



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

SW19004
Boone County

December 31, 2018

CERTIFIED MAIL 7012 1010 0002 7810 8338
RETURN RECEIPT REQUESTED

Mr. Andy Limmer
Weaver Consultants Group, LLC
6301 East Hwy AB
Columbia, MO 65201

RE: Preliminary Site Investigation of Proposed Solid-Waste Disposal Area, Columbia Landfill, 39.013899, -92.252927, Boone County, Missouri

Dear Mr. Limmer:

The Geological Survey Program (GSP) has completed the Preliminary Site Investigation (PSI) for the proposed Columbia Landfill expansion. The proposed solid waste disposal area consists of 245 acres containing a proposed landfill footprint of approximately 146 acres, with a sub-base grade elevation of 745 feet above mean sea level (amsl), to be used primarily for sanitary waste. Information submitted in the PSI request, existing geohydrologic information available at this office, as well as information gathered during the site visit on November 29, 2018, has been used to consider the suitability, on a preliminary basis, of the tract for development as a solid-waste disposal area.

On November 8, 2018, the GSP received a Request for Preliminary Investigation of Proposed Solid-Waste Disposal Site for the proposed Columbia Sanitary Landfill expansion. The Columbia Sanitary Landfill is located along the eastern boundary of the City of Columbia, two miles north, and one half mile east of the intersection of Highway 63 and Interstate 70. The elevation across the proposed site ranges from approximately 710 feet amsl to approximately 850 feet amsl. The proposed expansion area is south of the existing landfill in the south central-southeast portion of Section 22, Township 49 North, Range 12 West and the north central-northeast portion of Section 27, Township 49 North, Range 12 West and encompasses approximately 245 acres. Approximately 65% of the expansion area is wooded. The remaining areas consist of service roads, agricultural fields and strip pits from historic coal mining.



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Columbia Sanitary Landfill is located within the south central Dissected Till Plains. Topographically, the region consists of dissected hills to flat flood plains and flat uplands. The stream valleys range from shallow on the uplands to incised as they approach the Missouri River. Streams generally flow southwest towards the Missouri River. Streams in this region are generally classified geologically as gaining. Surface water runoff is to the east and south, into Hinkson and Nelson Creeks, respectively. Both creeks are tributaries to the Missouri River. The site is topographically high in the drainage basin due to its location on top of glacial till hills as well as historic coal mine spoil piles. No known springs or karst features are present within a one mile radius of the site.

Surficial materials onsite consist of Hinkson Creek and Nelson Creek alluvial deposits, loess, glacial deposits, and coal mine spoil of irregular thicknesses. The moderately-low to highly permeable surficial materials range in size from fine to coarse grained. Boulder-sized glacial erratics may also be found randomly deposited within the glacial material. There are no known sinkholes, faults or other geologic structures mapped within one mile of the proposed expansion area.

Bedrock in the region consists of middle Pennsylvanian limestone, clay, coal, and shale. The uppermost bedrock at this site is comprised of Pennsylvanian age shale. This formation is yellow to pale brown, silty clay with some limestone and chert gravel. The shale is competent with low permeability. Where present, the shale unit is up to eight feet thick. Below the shale is a thin bed of the Bevier Formation. The Bevier coal is black, bituminous, and historically surface-mined at the proposed landfill site, and throughout the region. Underlying the Bevier Formation is a section of Pennsylvanian age interbedded limestones and shales with an approximate thickness of 5.5 to 12 feet. A distinctive bed of Pennsylvanian shale is at the base of this succession, with an approximate thickness of 13 to 23.5 feet. The shale is black to light gray in color, weathered and weakly lithified. Below the shale is the Mississippian age Burlington-Keokuk Limestone. This bedrock unit is a light gray, fossiliferous limestone susceptible to advanced solution weathering, consequently prone to karst features such as solution enlarged joints and sinkholes. According to logs of nearby wells, the Burlington-Keokuk is approximately 175 feet thick in this region. The uppermost section is highly fractured chert and limestone, with shale and clay filling the fractures.

According to the Phase A Groundwater Assessment Investigation Report (1999) for the existing landfill, local groundwater in the upper aquifer trends in a northwesterly direction toward the Hinkson Creek Valley, whereas groundwater within the Burlington-Keokuk Limestone flows eastward as a separate system beneath the upper aquifer. The uppermost regional aquifer beneath the site is within the unconsolidated glacial material at or above the bedrock. Where present, Pennsylvanian-age units act as an aquitard to the underlying Burlington-Keokuk Limestone.

Based on the geological and hydrological characteristics observed, the site receives an insignificant collapse potential rating.

Mr. Andy Limmer

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The proposed tract is approved at this preliminary phase. This proposed disposal area may now advance to the Detailed Site Investigation (DSI) phase to further evaluate whether it is geologically and hydrologically suitable as a solid waste disposal area.

The DSI phase includes development and approval of an investigation workplan, conducting the investigation and submission of a report of findings based on the investigation. For guidance on the elements and format that should be included in the workplan, please refer to 10 CSR 80-2.015 Appendix 1, "Guidance for Conducting and Reporting Detailed Geologic and Hydrologic Investigations at a Proposed Solid-Waste Disposal Area". Prior to submitting a DSI workplan, a qualified groundwater scientist who is a registered geologist must meet with the GSP to discuss the elements to be included in the workplan and investigation pursuant to Section 256.453, RSMo.

The preliminary solid-waste disposal area permitting application procedures require an applicant receiving PSI approval to participate in public involvement activities. Within thirty (30) days of receipt of this approval, the applicant must notify, by certified mail, the governing body of the county or city and the solid waste management district in which the proposed disposal area is to be located. Within ninety (90) days of receipt of PSI approval, the department will conduct a public awareness session in Boone County. For further information concerning these public involvement requirements, please contact the Solid Waste Management Program at (573) 751-5401. This PSI approval is not a permit or approval to dispose of solid-waste at the proposed expansion area or for any other activity that may require a permit from this department or any other governing body.

If you have any further questions, please do not hesitate to contact Mr. Jeremiah Jackson at 573-368-2182 or by email at jeremiah.jackson@dnr.mo.gov.

Sincerely,

MISSOURI GEOLOGICAL SURVEY



Amber Steele, R.G.

Director

Geological Survey Program

AS:kns

c: Mr. Chris Nagel, SWMP
NERO
Mr. Adam White, City of Columbia
Mid-Missouri Solid Waste Management District, Region H

