

**Analysis of Brownfields Cleanup Alternatives
Route 522 Recreational Complex (Former Seely Furniture)
5595 Valley Road
Berkeley Springs, Morgan County, West Virginia
Prepared For:**

Morgan County School Board

Introduction and Background

Site Location

The approximate 9.92-acre Site is located along the eastern side of Valley Road (U.S. Route 522), approximately five miles south of Berkeley Springs, Morgan County, West Virginia (Latitude N 039°33'6"/Longitude W 078°15'59", Datum WGS 84). The Site is addressed as 5595 Valley Road, Berkeley Springs, West Virginia 25411. According to the Morgan County Assessor's Office, the Site is identified in District 6 (Rock Gap) on Tax Map 7 as Parcel 3.1.

Previous Uses

Historically, the Site was primarily undeveloped agricultural land that contained an orchard from the early to mid-1900s. Circa 1963, the Site was developed and utilized by the Spioch Equipment Company as an automobile repair, salvage, and crushing facility. Circa 1977, the Site was purchased and utilized as Thompson's Auto Exchange that operated as an automobile sales and repair business. Noteworthy is that during this timeframe, a gasoline station was reportedly operated at the Site by Spioch and Thompson for approximately 17 years. Circa 1980, the Site was purchased by Seely-Pine Furniture, Inc., who utilized the Site as a finishing facility as part of their wood furniture manufacturing business. During this time period, Rhodes Body Shop rented the rear portion of Site building from Tom Seely, owner of Seely-Pine Furniture, Inc. and operated an automotive body repair business. The former Site building reportedly burned to the ground in the early 1990s and presumably the piles of concrete located in the eastern portion of the Site are remnants of the structure.

The Site was then unused and vacant for several years until circa 2006, the Morgan County Commission purchased the Site from the Tom Seely family. Circa 2008, the soccer field and gravel parking area were constructed and after becoming open to the public, evidence of its historical uses in the form of metal and glass debris was discovered in areas of the soccer field at the Site. Due to the unknown environmental and safety concerns, the Morgan County Commission suspended the use of the soccer field on April 26, 2010.

The Site is improved with a soccer field, gravel parking area, a former individual drinking water well identified as Well No. 1 (blue painted well cap), and a recently installed irrigation well identified as Well No. 2 (silver painted well cap). In addition, there is a mobile office trailer at the Site, which was locked and inaccessible. The remainder of the Site consists of wooded areas, a former farm pond, and piles of concrete/soil fill material located east of the soccer field.

Past Assessment Findings

In May 2010, the Morgan County Commission contracted Potesta & Associates, Inc. (Potesta) to conduct limited surface soil sampling and testing at the Site. According to the report prepared by Potesta dated April 22, 2010, Potesta collected six hand-augered soil samples from only the soccer field as requested by the Morgan County Commission. The soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and Resource Conservation and Recovery Act metals (RCRA metals). Potesta compared the soil sample results to the Risk-Based Concentrations (RBCs) developed by the West Virginia Department of Environmental Protection (WVDEP) – Office of Environmental Remediation (OER) for residential and industrial soils and natural background concentrations established in the WV Voluntary Remediation and Redevelopment Act (VRRRA) guidance manual dated January 2002.

According to soil sampling results summary table prepared by Potesta, RCRA metals of arsenic, barium, cadmium, chromium, mercury, and lead were detected at or above the laboratory reporting limits. In five of the six soil samples, levels of arsenic ranged from 13.2 – 23.6 mg/kg that were “in excess” of the VRRRA natural background concentration of 13 mg/kg (residential) while other detectable levels of RCRA metals were below the residential RBC levels. VOCs and SVOCs were not detected at or above the laboratory established reporting limits.

Included with the 2010 Potesta report were analytical results for a water sample that was collected on May 20, 2010 from “well #1”, i.e., understood to be the former drinking water well (Well No. 1). Although the water sample was collected by Potesta on the same date as the soil samples; a discussion of its collection was not included in the 2010 Potesta report. According to the laboratory results for the water sample, the water well sample was analyzed for RCRA metals, Escherichia coli (E coli), and Total Coliform. A low level of barium (slightly above the laboratory established reporting limit) was detected in the water sample as well as the presence of total coliform. All other analytes were not detected at or above the laboratory established reporting limits. Noteworthy is that the water sample was not analyzed for VOCs that would have included Methyl-Tertiary-Butyl-Ether (MTBE), Tert- Amyl-Methyl-Ether (TAME), Ethyl-Tertiary-Butyl-Ether (ETBE), and Tertiary-Butyl-Alcohol (TBA) by U.S. EPA Method 8260B, Total Petroleum Hydrocarbons-Diesel Range Organics (TPH-DRO) and Gasoline Range Organics (TPH-GRO) by U.S. EPA Method 8015B.

Project Goal Summary

The School Board’s vision for the property is consistent with the one forth and approved by the County Commission in 2007 still stands as their goal for the property; "the project is to develop three (3) soccer fields on the 10 acres ... ". Further improvements identified by the School Board through its work with local sports organizations and community partners include additional recreation fields, a concession facility with restrooms, and adequate parking to support the growing popularity, needs, and membership of the sport groups in Morgan County. In order for this vision to become a reality the removal of all environmental contaminants in the playing field areas will have to be completed in a manner that is demonstrable to all stakeholders sufficient to improve the confidence of safety in the property, and the perception that the same issues would not resurface in the future.

The potential for the future of the site is high in that completion of the soccer fields at the route 522 site will enable the soccer league to hold all team games at a single location (versus shuttling between schools). The ability to hold soccer games at this location is logistically advantageous for a couple of

reasons; 1) more games can be played due to not having to waste time moving between schools, and 2) many parents have children involved in baseball, softball and soccer simultaneously, so having all three sports located in the same general area minimizes travel time and make the recreation experience more enjoyable. Full development of the 9.92 acre parcel into three soccer fields (and supporting facilities)

would bring more recreational focus to the route 522 recreation areas which could influence decisioning about the timing of development of the nearby vacant 16 acre parcel.

Summary of environmental investigations

Triad Engineering, Inc. conducted Phase I and II Environmental Site Assessments on the property. A Phase I ESA was conducted in the Spring 2012 and a report issued on March 5th, 2012. It's findings are below:

Phase I ESA Recognized Environmental Conditions:

- The Site historically contained a commercial-sized orchard from the early to mid-1900s. The commercial-sized orchard was identified as occupying the entire Site in the 1947 historical aerial photograph that was reduced down to a small portion of the northeastern corner of the Site in the 1972 historical aerial photograph. Presumably the orchard operations ceased at the Site when the property was sold to Spioch Equipment Company circa 1963. Application of chlorinated pesticides containing lead arsenate used during this time period is a potential source of soil contamination at the Site.
- The Site was historically utilized as an automobile repair, salvage, and crushing facility from circa 1963 till circa 1977 by the Spioch Equipment Company. Evidence of the automobile crushing activities in the form of metal and glass debris was generally documented in the grant application package provided by the User. Noteworthy is that photographic documentation of the metal and glass debris included a photograph of an apparent piece of lead that was also discovered in the vicinity of the soccer field. The piece of lead appeared melted apparently as the result of automobiles being burned prior to being crushed so that all that remained was metal and/or glass. Following Spioch Equipment Company, the Site was then purchased by Thompsons Auto Exchange and utilized as an automobile sales and repair business from circa 1977 till circa 1980. In addition, during the late 1980s and early 1990s, Rhodes Body Shop operated an automobile body repair business at the Site during the ownership Seely- Pine Furniture, Inc. The presence of these historical automobile service and/or repair facilities is a potential source of petroleum contamination. Additionally, the use, storage, and/or disposal of spent paints and solvents, i.e., hazardous wastes, as part of former automobile body shop business are also considered a potential source for contamination.
- The Site is listed under Seely-Pine Furniture, Inc. (Facility ID #s 3304153/06504153) as a UST facility in the InfoMap report. WVDEP File Review information for this former facility has indicated the potential for five USTs at the Site. These five USTs are listed as a 5,000-gallon diesel UST identified as Tank 1; an 8,000-gallon diesel UST identified as Tank 3; a 3,000-gallon gasoline UST identified as Tank D2; a 2,000-gallon gasoline UST identified as Tank D4; and a 4,000-gallon gasoline UST identified as Tank D5. A review of the UST closure information for Tanks D2, D4, and D5, which were listed as closed and removed from the ground in the InfoMap Report, indicates that these USTs were reportedly closed in a satisfactory manner; however, the confirmatory soil sample that was collected at the time of the tank removal on July 26, 1993 was not submitted for laboratory analysis until September 15, 1993. This time period exceeds the U.S. EPA's recommended holding time of 14 days for laboratory analysis for Total Petroleum Hydrocarbons (TPH). As such, the associated result indicating no detectable TPHs is considered unreliable. In regard to the removal of Tanks D4 and D5 on June 8, 1990, low concentrations of TPH were detected in the confirmatory soil analysis results in two of the four confirmatory soil samples. Although low levels of TPH were detected in these soil samples, they did not exceed the 100 parts per million (ppm) release confirmation/reporting level for soil as outlined in the West Virginia Leaking Underground Storage

Tank Guidance Document dated August 2001 as prepared by the WVDEP. As such, a leaking underground storage tank (LUST) case was not opened for Tanks D2, D4, or D5. As part of the closure documentation for Tank D2, Mr. Monty Edwards, the WVDEP Inspector who was in attendance for the removal of Tank D2, indicates in his field notes that “this removal completes all USTs for Seely Furniture”; however, no tank closure information was supplied or reviewed for Tanks 1 and 3. The only documentation that indicates closure for Tank 1 was found in a Notification for Underground Storage Tanks dated November 29, 1993 which was prepared after the removal of Tanks D2, D4, and D5. This form indicates that Tank 1 (5,000 gallons) was removed from the ground on July 26, 1993, the same day as the removal of Tank D2 (3,000-gallon) which contradicts the closure information previously summarized herein. In addition, the form indicates the presence of Tank 3 (8,000-gallon) as being currently-in-use with no closure information, whatsoever.

- The Site was historically utilized by Seely-Pine Furniture, Inc. as a finishing facility for wood furniture manufacturing which generally included the application of oil-based stains, varnishes, and lacquers. According to Mr. Lewis P. Hovermale, Seely-Pine Furniture Inc., purchased the Site circa 1980 and utilized the Site structure for finishing wood furniture that was manufactured north of the Site at their manufacturing plant. He indicated that liquid waste or by-products generated from this finishing process were discarded at the Site by dumping the materials across the ground surface to allow the liquids to dry. When questioned about the potentially contaminated well as mentioned in Mr. Clyde Golden’s interview, Mr. Hovermale indicated that this incident was due to these disposal activities at the Site. He then explained that an employee in the 1980s dumped a 55-gallon drum of liquid waste in the vicinity of Well No. 1 in the north-central portion of the Site. According to Mr. Hovermale, this incident resulted in adding a “bad taste” to the Site’s drinking water and as a result a new drinking water well (Mrs. Kerns’ existing well) was installed approximately 100 feet west of the Well No. 1 on the northern adjoining property.

Phase I ESA Environmentally Noteworthy Findings:

- Although not observed or identified in the InfoMap Report, during interviews with several individuals a former gasoline station reportedly existed in the vicinity of the Site. The suspected gasoline station is approximately located 250 feet north of the Site along the eastern shoulder of U.S. Route 522 roadway. There is no additional information available regarding this former gasoline station.
- There is a small farm pond located in the southeastern portion of the Site that originates at a surface water seep located approximately 20 feet up gradient of the pond. The farm pond discharges through seepage originating at the base of the pond embankment. The seepage eventually confines to a small watercourse that discharges to an unnamed tributary of Sleepy Creek. The presence of this farm pond and its associated surface water features represents an

environmentally noteworthy finding since these surface water features would potentially be considered Jurisdictional waters of the United States, including wetlands.

- The former Site building was served by an on-site septic system that is now or formerly located along the northern property boundary approximately 60 feet south of Mrs. Marian Kerns residential structure on the northern adjoining property. Due to the documented historical uses at the Site as an automotive repair/maintenance facility and a facility utilized for the use/application of stains, varnishes, and lacquers for wood furniture manufacturing; the potential presence of subsurface contamination that may have resulted from the improper

use and disposal of spent by-products into the on-site septic system represents an environmentally noteworthy finding.

- During the Site reconnaissance, several crushed and/or damaged 55-gallon drums were observed in several areas within the woods located in the northern and eastern portions of the Site. There was no staining or other evidence of releases on the ground surface in the vicinity of these drums. Based on the condition of these crushed and/or damaged 55-gallon drums they are considered non-hazardous solid waste and are merely scrap metal.
- Various dumps and/or piles of on-site and/or possible off-site fill materials consisting of non-hazardous solid wastes and the remains of former structure(s) are located east of the existing soccer field at the Site. Several of these piles are simply the rubble from the possible razing of the former Site structure while other dumps and/or piles may have been created through illicit dumping. The contents observed within these dumps and/or piles consisted of, but are not necessarily limited to, soil, shale, concrete, stone block, asphalt paving, metal sheeting, metal cans, glass containers, wood building debris, automobile parts, and household rubbish. The presence of these various dumps and/or piles at the Site do not represent a REC, however it does represent an environmentally noteworthy finding.
- During the Site reconnaissance, miscellaneous automobile parts and several discarded truck/automobile tires were observed in various locations within the wooded area in the northern and eastern portions of the Site. Miscellaneous automobile parts observed in these areas generally consisted of metal and plastic automobile components, wires, hub caps, and scrap metal from the bodies of automobiles. It should be noted that no metal or glass debris was observed in the immediate vicinity of the soccer field as previously documented. Although the presence of these miscellaneous automobile parts and several discarded truck/automobile tires does not represent a REC, it represents an environmentally noteworthy finding.

Phase II ESA Findings:

- The southeastern corner of **Parcel 1** contains a small, isolated pond, which in the opinion of Triad, would not be considered jurisdictional waters of the U.S. subject to regulation by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA).
- The northeastern corner of **Parcel 2** contains an area of mixed forested scrub-shrub and emergent wetlands, which in the opinion of Triad, would be considered jurisdictional waters of the U.S. and waters of the State of West Virginia.
- The small area paralleling U.S. Route 522/Valley Road, just east of Mrs. Kerns' residence and just south of Mr. Golden's residence, which also contains a well described by Mrs. Kerns as Mr. Golden's drinking water well, appears to be part of **Parcel 1**. This well was not sampled or tested as part of this Phase II ESA study.
- The Ground Penetrating Radar testing identified one suspect abandoned utility line and one anomaly interpreted to be suspect buried debris denoted on **Sheet No. 1** in as **Suspect Abandoned Utility Line** and **Suspect Buried Debris** in the same area as the former UST basin.
- Nine of the 44 soil samples tested for RCRA metals exhibited **Arsenic (As)** concentrations that exceed the **Maximum Natural Background Level** of **13 mg/kg**
- One of the 43 soil samples tested for **Organochlorine Pesticides** (SB-16 at 0 - 2') exhibited a **DDE** concentration of **1.97 mg/kg** that exceeds the **Residential Soil De Minimis Standard** of **1.4 mg/kg**.

Sample Location

Sample Depth (ft)

Contaminant of

Concern

Result (mg/kg)

SB-1	2 - 6	As	13.2
SB-1	6 - 7.3	As	13.8
SB-5	0 - 2	As	15.4
SB-7	0 - 2	As	15.5
SB-7	2 - 6	As	33.4
SB-8	0 - 2	As	14.7
SB-8	6 - 10	As	21.5
SB-15	0 - 2	As	20.8
SB-16	0 - 2	As	36.0
SB-16	0 - 2	DDE	1.97

- Well No. 2 exhibited estimated levels of **PAHs** that exceed **Groundwater De Minimis Standards**.

Sample Location	PAH COC	Result (ug/L)	Groundwater De Minimis Standard (ug/L)
Well No. 2	Benzo(a)pyrene	1.10J	0.20
Well No. 2	Benzo(b)fluoranthene	1.10J	0.029
Well No. 2	Benzo(k)fluoranthene	1.1J	0.29

Ug/L – micrograms per liter

J – Estimated concentration above the adjusted detection limit and below the adjusted reporting limit

- The surface water in the farm pond exhibited an elevated **Iron** level of **2,780 ug/L** that exceeds the **West Virginia Surface Water Quality Standard of 1,500 ug/L** established for **Aquatic Life (Chronic) in Warm Water Fishery Streams/Wetlands**. The elevated iron level is in all likelihood due to surface water runoff from the barren shale bedrock located on the topographic highs up slope of the pond on site.

Applicable Regulations and Cleanup Standards

Cleanup Oversight Responsibility, State Standards and Regulations

It is Morgan County School Board's intent to perform the Site cleanup under the WV DEP Voluntary Remediation Program (VRP) under the WV Legislature's Voluntary Remediation and Redevelopment Act (VRRRA). The VRP requires that the site investigation and cleanup be performed under the oversight of a West Virginia Licensed Remediation Specialist. Reports documenting site investigation and cleanup activities must also be approved by the WVDEP. The DeMinimis cleanup standards under the VRP are listed in Table 60-3B of the West Virginia Voluntary Remediation and Redevelopment Rule (60CSR3-). Soil cleanup standards are provided for protection of groundwater (leaching) as well as direct contact exposure under residential and non-residential site use scenarios. The VRRP also allows for the development of site-specific risk-based standards based on anticipated future use.

Evaluation of Cleanup Alternatives

Three alternatives are considered for addressing arsenic and DDE contaminated soil.

Option 1

Capping of the proposed recreation fields and sideline areas with a geotextile layer and clean fill material will act as a barrier to restrict existing foreign objects from migrating upwards from the existing soil layer. The geotextile fabric should have an acceptable permittivity and be placed over the existing soil

and covered with clean fill. The fill material (top soil and fill) shall be placed at a minimum of 12 inches and lightly compacted. The depth needs to be sufficient to allow for wear from field use. The fill material shall be obtained from a soil borrow area acceptable and/or approved by the WVDEP. The contractor shall be responsible for ensuring that the fill material shall be free of deleterious material, contaminants of concern, and free of foreign objects.

Therefore a rough cost estimate would be:

- Clean Fill (from within 7 miles) @\$13/cu. yard = \$84,000
- Geotextile fabric @\$0.71/sq. yard = \$21,000
- Mobilization/Grading/Labor = \$30,000
- Hydroseeding for additional capping of fields = \$27,000
- Soil and Water Erosion Plan Implementation = \$15,000

Total (with contingency 10%) = \$197,200

Option 2

Removing the existing topsoil and fill material to a depth of 12 inches and replacing it with clean fill material meeting the requirements as noted in Option 1. This option will remove possible foreign objects to 12 inches in depth. The removed topsoil can be relocated on site and placed into stockpiles for future use as fill material on this site. This material should only be used as deep fill and placed as the first lifts and then covered with one foot or more of clean fill material. A rough cost estimate would be:

- Removing existing soil (assume 12 inches over 6 acres) @\$10/cu. yard = \$97,200
- Clean Fill (from within 7 miles) @\$13/cu. yard = \$63,000
- Mobilization/Grading/Labor = \$30,000
- Hydroseeding (6 acres) = \$19,000

Total: \$209,200

Option 3

No further action. This alternative would involve no action, leaving the site in its current condition. Fencing will be added to restrict further site access.

Summary

Based on the Phase II findings, available budget, and planned reuse, the recommended clean-up plan includes capping the contaminated soil with a geotextile fabric, clean fill, and appropriate playing surface to eliminate dermal contact with any of the identified contaminants.