

ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES (ABCA)
Kingsborough Elementary School West Yard
24 W. Eleventh Avenue, Gloversville, NY

I. Introduction & Background

This ABCA, prepared for the remedial excavation of tannery waste and other hazardous materials in the West Yard area at the Kingsborough Elementary School, located in Gloversville, NY (the Site), will assist the Gloversville Enlarged School District (GESD) in addressing an environmental hazard that poses a serious threat to students, faculty and surrounding residents and preparing the site for redevelopment. The GESD intends to use the West Yard area to create a dedicated pick-up/drop off area for students, as well as a school bus loading area and an expanded parking lot. This will reduce traffic in the neighborhood and increase safety for students, faculty and the residents in the area of the school.

a. Site Location

The subject Site is a large grass playing field located just west of the Kingsborough Elementary School building, which is part of the GESD. A parking lot is located to the south of the grass field, with a closed tannery factory further south across W. Eleventh Avenue (see Figure 2-1, Site Location Map). A small creek borders the field to the west and houses are located to the north. The eastern side of the Site slopes up to where the elementary school building is located. A playground and softball field were once located on the Site but these features were removed subsequent to the discovery of the tannery waste.

b. Previous Site Use(s) and any previous cleanup/remediation

Previous Site Use

Based on a review of aerial photographs, Sanborn Fire Insurance Maps, and historical topographic maps, the Site was residential in nature from 1902 until the Kingsborough Elementary School building was built in the early 1970s. At some time prior to 1970, tannery waste, including processed and raw leather, ash/cinder like material and general debris were disposed of.

Previous Cleanup/Remediation

An Interim Remedial Measure (IRM) was completed at the Site in October 2019. In summary, a cover system was placed over the affected area. Prior to the installation of the cover system, the areas were "proof rolled" to compact the fill materials, a geotextile fabric was then placed and covered with 22 inches of clean fill. A 2-inch-thick layer of sod was placed over the fill material. Ongoing maintenance of this system is required and is described in a Site Management Plan (SMP) dated February 2020. The SMP is being implemented by the GESD.

c. Site Assessment Findings

Phase II Investigation Report, Kingsborough Elementary School; Prepared by Eder Associates Consulting Engineers, P.C., Dated January 1991

The GESD retained Eder Associates Consulting Engineers, P.C. (Eder) to complete a Phase II investigation at the Kingsborough School to satisfy an order on consent between the GESD and the New York State Department of Environmental Conservation (NYSDEC). The purpose of the Phase II was to determine the status of an inactive waste disposal area on school grounds that had been discovered during a construction project in 1988.

The Phase II Investigation included the following Tasks:

- Geophysical Survey
- Soil-gas survey
- Installation of 18 soil borings and collection of soil samples
- Installation of 6 groundwater monitoring wells
- Surface water sampling

Based on the data collected during the Phase II investigation, Eder offered the following conclusions:

- The Kingsborough Elementary School Phase II investigation confirmed the presence of tannery waste on school property below the ground surface in the playing field and at the surface in the undeveloped parcel west of the playing field. The nature of the waste is scrap leather, ashes and cinders which contain chromium and probable kerosene derived hydrocarbons as principal contaminants.
- Solid waste samples submitted by NYSDEC in April 1990 do not exhibit the characteristic of EP toxicity, and are not ignitable, corrosive or reactive. Thus, the waste in accordance with 6 NYCRR Part 371.1(e) (2) (ix) (b) is classified as non-hazardous.
- Soil-gas testing revealed the presence of hydrogen sulfide (H₂S) and volatile hydrocarbons related to the organic decomposition of leather and kerosene. Ambient air monitoring during the field investigation did not reveal a hazardous concentration of any gaseous contaminant, however, the H₂S is detectable as a "rotten egg" odor at low concentrations and the odor may be objectionable to some persons.
- Groundwater flows to the west-southwest at the site and discharges to Cayadutta Creek along the western boundary of the school property. The groundwater chemistry data indicate that the groundwater is not specifically contaminated by chromium from the waste. The presence of heavy metals in the water samples including arsenic, chromium and lead does not appear to be related to the waste based on the relative concentrations of metals in upgradient and downgradient monitoring wells. The metals which were detected are related to natural or adsorbed metals which were leached from the suspended silt and clay particles by acid in the total metals analysis.
- Petroleum hydrocarbons detected in soil and in groundwater from Well MW-4 are constituents of kerosene which was used to clean and degrease hides. The petroleum sheen evident in stream bank seepage contains hydrocarbons related to kerosene. The source of these hydrocarbons is attributed to the leather waste buried in the stream bank. This hydrocarbon discharge does not materially affect the stream water quality and the stream flow components include street runoff which is known to contain petroleum hydrocarbons.

- There is no significant difference in stream water quality between upstream and downstream sampling stations.
- Concentrations of heavy metals, volatile and semi volatile organics in soil were highest at depths of 2 to 6 feet below ground surface in the playing field. The possibility of direct contact with the waste by persons using the property is unlikely except where waste is piled at grade in the wooded parcel west of the playing field and in the stream bank near the W. Eleventh Avenue culvert.
- A Hazard Ranking Score (HRS) calculated from the project data and engineering judgment indicates that the site could not satisfy Federal or State Superfund listing criteria. Considering the nature and distribution of the waste material and the site conditions, it is doubtful whether the occurrence of tannery waste constitutes a significant human health risk.

Eder offered the following recommendations:

- The District should resolve the regulatory status of the Kingsborough Elementary School property. If the Class 2A status is dropped, the District should obtain confirmation from NYSDDEC that the Consent Order obligations had been satisfied.
- The District should consider the removal and disposal of waste piles in the area between the playing field and Cayadutta Creek. We estimate the cost of removal and disposal at a sanitary landfill at between \$50,000 and \$100,000, assuming private contracting 1,000 cubic yards of waste at \$50 to \$100 per cubic yard for removal and disposal and the availability of a local sanitary landfill.
- The leather waste found beneath the playing field is generally more than 2 feet below grade and this may be sufficient to preclude inadvertent contact. If the District wishes to decrease the possibility of contact, the range of alternatives could include removal, covering with additional clean soil or paving. Moreover, if the waste is left in place, the District should consider a notice provision in the site plan and deed which prohibits excavation without certain hazard precautions. As a practical matter, if additional fill is used it would be necessary to cover a larger area with clean soil if a level playing field is to be maintained.
- The stream bank along the east side of Cayadutta Creek should be stabilized to minimize erosion of the exposed waste and to preclude human contact. This would involve constructing a retaining wall against the stream bank and backfilling with clean fill behind the wall. A steel or cement sump could be installed between the retaining wall and the seep location to recover the seep water and kerosene residuals. We estimate the cost to construct this retaining wall and pump at approximately \$20,000.

Soil Evaluation, Tannery Material Disposal Area, 2w W. Eleventh Avenue, Gloversville, NY;
prepared by Ambient Environmental, Inc. Dated July 30, 2019

The GESD retained Ambient Environmental, Inc., (Ambient) to complete a soil evaluation in response to complaints ruts and wet areas caused by the steeling of the waste material, as well as of odors emanating from the waste disposal area. Ambient installed a total of 17 test pits and collected select soil and groundwater samples for laboratory analysis for VOCs, SVOCs and metals.

Tannery waste, described as "black/gray ash-like fill material with many degraded leather fibers, straps of leather and/or 'hide,' clay-like caustic material, and wood pieces" was observed in ten

of the seventeen test pits. Analytical sample results showed various hazardous materials including VOCs (ethylbenzene, isopropyl benzene, toluene and acetone), SVOCs (benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo (a, h) anthracene, and indeno(1,2,3-cd) pyrene) and metals (chromium and lead) at concentrations exceeding NYSDEC soil clean-up objectives.

Ambient offered the following recommendations:

Based on the concentrations and range of analytes detected, Ambient recommends prohibiting access to the affected area until a permanent course of action is determined. In consideration of the use of the property as an elementary school and the close proximity of residential properties, Ambient performed a preliminary assessment of three options as follows.

No Action. This option was eliminated from consideration due to the nature and concentrations of contaminants present at and near the ground surface, and in the subsurface.

Cover Placement. This option would entail compacting the fill material, placing geotextile fabric, placing and compacting two feet of sand fill, and finishing at grade with 0.5 feet of topsoil (seeded). This option would eliminate the direct contact and inhalation exposure pathways. However, ongoing maintenance would be required, the assumed source of VOCs to groundwater would not be removed, contaminants would remain in this sensitive setting, and use of the area for any purpose other than 'mowed field' would be prohibited.

Removal and Off-site Disposal of Waste Material, Backfill. This approach would require waste profiling followed by proper excavation, transportation and disposal. Confirmation sampling would be performed to document proper removal. The area would be backfilled with 'engineered' clean fill to allow for future use as parking, bus access, playground, ball fields, etc.; would remove the assumed source of VOCs to groundwater; and would remove any perceived threat to students, staff, visitors and residents.

Summary of Site assessment Findings

The two environmental site assessments described above demonstrate that hazardous materials, in the form of tannery waste were disposed of in a 5,600 square yard area directly west of the Kingsborough Elementary School building. This material is present in a four-foot-thick layer above the natural clay soils at the Site. Hazardous compounds identified in this material include VOCs (ethylbenzene, isopropyl benzene, toluene and acetone), SVOCs (benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo (a, h) anthracene, and indeno(1,2,3-cd) pyrene) and metals (chromium and lead) which were all detected at concentrations exceeding NYSDEC soil clean-up objectives. Although an IRM was completed in 2019, the existence of the tannery waste material near the school poses a health threat to the students and limits the ability of the GESD to utilize the west yard area for any productive purpose.

d. Project Goal (site reuse plan)

Currently, due to the presence of buried tannery waste, the Site is unusable and is fenced off to prevent access. The GESD intends to develop the Site into a dedicated drop off/pick-up area for

students and an expanded parking lot for staff. This will reduce the traffic on W. Eleventh Avenue and increase safety for students, faculty and residence of the neighborhood.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility

The site cleanup will be overseen by an environmental consultant/environmental professional who will coordinate with USEPA, and NYSDEC and follow applicable guidelines and regulations.

b. Cleanup Standards for major contaminants (*briefly summarize the standard for cleanup e.g., state standards for residential or industrial reuse*)

Based on the intended use of the Site, it is anticipated the NYSDEC SCOs for residential use will be used as the clean-up standard.

c. Laws & Regulations Applicable to the Cleanup (*briefly summarize any federal, state, and local laws and regulations that apply to the cleanup*)

Laws and regulations that apply to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, NYSDEC Solid Waste Rules (Part 360), OSHA regulations (29 CFR 1926), and City codes and rules. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed. In addition, appropriate permits, *e.g.*, notify before you dig, transport and disposal permitting, will be obtained prior to the work commencing.

III. Evaluation of Cleanup Alternatives

a. Cleanup Alternatives Considered (*minimum two different alternatives plus No Action*)

To address the presence of damaged friable and non-friable ACM at the Site, three alternatives were considered:

- Alternative #1 No Action
- Alternative #2 Cover Placement
- Alternative #3 Removal and Off-Site Disposal of Waste Material, Backfill

b. Cost Estimate of Cleanup Alternatives (*brief discussion of the effectiveness, implementability and a preliminary cost estimate for each alternative*)

To address EPA requirements, the effectiveness, implementability, and cost of each alternative has been considered prior to selecting a recommended cleanup alternative.

Alternative #1: No Action

- Effectiveness
 - This alternative is not effective in controlling or preventing the exposure of receptors to contamination at the Site.
- Implementability
 - This alternative is the easiest to implement as it involves no work.

- Preliminary Cost Estimate
 - There are no costs associated with this alternative.

Alternative #2: Cover Placement

This alternative has already been implemented as an IRM. This alternative requires ongoing maintenance of the capped area.

- Effectiveness
 - Cover placement is effective at preventing receptors from coming into direct contact with contaminated material. For the cover to remain effective it must be maintained. Because the tannery waste material is not geotechnically stable, the Site is unable to be used for the intended reuse purpose.
- Implementability
 - Capping is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting.
- Preliminary Cost Estimate
 - The cover was installed as an IRM. Ongoing maintenance and reporting are expected to cost \$5,000 per year.

Alternative #3: Removal and Off-Site Disposal of Waste Material, Backfill

This alternative includes the removal of all of the 7,500 cubic yards of tannery waste material from the Site. In general, the current cover would be removed and stockpiled onsite for use as back-fill, and the underlying waste material would be excavated and transported to an appropriate facility for offsite disposal. The excavation would be backfilled with 'engineered' clean fill to allow for future use as parking, bus access, playground, ball fields, etc. This alternative would remove the assumed source of VOCs to groundwater; and would remove any real or perceived threat to students, staff, visitors and residents.

- Effectiveness
 - Excavation with Offsite Disposal is an effective way to eliminate risk at the Site, since contamination will be removed, and the exposure pathways will no longer exist.
- Implementability
 - This alternative is moderately difficult to implement. Coordination (e.g., dust suppression and monitoring) during cleanup activities and short-term disturbance to the community (e.g., trucks transporting contaminated soils and backfill) are anticipated. However, ongoing monitoring and maintenance will not be required following excavation and offsite disposal.
- Preliminary Cost Estimate
 - Costs for the project design, excavation, disposal, and project monitoring are estimated to be on the order of \$2,000,000.

c. Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative #3: Removal and Off-Site Disposal of Waste Material, Backfill, due to the following factors:

- Eliminates the asbestos hazard for the near and short term
- Protects human health and the environment

- Can be conducted safely without costly engineering controls
- Is compliant with the local, state, and federal regulations
- Is cost effective with respect to the hazards presented
- Matches the redevelopment concepts planned for the Site