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September 8, 2025

Above Group Inc.
305 East Dr Ste H
Melbourne, Florida 32904

Attn: Mr. Stephen Kazim

Re: Geologic Hazards Report
Seismic Correction Marion Building 14
Marion, Illinois
Terracon Project No. 15255149

Dear Mr. Kazim:

Terracon Consultants, Inc. (Terracon) has completed a geologic hazards report for the above-referenced project. Our August 29, 2025 Geotechnical Engineering Report describes the site and project and provides our engineering recommendations and interpretations of geotechnical explorations. This report was performed in general conformance with our proposal dated June 6, 2025 and change order dated August 22, 2025.

This report presents a preliminary review of geologic and seismic hazards for the proposed project located in Marion, Illinois. The purpose of this evaluation is to identify potential geologic conditions and seismic hazards that require detailed, site-specific investigation and may require mitigation in the final project design. This report is based on a review of publicly available data from the Illinois State Geological Survey (ISGS), the United States Geological Survey (USGS), and relevant technical literature.

Regional Geology

The project site is located in Williamson County, which geomorphologically straddles the boundary between two distinct physiographic provinces. The glaciated Mt. Vernon Hill Country to the north and the unglaciated Shawnee Hills to the south. Marion is situated within the Mt. Vernon Hill Country, which is characterized by a gently rolling topography of broad uplands and lowlands. The landscape is a direct result of the Illinois Episode glaciation, which masked the pre-glacial bedrock topography with a veneer of glacial sediments.

The bedrock underlying the Marion area belongs to the Pennsylvanian System and consists of cyclically bedded sandstone, siltstone, shale, limestone, and coal. Bedrock outcrops are rare

in the northern part of the county due to the thick cover of Quaternary deposits, but they become numerous in the unglaciated southern part. A significant aspect of Williamson County's geology is its history of extensive coal mining. Both surface (strip) mines and underground mines have operated throughout the county, altering the landscape and creating a potential for ground subsidence in areas underlain by abandoned mines.

Surficial Soils

Surficial geologic mapping of the Marion 7.5-minute quadrangle has been completed by the ISGS. This mapping shows that the uplands in the project vicinity are covered by a layer of loess that is typically 5 to 10 feet thick. The loess is largely derived from Pennsylvanian shale and typically yellowish-brown to reddish-brown.

Beneath the loess lies the Glasford Formation, which is the glacial till deposited during the Illinois Episode glaciation. The Glasford Formation is described as a diamicton, predominantly composed of silt loam to silty clay loam with variable amounts of clay, sand, and gravel. The gravel composition is dominated by local Pennsylvanian rocks but also includes crystalline rocks transported by the glaciation. The thickness of the Glasford Formation is variable, ranging from a thin veneer over bedrock to over 100 feet thick where it has filled in preglacial bedrock valleys.

Seismic Setting and Faults

The project site is located in one of the most seismically hazardous regions of the United States east of the Rocky Mountains. Unlike seismically active areas such as California, which are located on the boundaries of tectonic plates, southern Illinois is in an intraplate seismic region. Earthquakes occur due to the reactivation of ancient, deeply buried zones within the North American Plate.

Other fault systems are known to exist in southern Illinois, such as the Rend Lake Fault System and the Cottage Grove Fault System. While these systems contribute to the overall complexity of the regional geology, they are generally considered to have a much lower rate of activity and a smaller potential for producing large earthquakes. The seismic hazard at the site is primarily the combined influence of two major, regional seismic zones. The two most significant areas of reactivation relevant to the project site are the New Madrid and Wabash Valley Seismic Zones. Estimates of peak ground acceleration and additional seismic design parameters are included in our Ground Motion Hazard Analysis Report.

New Madrid Seismic Zone

The New Madrid Seismic Zone (NMSZ) is a 150-mile-long series of faults that extends from northeastern Arkansas, through southeastern Missouri and western Tennessee, to its northernmost extent in southern Illinois. The city of Marion is located approximately 50 to 60 miles north of the main seismicity trend of the NMSZ. The faults of the NMSZ are not visible at the surface, as they are buried beneath thick layers of river sediment. Their locations are inferred from the mapping of thousands of small earthquakes recorded by modern seismometer networks. The approximate location of the NMSZ and historical seismicity are shown in Figure 1.

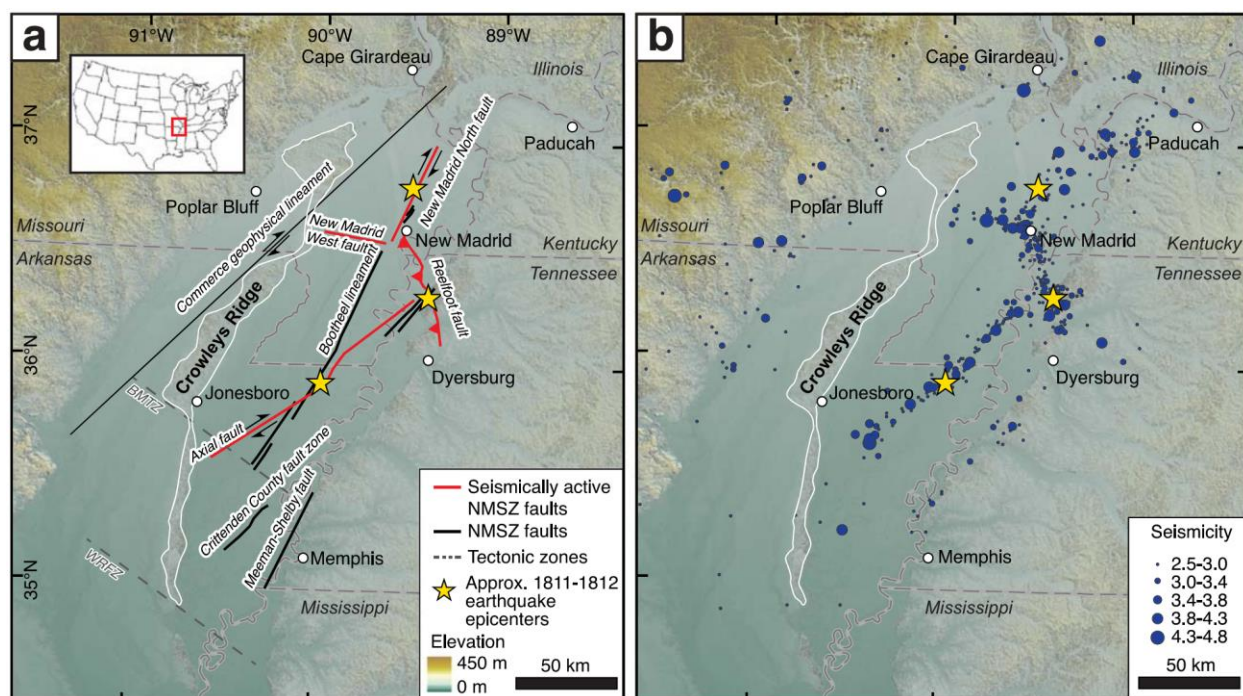


Figure 1. (a) Location map of New Madrid Seismic Zone (b) Seismicity of the New Madrid Seismic Zone between 1900-2019 (Jobe et al., 2020)

The NMSZ is most well-known for generating the 1811-1812 earthquake sequence, which produced some of the largest earthquakes in North America, with moment magnitudes (M_w) estimated to be between 7.0 and 8.0. These events were felt over a significant area, ringing church bells in Boston and causing minor damage as far away as Washington, D.C. The ground shaking was so intense in the epicentral region that it caused the ground to liquefy, creating sand blows, causing riverbanks to collapse into the Mississippi River, and temporarily reversing the river's flow.

The NMSZ remains highly active, producing an average of 200 small earthquakes per year, though most are too small to be felt. The potential for future large, damaging earthquakes is considered significant. The USGS estimates that there is a 25% to 40% probability of a magnitude 6.0 or greater earthquake occurring in the NMSZ within any 50-year period, and

a 7% to 10% probability of a repeat of the 1811-1812-sized events in the same timeframe. A key characteristic of NMSZ earthquakes is their ability to cause damage over a much larger area than a comparable earthquake in the western U.S. This is because the older, and less fractured crust of the central U.S. transmits seismic energy more efficiently, magnifying the damage footprint.

Wabash Valley Seismic Zone

The Wabash Valley Seismic Zone (WVSZ) is a separate and distinct system of predominantly normal faults located in southeastern Illinois and southwestern Indiana, approximately 50 to 70 miles east and northeast of Marion. The approximate locations of the NMSZ and WVSZ are shown in Figure 2. Like the NMSZ faults, the faults of the WVSZ are deeply buried and not visible at the surface. Geologic evidence, such as paleo-liquefaction features, indicates that the WVSZ has produced strong prehistoric earthquakes, with magnitudes potentially as large as 7.0 to 7.5.

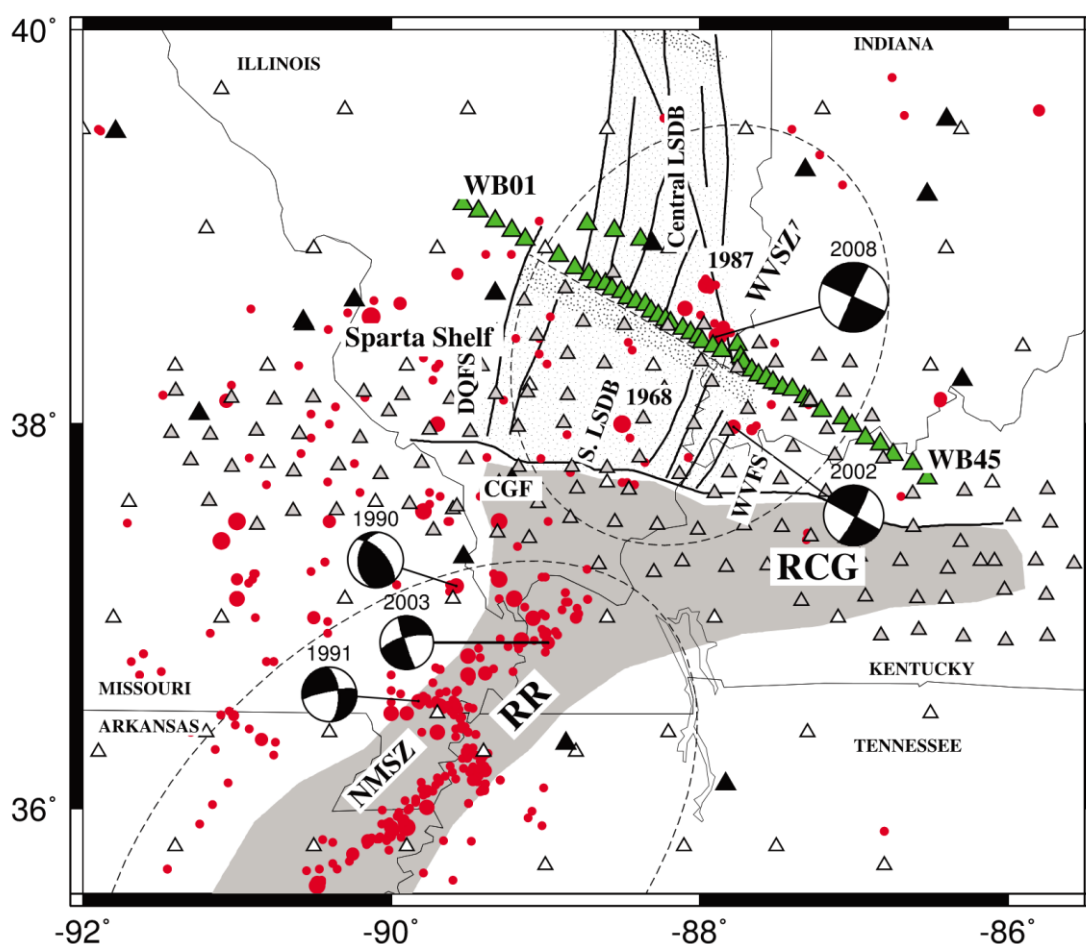


Figure 2. Simplified geologic map showing approximate locations of the New Madrid Seismic Zone (NMSZ), Wabash Valley Seismic Zone (WVSZ), and other geologic structures (Zanjani et al., 2019)

The WVSZ is an active seismic zone that has produced some of the region's largest modern earthquakes. This includes the magnitude 5.0 earthquake in June 1987, and the magnitude 5.4 earthquake in April 2008, which was centered near Mt. Carmel, Illinois. The 2008 event was felt across at least 16 states and caused minor damage near its epicenter. Some seismologists have expressed concern that seismic activity in the WVSZ could be increasing and that it may pose a more direct danger to parts of Illinois than the NMSZ.

Geotechnical Hazards

Liquefaction Susceptibility and Triggering

Soils at the project site consist predominantly of fine-grained soils (fat clays and lean clays) with variable sand content overlying sandstone and shale bedrock. A dense silty sand layer was observed in Boring B-1, but due to the groundwater depth, the liquefaction potential of this layer is considered low. The fine-grained soils ranged from low to high plasticity. We used the screening techniques of Boulanger and Idriss (2006) and Bray and Sancio (2006) to evaluate susceptibility of the site soils to liquefaction. These methods employ Atterberg limit test results for which the soil is considered susceptible to liquefaction. In general, fine-grained soils with a plasticity index (PI) less than 7 to 12, and with ratios of moisture content to liquid limit greater than about 0.8 are considered susceptible to liquefaction. The fine-grained soils at the site are not susceptible to liquefaction based on these screening criteria.

Lateral Spreading

When liquefaction occurs in a soil layer on gently sloping ground or near a "free face" such as a riverbank or near a steep man-made cut, the ground can move horizontally downslope. This phenomenon, known as lateral spreading, can result in permanent ground displacements ranging from inches to many feet and is damaging to structures, foundations, and underground utilities. Based on the subsurface soils and their liquefaction susceptibility, the risk of lateral spreading at the site is considered low.

Subsidence from Coal Mining

As previously noted, Williamson County has a history of underground coal mining. The collapse of voids left by abandoned underground mines can cause ground subsidence, which can manifest as either a gradual trough or a sudden pit at the ground surface. Such subsidence can cause severe damage to structures. The ISGS maintains maps and records of coal mines in Illinois and were reviewed in preparation of this report.

The site is located near a historical coal mining site operated by J. W. Ingram between 1905 and 1909, Mine Index Number 4040. The primary method was underground mining (room and pillar) at depths of approximately 120 to 125 feet below ground surface. During the mine's operational history, the total production was approximately 14,313 tons. The approximate location of the underground mine is shown in Figure 3. Areas shown in red indicate the approximate extents of mining while the yellow shaded areas indicate adjacent land susceptible to subsidence from mining. The proposed site is outside of the yellow shaded boundary, but it should be noted these areas are approximate and may not accurately reflect the actual size and location of the mining operation.

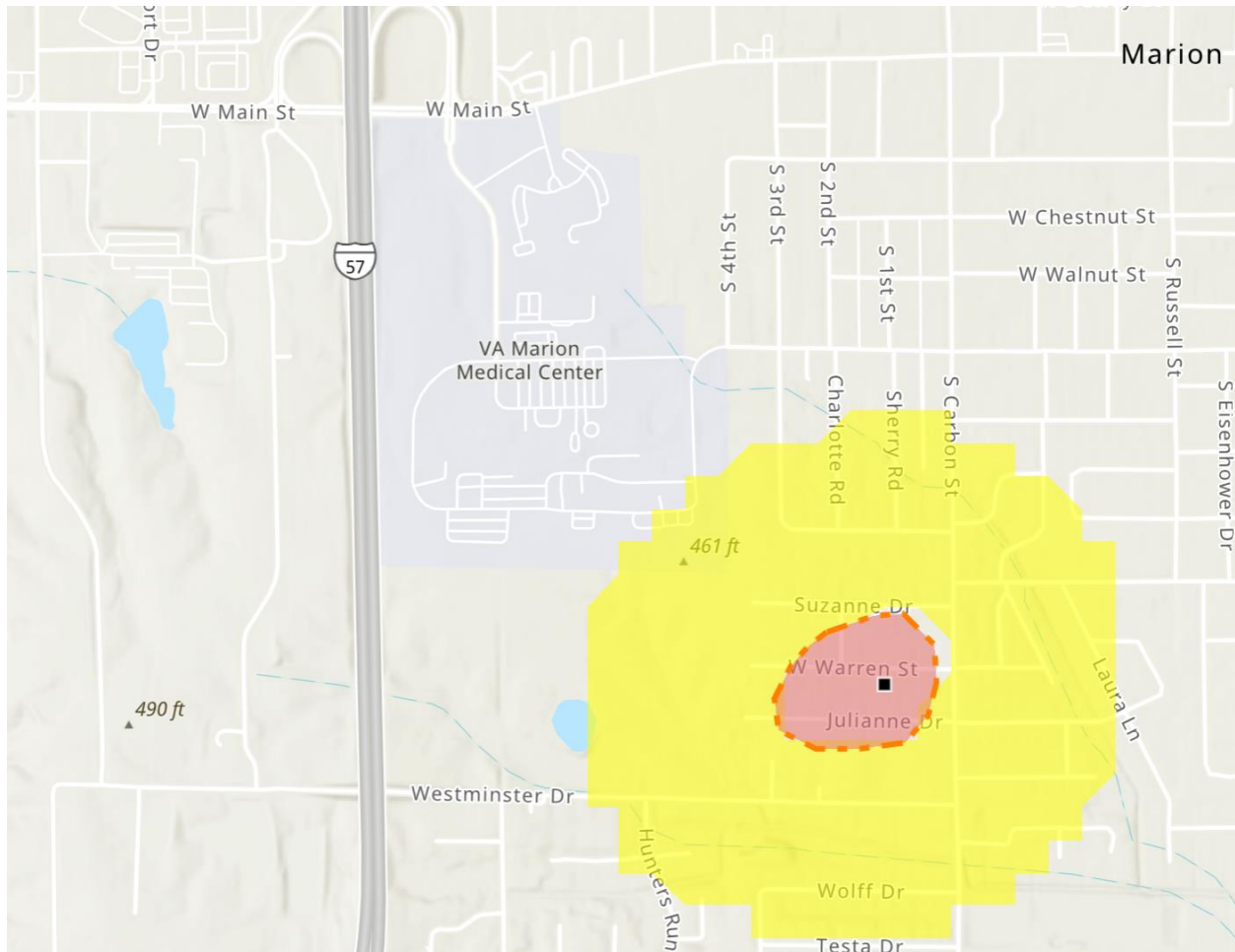


Figure 3. Area of underground mining, shown in red, and adjacent land susceptible to subsidence, shown in yellow. (ILMINES Viewer - Mine Index Number 4040)

GENERAL COMMENTS

The analysis and recommendations presented in this report are based upon the data obtained from explorations performed by Terracon and from other information discussed in this report. This report does not reflect variations that may occur between explorations, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

Our scope of services does not include either specifically or by implication any environmental assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

CLOSURE

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.



Nic A. Arens, P.E. (MO)
Senior Geotechnical Engineer



09/08/2025



Joseph J. Caciola, Jr., P.E.
Senior Engineer
Illinois No. 062.076992
Renews 11/30/2025