



October 18, 2024

Mr. Corey Phillippe
Phillippe Properties
4195 Blenheim Road
Louisville, KY 40207

Reference: **Bardstown Road Storage Sites - Karst Survey**
8915 Old Bardstown Road & 11401 Race Road
Louisville, Jefferson County, Kentucky 40291
ECS Project No. 61:3261

Dear Mr. Phillippe:

ECS Southeast, LLC (ECS) has conducted a karst survey for the referenced site in accordance with ECS Proposal No. 61:P3716, dated October 14, 2024.

The karst survey included the following elements: a visual reconnaissance for indications of karst features; a review of current and historical aerial photographs; a review of soil survey reports published by National Resource Conservation Service; and a review of geologic and topographic maps published by United States Geological Survey and Kentucky Geological Survey (KGS).

Existing Site Conditions

The subject development sites consist of approximately 2.26 and 2.49 acres lots at 8915 Old Bardstown Road and 11401 Race Road in Louisville, Kentucky, respectively. The subject sites are located west and east of Bardstown Road and primarily consists of landscaping and/or undeveloped areas covered with grass/field grass, brush, and trees, and a residential building and its associated driveway on the site located at 8915 Old Bardstown Road. Both sites generally slope downward from west to east.

Project Information

Given the provided drawings prepared by Mindel Scott dated 9/16/2024, the proposed development will include two storage buildings (approximately 23,955 and 22,974 square feet) and its associated drive areas on the site at 8915 Old Bardstown Road and parking areas and a detention basin on the site at 11401 Race Road.

Geology

According to the Geologic map of the Mount Washington quadrangle, north-central Kentucky, published by the United States Geological Survey (USGS), and information obtained from the Kentucky Geological Survey (KGS) Geologic Information Service website, the subject site was underlain by Laurel Dolomite formations which is primarily made up of dolomite and minor shale bedrock. The site area is designated as having "prone" karst potential. The karst potential is based on the tendency for the site to develop or have karst features as shown on the Kentucky Geological Survey Geologic Information Service Karst Potential Map and is not necessarily indicative of the actual presence or absence of karst activity at the site. According to the KGS Karst Potential Classification definitions, areas designated as having "prone" karst potential are areas underlain by bedrock with moderate potential for karst development and development of karst features is variable and dependent on site-specific conditions.

Review of Published Documents

No karst feature was mapped on the site on the aerial photos, geologic maps, and topographic maps reviewed. The closest karst feature detected on geological maps is approximately 450 feet north of the site at 11401 Race Road.

Site Reconnaissance

A site reconnaissance was conducted on October 16, 2024, by Mr. Bashir Hasanzadeh of ECS. The site at 8915 Old Bardstown Road included a residential building and its associated driveway and landscaping areas mainly covered with grass and several sparse trees and shrubs. The site at 11401 Race Road was mainly covered with overgrown vegetation including brush, field grass, and trees mainly along the southern and eastern property lines. During the site reconnaissance, two potential areas of concern were observed in the central-north portion of the site at 11401 Race Road as shown on the attachments:

- **Potential Karst Feature 1:** A group of four (4) adjacent openings/throats each approximately 1-foot in diameter.
- **Potential Karst Feature 2:** A relatively shallow depression approximately 10 feet in diameter and 1 to 2 feet deep.

No other karst features were observed during our site reconnaissance; however it is possible that karst features are masked by site features such as building, driveway, and overgrown vegetation (especially in the site at 11401 Race Road).

Evaluation and Recommendations

We recommend to further evaluate both areas in the presence of a geotechnical engineer during the site clearing or construction phase of the project. Should additional karst features be detected during site clearing or construction, ECS should be contacted to evaluate the features and provide recommendations for remediation, if necessary.

Remediation and stabilization of karst features/sinkholes generally entails excavation of the throat or closed depression to identify the specific feature(s) in the underlying rock that is allowing the loss of fines, stabilization of the identified feature(s), and then construction of an inverted filter over the feature(s). The inverted filter typically consists of lining the excavation with a non-woven geotextile fabric (e.g., KTC Type IV fabric or approved equivalent), placement of granular fill within the excavation grading from larger stone at the bottom to smaller stone at the top, wrapping the fabric around the top of the stone, and then capping the inverted filter with compacted clay graded to reduce direct surface water infiltration into the feature.

Limitations

This karst survey identified the conditions that were reasonably (visually) identifiable in areas that were accessible when the survey was conducted. Conditions may change with time or be affected by natural events, such as floods or earthquakes, or by human activity. If site or subsurface conditions differing from those described herein are encountered, ECS should be notified immediately so that the findings and/or recommendations can be adjusted as appropriate.

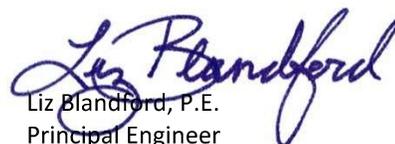
Closing

We appreciate the opportunity to serve as your geotechnical consultants for this project. We look forward to future association with you on this and other projects.

Respectfully submitted,
ECS Southeast, LLC



Bashir Hasanzadeh, Ph.D.
Project Engineer



Liz Blandford, P.E.
Principal Engineer

Enclosed:
Potential Karst Feature Plan
Photos



Figure 1: View of potential karst Feature 1.



Figure 2: View of potential karst Feature 1.



Figure 3: View of potential karst Feature 2.



Figure 4: View of potential karst Feature 2.

Photos

Bardstown Road Storage Sites - Karst Survey
8915 Old Bardstown Road & 11401 Race Road
Louisville, Jefferson County, Kentucky 40291
ECS Project No. 61:3261



ECS Southeast, LLC

1762 Watterson Trail
Louisville, Kentucky 40299
Tel (502) 493-7100 Fax (502) 493-8190