DRAFT ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

CITY OF GARY REDEVELOPMENT COMMISSION

Parcel 5 Buffington Harbor
6200 Industrial Highway
Gary, Indiana
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1 INTRODUCTION

On behalf of the City of Gary Redevelopment Commission (GRC), Weaver Consultants Group North Central, LLC (WCG) has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) report for the property located at 6200 Industrial Highway in Gary, Indiana, as shown on Figure 1 – Property Location Map (the Property). This ABCA report was prepared in support of ongoing activities to evaluate cleanup alternatives to mitigate potential risks to human health and the environment from identified subsurface environmental impacts at the Property.

On behalf of the GRC, WCG conducted a Phase I Environmental Site Assessment (ESA) in May 2018 (report dated August 13, 2018) and a Limited Phase II ESA in June 2018 (report dated August 13, 2018) to identify and assess recognized environmental conditions (RECs) with respect to the Property. The GRC is submitting an application to the United States Environmental Protection Agency (USEPA) for a Brownfields Cleanup Grant (RFP Number EPA-OLEM-OBL-18-07) which will be used to fund the cleanup activities described herein.

The remediation area, addressed under this ABCA report, includes the remediation of contaminated material from an approximate 155,000-cubic yard stockpile that includes process waste (e.g., lime, cement, and slag) from the former cement plant operations, construction demolition debris, and other fly dumped materials. This pile is located in in the central-eastern portion of the approximate 78-acre Property (refer to Figure 2 – Property Layout Map). The purpose of this proposed cleanup is to meet environmental regulatory requirements for the Property to be redeveloped for industrial/commercial property uses.

This ABCA report has been prepared in support of the USEPA Grant Application and is available for public review and comment. The GRC shall consider all comments received and provide responses to those comments in a timely manner. Upon responding, a Record of Decision will be prepared and published for public review by the GRC.

Should the USEPA Grant be awarded, the GRC will obtain Request for Proposals/Qualifications and Bids from multiple remediation contractors, including local qualified companies. The USEPA Brownfields Grant Project Officer will be contacted once a remediation contractor has been selected.
2 BACKGROUND

2.1 Property Description

The Property is located at 6200 Industrial Highway in Gary, Indiana. The Property generally lies north of Industrial Highway, east of Buffington Harbor Drive, and south and west of North Clark Road (refer to Figure 1). The Property consists of one parcel with an approximate area of 78 acres and approximately 1,100 feet of frontage along Buffington Harbor Drive. As shown on Figure 2, there are two remaining buildings on the Property associated with the former occupant Lehigh Portland Cement: Building 35 and Building 20H. Building 35 is 44,000 square feet and Building 20H consists of fifteen (15) 115-foot tall concrete silos with an approximate footprint of 15,000 square feet. The eastern portion of Building 35 is partially demolished and is used for the storage of pallets, cardboard, and other general refuse. The central portion of Building 35 is currently utilized by the Majestic Star Casino for the storage of casino records and patio furniture. Building 20H (former storage silos) is currently empty. In addition, there is a small single-story concrete building located east of Buffington Harbor Drive. Multiple piles of materials consisting of concrete, soil, rebar, wood, slag, foundry sand, and/or other unknown material, ranging in height from approximately five to twenty (20) feet, were observed on the central to northwestern portions of the Property. In addition, Buffington Harbor Road occupies approximately three acres on the western portion of the Property.

A review of the Whiting and South Highland, Indiana, 1998, 7.5-minute quadrangle topographic map published by the United States Geological Survey (USGS) suggests that the Property is at an elevation approximately 590 to 595 feet above mean seal level (msl) and slightly slopes to the northwest towards Lake Michigan.

2.2 Property History

According to historical records, the northern portion of the Property was improved with a railroad by at least 1900 and by at least 1908, the western portions of the Property and the northern adjoining property and the western adjoining property were developed for utilization as a cement production facility. Operations at the facility included industrial activities associated with the manufacturing of Portland cement and calcium aluminate cement products. By 1938, the western portion of the Property appeared improved with at least seven buildings, several access roads, a conveyor belt system, and a smoke stack. The eastern portion of the Property appeared improved with at least four rail spurs. The Property remained in this general configuration until at least 1967. Between 1967 and 1970, the rail spurs on the eastern portion
of the Property appeared to have been removed and/or generally inactive and a large pile of unknown material is visible in the central-eastern portion of the Property. Between 1973 and 1983, at least four of the buildings located on the Property appeared to have been razed and the Property remained in this general configuration until at least 1998.

The Lehigh Portland Cement Company reportedly owned the facility from 1980 until 2001. Following the cement plant closure in or around 2000, the GRC acquired the western portions of the Property and northern adjoining property and the western adjoining property for the development of lakefront areas. Subsequently, Barden Companies, Inc. purchased this site and established Gary New Century, LLC. After going through bankruptcy proceedings, the site was purchased by the Majestic Star Casino, LLC in 2004 and sold to the current owner, the GRC, in 2014. Between 1998 and 2005, all but two of the historical Property buildings appeared to have been razed, Buffington Harbor Drive appeared improved on the western portion of the Property, and additional piles of unknown material appeared to be stored on the central to northwestern portions of the Property.

2.3 Proposed Redevelopment

The future use of the Property is intended to be for industrial/commercial purposes. A biofuels company Fulcrum BioEnergy has expressed interest in developing a biofuel plant on the Property. The plant will convert solid waste into low-carbon, renewable transportation fuel with construction expected to begin in 2020 and continue for eighteen (18) to twenty-four (24) months until completion. Once operational, the plant would process a dry, clean feedstock of paper, plastic, and other waste products. After gasification, these materials would be converted into a jet fuel that would reduce greenhouse gas emissions by an estimated eighty (80) percent.
3 SUMMARY OF PROPERTY CHARACTERIZATION

3.1 Prior Investigations

Reviewed documentation includes the following:

1.  Phase I ESA dated August 13, 2018 and prepared for the GRC by WCG; and
2.  Limited Phase II ESA dated August 13, 2018 and prepared for the GRC by WCG.

The environmental assessment activities that have taken place on the Property are described in the following subsections.

3.1.1 Phase I ESA

At the time of the Phase I ESA site reconnaissance, the Property was improved in its current configuration with the three remaining Lehigh Portland Cement facility buildings and material stockpiles. The following REC was identified in connection with the Property during the Phase I ESA:

- The potential presence of surface and subsurface impacts associated with the reported dumping on the Property and the observed piles of materials consisting of concrete, soil, rebar, wood, slag, foundry sand, and/or other unknown materials, from at least 1973 to present day.

In addition, the following controlled recognized environmental condition (CREC) was identified in connection with the Property during the Phase I ESA:

- The known and potential presence of surface and subsurface impacts with a No Further Action (NFA) Determination associated with the historical industrial use of the western portions of the Property and the northern adjoining property, and the western adjoining property as the Lehigh Portland Cement facility. The NFA Determination was issued with an Environmental Restrictive Covenant (ERC) which indicates that the western portions of the Property and the northern adjoining property, and the western adjoining property cannot be used for residential or agricultural purposes and that the parking structure on the northern adjoining property over the area of SS-14 where polychlorinated biphenyl (PCB) impacts were identified must be maintained.

3.1.2 Limited Phase II ESA

The Limited Phase II ESA was conducted to assess the environmental conditions related to the observed piles of materials consisting of concrete, soil, rebar, wood, slag, foundry sand, and/or
other unknown materials. This effort included the advancement of eight soil probes to approximately fifteen (15) feet below ground surface (bgs) and the installation of three temporary monitoring wells to approximately twelve (12) feet bgs. The soil probes and temporary monitoring wells were generally advanced surrounding the material stockpiles. Soil and groundwater samples were collected from each of the soil probes and monitoring wells for laboratory analysis. In addition, sixteen (16) test pits were excavated from the material stockpiles in support of preliminary geotechnical exploration activities and sample collection. WCG collected soil samples from nine of these sixteen (16) test pits for laboratory analysis.

Soil and groundwater samples exhibiting impacts in excess of Indiana Department of Environmental Management (IDEM) Screening Levels presented in the 2018 IDEM Screening Level Table A-6, updated March 7, 2018 include the following:

- Four soil probes and eight test pits included samples exhibiting various metal concentrations in excess of Residential, Commercial/Industrial, and/or Excavation Screening Levels;
- One test pit included a sample exhibiting various volatile organic compound (VOC) concentrations in excess of Residential Screening Levels;
- Two test pits included samples exhibiting naphthalene concentrations in excess of the Residential Screening Level;
- One test pit included a sample exhibiting a PCB concentration (Aroclor-1242) in excess of the Residential Screening Level; and
- Three groundwater samples exhibited various total metal concentrations in excess of the Residential Tap Groundwater Screening Levels. The dissolved metal concentrations in these samples were below laboratory reporting limits or the Residential Tap Groundwater Screening Levels, with the exception of dissolved mercury in one groundwater sample and dissolved arsenic and lead in one groundwater sample.

In addition, a black “tar-like” material was observed within a damaged 55-gallon steel drum and on surrounding soils within one test pit. Remnants of at least four additional steel drums were also observed within the top four feet of this test pit. As a result of the above, the material piles must be disposed as a waste material.
3.2 Property Geology and Hydrogeology

The following interpretation of the subsurface conditions is based on the eight soil probes advanced as part of the Limited Phase II ESA. The following includes a summary of subsurface soils that were encountered during investigation activities:

- Topsoil underlain by fill material was observed from the ground surface to approximately 0.25 feet bgs in three soil probes. Fill materials were observed at the surface in the remaining soil probes. The fill materials generally consisted of silty sand, gravel, refractory sand, brick, concrete, slag, and/or gravel and extended to depths of approximately 3.5 to eight feet bgs;

- The fill material was underlain by native poorly graded sand to depths of approximately fifteen (15) feet bgs, the maximum depth explored. Lenses of well-graded gravel were also observed in soil probes three soil probes between 12.5 and fifteen (15) feet bgs.

Saturated soils were encountered within each soil probe between three and eight feet bgs. Groundwater was encountered in the temporary wells at depths ranging from approximately two to six feet bgs.
4 CLEANUP ALTERNATIVES ANALYSIS

The Property is currently unused with the exception of the eastern portion of Building 35 that is used for the storage of pallets, cardboard, and other general refuse. The central portion of Building 35 is currently utilized by the Majestic Star Casino for the storage of documents and patio furniture. Future land use at the Property and remediation area is planned to be industrial/commercial. The cleanup goals reflect the objective of minimizing the environmental considerations that may need to be considered during development and construction, and subsequent operation and maintenance of facilities.

The cleanup includes the remediation of contaminated material from an approximate 155,000-cubic yard stockpile that includes process waste (e.g., lime, cement, and slag) from the former cement plant operations, construction demolition debris, and other fly dumped materials. This pile is located in the central-eastern portion of the Property (see Figure 3 – Proposed Remediation Area Locations). Based on the results of the aforementioned Limited Phase II ESA activities, it is anticipated that approximately five percent of this stockpile (7,000 to 8,000 cubic yards) is contaminated material that will have to be disposed in a Subtitle D Landfill. Removal of the stockpiles in this area will allow for future redevelopment.

4.1 Cleanup Goals

The cleanup activities will be conducted under the oversight and review of IDEM. The Property will be enrolled in the IDEM Voluntary Cleanup Program (VCP) in order to obtain a “Comfort Letter” for the proposed redevelopment. The intent of the cleanup is to reduce the contaminated surficial debris pile and any associated impacted soils exceeding IDEM Screening Levels in the central-eastern portion of the Property that could act as a source for further contamination to soil and groundwater, mitigate exposure to humans and the environment, and mitigate exposure to end users or construction workers during redevelopment. Any remaining IDEM Screening Level exposure route exceedances may be addressed through engineering and institutional controls (e.g. engineered barriers, construction worker notification, and deed restrictions).

4.2 Soil Cleanup Alternatives Analysis

The cleanup alternatives considered for mitigating the risks associated with the impacted soil are discussed below.
4.2.1 Alternative 1 – No Action

A no-action alternative was considered as part of the ABCA process and would be the least expensive alternative. Under this scenario, the surface conditions would remain as-is. A no-action alternative does not include a cost that would be incurred.

Although no action is the least costly, it does not achieve the GRC’s plan to redevelop the Property, create jobs, and bring the Property back to productive use. Therefore, the debris piles must be remediated to protect human health and the environment, and thus the no-action alternative was eliminated from further consideration.

4.2.2 Alternative 2 – Debris Pile Onsite Reuse and Capping

A reuse onsite and capping alternative was considered as part of the ABCA process. This would include the use of the existing debris piles onsite as structural and non-structural fill in support of future redevelopment activities at the Property. The contaminated soil material would be used as-is, while the asphalt and concrete material would be pulverized using a crusher. Following the site grading, contouring, and compacting of the former debris piles, the contaminated debris pile material would be required to be capped using asphalt or concrete pavement. An onsite reuse and capping alternative would cost approximately $1,000,000 to $1,500,000.

The onsite reuse and capping alternative would be the most expensive alternative. Additionally, based on the preliminary geotechnical investigation activities, at least half of this material is structurally unsuitable for use as a base in support of redevelopment activities, such as the construction of buildings and parking lots.

This alternative assumes approximately 7,000 to 8,000 cubic yards of contaminated material from the 155,000-cubic yard pile is proposed for onsite reuse and capping. Actual costs would be based upon remediation contractor proposals obtained prior to implementation. The alternative costs include the applicable regulatory reporting requirements, programmatic and general project management, as well as field contingencies and applicable IDEM review fees. Costs for treating all of the impacted soils to “clean” conditions are not included.

4.2.3 Alternative 3 – Offsite Disposal of Contaminated Materials from Debris Piles

An offsite disposal alternative was considered as part of the ABCA process. This would include the excavation, loading, transportation and disposal of the contaminated material from the approximate 155,000-cubic yard stockpile at a permitted Subtitle D disposal facility in
accordance with applicable local, state, and Federal regulations. An offsite disposal alternative would cost approximately $475,000 to $600,000.

This alternative assumes approximately 7,000 to 8,000 cubic yards of contaminated material proposed for removal and disposal at a Subtitle D Landfill. Actual costs would be based upon remediation contractor proposals obtained prior to implementation. The alternative costs include the applicable regulatory reporting requirements, programmatic and general project management, as well as field contingencies and applicable IDEM review fees.

### 4.2.4 Cleanup Alternatives Cost Analysis

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1: No Action</td>
<td>$0</td>
</tr>
<tr>
<td>Alternative 2: Debris Pile Onsite Reuse and Capping</td>
<td>$1,000,000 - $1,500,000</td>
</tr>
<tr>
<td>Alternative 3: Offsite Disposal of Contaminated Materials from Debris Piles</td>
<td>$475,000 - $600,000</td>
</tr>
</tbody>
</table>

### 4.3 Proposed Remedial Action

On the basis of effectiveness, costs, time constraints, future land use goals and site plans, regulatory criteria and technical feasibility, WCG recommends Alternative 3 – Offsite Disposal as the most appropriate alternative to remediate impacted soils. Under WCG’s direction, the remediation contractor will excavate, load, transport of dispose of the contaminated material from the pile depicted on **Figure 3**.

### 4.4 Cleanup Schedule

Pending USEPA, IDEM, and public approval, the GRC tentatively plans on conducting the remediation activities prior to planned construction in 2020. Once the USEPA Grant is awarded, the GRC will obtain Request for Proposals/Qualifications and Bids from multiple remediation contractors, including local qualified companies. The USEPA Brownfields Grant Project Officer will be contacted once a remediation contractor has been selected. It is anticipated that remediation will begin within two to three weeks following the finalized contract and all approvals are received.

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Weaver Consultants Group North Central, LLC

1/21/19
PROPERTY LAYOUT MAP
BUFFINGTON HARBOR - PARCEL 5
6200 INDUSTRIAL HIGHWAY
GARY, IN

SOURCE: IMAGE ADAPTED FROM GOOGLE EARTH IMAGERY DATED MARCH 2018.
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PREPARED FOR:
THE CITY OF GARY
REDEVELOPMENT COMMISSION

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1 inch = 600 ft.

APPORXIMATE GRAPHIC SCALE

DRAWN BY: RMD
REVIEWED BY: PL
DATE: 1/14/2019
FILE: 1940-300-02
CAD: SITELOC.dwg

FIGURE 2