbull County, Ohio

October 25, 2019
BRG Project No. 10043

PETROLEUM CLEANUP/REMEDIATION

Task 3 - Confirmatory Sampling				
Labor				
40	hr.	Staff Geologist	$80.00 /hr.	$3,200.00
Direct Costs				
2	day	Sampling Equipment & Supplies	$150.00 /day	$300.00
2	day	Geoprobe Rig and Supplies	$2,000.00 /day	$4,000.00
25	ea.	TPH, Full Range (8015)	$70.00 /ea.	$1,750.00
25	ea.	VOCs	$60.00 /ea.	$1,500.00
25	ea.	PAHs	$70.00 /ea.	$1,750.00
25	ea.	PCBs	$50.00 /ea.	$1,250.00
25	ea.	VAP Metals	$95.00 /ea.	$2,375.00
5	ea.	TCLP Metals	$175.00 /ea.	$875.00
Expenses				
500	mi.	Vehicle Mileage (Travel for Oversight/Documentation)	$0.52 /mi.	$260.00
			Subtotal	**$17,260.00**
Task 4 - Risk Assessment / Modeling				
Labor				
12	hr.	Certified Professional	$140.00 /hr.	$1,680.00
80	hr.	Senior Risk Assessor	$120.00 /hr.	$9,600.00
40	hr.	Senior Project Geologist	$95.00 /hr.	$3,800.00
16	hr.	Draftsperson/CAD Operator	$65.00 /hr.	$1,040.00
10	hr.	Clerical Office Support Staff	$40.00 /hr.	$400.00
			Subtotal	**$16,520.00**
Task 5 - Risk Mitigation Plan				
Labor				
8	hr.	Certified Professional	$140.00 /hr.	$1,120.00
20	hr.	Senior Risk Assessor	$120.00 /hr.	$2,400.00
10	hr.	Staff Geologist	$80.00 /hr.	$800.00
4	hr.	Draftsperson/CAD Operator	$65.00 /hr.	$260.00
8	hr.	Clerical Office Support Staff	$40.00 /hr.	$320.00
			Subtotal	**$4,900.00**
Task 6 - Remediation Report Preparation & Phase I Update				
Labor				
20	hr.	Certified Professional	$140.00 /hr.	$2,800.00
60	hr.	Senior Project Geologist	$95.00 /hr.	$5,700.00
16	hr.	Draftsperson/CAD Operator	$65.00 /hr.	$1,040.00
20	hr.	Clerical Office Support Staff	$40.00 /hr.	$800.00
			Subtotal	**$10,340.00**
Task 7 - NFA Document Preparation				
Labor				
40	hr.	Certified Professional	$140.00 /hr.	$5,600.00
80	hr.	Senior Project Geologist	$95.00 /hr.	$7,600.00
40	hr.	Staff Geologist	$80.00 /hr.	$3,200.00
16	hr.	Draftsperson/CAD Operator	$65.00 /hr.	$1,040.00
20	hr.	Clerical Office Support Staff	$40.00 /hr.	$800.00
Direct Costs				
1	est.	Ohio EPA Filing Fee for NFA	$20,000.00 estimate	$20,000.00
			Subtotal	**$38,240.00**

CONTINGENCIES

BROWNFIELD RESTORATION GROUP, LLC

PROPOSED REMEDIATION COST ESTIMATE
Leatherworks Site
Girard, Trumbull County, Ohio

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PETROLEUM CLEANUP/REMEDIATION

1	est.	5% of Remediation Contractor Direct Costs	$22,898.65	estimate	$22,898.65

PROJECT GRAND TOTAL: **$599,036.65**

I have prepared and/or reviewed the above cost estimates and it is my professional opinion that the costs reflect a reasonable estimate of the level of effort required to perform the remedial activities employing normal and customary methods for this type of work.

Prepared By:

Jim C. Smith, CP-121