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Rene Metzgar
Stillwater Township Board of Education
904 Stillwater Road
Stillwater, NJ 07875

June 26, 2026

Re: 10648 – Stillwater Referendum
1988 Building Wing Analysis

Dear Mrs. Metzgar,

Parette Somjen Architects is pleased to present our summary of findings regarding the Stillwater Township School 1988 building wing addition stabilization. This report is based on multiple site visits, field investigations, and a review of both historical and current documentation.

History
The 1988 building wing is compromised of the gymnasium and two stories of classrooms and supporting spaces. Construction was completed in 1988 and by April of 1989 cracks were identified, particularly on the North side of the gym. Investigation was conducted at that time, repairs were conducted, and the cracks were determined to not be structural in nature. Since construction, additional cracks and concerns have been identified, and further investigation has been conducted, starting with PSA's involvement in 2016.

Previous Analysis
In 2016 the District retained PSA to conduct a monitoring program to evaluate cracking observed in the gym. Five crack meters were installed at key locations throughout the gym and monitored between 2016 and 2019. The crack meters showed minor to no movement at all five locations. Minor to no movement is defined as movement of less than 0.5mm. Based on these findings it was concluded that there is no imminent danger and the gym could continue to be occupied. It was recommended the cracks be repaired cosmetically and continued to be monitored. Since that time, additional cracks have been observed, prompting more extensive investigation.

Existing Building Investigation
PSA conducted multiple surveys throughout the 1988 building wing to assess the conditions. A visual investigation and comparison of the cracking exhibited throughout the wing, primarily in the gym, indicated building movement has occurred in recent years. Cracking was observed in some locations previously repaired, and additional cracks have appeared in locations that did not exist at the time of the last investigation. The recurrence of cracks, along with the formation of new ones, suggests that the building continues to experience differential settlement in several areas. Differential settlement is defined as uneven and irregular settlement of the building foundations.

Further investigation was conducted to determine the impact, if any, of this settlement on the existing roof structure. PSA performed a limited invasive investigation to access the concealed roof structure above the gym ceiling. The framing was visually inspected to determine the condition of the trusses, connection points, and bearing locations on the CMU walls. Due to the existing construction, and limited access above the ceiling, we could not directly observe the entirety of the roof framing, however, there was no evidence of damage or movement with the trusses observed and related bearing points.

Geotechnical Reports
Throughout the history of the 1988 building wing, multiple geotechnical investigations have been conducted. In 1989, shortly after the addition was completed, cracks were identified throughout the addition, but primarily focused in the gym area. Heikki K. Elo Consulting Engineers were brought on to conduct geotechnical investigations to determine the cause of the cracking.

The investigation by Heikki K. Elo determined the cracks were the result of either the foundations still experiencing normal settling or missing expansion joints on the gym wall. As a result of the investigation the missing expansion joints were installed and it was generally agreed at that time that the observed settlement was not structural in nature.

In January 2023, after the crack monitoring program and subsequent repairs, additional cracking was identified, indicating movement of the building was continuing. At that time, PSA recommended a geotechnical engineer conduct soil investigations around the 1988 building wing. In 2024 the District engaged ENV to provide additional assessment of the settlement. This analysis included a geotechnical investigation conducted by SOR Consulting Engineers. SOR performed seven soil borings around the wing and concluded that the addition was built on historical fill classified as "loose to very loose" and is not capable of providing adequate support for the addition. A stabilization program utilizing helical piles and/or compaction grouting was recommended to prevent further settling.

To reconcile differences between earlier and more recent findings, French and Parrello Associates (FPA) was retained to conduct further geotechnical investigations in May of 2026. FPA conducted six soil borings and confirmed the findings of the SOR report, concluding the addition was built on "loose to very loose" soils likely from the fill from previous additions. The Northeast corner of the gym exhibited the worst conditions and is exacerbated due to the close proximity of a steep slope. FPA recommended a stabilization program utilizing compaction grouting to prevent further settlement.

Conclusion
Based on the cumulative findings from historical research, recent field investigations, and multiple geotechnical investigations, it can be concluded that the 1988 building wing was constructed on inadequately compacted man made fill from previous additions. This has resulted in uneven and ongoing settlement over time. Given existing soil conditions, continued settlement is expected unless ground improvement measures are implemented to enhance soil density and bearing capacity. It is the professional opinion of FPA that one solution of compaction grouting is the most appropriate and cost effective, rather than a combination of helical piles and compaction grouting. A comprehensive compaction grouting program is recommended throughout the building wing, with particular emphasis around the gym area. Upon completion of the stabilization program, additional improvements such as crack repair, gym floor upgrades, and HVAC upgrades may be undertaken. No structural deficiencies were identified in the roof framing system, and for now, no repairs appear to be needed for the existing wood trusses or their bearing on the CMU walls.

Respectfully Submitted,
Parette Somjen Architects, LLC

By: Keith Soltis, AIA | Associate