DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: July 26, 2024

To: John Morris
Brownfields Section

Thru: Shyamala Raman, Chief *sce* 7/26/24
Engineering Section

From: Xuefei (Michelle) Lu
Engineering Section

Subject: *Geotechnical Engineering Investigation, Phase I Environmental Site Assessment,* and *Phase II ESA Limited Site Investigation Proposal*
Dated August 24, 2023, May 26, 2023, and January 22, 2024
VFC #83526279 and #83549098 and #83589131
Former Emerson Avenue Landfill
Marion County
SW Program ID 49-02
eRTE #13844
eRTE #14043

Introduction
I reviewed the following documents for the Former Emerson Avenue Landfill:

- *Geotechnical Engineering Investigation* - Proposed New Parking Lot for Semi Truck & Trailers, August 24, 2023 (VFC #83526279)
- *Phase I Environmental Site Assessment*, May 26, 2023 (VFC #83549098)
- *Phase II ESA Limited Site Investigation Proposal*, January 22, 2024 (VFC #83589131)

Summary
The former Emerson Avenue Landfill property is located in an industrial/commercial/ residential area and consists of two parcels totaling 33.85 acres of vacant land. The property historically was utilized as a possible open dump in the late 1960s then as a permitted landfill in the 1970s. Prior to its development, the property was utilized for agricultural purposes. The property is on the State CERCLIS list.

In 2023, Kelley Works, LLC proposed a post-closure use as a new parking lot for semi-trucks and trailers and performed the following investigations:

A Phase I Environmental Site Assessment was performed to identify areas of real or potential environmental concern, and any off-site sources that may present an environmental threat to the subject property. The investigation included an on-site visual inspection of the property

and surrounding areas, as well as an investigation of available, pertinent records to determine prior site usage and the environmental history of the property.

The assessment has found the following recognized environmental conditions (RECs) associated with the subject property:

- Historically utilized as a possible open dump in the late 1960s then operated as a permitted landfill from 1970 through 1977.
- Leachate was observed in multiple grass and bare soil areas along the north, northwest, and west slopes of the covered landfill cap.
- Multiple areas of significant erosion as well as exposed buried trash and debris were observed along the west, northwest, north, and northeast slopes of the buried landfill cap.
- Releases of methane have been reported at the facility as well as detected in offsite test holes on the southwest adjoining property (Jones Chemicals).

Phase I assessment report provided the following recommendations:

- A Phase II Subsurface Investigation determine if contamination related to the leachate observed onsite has affected the subject property as well as Lick Creek which flows along the northwest boundary. Also evaluate potential offsite contamination from historical operations from surrounding properties (Indiana Oxygen to the northwest, Jones Chemicals to the southwest, and the railroad tracks to the northeast).
- A Geotechnical Survey determine the stability of the land surface is suitable for anticipated vehicle traffic and staging.
- Site restoration in areas around the landfill cap with observed erosion and exposed trash.
- Remediation of observed leachate and the development of a maintenance plan to address potential future releases.
- If a building is planned to be constructed near the Subway Street entrance to the property, a vapor intrusion evaluation is recommended for proper methane venting.

In July 2023, a geotechnical investigation was performed to evaluate the subsurface conditions in relation to the proposed post-closure use of a parking lot for semi-trucks and trailers. Six soil borings (B-1 thru B-6) were advanced to depths ranging from 15.5 ft to 40 ft below ground surface (bgs), in the southeastern part of the landfill as depicted on Figure No. 2b – Boring Map (VFC #83526279, p. 20 of 34). Logs of the borings showing visual descriptions of soil strata, and waste material were provided. The geotechnical investigation also recommended the following structural improvements to prepare the site for a semi-trailer/truck parking lot:

1. Removal of wet, soft or other unsuitable surficial soil to a maximum of 12 inches below the proposed subgrade.
2. Installation of a Type 2B geotextile in the excavation overlain by a layer of biaxial geogrid, followed by
3. Installation of 12 inches of aggregate (INDOT No. 5 stone or any other aggregate similar in size) to form the subgrade

4. For the situation where the subgrade soil is excessively wet, soft, or yielding, it is recommended that the subgrade soils be stabilized by disking, aerating and recompacting, or using soil amendments such as cement, hydrated lime, or a geogrid with additional crushed stone placed over the subgrade, or by removal and replacement of the unstable soils.

To evaluate the RECs identified in the Phase I report, a Phase II ESA Limited Site Investigation Proposal was proposed with the following scope of work:

- Advance ten soil borings at the locations depicted on Figure 1 – Proposed Phase II Boring Locations. The proposed borings will be advanced approximately 15 to 25 feet below ground surface (bgs).
- Collect one unsaturated soil sample from each of the soil borings where native soil is encountered.
- Convert each soil boring into a temporary well, allow the temporary wells to stabilize, and then collect groundwater samples from each well location.
- Analyze soil and groundwater samples for VOCs, SVOCs, PCBs, Metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, copper, iron, manganese, nickel, sodium, zinc), Mercury, Nitrate, Phenols, Cyanide, Ammonia, Fluoride, Chloride, and Methane (groundwater only).
- Up to five surface leachate samples will be collected and analyzed for the same analytes as groundwater samples, with the exception of methane.

Investigation derived media (IDM), including soil cuttings, decontamination rinse water, and purged groundwater, will be containerized in 55-gallon steel drums, characterized and then transported and disposed of at an off-site facility in accordance with state and federal regulations.

Recommendations

Based on my review of *Geotechnical Engineering Investigation* dated August 24, 2023 (VFC #83526279), *Phase I Environmental Site Assessment* dated May 26, 2023 (VFC #83549098), and *Phase II ESA Limited Site Investigation Proposal* dated January 22, 2024 (VFC #83589131), for the Former Emerson Avenue Landfill property, I have the following comments:

Phase II ESA Limited Site Investigation Proposal

The proposal states the proposed boring locations are positioned on what is believed to be the edge of the former landfill. However, page 20 of *Geotechnical Engineering Investigation* dated August 24, 2023 (VFC #83526279) shows six soil borings (B-1 through B-6) were performed in the area close to where the four proposed soil borings will be advanced in the southeastern part of the landfill, and the test boring logs show the presence of decomposed trash material in all the six soil borings. The proposal needs to be revised with the proposed boring locations being relocated outside of the solid waste boundary. Please see Geology evaluation to determine if the proposed borings are sufficient.

Additionally, the proposal indicates the borings are proposed to advance approximately 15 to 25 feet below ground surface (bgs), which is approximately at five feet below groundwater. According to the *Geotechnical Engineering Investigation* dated August 24, 2023 (VFC #83526279), the groundwater is likely encountered deeper than 15 to 25 feet. Please see Geology evaluation regarding groundwater depth and how deep the soil boring needs to be advanced.

Geotechnical Engineering Investigation - Proposed New Parking Lot for Semi Truck & Trailers

The report states the six soil borings were advanced in the area of the proposed new Parking Lot, however, the details regarding the boundary of the proposed parking lot, the access road to the parking lot, the grading plan, the detailed information about how many trucks and trailers will be parked in the parking lot, and the maximum weight of the truck/trailers allowed to be parked, etc., have not been provided. The soil boring logs provided only show the subsurface conditions for a portion of the landfill, however the subsurface conditions could vary at different locations of the landfill.

Additionally, the report assumes a California Bearing Ratio (CBR) value of 3 for the estimation of pavement design and recommendations. We believe the parking lot/impermeable barrier cover design needs to be based on the actual grading plan after the details of structural loads are available. The design details shall include grading plan for the parking lot/access roads, how the proposed grading plan ties into the current grading and promote positive surface runoff, as well as the supporting geotechnical evaluation (e.g. stability analysis/bearing capacity calculation, settlement/subsidence evaluation) based on the proposed structural load. The design also needs to address the surface run-on and run-off control, methane monitoring, construction specification, operational plan and maintenance plan etc., for proposed new parking lot and the remaining portion of the landfill etc.