ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

Colman Yards Buildings
Asbestos Abatement, Wood Block Floor Removal, Lead Paint Removal/Encapsulation

Colman Yards Redevelopment Site
Groundwater Cleanup, Soil Excavations/Disposal, Engineered Barrier Design/Construction

Former Barber Colman Campus
1200 – 1300 Blocks of Rock Street
Rockford, IL 61101

US EPA Brownfields Revolving Loan Fund Program

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1.0 INTRODUCTION & BACKGROUND

In 1894, inventor Howard Colman collaborated with investor W. A. Barber and founded Barber & Colman in a small office in Rockford's Water Power District. In 1900/1902, Barber & Colman established its first factory building at the southwest corner of Loomis and Rock Streets on what eventually grew into a 20 plus structure manufacturing campus spanning approximately 17 acres. In 1904, the company was officially incorporated as the Barber Colman Company, specializing in the manufacturing of textile machinery. Five new buildings were constructed on the complex by 1907. The company rapidly grew and ventured into several markets, leading to the creation of several new divisions. In 1984, Reed-Chatwood purchased the textile division along with the property, continued operations, and leased back a large portion of the campus to the remaining divisions of the Barber Colman Company, including the former metal finishing division that was purchased by Invensys Companies in 1987. Manufacturing on the campus ceased in 2001, when Reed-Chatwood (later Chatwood, LLC) dissolved.

The historic complex has been vacant since the doors abruptly closed in 2001. In 2002, the City of Rockford purchased the property and began the environmental assessment and cleanup process to better position the property for redevelopment. On August 8, 2006, the Barber Colman Campus was recognized by the National Park Service with a listing on the National Register of Historic Places. Nine historic structures remain on the property. Shortly after acquiring the property, the City of Rockford began the environmental assessment and cleanup process to position the campus for redevelopment. In November 2001, the property was enrolled in the Illinois EPA's Site Remediation Program, a voluntary cleanup program that utilizes a risk-based approach to ensure that any contaminant exposure pathways are addressed prior to redevelopment. Between 2002 and 2022, several soil and groundwater sampling events occurred to characterize the site and identify potential exposure pathways. In 2005, the first cleanup project occurred with the demolition and removal of heavy metal contaminated soils from beneath the former Invensys-Colman Metal Finishing building. Subsequent assessment activities since that time have characterized soil and groundwater contamination and allowed for various cleanup activities to move forward. In 2008 and 2009, US EPA Brownfields Cleanup Grants were used to perform asbestos abatement in the historic structures. Most recently, US EPA Revolving Loan Funds (RLFs) were used to stabilize the historic structures for lead paint and asbestos abatement and to develop the plans and specifications for the balance of the required cleanup work that will be performed in conjunction with the property's redevelopment.

On October 4, 2021, after sitting vacant for two decades, Rockford City Council approved the sale of the Barber Colman Campus for $500,000 to J. Jeffers & Company with a due diligence period that expires on March 1, 2022. The Milwaukee based development group specializes in the adaptive reuse of historical properties and intends to preserve the heritage of the campus. The company anticipates the project to include a mixture of residential and commercial uses that could be a multi-cultural destination point for the entire community to experience. On

December 28, 2022, the first RLF loan was executed between the City of Rockford and the J. Jeffers & Company (J. Jeffers Co.). An amended loan agreement including supplement RLF and program income will be executed as part of the final Development Agreement that is anticipated to be approved by City Council in April 2023. The amended loan agreement includes a loan totaling $6,502,438.38 of RLF monies and RLF program income. Additionally, a $2 million locally funded environmental grant will be provided by the City to the J. Jeffers Co. to assist with the required cleanup actions proposed within. This Analysis of Brownfields Cleanup Alternatives (ABCA) is provided for the proposed environmental cleanup components of the Colman Yards project. For each scope of cleanup work utilizing US EPA RLFs, two or more cleanup alternatives are evaluated for each cleanup scope of work at this stage of the cleanup planning process, with a final scope selected for recommendation based upon effectiveness, Implementability, and cost. The RLF and environmental grant will be combined with a combination of local, state, and private funds to complete all necessary cleanup actions.

2.0 CLEANUP ACTIONS

A total of six (6) cleanup actions have been identified at this time for the Colman Yards redevelopment project. The six (6) cleanup actions are divided into two categories, Colman Yards Buildings include actions related to the adaptive reuse of the remaining campus buildings and Redevelopment Site refers to those actions completed on the exterior portions of the cleanup site.

2.1 Cleanup Action A – Asbestos Abatement

Asbestos Containing Building Materials (ACBM) remain on and inside several of the historic structures making up the campus. In 2008 and 2009, approximately $720,000 in US EPA Cleanup Grant funds and local match resources were utilized to abate most of the friable asbestos in the buildings. However, there were some non-friable materials left on structural building components as a result of not having a final development course to replace them once removed. Additionally, no asbestos removal occurred in Building 13 and the subgrade pipe tunnels due to lack of funding. Asbestos containing window glazing was also left in place in all of the structures due to the board up cost to secure if the windows were removed.

2.2 Cleanup Action B – Wood Block Flooring Removal

Creosote is a common wood preservative derived from coal tar, oil-tar, and other chemicals. The flooring systems within several structures are comprised of Creosote treated wood blocks. Once a layer of creosote treated wood blocks was laid, the grooves were filled with a hydrocarbon based tar pitch that binds the floor into one solid unit. This flooring was common in old factories because of its sound insulating properties, worker comfort, and its ability to prevent damage to dropped parts. Previously, RLF was used for certain environmental site preparation work inside Buildings 4, 9, 17 and 18 as

part of a proposed Rock Valley College (RVC) Advanced Technology Center project that did not mature. This included the removal and landfilling of approximately 44,500 square feet of wood block flooring. In addition to the presence of SVOCs, low-level PCBs where detected in two floor samples below Toxic Substances Control Act (TSCA) standards. This work included the removal of creosote and oil saturated wood block flooring in each of the structures subject to the RVC project. The wood block flooring was profiled as general construction and demolition (C&D) debris waste based on the laboratory analysis and disposed of at Winnebago County Landfill. A total of 36.74 tons of mixed C&D waste consisting of wood block flooring and other site prep debris were landfilled for the project. However, approximately 35,000 square feet of additional wood block flooring persists in Buildings 5, 11, 12, and 13.

2.3 Cleanup Action C – Lead Paint Abatement/Encapsulation

Lead-based paint and lead-contaminated dust are some of the most widespread and hazardous sources of lead exposure for young children and adults in the United States. Lead-based paints were banned for residential use in 1978. While the use of lead paint was restricted for residential applications in 1978, no such restrictions applied to paints used for industrial structures. Lead paint has been previously identified in each Barber Colman campus building. Lead paint hazards must be addressed before the buildings can be reoccupied by commercial and residential tenants.

2.4 Cleanup Action D - Groundwater Cleanup

At a location just south of Building 12, chlorinated VOCs remain in the groundwater. The presumed source of the VOCs is a former wash out pit and vapor degreaser once located on the interior of Building 12. The groundwater plume extends in a southeasterly direction towards the Rock River. Groundwater samples collected adjacent to the river contain chlorinated VOCs, indicating the compounds are actively discharging to the river. The chlorinated VOCs must be treated to reduce concentrations to acceptable levels before a No Further Remediation (NFR) letter can be issued by the Illinois EPA.

2.5 Cleanup Action E – Soil Excavations/Disposal

Various pockets of contaminated soil will be encountered in conjunction with utility installations, new construction excavations, and excavations that are the preliminary steps in the installation of the Engineered Barrier and Storm water Retention facilities. The exact location and extent of these soil excavation sites will be determined when the Site Plan and Engineered Barrier Design are completed. Excavated soil will be tested and either used on site if clean or landfilled if deemed contaminated.

2.6 Cleanup Action F – Engineered Barrier Design/Construction

In order to obtain a NFR letter for the entire site, an engineered barrier will be required to address contaminant exceedances of the soil ingestion pathway. Preliminary Site Plans have identified the primary components of the Engineered Barrier and their general locations which include the following: 1) Driveways and parking lots; 2) sidewalks and pedestrian/bikeway facilities; 3) courtyards; 4) landscaped or lawn areas; and 5) storm water detention facilities.

3.0 CLEANUP ALTERNATIVES

The following alternatives to the proposed cleanup actions have been evaluated as follows:

3.1 Cleanup Action A – Asbestos Abatement

Alternative 1 - No Asbestos Abatement

Effectiveness – This alternative does not address the need to resolve the remaining building cleanup issues that are needed to make them safe for adaptive reuses including residences, work spaces, and events. Additionally, the City has invested approximately $720,000 in US EPA Cleanup Grant funds and local match resources to abate a bulk of the asbestos in the buildings historically.

Implementability – This alternative does not address the remaining cleanup issues and leaves the buildings unprepared for renovation/repurposing. This is especially important considering the fact that three (3) previous redevelopment proposals were unsuccessful due, at least in part, to the fact that the remaining cleanup was not well defined or programmed.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the nine remaining buildings sit vacant and deteriorate causing additional blight to an already challenged area.

Alternative 2 – Complete Asbestos Abatement

Effectiveness – This alternative addresses the asbestos exposure hazard issue for the Buildings, making them ready for renovation and repurposing with the removal of the additional environmental hazards.

Implementability – Complete asbestos removal is within the available funding. Most of the asbestos was removed as a part of the Cleanup Grants approximately 14 years ago.

Cost – This cleanup action is expected to cost $1.15 million and is well within the available funding of approximately $6.5 million.

3.2 Cleanup Action B – Wood Block Flooring Removal

Alternative 1 - No Wood Block Flooring Removal

Effectiveness – This alternative does not address the need to resolve the remaining building cleanup issues that are needed to make them safe for adaptive reuses including residences, workspaces, and events. Additionally, the wood block flooring system is damaged beyond repair due to weather exposure and allows for trip and fall hazards.

Implementability – Although no implementation is needed for this cleanup alternative, it does not address the remaining cleanup issues and leaves the buildings unprepared for renovation/repurposing.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the nine remaining buildings sit vacant and deteriorate causing additional blight to an already challenged area.

Alternative 2 – Complete Wood Block Flooring Removal. Using modern construction equipment and labor, the wood blocks and tar pitch binder are removed and loaded into roll-off dumpsters or dump trucks where they are ultimately transported to a final permitted disposal facility (landfill) upon completion of a waste profile.

Effectiveness – This alternative addresses the trip/fall hazards and chemical exposure hazards for the Buildings, making them ready for renovation and repurposing with the removal of the additional environmental hazards.

Implementability – Complete wood block flooring removal is within the available funding. Additionally, approximately 44,500 square feet of wood block flooring was previously removed from Buildings 4/9/17/18 in early 2019 and landfilled as C&D waste at a local sanitary landfill.

Cost – This cleanup action is expected to cost approximately $34,500 and is well within the available funding of approximately $6.5 million.

3.3 Cleanup Action C – Lead Paint Removal/Encapsulation

Alternative 1 - No Lead Paint Removal/Encapsulation

Effectiveness – This alternative does not address the need to resolve the remaining building cleanup issues that are needed to make them safe for adaptive reuses including residences, workspaces, and events.

Implementability – Although no implementation is needed for this cleanup alternative, it does not address the remaining cleanup issues and leaves the buildings unprepared for renovation/repurposing.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the nine remaining buildings sit vacant and deteriorate causing additional blight to an already challenged area.

Alternative 2 – Complete Lead Paint Removal. This alternative involves the removal of all lead based paint using blasting technologies that remove the paint but do not damage the surface of painted items.

Effectiveness – This alternative addresses the lead exposure hazards for the Buildings, making them ready for renovation and repurposing with the removal of the additional environmental hazards. Once removed, the lead paint waste is profiled and disposed of in accordance with RCRA requirements.

Implementability – There are several effective technologies available for complete lead paint removal, such as chemical removal or sand, dry ice, and glass shot blasting.

Cost – Complete lead paint removal from all Barber Colman structures is estimated at $8,340,950 and is more than the available funding of approximately $6.5 million.

Alternative 3 – Partial Lead Paint Removal + Encapsulation. The alternative includes scraping all flaking and loose lead paint and painting over with an encapsulant and new paint. Once removed, the lead paint waste is profiled and disposed of in accordance with RCRA requirements.

Effectiveness – This alternative addresses the lead exposure hazards for the Buildings, making them ready for renovation and repurposing with the removal of the additional environmental hazards.

Implementability – This removal does not include chemicals or other media that increases the amount of waste and reduces the amount of labor time involved with safely removing future lead exposure hazards.

Cost – Partial lead paint removal followed by encapsulation and painting from all Barber Colman structures is estimated at $1,454,877 and is within the available funding of approximately $6.5 million.

3.4 Cleanup Action D – Groundwater Cleanup

Alternative 1 - No Groundwater Cleanup (Natural Attenuation)

Effectiveness – This alternative does not address the need to resolve the remaining impacts to shallow groundwater and potential impacts to the adjacent Rock River. Additionally, VOC contaminated groundwater allows for potential future occupant exposure via vapor intrusion into the overlying buildings.

Implementability – Although no implementation is needed for this cleanup alternative, it does not address the remaining cleanup issues and leaves the site unprepared for future redevelopment. Additionally, it is presumed a source area of the chlorinated VOCs persist at the southwest corner of Building 12. As long as there is a highly concentrated source area contributing to the groundwater plume, natural attenuation may take decades for contaminate concentrations to drop below targeted environmental objectives to allow for safe reuse of the property.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the site remain impacted by contaminants. Unresolved environmental issues not only contribute to the continuing deterioration of the site causing additional blight to an already challenged area, but also may be negatively affecting the natural ecosystem of the Rock River.

Alternative 2 – Groundwater Treatment + Natural Attenuation. The preferred remedial technology for the cleanup action is in situ chemical reduction (ISCR). Although in situ chemical oxidation (ISCO) is typically faster, ISCR in this case is a more conservative approach because of the reduced risk of mobilizing pockets of heavy metals that could then migrate to the adjacent Rock River if using ISCO. Groundwater treatment would begin with confirmation sampling to understand current contaminant concentrations so that a bench scale test can be performed with the selected cleanup media. Once a product is formulated, a field pilot test will occur by injecting cleanup media into existing wells or soil borings at strategic locations to establish strong reducing conditions to ensure additional treatments are a success. Once reducing conditions are established in

the injection wells, up to five injection events may be necessary to ensure all chlorinated VOCs and VOC daughter compounds are reduced to concentrations below cleanup objectives. All groundwater cleanup work will occur within an established Field Monitoring Program to ensure sustainability of strong reducing conditions throughout the cleanup process because if reducing conditions are lost, additional high-concentrated injection event(s) would be needed to restore. Once treatment has occurred and VOC concentrations are reduced below cleanup standards, the Illinois EPA as part of the SRP will require a minimum of four (4) continuous quarters of monitoring to demonstrate Tier II groundwater objectives are met. Once below cleanup standard, residual groundwater contamination will continue to naturally attenuate until no detectable contaminants remain.

Effectiveness – This alternative addresses the impacts to shallow groundwater and potential impacts to the adjacent Rock River, and potential future occupant exposure via vapor intrusion into the overlying buildings. In June 2010, an initial pilot test injection event occurred in the area of Building 12, the presumed source area for the chlorinated VOC release. Follow-up groundwater sampling showed a favorable degradation of chlorinated VOCs. However, no additional injection events could occur due to a lack of funding and no redevelopment project.

Implementability – The cost for groundwater treatment plus natural attenuation is within the available funding. Additionally, most of the existing monitoring wells have been preserved since the previous work and can be reused for the injection events and confirmation sampling.

Cost – Groundwater Treatment plus natural attenuation is estimated at $835,000.

3.5 Cleanup Action E – Soil Excavations/Disposal

Alternative 1 - No Soil Excavation/Disposal

Effectiveness – This alternative does not address the need to resolve the remaining impacts to shallow soil. Additionally, contaminated soil allows for potential future occupant exposure no matter what the existing or developed use is. Additionally, investment via new infrastructure and utilities cannot occur without some contaminated media being generated as part of the installation.

Implementability – Although no implementation is needed for this cleanup alternative, it does not address the remaining cleanup issues and leaves the site unprepared for future redevelopment.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the site remain impacted by contaminants. Unresolved environmental issues only contribute to the continuing deterioration of the site causing additional blight to an already challenged area.

Alternative 2 - Focused Soil Excavation/Disposal.

Effectiveness – This alternative does not completely eliminate all remaining impacts to shallow soil but does allow for new investment to occur through the installation of new and upgraded infrastructure and utilities. It also allows for the installation of the required engineered barriers to fully eliminate the contaminated soil exposure pathway. Once generated, contaminated soil can be transported to a permitted landfill for final disposal.

Implementability – The estimated cost for contaminated soil excavation and disposal related to new infrastructure construction is within the available funding being provided.

Cost – Preliminary engineering estimates that approximately 76,000 cubic yards of contaminated soil may be generated as part of infrastructure and engineered barrier construction at an estimated cost of $3.26 million.

3.6 Cleanup Action F – Engineered Barrier Design/Construction

Alternative 1 – No Engineered Barrier Design/Construction

Effectiveness – This alternative does not address the need to resolve the remaining impacts to shallow soil and exposure risks for future occupants if redeveloped.

Implementability – Although no implementation is needed for this cleanup alternative, it does not address the remaining cleanup issues and leaves the site unprepared for future redevelopment.

Cost – There is no monetary cost but considerable economic costs to the surrounding commercial district and neighborhoods by continuing to let the site remain impacted by contaminants. Unresolved environmental issues only contribute to the continuing deterioration of the site causing additional blight to an already challenged area.

Alternative 2 – Full Engineered Barrier Design/Construction

Effectiveness – This alternative completely eliminates exposure to future occupants to contaminants in shallow soil.

Implementability – Most of the required engineered barrier can be met through the use of existing building slabs and certain new construction components of the redevelopment, such as parking lots, roads, and certain landscape features. Although the available funding (RLF + environmental grant) will not completely cover the full engineered barrier construction, other funding sources will be leveraged in for new construction features to serve as the approved site barrier.

Cost – The estimated cost for engineered barrier design and construction is $7.73 million.

4.0 RECOMMENDATION

Based on the analysis presented in the previous section, the following table demonstrates the alternatives that are recommended for each cleanup action to address the contamination issues at the Colman Yards Redevelopment Site. These recommended alternatives are compatible with the proposed adaptive re-use of the existing buildings and the new construction components of the redevelopment project.

Cleanup Action	Item	Recommended Alternative
A	Asbestos Abatement	Alt 2 – Complete Asbestos Abatement
B	Wood Block Flooring Removal	Alt 2 – Complete Wood Block Flooring Removal
C	Lead Paint Abatement/ Encapsulation	Alt 3 – Partial Lead Paint Removal + Encapsulation
D	Groundwater Cleanup	Alt 2 – Groundwater Treatment + Natural Attenuation
E	Soil Excavation/Disposal	Alt 2 – Focused Soil Excavation/Disposal
F	Engineered Barrier Design and Construction	Alt 2 – Full Engineered Barrier Design and Construction

5.0 DECISION DOCUMENT

A decision document will be issued at the close of the 30-day public comment period with additional details on the selected alternatives for the Colman Yards Redevelopment Project.